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Comparing mental health cross-culturally

Edited by
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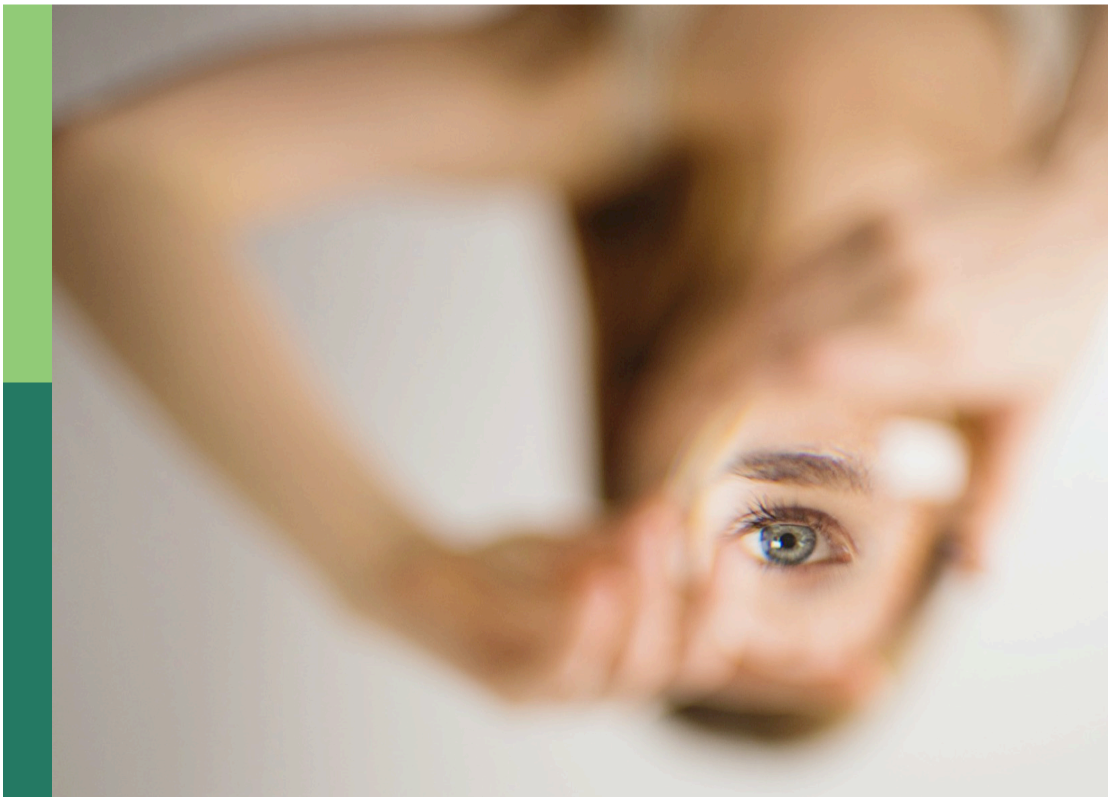

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Comparing mental health cross-culturally

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Optimism, Social Identity, Mental Health: Findings Form Tibetan College Students in China

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Social identity runs through the whole life of an individual, and it provides a framework to help individuals form a value guide adapted to their survival and development in different social situations and multiple roles. This study aimed to explore the mediating effect of social identity on the relationship between optimism and mental health among 659 Tibetan college students in China. We used the Depression Anxiety and Stress Scales, the Satisfaction with Life Scale, and the Positive Affect Scale and developed a tool to assess optimism, which included three subscales measuring optimistic tendency, pessimistic tendency, and self-efficacy optimism. In addition, we have developed a social identity scale for Tibetan college students in China. Results indicated that the optimism of Tibetan college students in China had a significant positive impact on their mental health and that social identity can affect their optimism to further improve their mental health. These findings provide guidance for implementing psychological interventions aimed at enhancing undergraduates' mental health.

Keywords: optimism, social identification, identification, mental health, health, minority students

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INTRODUCTION

A healthy psychological status is a *sine qua non* for the academic success and optimal development of minority college students. Previous research has demonstrated differences in the levels of physical and mental health among ethnic minority college students, compared to other students (Li and Liu, 2014; Wei et al., 2017). Due to pressure related to ethnic status, imposter syndrome, and stereotypes, among other factors, the mental health levels of African-American, Asian-American, and Latino American college students are lower than those of white college students (Cokley et al., 2013). The overall mental health level of minority college students in China is significantly lower than that of the general college student population nationwide (Gao et al., 2013), especially in the diagnosis of obsessive–compulsive symptoms, anxiety, and depression (Wu, 2019). Although the mental health of ethnic minority college students has been the focus of extensive work, both in China and elsewhere (Vacek et al., 2010; Xin and Liu, 2019), there are few studies on individual ethnic groups, and the sample sizes of most studies are very small (Guo et al., 2014).

Tibetans, one of the ethnic minorities in western China, comprise a total population of 6.28 million, accounting for a large portion of China's minority population (China's sixth census, 2011). As an elite group among their ethnic peers, Tibetan college students shoulder the important task of national construction and social development in China. However, their mental health prospects are not encouraging. Gao et al. (2015) selected 993 Tibetan college students from five universities in western China to investigate and analyze their mental health status and its influencing factors. The survey found that, among Tibetan college students in China, female students, second year university/college students, students from farming and pastoral areas, and students whose parents had low educational levels faced more serious psychological problems. This indicates that more attention should be paid to the mental health of Tibetan college students in China. In line with Wang and Zhang (2011) proposed two-factor structural model of mental health, mental health includes the acquisition of positive mental health and the elimination of negative mental health. As a result, for the purposes of this study, we have selected the corresponding positive and negative indicators.

Optimism is a long-term, cross-situational, and stable personality characteristic concerning one's outlook on future positive or negative life events (Scheier and Carver, 1985). Optimism has been associated with improved physical health, enhanced happiness, and the promotion of professional success in individuals (Singh and Jha, 2013; Hao et al., 2016). Previous studies have found a significant positive correlation between optimism, social support, and positive health behavior among Asian-Americans aged 18 to 21, where optimism, as a mediator variable, affected the relationship between social support and positive health behavior (Ayres and Mahat, 2012). Due to differences in geographical location, religious culture, and customs, the personality traits of Tibetan college students in China show both communality and individuality. Traditionally, Tibetan people enjoy group activities and have many cultural ceremonies – customs that are conducive to the formation of the generally outgoing and sociable personalities of Tibetan college students in China (Wang, 2012). At present, researchers have different views on the structure of optimism. They first thought optimism was a one-factor structure (Scheier and Carver, 1985), some researchers put forward that optimism and pessimism in optimism are independent of each other later (Marshall et al., 1992), that is, optimism is divided into two dimensions: optimism and pessimism. In addition, some researchers believe that optimism can be manifested in different areas of individual life, including personal optimism, social optimism, and self-efficacy optimism (Schweizer and Koch, 2001). In order to discuss the impact of optimism on mental health in more detail, this study adopts a multi-dimensional optimism structure, that is, optimism is divided into optimistic tendency, pessimistic tendency, and self-efficacy optimism. Optimistic tendency means that individuals tend to evaluate the development trend and consequences of things positively, and pessimistic tendency means that individuals evaluate the development trend and consequences of things negatively. Self-efficacy optimism is the expectation of one's own behavior results, which has nothing to do with one's previous behavior experience. It is an integral part of optimism.

This study primarily adopted the multi-dimensional structure of optimism to explore its impact on mental health. Optimism was divided into optimistic tendency, pessimistic tendency, and self-efficacy optimism (Chen and Huo, 2016). The optimistic tendency in this study referred to the individual's tendency to positively evaluate the developmental trends and consequences of things, while the pessimistic tendency referred to the individual's negative evaluation of the developmental trends and consequences of things. Self-efficacy optimism, specifically, is the expectation of the results of one's own behavior, which has nothing to do with one's previous behavioral experience.

Social identity is an important subject in the field of social psychology. Tajfel (1978) proposed that social identity means that an individual realizes that they belong to a specific social group, and at the same time realize the emotional and value significance received as a group member. Western studies of social identity have proliferated, yielding useful results. Studies indicate that social identity can be conducive to the functioning and harmonious development of society (Haslam and Platow, 2001). Social identity and life satisfaction were both found to be significantly positively correlated with each other, and negatively correlated with stress (Haslam et al., 2005). In addition, some studies have demonstrated significant differences in the social identity structure of minority college students, compared to other students, with a significant correlation between the number of social identity characteristics and their self-esteem. Individuals with high multiple social and personal identities have the highest self-esteem; for example, three social identity characteristics are found in African-Americans, four social identity characteristics in Asian-Americans, and two social identity characteristics in Latin-Americans (Gonzales-Backen et al., 2015). However, this field of inquiry is relatively young in China, with studies focusing mainly on floating populations and special groups (Yan, 2016). Only a few studies have focused on the social identity of minority college students (Jiang and Li, 2011), and almost no studies have focused on specific minority groups.

Therefore, when individuals highly recognize a certain group and society, it is not only conducive to their own development, but also to the normal and healthy operation of society at large. Through combing and summarizing the literature, it is found that the structure of social identity in China mainly consists of four dimensions, that is, the dimension of cognition, emotional, motivation, and behavioral. According to research needs, four dimensions of social identity are adopted as: belonging, emotional, evaluation, and behavioral. Belonging identity is one's perception of one's group, including the self-understanding of the members of the group, such as enjoying being with Tibetan students and being interested in their own history. Emotional identity refers to the negative or positive emotions of individuals after they join the group, for example, happiness about being Tibetan; liking their hometown and grassland; preferring Tibetan to Han lifestyle; and believing that Tibetan compatriots have many excellent qualities, such as kindness, bravery, singing, and dancing skills. Behavioral identity refers to the emotional dependence and connection of an individual to his/her group, including the behavioral tendency or activities carried out in order to maintain the interests, culture, and identity of the group; for example, striving to inherit the Tibetan language and culture; understanding the national taboos and not breaking them; studying to contribute to the improvement of his/her hometown; and returning to their hometown to work after graduation. Evaluation identity is the evaluation of significance of sharing and understanding social values, including not only the evaluation of other groups, but also the consensus reached by individuals and members of their groups. Therefore, social identity is conducive to the development of the individuals and the normal operational health of society at large. This paper hypothesizes that among Tibetan college students in China, there is a correlation between optimism, social identity, and mental health (hypothesis 1).

Optimism, according to previous studies, has a significant positive correlation with positive indicators of mental health and is negatively correlated with negative indicators of mental health (Zhou et al., 2015). During adaptation to a new environment, optimism can exert a positive impact, providing an effective barrier against frustrations and stress related to adversity in life. As an important indicator of mental health levels, college students' optimism can have a critical role in their healthy development. Yi (2012a,b) argued that the tendency of college students to be optimistic had a moderate negative correlation with depression symptoms, which means that an increase in optimistic emotions can effectively relieve negative emotions at a mental health level. Therefore, this paper hypothesizes that the optimism of Tibetan college students in China has a positive impact on their mental health level (hypothesis 2).

Furthermore, studies have shown that the mental health of Chinese minority college students is highly related to their social identity (Wang et al., 2006). National identity and optimism are positively related, and national identity is an important part of social identity (Kong, 2014). This indirectly demonstrates that social identity and optimism are positively related. Thus, we hypothesize that for Tibetan college students in China, there is a mediating effect of optimism on the relationship between mental health and social identity (hypothesis 3).

Although some researchers have explored the mechanisms by which optimism affects mental health (Conversano et al., 2010; Qi et al., 2012; Zhou et al., 2015; Rincón Uribe et al., 2020), few studies have explored the mediating role of social identity between optimism and mental health based on self-concept. This study explores the affective mechanisms underlying these variables to further analyze factors affecting the mental health of Tibetan college students in China, and provide guidance for enhancing the mental health of ethnic minority college students.

MATERIALS AND METHODS

Participants

College students from four universities (Qinghai Normal University, Northwest University for Nationalities, Qinghai University for Nationalities, and Tibet University) were recruited through a stratified cluster random sampling method. All participants are voluntary and have obtained informed and consent before completing the test. Their names were not collected and they were assured of the confidentiality of their responses. A total of 680 questionnaires were sent out and 659 valid questionnaires were retrieved (effective recovery rate = 96.91%). In the sample, 56.47% were female, 43.09% were male, and 0.44% did not report their sex. Participants were between 17 and 25 years old ($M = 21.27$, $SD = 1.15$).

Measures

Optimism Scale of Tibetan College Students in China

An exploratory factor analysis showed that the 23-item Optimism Scale comprises three dimensions: optimistic tendency (seven items), pessimistic tendency (six items), and self-efficacy optimism (10 items). AMOS 22.0 was used to investigate the validity of the model through a confirmatory factor analysis. The results showed as: $\chi^2/df = 4.06$, goodness of fit index (GFI) = 0.87, adjusted goodness of fit index (AGFI) = 0.91, root mean square error of approximation (RMSEA) = 0.071, comparative fit index (CFI) = 0.93, and root mean square residual (RMR) = 0.082, which indicated good construct validity and that the three-factor model was an adequate fit for the data. A five-point Likert self-evaluation scale was used ranging from 1 (*high non-conformity*) to 5 (*high conformity*). The overall internal consistency coefficient of the questionnaire was 0.835, and the split-half reliability was 0.787. Four weeks after the initial questionnaire completion, 62 students from Qinghai Normal University were retested, and the retest reliability was calculated; the overall internal consistency coefficient of the questionnaire reached 0.643, meaning that the questionnaire had strong reliability as a research measurement tool. The Cronbach's α coefficient of the scale was 0.84.

Social Identity Scale of Tibetan College Students

An exploratory factor analysis showed that the 25-item Social Identity Scale comprises four dimensions: belonging identity (six items), emotional identity (nine items), behavioral identity (five items), and evaluation identity (five items). AMOS 22.0 was used to perform confirmatory factor analysis to further validate the model. The results showed that $\chi^2/df = 4.14$, GFI = 0.89, AGFI = 0.90, RMSEA = 0.064, CFI = 0.91, RMR = 0.085, which indicated that the four-factor model had reliable data and construct validity. A five-point Likert self-evaluation scale was used ranging from 1 (*high non-conformity*) to 5 (*high conformity*). The overall internal consistency coefficient of the questionnaire was 0.862, with a split-half reliability of 0.842. Four weeks later, 62 students from Qinghai Normal University were retested to recalculate reliability; the overall internal consistency coefficient of the questionnaire reached 0.663, which shows that the questionnaire has strong reliability and could be used as a research measurement tool. The Cronbach's α of the scale was 0.84.

Brief Version of the Depression Anxiety Stress Scales (DASS-21)

The Chinese version of the DASS-21 revised by Gong et al. (2010) was used in the study. The DASS-21 consists of three subscales to measure depression, anxiety, and stress, each of which contains seven items. The scale uses a 4-point Likert scoring format (from "not at all" to "very consistent"). The internal consistency coefficient for the total scale was 0.89; the internal consistency coefficient for the depression subscale was 0.77, and the anxiety subscale was 0.79. Two subscales in the DASS-21 for depression and anxiety were used as negative mental health indicators; higher scores indicated stronger emotions. Consequentially, the α coefficients for depression and anxiety were 0.84 and 0.81, respectively. The Cronbach's α for the scale was 0.83.

Satisfaction With Life Scale

The five-item Satisfaction with Life Scale (SWLS), developed by Diener et al. (1985), evaluates university students' life satisfaction. Items are scored on a seven-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*); the higher the score, the higher the students' satisfaction with life. Pavot and Diener (1993) found that for the SWLS, the internal consistency coefficient was 0.87 and the two-month follow-up coefficient was 0.82, which indicates a strong criterion validity. Moreover, the correlation between the SWLS and other subjective health scores indicated that this scale had good content validity. In this study, the Cronbach's α of the scale was 0.82.

Positive Affect Scale

The Positive Affect Scale (PAS) was selected from the positive emotion subscale of the positive and negative emotions scale compiled by Watson et al. (1988). It consists of 10 items scored on a five-point Likert self-assessment scale ranging from 1 (*almost no emotions*) to 5 (*extremely many emotions*). A higher score correlates with higher positive emotions. Huang et al., (2003) showed that the inter-rater consistency for the positive emotion scale was 0.85, which means that the PAS has strong reliability. In this study, the Cronbach's α coefficient of the scale was 0.88.

Common Method Bias Test

As this study relies on self-reports for data collection, a common method bias effect might exist (Zhou and Long, 2004). Thus, we employed multiple methods to control for bias: (1) all questionnaires were anonymous; (2) the scales and questionnaires had relatively high reliability and validity to mitigate systematic errors in measurement; (3) some questionnaire items were scored through reverse scoring; and (4) participants were from four different schools, which increased the differences caused by different regions. In addition, after data collection, Harman's single-factor test was used to diagnose the common method deviation. The results showed that the eigenvalues of five factors were greater than those without rotation, and the variance of the first-factor interpretation was 25.62%, less than the critical standard of 40%. This shows that the common method bias effect was not obvious.

Procedure

The questionnaire administrators were trained ethnopsychology and developmental psychology graduate students with prior experience in conducting surveys. The test was conducted in a quiet classroom environment and administered in small class groups. Before the formal start time, the tester read the test instructions, requirements, and other related questions to all the participants loudly and clearly. The participants completed the test in approximately 30 min and the questionnaires were immediately collected. The questionnaires were screened; blank or regular questionnaires were eliminated, and AMOS 20.0 was used to analyze the remaining data.

RESULTS

Correlation Between Optimism, Social Identity, and Mental Health of Tibetan College Students in China

Pearson's correlation analysis was used with the three variables of optimism, social identity, and mental health of Tibetan college students in China. The results are shown in **Table 1**. For Tibetan college students in China, the correlation coefficients between optimism (optimistic tendency, pessimistic tendency, and self-efficacy optimism), social identity (belonging identity, emotional identity, behavioral identity, and evaluation identity), and mental health (positive and negative) were all high and had strong relative stability (**Table 1**). These findings provide preliminary support for further hypothesis testing.

Multiple Regression Analysis of Optimism on Mental Health Level

To test the influence of optimism on the mental health of Tibetan college students in China, the study conducted regression analysis by using every dimension of optimism as an independent variable and the (positive and negative) mental health level of Tibetan college students in China as a dependent variable. Results showed that all dimensions of optimism had significant positive predictive effect on positive mental health (life satisfaction and positive emotions), and all dimensions of optimism had significant negative predictive effect on negative mental health (depression and anxiety). The total variance explained in mental health was 20.0%, $F(4,\ 654) = 63.506$, $p < 0.001$.

Pessimistic tendency had a significant positive predictive effect on positive mental health (life satisfaction and positive emotions), and all dimensions of optimism had a significant negative predictive effect on negative mental health (depression and anxiety). The total variance explained in mental health was 18.5%, $F(4,\ 654) = 49.830$, $p < 0.001$.

Self-efficacy optimism had a significant positive predictive effect on positive mental health (life satisfaction and positive emotions), and each dimension of optimism had a significant negative predictive effect on negative mental health (depression and anxiety). It explained 23.3% of the total variance in mental health, $F(4,\ 654) = 77.242$, $p < 0.001$ (**Table 2**).

TABLE 1 | Correlation analysis between variables.

S.no	*M*	*SD*	Optimism			Social Identity				Mental Health			
			1	2	3	4	5	6	7	8	9	10	11
			Optimistic tendency	Pessimistic tendency	Self-efficacy optimism	Belonging identity	Emotional identity	Evaluation identity	Behavioral identity	Anxiety	Depression	Life satisfaction	Positive emotion
1	3.611	0.556	–										
2	2.984	0.551	−0.099*	–									
3	3.310	0.524	0.530***	−0.321**	–								
4	4.976	0.783	0.257***	−0.064*	0.130**	–							
5	5.293	0.884	0.367***	−0.049*	0.166**	0.542**	–						
6	5.946	1.364	0.280***	−0.092**	0.143**	0.546**	0.482**	–					
7	5.946	1.364	0.423***	−0.037	0.252***	0.475**	0.587**	0.553**	–				
8	0.067	0.585	−0.234**	0.312***	−0.072*	−0.255**	−0.340**	−0.291**	−0.342**	–			
9	0.745	0.565	−0.140**	0.320***	−0.096*	−0.216**	−0.288**	−0.247**	−0.295**	0.535**	–		
10	4.260	1.140	0.323***	−0.061*	0.331***	0.159**	0.220**	0.210**	0.238**	−0.144**	−0.150**	–	
11	3.110	0.608	0.346***	−0.093*	0.443***	0.087*	0.143**	0.138**	0.198**	−0.029	0.010	0.426**	–

$^{*}p<0.05$; $^{**}p<0.01$; $^{***}p<0.001$.

Optimism Affecting Mental Health Level: Mediating Effect Model of Social Identity

According to our research results, we posit a mediation model to explore the internal mechanism of optimism that affects mental health, by taking social identity as the mediator, optimism as the independent variable, and mental health level as the dependent variable. This study constructed three models with the fit index, which had acceptable ranges for further analysis of the results (**Table 3**). First, in model A, optimism affects positive mental health through social identity (**Table 3A**). Second, in model B, optimism affects and focuses on the level of negative mental health through social identity (**Table 3B**). Third, in model C, optimism affects and focuses on the level of mental health through social identity (**Table 3C**). This study adopted the Bootstrap method proposed by Hayes, (2013) to test the mediation effect by selecting a sample size of 5,000.

Model A had good fit with the data. Specifically, optimism played a significant and positive predictive role in social identity and positive mental health. Social identity can significantly predict positive mental health. Optimism had a direct and intermediary effect on positive mental health. The direct effect of optimism on positive mental health was 0.552, which accounted for 90.05% of the total effect of 0.613. The mediating effect was 0.061, which accounted for 9.95% of the total effects of 0.613. The results of bootstrap analysis showed that the 95% confidence interval of “optimistic → social identity → positive mental health” did not contain 0, which verified social identity had a partial mediating role in the relationship between optimism and positive mental health.

Model B had a good fit with the data as well. Specifically, optimism played a significant and positive predictive role in social identity, whereas social identity significantly and negatively predicted negative mental health. The path coefficient from optimism to negative mental health was not significant. According to the Sobel test, social identity had a significant role in mediating optimism and negative mental health, especially $Z = 2.309$. In addition, the results of bootstrap analysis showed that the 95% confidence interval of “optimistic → social identity → negative mental health” did not contain 0, which verified social identity has a full mediating role in the relationship between optimism and negative mental health.

Model C also had good fit with the data. Specifically, optimism played a significant and positive predictive role in social identity and mental health, whereas social identity significantly and positively predicted mental health. The direct effect of optimism on mental health was 0.121, which accounted for 36.56% of the total effect of 0.331. The mediating effect was 0.210, which accounted for 63.44% of the total effect. The results of bootstrap analysis showed that the mediating effect did not include 0 [lower level confidence interval (LLCI) = 0.0052, upper level confidence interval (ULCI) = 0.0862] with the 95% confidence interval indicating the significant mediating effect of social identity. After controlling for the social identity of the mediating variable, the impact of optimism on mental health was still significant, but the interval (LLCI = 0.1133, ULCI = 0.3342) did not include 0. Thus, the relationship between optimism, social identity, and mental health level of Tibetan college students

TABLE 2 | Multiple regression analysis of optimism to mental health.

Dependent variable	Independent variable	R^2	*F*	*β*	*t*	SS	MS
Life satisfaction	Optimistic tendency	0.200	63.506	0.091	5.742***	68.113	17.028
Positive emotions				0.241	8.148***		
Depression				−0.341	−6.793***		
Anxiety				−0.170	−3.266***		
Life satisfaction	Pessimistic tendency	0.185	49.830	−0.103	−2.173**	43.516	12.379
Positive emotions				−0.126	−2.870**		
Depression				0.147	2.871**		
Anxiety				0.182	3.406***		
Life satisfaction	Self-efficacy optimism	0.233	77.242	0.078	5.492***	65.428	16.357
Positive emotions				0.326	12.419***		
Depression				−0.107	−2.408**		
Anxiety				−0.137	−2.963**		

**p<0.05; **p<0.01; ***p<0.001.*

TABLE 3 | Fit index of each model.

Model	χ^2/df	RMSEA	CFI	IFI	TLI	NFI
A	2.584	0.039	0.946	0.946	0.933	0.915
B	2.419	0.037	0.952	0.952	0.942	0.921
C	2.492	0.039	0.937	0.937	0.933	0.900

RMSEA, root mean square error of approximation; CFI, comparative fit index; IFI, incremental fit index; TLI, Tucker–Lewis index; and NFI, normed fit index.

in China effectively supported the mediating effect model. The mediation model diagram and standardized path coefficient of the study are displayed in **Figure 1**.

DISCUSSION

The results showed that the correlations between optimism, social identity, and mental health level were relatively high among Tibetan college students in China, verifying Hypothesis 1. This shows that optimism, social identity, and mental health level are closely related, making it possible to further study the deep influential mechanisms underlying these relationships.

Although existing research has shown the significant role of optimism in predicting mental health, this study added the dimensions of optimism, that is, self-efficacy optimism, and constructed a regression model between optimistic tendency, pessimistic tendency, self-efficacy optimism, and mental health to explore the impact of the three dimensions of optimism on mental health in more detail. The results showed that optimism has a positive impact on the mental health of Tibetan college students in China, which verifies hypothesis 2.

This study considers social identity as the intermediary in constructing a structural equation model on the effect of optimism on the positive mental health level of Tibetan college students in China. In line with our initial expectations, optimism can directly affect the mental health level of Tibetan college students in China while indirectly affecting their mental health level through social identity. In the face of the impact of different ethnic cultures and the collision of life styles, optimistic individuals have a positive attitude toward life and are more willing to use effective coping strategies than pessimistic individuals, constantly adjust their own state, and strive to integrate into the new environment. They are better at maintaining social networks and close relationships, so optimistic individuals can get more social support (Wang, 2008). Furthermore, it increases the social identity of the group one belongs to and stimulates the positive emotions of the members of a group (Junker et al., 2019). Social identity is a way to enhance psychological wellbeing. Through the realization and maintenance of positive social identity, individuals can enhance their sense of belonging, improve their life satisfaction, and find the significance of being alive. The results of the current research showed that the more optimistic Tibetan college students in China are, the higher their social identity will be, which is beneficial for them to cope with problems in academics and life more confidently and to maintain a more positive self-evaluation.

Taking social identity as the intermediary, this study constructed a structural equation model for the effect of Tibetan college students' optimism on their mental health level in China. Studies have found that social identity has a full mediating role in the relationship between optimistic tendency and anxiety and between self-efficacy optimism and depression. However, it has a partial mediating role in other relationships. Our results are consistent with previous research on social identity. Nesdale et al. (1997) proposed that people might be unable to adapt to new cultural environments because of cultural conflicts, which generates anxiety. Research on ethnic minority college students in

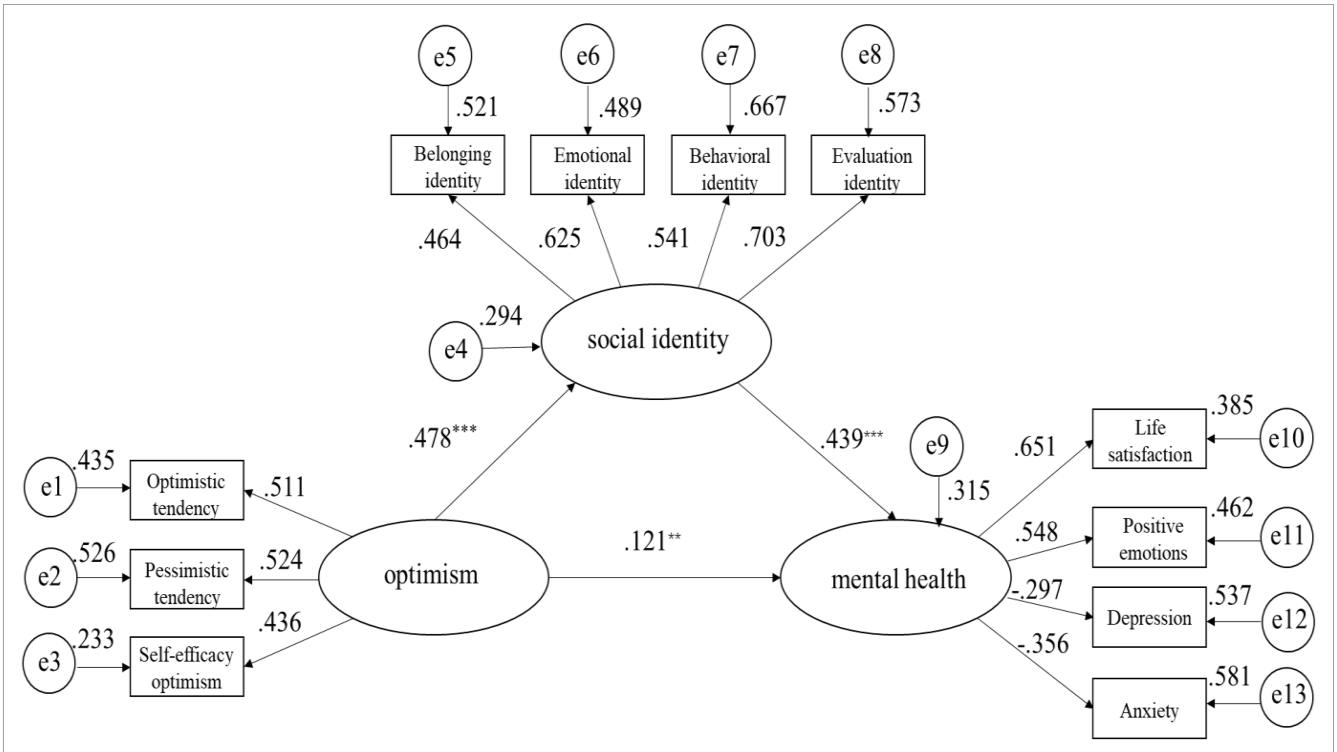

FIGURE 1 | Relationship model and standardized path coefficient of optimism, social identity, and mental health. $^{**}p < 0.01$; $^{***}p < 0.001$.

China also shows that they are susceptible to psychological adjustment difficulties and psychological symptoms, such as depression, anxiety, and loneliness (An et al., 2019). Social identity is an important intermediary variable, which is related to the individual's psychosocial adaptation level. Individuals with low social identity lack self-confidence in their study and life, and they also adopt passive and evasive ways in interpersonal communication, which seriously affects their psychological adaptation level in the university environment, leading to depression, anxiety, and other psychological problems. High levels of social identity can alleviate the negative effects of cultural shock on teenagers, such as problem behavior and anxiety, and provide a kind of protection and buffer. Hypothesis 3 is thus verified. Therefore, the construction of positive social identity is of great significance to the healthy development of Chinese minority youth. Thus, we should emphasize the cultivation of optimism in minority college students in China and the development of their social identity to help improve their psychological adaptability and mental health.

In multi-ethnic countries, identity confusion and cultural adaptation are often more obvious among ethnic minorities or vulnerable groups. As a large ethnic group in China, Tibetans have relatively fixed settlements (Tibet, Qinghai, Sichuan, Gansu, etc.). Before entering colleges and universities, they are in contact with the members of their own ethnic group and are immersed in their own culture. To pursue higher education, Tibetan college students in China leave their hometowns to enter more diversified social environments. In this way, they face the task of adaptation to different ethnic cultures and lifestyles, in addition to the growth and development tasks faced by other college students. On the one hand, they need to behave consistently with their own customs and habits while, on the other hand, experiencing and integrating the impact of other cultures and contexts. This may aggravate internal contradictions, leading to adverse reactions, such as anxiety and depression, and otherwise affecting their mental health (Li, 2009). This study of social identity sheds light on "identity confusion" among Tibetan college students in China, which can be useful in improving their sense of happiness. A high degree of social identity yields higher social cohesion and can be a critical soft power tool for the promotion of national development. In other words, to explore, the impact of social identity on the mental health level of Chinese ethnic minority college students is not only conducive to promoting their psychological harmony, but also affects the integrative and society-building attitudes and behaviors of this group, helping to avoid social development risks and effectively increasing the speed of social development (Jiang and Li, 2011). A positive social identity, thus, is conducive to the development of national unity and social stability in geographic areas with a high number of ethnic minorities.

Our findings are also an important inspiration for other relevant lines of research. Like Tibetan college students in China, minority college students in other multi-ethnic countries are also faced with the dilemma of identity and the test of cultural adaptation. For example, in the United States, African-Americans (Atlanta) and Asian-Americans (San Francisco) all have relatively stable residences. To enhance their development, they moved from their communities and cities of origin to a society dominated by the mainstream culture. When facing the impact of different cultures, social identity guides ethnic minorities to determine what is valuable and how to navigate diverse roles and social situations. The findings of this study can not only be used to interpret the construction and development of individual and social identity of minority college students studying in China, but can also be extended to the construction of social identity of minority college students in the global perspective. This is a study on the issue of national education in China based on western theories and is also an attempt to enrich and develop western social research theories by educational practice in China, which expands the space for studying social problems and social phenomena at home and abroad. Therefore, it has reference and application value for many problems in the field of education all over the world. Tracing back to the origin of social identity theory demands interpreting the behavioral ethnocentrism among different populations. Optimism, as an important concept in positive psychology, was combined with social identity in the present research to show that social identity has a mediating effect on the relationship between optimism and mental health level of Tibetan college students in China. It not only deepens and expands social identity theories, but also offers a new thread and method to relevant global research on social identity. It provides reference and experience for other multi-ethnic countries, and valuable guidance for promoting the wellbeing of all mankind.

This study has some limitations. First, it adopted a psychometric method to collect data. Thus, the collected data may have the effect of standard method variance and social desirability bias. However, to mitigate the adverse effects of the psychometric method, our optimism and social identity questionnaires were created with high reliability and validity. Additionally, we used exploratory and confirmatory factor analyses to ensure a highly reliable internal validity. However, for improvements to the research design and to further validate the results, follow-up studies should utilize a tracking data analysis method. Second, this paper primarily focused on Tibetan college students in China, failing to compare it with the dominant ethnicity, Han college students, as the control group. Hence, future research should be conducted to further reveal the differences between the two groups. Third, further studies are still required on the mechanism of effect of social identity on the mental health level of Tibetan college students in China. This study only analyzed the mediating role of social identity in optimism and mental health. Future research should consider additional core factors. In the related analysis of social identity, research on the identity or separation attitude of mainstream cultural groups should be explored.

CONCLUSION

Our study found that the optimism of Tibetan college students in China has a significant positive impact on their mental health level. The effect of optimism and social identity on the mental health of Tibetan college students in China conformed to the mediating effect model. Social identity was found to have a partial mediating effect on the relationship between optimism and mental health level. Therefore, social identity has a partial mediating role in the relationship between optimistic/pessimistic/self-efficacy optimism and positive mental health (life satisfaction/positive emotions). Social identity has a partial mediating role in the relationship between optimistic tendency and depression, pessimistic tendency and anxiety/depression, and self-efficacy optimism and anxiety, but a full mediating role in the relationship between optimistic and anxiety, as well as between self-efficacy optimism and depression.

DATA AVAILABILITY STATEMENT

The data analyzed in this study are subject to the following licenses/restrictions because the research subject is a Chinese Tibetan college student. Requests to access these datasets should be directed to YC, chenyongyong@qhnu.edu.cn.

ETHICS STATEMENT

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. All participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

All authors contributed to the study conception and design. Material preparation, data collection, and analysis were performed by YC, JS, YZ, and WY. The first draft of the manuscript was written by YC and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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Integration Is Correlated With Mental Health Help-Seeking From the General Practitioner: Syrian Refugees' Preferences and Perceived Barriers

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Despite a seemingly higher need, refugees in Europe tend to underuse mental health (MH) services. To better understand this underuse, it is important to understand refugees' willingness and ability to seek help from their general practitioner (GP) when experiencing MH problems. We employed a combined vignette and survey design to explore how the GP fits into the larger context of help-seeking preferences among a sample of Syrian refugees in Norway ($n = 92$), and what barriers they perceive in accessing help from the GP. We also examined how indicators of integration relate to seeking help from the GP. We take an exploratory approach. Participants were presented a vignette of an individual with symptoms in line with ICD-10 and DSM-5 criteria for depression. Participants were somewhat likely to seek help from the GP; however, seeking help from one's relationship with Allah/God and one's partner was preferred. Furthermore, while the GP was rated a somewhat likely help-seeking source, most participants indicated an average of two barriers to seeking help from the GP. Finally, social ties to the majority population in the form of social integration and feelings of connectedness with the host country (psychological integration) were positively correlated with likelihood of seeking help from the GP. Taken together, these findings suggest that the GP is considered a viable source of help among Syrians with a refugee background in the current sample, but that this may be influenced by perceived barriers and social as well as psychological integration. Addressing these barriers and promoting psychosocial integration with the host country are key to facilitating access and usage amongst refugees in need of MH services.

Keywords: integration, help-seeking, mental disorders, Syrian, refugees, general practice

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INTRODUCTION

Despite a seemingly higher need for mental health (MH) support, refugees in Europe tend to underuse MH services (1). To better understand this underuse, it is important to better understand factors that influence refugees' willingness and ability to seek help from their general practitioner (GP) when experiencing MH problems. Throughout Europe, GPs are often the first line of contact for people seeking mental and physical healthcare (2, 3). GPs are trained to manage mild to moderate cases of MH problems (within primary care) and play a large role in determining appropriate preliminary diagnoses, assessments, treatments, and referrals for patients. Importantly, GPs are also often the first line of contact for patients with a refugee background.

One of the largest groups of refugees to arrive in Europe during the 2015–2016 refugee crisis originated from Syria. Syrian refugees who migrated to Europe and neighboring countries in the Middle East have reported experiences including civil war, torture, cultural integration issues, the loss of family and community support, discrimination and adverse political climate, loneliness and boredom, prohibition to work, and disruption of education for their children (4–6). Such stressors can place refugees at considerable risk of developing symptoms of depression, anxiety, post-traumatic stress disorder (PTSD) and related somatic health symptoms (7–12).

Considering MH and help-seeking in Syria may place refugees' engagement with health services in Europe into context. However, studies examining the MH burden in Syria are highly heterogeneous. A recent systematic review of the burden of mental disorders and access to MH and psychosocial support services in Syria and among Syrian refugees in neighboring countries found that levels of depression ranged from 11 to 49% (13). Similarly, another systematic review and meta-analysis recently estimated the prevalence of mental disorders at 21.1% in conflict-affected settings (14). However, mental healthcare in Syria has been neglected for decades (15), and studies on access and barriers to MH and psychosocial support in Syria are quite limited (13). It has been suggested that stigma associated with psychological and psychiatric disorders stands in the way of the use of MH services among Syrians in Syria (16, 17). Importantly, Syrians with a refugee background may seek help differently in Norway than Syria (17). This could relate to the different role of the GP in these countries. In Norway, patients, who want to see a specialist funded by the state are required to seek help via their GP (18). In Syria, however, patients are typically able to access specialist services directly, experiencing fewer delays and waiting times (17). Furthermore, the GP may be seen as a source of help for physical problems rather than MH problems. It is also worth noting that some services that are available in Norway, such as social workers, may not be a relevant source of help in Syria and may therefore not be considered.

Refugees' underuse of health services in high-income countries may, in part, be due to barriers to access and use. In Germany and Austria, Syrian refugees have identified barriers to help-seeking, such as stigma and shame, not speaking the language of the host country, and lacking information about health services (19–21). Similarly, refugees in Turkey have identified barriers such as not knowing where or how to get help, financial concerns, unavailability of appointments, fear of being hospitalized, and finding the process inconvenient or time-consuming (22). Such barriers may stand in the way of refugees accessing health care. The barriers perceived by Syrian refugees in a Norwegian context, however, have not been examined previously. The Norwegian public healthcare system is characterized by universal health coverage for all residents, although individuals make modest co-payments for different services. Services covered by universal health care include primary care, hospital care, and mental healthcare. Enrolment in universal healthcare is automatic, meaning that all residents have the right to state funded primary healthcare. Due to differences between countries' healthcare systems, we must assume that barriers perceived in other countries are not necessarily transferrable to the Norwegian context. Although it must be noted that refugees' expectations about the healthcare system in Norway may be influenced by their experiences in other countries.

Help-seeking is also influenced by factors besides barriers to accessing care. Andersen's behavioral model of health services use (BM) (23, 24) presents how contextual and individual factors, as well as health behaviors and outcomes, interact and influence the use of health care services (referred to as personal health services in the model). However, the experience of illness as well as preferences for seeking help are embedded in larger cultural and social systems (25). As an individual's cultural context changes, help-seeking preferences and behaviors are likely to change as well. This is supported by interviews with Syrian refugees (17). Similarly, preference for cultural traditions of the host country (including willingness to marry a Norwegian person, participating in social activities with Norwegians, etc.) was associated with semiformal (e.g., internet forum) and formal (i.e. medical doctor) as opposed to informal help-seeking sources among immigrants in Norway (26). This is in line with Wikberg and Eriksson (79), who claim that the more integrated an individual feels, the more likely they are to accept the host country's dominant care models. While previous studies have considered culture in relation to the BM (27), it may not suffice to include culture as a static variable, in the form of cultural values for example, without acknowledging the unique circumstances caused by shifting cultural contexts. This gap may be addressed by examining the concept of integration, defined as "the degree to which immigrants have the knowledge and capacity to build a successful, fulfilling life in the host society" (28, 29), in relation to help-seeking. Note, that the term "integration" does not imply that immigrants must surrender their own cultural identity and traditions to successfully integrate (30). Harder and colleagues (29) propose their multidimensional measure of immigrant integration spanning the domains of psychological, social, linguistic, economic, navigational, and political integration.

Harder's multidimensional measure of immigrant integration, or Immigration Policy Lab (IPL), can be used to measure integration overall or in its individual facets (linguistic, psychological, etc.), in contrast to several other measures, such as the Vancouver acculturation inventory (31) and the cultural competence scale (32–34) which examine similar facets, but combine these into an overall score. Furthermore, Harder's measure examines the current social situation of the participants, including amount of contact with members of the host society, while the Acculturation orientation scale (34) and Vancouver acculturation inventory (31) focus on individuals' preferences, including how important social contact with ingroups and outgroups is to participants. For the current study, we felt it was more helpful to employ a measure, which considers the participants' current situation rather than their preferences. Furthermore, as Harder et al. point out in the **Supplementary Material** of their paper, by "directly measuring the frequency of a social interaction, the question has face validity for measuring social integration" (29). Importantly, other scales assume that participants have friends in the resettlement country. Since this is not necessarily the case for all refugees, we have included single item measures to examine number of Norwegian and Syrian friends in Norway. Single item measures have been used previously to measure number of friends among refugee groups (35, 36). In a relatively hard to reach population, such as Syrian refugees in Norway, it is important that surveys remain short and concise. Harder's measure captures "key aspects of integration with a small number of widely applicable questions" and "can be used at low cost and facilitate comparability" (p. 11484). Their measure can therefore be used as a "common measure of integration, which would allow for the accumulation of knowledge through comparison across studies, countries, and time" [(29), p. 11483]. Harder's measure has furthermore been validated among relevant populations, including refugees as well as immigrants both in Europe and the United States (29).

The important role of integration in other domains besides help-seeking has been described previously, which lends support to the potential importance of this concept in help-seeking. A lack of social integration, for example, may be associated with decreased health-related quality of life, functional impairment, and severity of depression symptoms, anxiety, and PTSD (37). Similarly, while the beneficial impact of inter-ethnic friendships on the integration and well-being of migrant youths (38, 39) and adults (40) has been supported in previous research, the role of friendships in migration research has been largely treated as a side issue (41). Research conducted in Germany has suggested that social capital may facilitate integration of Syrian refugees into the labor market, and that different types of social capital may affect the outcome of the integration process (although the presence of social capital does not invariably lead to the successful utilization of that capital) (42). The importance of social integration has also been addressed by the German Institute for Economic Research, who suggest that social integration is vital in improving refugees' trust in key state institutions (43). Consequently, we incorporate elements of Harder's integration measure (2018) into Andersen's BM (2008; 2014) to guide the current study.

The present exploratory study focuses on the Norwegian context. While some specialist MH services exist for refugees, the majority that are officially settled in Norway are encouraged to contact their GP, who acts as a gatekeeper to specialist services (18). Like the rest of Europe, Syrian refugees in Norway have reported higher rates of MH problems. A recent cross-sectional study found that 33% of Syrian refugees in Norway reported symptoms indicative of anxiety or depression, and 7% reported symptoms of post-traumatic stress disorder (PTSD) (44). These rates are substantially higher than the 12-month prevalence of 10–15% for anxiety or depression (45), and 1–1.7% for PTSD (for men and women, respectively) among the Norwegian majority population (46). The aims of the current exploratory study are [1] to describe how the GP fits into the larger context of help-seeking preferences among Syrian refugees in Norway, and what barriers participants identify to accessing help from the GP, [2] to examine how the likelihood of seeking help from the GP relates to indicators of integration as well as other social, psychological, and demographic variables guided by the BM.

Furthermore, we focus on the GP as a source of help and the individual characteristics presented in the behavioral model (BM) as factors that may impact willingness to seek help from the GP. It is likely that throughout an individuals' life span either they or someone close to them will experience symptoms of depression. As a result, laypeople's beliefs about seeking help for depression have important implications for the behavior of people suffering from depression.

According to the BM, the personal characteristics that influence help-seeking include predisposing (demographic, social, beliefs), enabling (financial resources, organization), and need (perceived and evaluated) (23, 24). While predisposing and enabling factors are sometimes difficult to disentangle (47), a predisposing factor can be thought of as something that would influence a person's willingness to seek help, while an enabling factor would influence their ability to receive help. Based on previous literature that has used the BM, we include age, gender, relationship status (47, 48), and education (48, 49) as predisposing demographic factors. In addition, we include perceived benefit of seeking help from the GP under predisposing beliefs, as this taps into the attitudes, values, and knowledge about health and health services (24). Here, we also incorporate Harder's social integration index and number Syrian and Norwegian friends, because this maps onto the social predisposing factors described in the BM (23, 24). We chose to include psychological integration under predisposing factors, as we felt it best related to beliefs about health and healthcare (23, 24), although it could also be argued that psychological integration can be seen as an enabling factor. We include Harder's economic integration index under enabling financing, similar to Johnson and colleagues (48). We examine lack of access to the GP under enabling characteristics, as it either facilitates or impedes health services use (23, 24), and does not predispose an individual to seek health help. We incorporate the indices for navigational and linguistic integration within a separate box entitled "Knowledge" within enabling factors, as these did not fit within another category of the model but have been shown to have important implications regarding help-seeking (1, 5, 10). Navigational integration, referring to an individual's ability to manage basic needs in the host country, best matched the element "organization" in the BM, which includes the existence of, and ability to access, a regular source of care. Furthermore, language proficiency, which is closely related to linguistic integration, has previously been included as an enabling factor (50). Finally, we include perceived severity of the problem under perceived need, because it captures participants' own perception of the severity of the symptoms. Severity of depression has previously been shown to relate to help-seeking (49), although it is unclear whether this is the case when responding to a vignette. Evaluated need from the original model is excluded as participants were not evaluated by

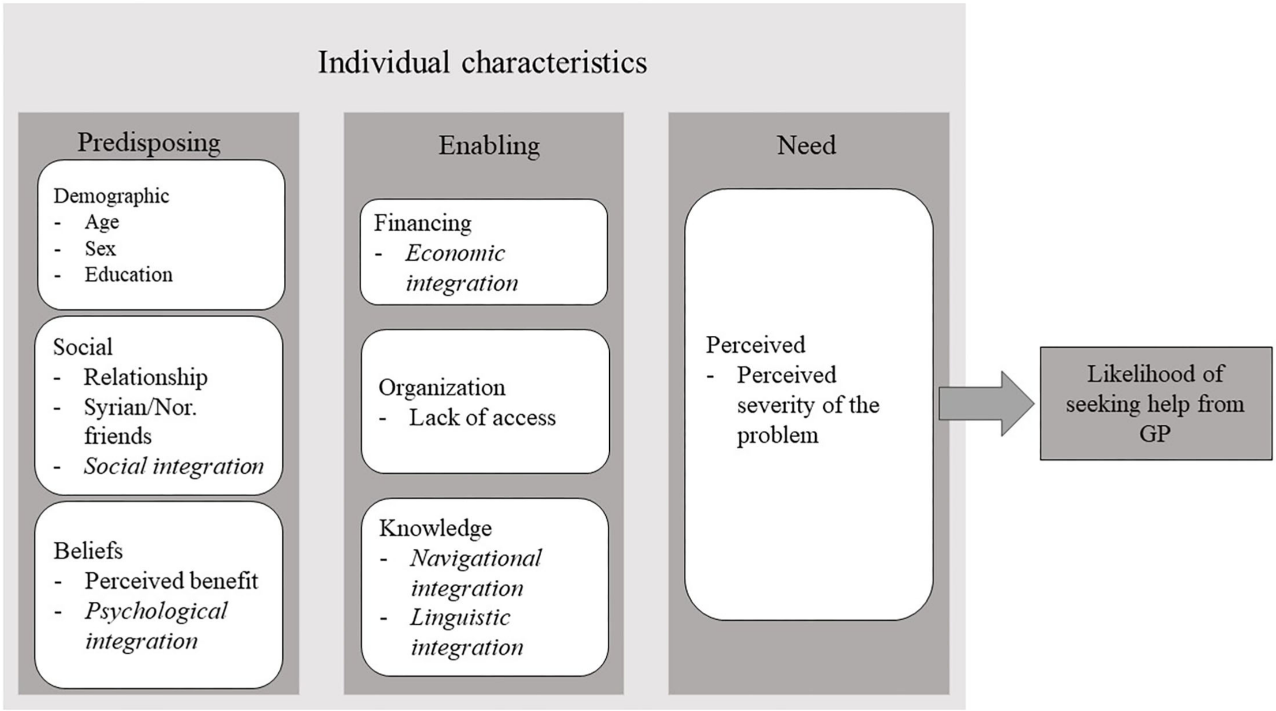

FIGURE 1 | Conceptual model of the current study based on Andersen's behavioral model of health services use and Harder's multidimensional measure of immigrant integration (in italics).

a health professional. Our adapted conceptual model is presented in **Figure 1**.

MATERIALS AND METHODS

Participants and Procedure

The current study was embedded in a larger survey study on refugees and MH. Our target population were Syrian refugees over the age of 18. We recruited participants through a purposive sampling strategy (51). Participants were mainly contacted through adult education programs[1] in two large Norwegian cities. Most participants completed the survey onsite, either on their own mobile devices, or on an iPad provided by the researchers. Participants were also given the option to respond to a paper version of the questionnaire, and to complete the survey in Arabic or Norwegian. An Arabic speaking research assistant was available for support onsite. A link to the survey was furthermore advertised on the research group's official website and shared via personal and professional networks. Data were collected throughout 2019, and the final responses were collected on the 14th of February 2020. Recruitment of participants was planned to continue beyond this time frame but had to be terminated due to the COVID-19 pandemic and the ensuing lock down.

A total of 478 participants opened the survey link. Participants who consented to take part ($N = 275$) (57.5%) were randomized to one of two survey versions after answering demographic questions. Sixty-eight participants consented but dropped out prior to randomization. Of those that were randomized, 101 were randomized to the current study on help-seeking. Despite stating that we were recruiting participants from Syria with a refugee background, 4 individuals born in Norway participated. These were excluded from the final analysis. Similarly, participants were excluded if they did not respond to the help-seeking questions ($n = 5$), leaving a final sample of $n = 92$. Among these, there were some missing datapoints, but 82 completed the entire survey.

The final sample included 55 men and 37 women. Participants' ages were collected in 10-year age brackets. Most participants were between 30 and 39 years old (35.9%) followed by the 20–29 age group (37.0%). According to data from Statistics Norway (personal correspondence, 2021), of the 32,168 Syrians that moved to Norway between 2000 and 2021, 78% arrived as refugees and 22% arrived as family reunification cases. A vast majority of these individuals immigrated in 2015 and 2016. Consistent with this, we found that most of our participants indicated that their age of arrival corresponded to their present age group (58.7%) followed by having moved one age bracket up since arrival (39.1%). This suggests that our sample comprises recently settled refugees, in line with the pattern of immigration to Norway from Syria (52). Based on our sample size, (given α

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[1] The adult education programs are part of a broader service offered to migrants by the Norwegian authorities and provide training for individuals to qualify for further study or employment in Norway. This includes the introductory program, which is mandatory for refugees, as well as other courses to improve individuals' job and further education opportunities.

= 0.05, two-tailed), we had a power of 0.80 to detect a medium effect size of $r = 0.31$, a power of 0.99 to detect a medium to large effect of $r = 0.45$, and a power of 0.15 to detect a small effect size of $r = 0.11$ (53).

A minority of respondents reported being employed (21.7%), and most lived in a household with very low (33.7%) or extremely low (25.5%) annual incomes. The educational level of the respondents varied; many were educated at university/college level (51.1%), and about equal proportions of respondents indicated high school (14.1%) or elementary school (21.7%) as their highest completed level of education. Most of our sample were in a relationship (married or cohabiting) (64.1%) and about half (46.7%) had children. Participants' demographic characteristics are presented in **Supplementary Table 1** in the **Supplementary Material**.

Given the high prevalence of depressive symptoms and related MH problems in refugee populations, it is likely that some of our participants experienced depressive symptoms at the time of the survey. We included common psychiatric disorders, general self-rated health, and identification with the vignette character in the current study to examine the relationship between these variables and what participants report they would do in case they felt like the vignette character.

Measures

Help-Seeking

To measure help-seeking preferences, participants were presented with a vignette describing an individual, who was experiencing symptoms in line with DSM-V and ICD-10 criteria of depression (54, 55). The vignette is the same as used by Aarethun et al. (17), Markova et al. (56), and Markova et al. (26), which is based on Erdal and colleagues (57). Female participants were presented with a female vignette character and males with a male vignette character. The vignettes were otherwise identical (**Supplementary Material 2**).

After reading the vignette, participants indicated how likely they were to seek help from different sources, if they felt like the vignette character (6-point Likert scale where 1 = Very unlikely, 6 = Very likely, and 7 = NA). Participants could select from a list of different sources, based on categories used by Markova et al. (26) and the General Help-seeking Questionnaire (58). Next, the participants were asked to indicate their first, second, and third most preferred help-seeking sources.

Barriers to Seeking Help From the GP

Based on barriers commonly mentioned in the literature (59–62) we developed a list of potential barriers for seeking help from the GP. Similar barriers have since been described in more recent studies (1, 63). The list of possible barriers is presented in the results section.

Integration Indices

We employed the integration indices as described in the **Supplementary Material** of Harder et al. (29). We followed the IPL-12 (Immigration Policy Lab-12) version of the measure for all indices apart from social and psychological integration, for which we included additional items from the IPL-24. Note that we excluded the index for political integration, as it had no clear link to help-seeking preferences.

Social Integration

The social integration index consisted of three items, such as "In the last 12 months, how often did you eat dinner with *Norwegians* who are not part of your family?" (1 = Never, 5 = Almost every day). The index had "acceptable" internal consistency (α = 0.64) according to previous literature (64).

Psychological Integration

The psychological integration index consisted of four items, such as "How connected do you feel with Norway?" (5 = I feel an extremely close connection, 1 = I do not feel a connection at all). The index had good internal con sistency (α = 0.83).

Linguistic Integration

Linguistic integration was measured by two items as follows: "Communicating in *Norwegian* has many components, like reading, writing, and speaking skills. Please evaluate your own skills in *Norwegian*": "I can read and understand the main points in simple newspaper articles on familiar subjects" and "In a conversation, I can speak about familiar topics and express personal opinions" (5 = Very well, 1 = Not well at all) ($r = 0.83$).

Navigational Integration

We initially based navigational integration on the two items included in the IPL-12 (29): "In this country, how difficult or easy would it be for you to do each of the following? (A) See a doctor. (B) Search for a job (find proper listings)" (1 = Very difficult, 5 = Very easy). However, the items were uncorrelated in our sample ($r = 0.07$). Therefore, we employ only the single item regarding finding a doctor, which was most relevant to the scope of this paper.

Economic Integration

The economic integration index used in the current study consists of one item examining household income equalized by household size. Originally, this item is to be combined with occupational status, but these two items were uncorrelated in our sample ($r = 0.09$), and we thus focus on equalized household income only.

Number of Norwegian and Syrian Friends

Number of Norwegian and Syrian friends was examined through the items "Do you have one or more Norwegian friends" and "Do you have one or more Syrian friends?" (1 = No, 2 = Yes, I have one friend, 3 = Yes, I have several), which was dichotomized for the analysis (1 = No, 2 = Yes, I have one or several friends).

Perceived Severity

Perceived severity was measured by asking participants whether they felt the vignette character's condition was severe enough to warrant sick leave (Yes/No).

Identification With the Vignette Character

We measured identification with the vignette character by asking participants to what extent two progressively overlapping circles represent them and the vignette character. Circles A, for example, represented two separate circles (coded as 1), while circles G were almost entirely overlapping (coded as 7).

Self-Rated Health

Participants' general self-reported health (GSRH) was measured through the single item: "Overall, would you say your health is:" with the response options ranging from (5) Excellent to (1) Very Poor. This question has previously been used to measure self-rated health among Syrian refugees migrating to Norway (65) and has been validated among Arabic speaking refugee populations (66).

Common Mental Disorders

Common mental disorders were measured using the HSCL-25 (67). Participants were asked to report to what extent a range of experiences applied to them over the last 14 days (1 = Not at all, 4 = A lot). The Norwegian and Arabic translations of this survey have been validated in Norwegian and Arabic samples (68, 69). In our sample, mean HSCL score for men was 2.20 (SD = 0.71) and 2.04 (SD = 0.67) for women. Of these, 63% of women and 75% of men scored above the clinical cut-off of 1.75 (70). While we are cautious to determine an optimal clinical cut-off in the current sample, it appears that a substantial number of participants reported symptoms indicative of psychological distress.

Ethical Considerations

This study was approved by the Norwegian Center for Research Data (NSD Notification form: 602214). All participants gave written consent in accordance with the Declaration of Helsinki (71) at the start of the survey. Participation was voluntary, anonymous, and confidential.

RESULTS

The GP as a Source of Help

Participants' likelihood of seeking help from different sources is presented in **Table 1**. The GP ranked as the fourth most likely source of help, preceded by Allah/God, participants' partner, and mother. To further explore the likelihood of seeking help from the GP in comparison to other positively rated help-seeking sources, we conducted a series of paired samples Wilcoxon signed rank tests. Due to the number of tests and the exploratory nature of our analyses, we employed a more stringent alpha level of 0.01. These tests revealed that the likelihood score of seeking help from the GP was significantly lower than that of seeking support from Allah/God ($T = 5453.5$, $p < 0.001$) and one's partner ($T = 2721.5$, $p = 0.009$). However, we found no significant difference between the mean likelihood rating of seeking help from the GP and one's mother ($T= 3578.5$, $p = 0.530$), a psychologist/psychiatrist ($T = 4132$, $p = 0.811$), other family members ($T = 4209.5$, $p = 0.460$), Syrian friends ($T = 4322.5$, $p = 0.124$), father ($T = 3306$, $p = 0.279$), the internet ($T = 4870$, $p = 0.011$), or Norwegian friends ($T = 4707$, $p = 0.012$). The likelihood score of seeking help from the GP was significantly higher than seeking help from a social worker ($T = 5038.5$, $p \leq 0.001$).

Figure 2 presents participants' top three help-seeking choices, based on the question "where would you seek help first, second, or third." The most frequent first choices were partner, Allah/God, and mother. The most frequent second choices were mother, partner, and psychologist/psychiatrist followed closely by the GP. Finally, the third choices were spread more evenly, with the internet ranking as the most common third choice, followed closely by mother and none, which was chosen similarly as often as psychologist and other family member. **Figure 2** extends the findings from the paired Wilcoxon rank tests and suggests that there is a preference for seeking help from Allah/God and one's partner over seeking help from one's GP.

TABLE 1 | Participants' likelihood of seeking help from different sources ordered by highest (top) to lowest (bottom) total mean likelihood score, standard deviation (SD), median, and interquartile range (IQR).

		Total	
Help-seeking source	***N***	**Mean (SD)**	**Median (IQR)**
Allah/God	86	5.13 (1.56)	6 (5–6)
Partner	79	4.56 (1.82)	5 (4–6)
Mother	85	4.05 (1.94)	5 (2–6)
GP	89	3.98 (1.76)	4 (2–6)
Psychologist/Psychiatrist	91	3.88 (1.84)	4(2–5)
Other family member	89	3.80 (1.77)	4 (2–5)
Syrian friends	86	3.55 (1.81)	4 (2–5)
Father	82	3.54 (2.09)	4 (1–6)
Internet	90	3.33 (1.68)	4 (2–5)
Norwegian friends	87	3.30 (1.74)	4 (2–5)
Social worker/NAV	89	3.08 (1.80)	3 (1–5)
Nurse	91	3.01 (1.64)	3 (2–4)
Physiotherapist	86	2.85 (1.73)	2 (1–5)
Elders in my community	88	2.84 (1.60)	3 (1–4)
None	89	2.75 (1.77)	2 (1–4)
Colleague/someone at work	90	2.74 (1.65)	2 (1–4)
Teacher/contact from introductory programme	90	2.71(1.65)	2 (1–4)
Telephone helpline	81	2.53 (1.56)	2 (1–4)
A&E	88	2.52 (1.67)	2 (1–4)
Alternative treatment*	85	2.42 (1.68)	2 (1–4)
Other	82	2.39 (1.71)	2 (1–3)
Charity	86	2.38 (1.57)	2 (1–3)
Religious leader (e.g., imam or priest)	88	2.33 (1.59)	2 (1–4)
Traditional healer from my country of origin	86	2.05 (1.35)	2 (1–3)
Leader from my community or country of origin	86	1.81 (1.12)	1 (1–2)

*Responses were indicated on a 6-point Likert scale, where 1 = very unlikely and 6 = very likely, 7 = NA. Responses are based on a sample size of N = 92. N in the table presents participants who chose a likelihood rating between 1 and 6. Not all sources of help may have been relevant for all participants. *Alternative treatment was specified as: e.g., acupuncture, homeopathy, herbal treatment.*

Barriers to Seeking Help From the GP

Barriers to seeking help from the GP are presented in **Figure 3**. Of 92 participants, 87 identified at least 1 barrier. On average, participants reported 2 barriers ($SD = 1.8$). The most frequently chosen barriers were "language barriers," "I don't think it would help," "the waiting times are too long," and "I don't think my GP would understand".

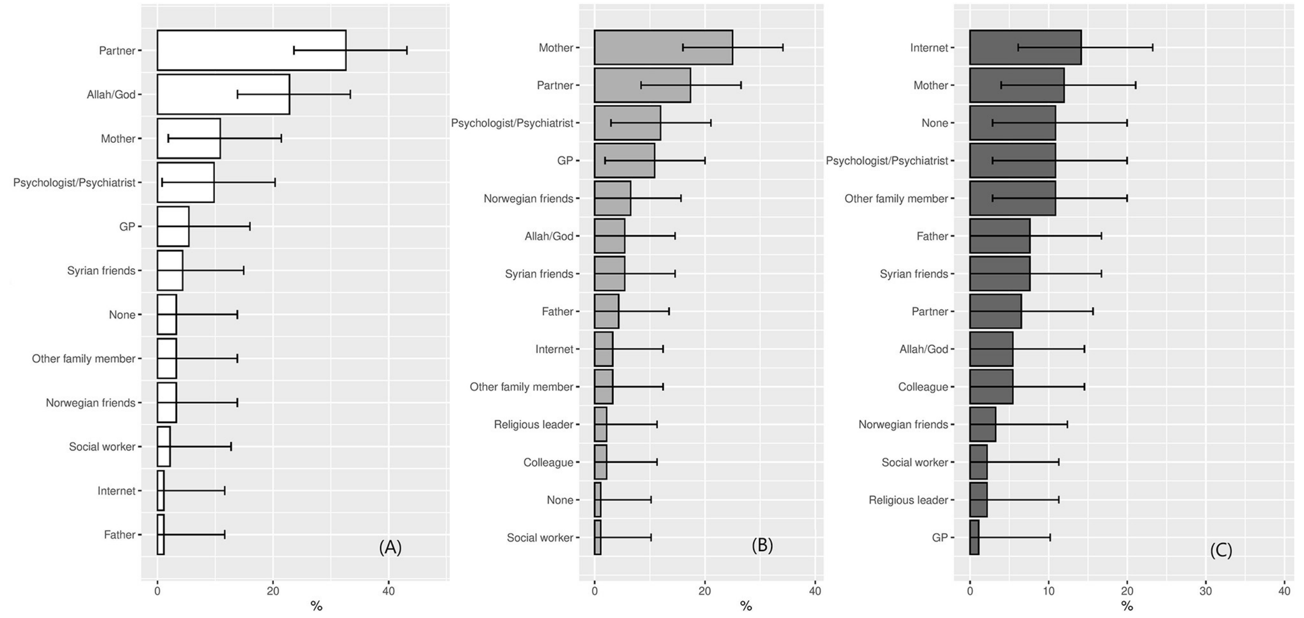

FIGURE 2 | (A–C) Help-seeking choices ($N = 92$). Note that none of the participants chose "religious leader" and "colleague" as their first choice. The following help-seeking options were removed from the figure, as they were not chosen by participants at all: Helpline, A&E, Traditional healer, Elder, Alternative healer, Leader from community, Teacher, Nurse, Charity, Physiotherapist, and Other.

We created a measure of lack of perceived benefit by combining the barriers "I don't think it would help," "I don't think my GP would understand," and "I don't trust my GP." Lack of perceived benefit of seeking help from the GP was negatively correlated with likelihood of seeking help from the GP, [$r_s(87) = -0.35$, $p < 0.001$]. We did not find, however, lack of access in the form of not having a GP, not knowing who the GP is or how to contact them, to be central barriers in our sample. The final element of access, waiting times—endorsed by 27 of 87 participants –, was positively correlated with seeking help from the GP [$r_s(87) = 0.22$, $p = 0.038$]. The fact that individuals had the experience of long waiting times suggests that they had access to their GP, and the positive correlation indicates that long waiting times did not systematically deter participants from considering the GP as a viable source of help. Given the emphasis placed on stigma and shame in previous research, it is notable that very few participants ($n = 3$) indicated that seeking help form the GP would be shameful.

The Role of Integration in the Behavioral Model

Our second aim was to examine several socio-demographic variables based on previous literature and their relation to endorsing seeking help from the GP, as well as address integration's role in the model. Correlations between all variables are presented in **Table 2**. In terms of socio-demographic variables, we found that neither gender nor education were related to endorsing help-seeking from the GP.

Higher psychological [$r_s(83) = 0.24$, $p = 0.028$] and social integration [$r_s(81) = 0.32$, $p = 0.003$] were both positively correlated with likelihood of seeking help from the GP. We did not find any significant associations between having Norwegian friends, Syrian friends, economic, linguistic, or navigational integration and reported likelihood of seeking help from the GP. It is worth noting, however, that while there was no significant correlation between number of Norwegian friends and likelihood of seeking help from the GP, both psychological and social integration were significantly correlated with Norwegian friends (see **Table 2**), suggesting that the effect of Norwegian friends may be indirect.

Perceptions of Severity and Participants' Own Health Status

Neither perceived severity of the condition [$r_s(87) = -0.02$, $p = 0.875$], participants' own self-reported health status [$r_s(83) = -0.15$, $p = 0.157$], mean HSCL score [$r_s(81) = -0.03$, $p = 0.818$], nor their identification with the vignette character [$r_s(86) = -0.05$, $p = 0.651$] was correlated with endorsing seeking help from the GP. While we did not include these variables in the conceptual model, these results suggest that individuals are not influenced by their current health status when considering potential sources of help for the future. Furthermore, these variables act as validity checks, in that HSCL score is correlated with identification with the vignette character [$r(84) = 0.57$, $p < 0.001$], as well as self-reported health [$r(84) = -0.52$, $p < 0.001$].

DISCUSSION

Summary of Results

The findings of the current exploratory study suggest that Syrians with a refugee background considered seeking help from the GP as somewhat likely if they experienced symptoms

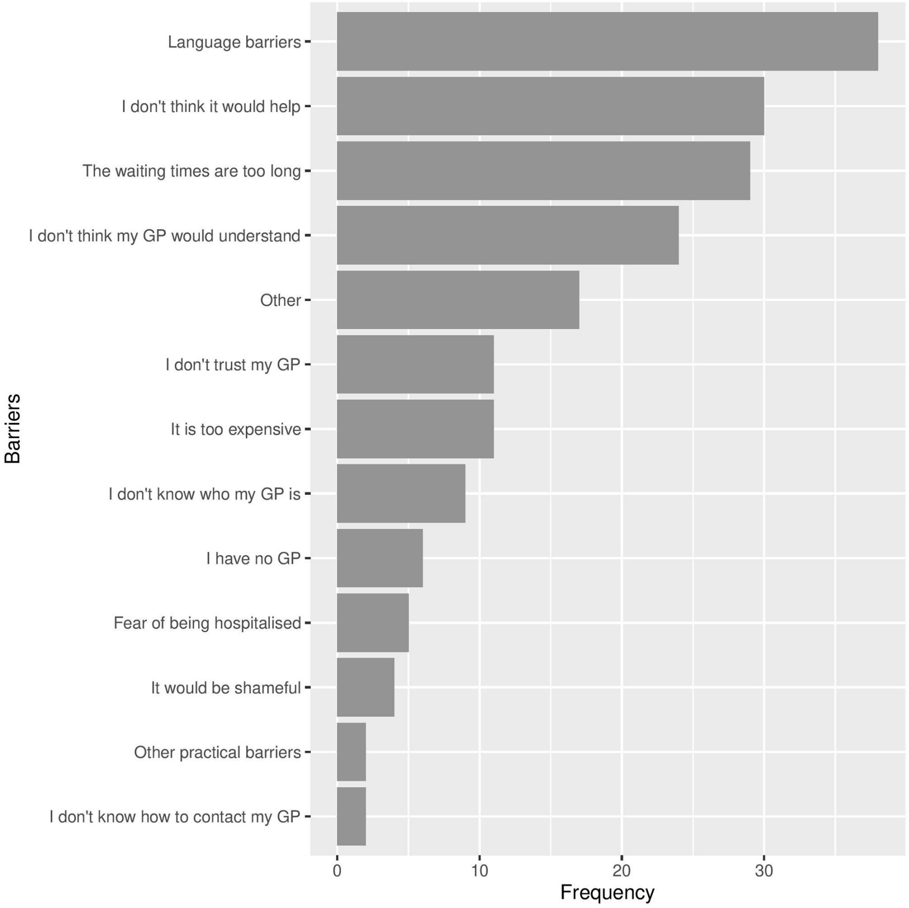

FIGURE 3 | Barriers reported by participants to seeking help from the GP (*N* = 87). Note that participants could select several or no barriers.

in line with depression. Formal sources of help, such as the GP and psychologist/psychiatrist, were preceded by Allah/God and one's partner as preferred sources of help. Furthermore, participants indicated experiencing an average of two barriers to seeking help from the GP. The most prevalent barriers included language barriers, not thinking it would help, long waiting times, and feeling like the GP would not understand. We found that psychological and social integration, i.e., feelings of connectedness with Norway and having a Norwegian social network, were correlated with higher reported likelihood of endorsing the GP as a viable source of help.

Previous Literature and Implications

The Role of the GP as a Source of Help

Our findings suggest that Syrians with a refugee background in the current sample preferred to seek help from Allah/God and their partner over the GP or psychologist/psychiatrist, but that the GP and psychologist/psychiatrist were nevertheless considered viable help-seeking sources. This has been found among Syrian refugees in Istanbul, who reported a preference for seeking help from informal sources, such as family, but also endorsed seeking help from professional sources (22). Participants in the latter sample also reported religious leaders as a common source of help (22), while our sample ranked religious leaders as very unlikely help-seeking sources and Allah/God as a very likely source of help. Our findings, therefore, suggest there may be an important difference between turning to one's relationship with Allah/God for help and seeking help from religious leaders. We must also consider that some sources of help, such as social workers, may not be relevant in Syria, which may explain why participants considered social workers as a relatively unlikely source of help in the current study. Nevertheless, all refugees receive information about MH and formal help-seeking sources as part of the introductory program, which would have raised awareness about social workers and their role in Norwegian society.

It is important to remember that help-seeking sources are not mutually exclusive (5), and individuals may consider seeking help from both formal as well as informal sources simultaneously. Adopting both dominant care models as well as the care models of the home country has the advantage of affording individuals more options (72). However, Atallah (72) draws particular attention to the conflict that may arise when the dominant care

TABLE 2 | Spearman's rank (in gray) and pearson correlations among study variables.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
1. Seeking help from GP	–															
2. Gender	−0.02	–														
3. Age	0.27*	−0.16	–													
4. Education	0.05	−0.10	0.03	–												
5. Relationship	−0.26*	−0.17	0.01	0.01	–											
6. Syrian friends	0.11	−0.05	−0.04	0.13	−0.03	–										
7. Norwegian friends	0.09	0.03	0.23*	−0.04	−0.25*	0.07	–									
8. Lack of benefit	−0.35*	−0.06	−0.17	0.07	0.02	−0.06	−0.19	–								
9. Severity	−0.02	0.18	0.00	0.00	−0.10	0.10	0.10	−0.15	–							
10. Vignette character identification	−0.05	0.04	−0.16	−0.23*	0.13	0.00	−0.09	0.04	−0.08	–						
11. Health	−0.15	0.01	−0.15	0.05	−0.11	−0.02	0.27*	−0.06	0.19	−0.34*	–					
12. HSCL	−0.03	−0.11	−0.16	0.03	0.16	0.00	−0.25*	0.30*	−0.16	0.57**	−0.51**	–				
13. Social integration	0.32**	−0.10	0.28*	0.03	−0.23*	0.13	0.56**	−0.20	0.06	−0.08	0.20	−0.15	–			
14. Psychological integration	0.24*	0.05	0.12	−0.21	−0.15	−0.22*	0.27*	−0.20	−0.02	−0.18	0.26*	−0.35*	0.34*	–		
15. Linguistic integration	−0.07	−0.16	−0.06	0.28*	−0.05	0.01	0.07	0.19	−0.06	−0.01	−0.06	0.06	0.12	−0.09	–	
16. Economic integration	−0.06	−0.14	0.01	0.19	0.00	−0.03	−0.01	0.01	−0.07	0.04	−0.09	0.10	0.10	0.07	0.27*	–
17. Navigational integration	0.07	−0.16	0.04	0.06	0.00	−0.10	0.10	−0.18	0.14	−0.25*	0.28*	−0.30*	0.01	0.21	0.18	0.05

Note. Gender (1 = male, 2 = female), Relationship (1 = Yes, 2 = No), Syrian/Norwegian friends (1 = No, 2 = Yes, I have one or several). *$p < 0.05$, **$p < 0.01$.

model of the patient's home and host country do not align. The current study finds no evidence for a conflict on the side of the participants, but we must acknowledge that a conflict may exist on the side of the practitioner. Practitioners in Norway are not expected to consider or recommend religious coping, despite evidence that religious coping has a range of benefits for mental well-being (73).

Barriers to Seeking Help

Commonly identified barriers to help-seeking, like language and waiting times (19–22), are in line with our results. Our findings also mirror reports from GPs working with refugee patients with MH problems (74). Language barriers in particular have been identified by GPs as obstacles to providing mental healthcare to refugees (74). Similarly, GPs have reported feeling as though refugee patients had different understandings of what constitutes and causes health and illness, resulting in a lack of understanding one another (74). The barrier "I don't think my GP would understand" chosen by participants in the current study mirrors this experience and suggests that language barriers as well as different understandings of health and illness may be perceived by both patients with a refugee background and their GPs.

Lack of perceived benefit was also indicated as an important barrier by our sample. Perceived benefit has previously been identified as one of the most important predictors of help-seeking intentions among adolescents (75). High perceived benefit may lead other barriers to become less important, and if confirmed in future research, may suggest that health promotion programmes, which focus on removing barriers should also promote the benefits of seeking help for MH problems (75).

However, other common barriers identified previously, such as stigma, shame, not knowing how to contact the GP, financial concerns, and fear of being hospitalized were not mirrored in our findings (19–22). With regards to shame and stigma, focus group interviews with Syrian refugees in Norway suggest that while stigma and shame influenced where individuals might seek help, they also acknowledged that stigma surrounding professional healthcare was diminished in Norway, making it easier and less stigmatized to seek professional MH help (17).

Finally, our findings suggest that current health status is not associated with considering the GP as a source of help; however, our findings do suggest that current health status is associated with other forms of help-seeking behavior[2]. This is in line with previous literature, which suggests that severity and duration of depression as well as chronic somatic disorders are related to help-seeking behaviors (49).

Role of Social Networks and Feelings of Connectedness

Intergroup contact and feelings of connectedness with the host country have previously been found to relate to well-being among refugees (37, 76). Less attention has been paid to psychological integration. Our results extend previous findings and address this gap in the literature, suggesting that social ties and feelings of connectedness, measured through the social and psychological integration indices (29), play an important role in considering seeking MH help from the GP. This further ties in with the importance of social capital, which has been shown to play a role in other domains, such as gaining access to the job market (42). Gericke et al. (42) distinguish between different types of social capital: bridging, referring to social contact with individuals outside of your community, vs. bonding social capital, marked by closed-off communities. They suggest that bonding social

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[2] Additional analyses suggest that mean HSCL score was negatively correlated with seeking help from, for example, one's partner and mother.

capital may put individuals at a disadvantage regarding accessing career-related information and social mobility. Furthermore, the authors highlight the difference between horizontal social capital, between people with similar access to resources and knowledge, and vertical social capital, which describes contacts who belong to different social levels (42). By the same virtue, Syrians with a refugee background in the context of the current study may benefit from having close ties to the Norwegian majority population, i.e., vertical, bridging social capital, with regard to the help-seeking sources they consider, and, consequently, are afforded more options regarding where to seek help. However, it is important to note that our sample had little variation regarding financial and employment situation. Consequently, our findings suggest that within an economically relatively deprived sample, social, and psychological integration play an important role in participants' consideration of professional sources of help, and do not necessarily imply that economic, navigational, or linguistic integration are not also important factors.

Strengths and Limitations

This study makes an important contribution by recognizing that help-seeking preferences are dynamic and contingent on time and context, rather a static characteristic. Similarly, much of the previous literature has framed help-seeking among refugee and non-refugee migrants in terms of barriers and factors that put them at a disadvantage to majority populations. While we also present barriers, our findings highlight social ties and feelings of connectedness as facilitators to help-seeking. Having collected data from Syrian refugees, our findings are particularly relevant to this patient group. Refugees are a highly heterogeneous group and "lumping them together" is neither appropriate nor informative (77). However, it should be noted that by the same token our findings may be less relevant for other patient groups. This may also be the case for important intragroup heterogeneity. For example, we did not consider ethnic identification within this participant group. Disregarding the differential culture of Kurds, for example, can gloss over important cultural differences that may play a role in help-seeking. Next, given the cultural differences presumed to exist with regard to our understandings of mental illness (5), we chose to present a vignette, which did not mention the term depression but instead described only the symptoms. This allowed us to gain an insight into individuals' help-seeking preferences for such symptoms without entangling our study in a larger discussion around the cross-cultural validity of "Western" nosology. The use of this vignette furthermore allowed Aarethun et al. (17) findings to complement the findings of the current study.

The study also had certain limitations that suggest caution should be exercised when interpreting the findings. We examined help-seeking preferences of Syrians with a refugee background regarding a fictional vignette character, which may not reflect participants' true help-seeking behaviors. Nevertheless, the preferences indicated in the current study may present what individuals are likely to endorse in situations where family and friends seek advice from them. Given the importance of certain informal help-seeking sources among this sample, this information is highly relevant. It is also important to note that help-seeking may differ by migrant background. Quota refugees and family reunification refugees in Norway are screened by a doctor, where many cases of MH problems are identified and managed. We chose not to collect information regarding specific reasons for arrival, as we felt this was too intrusive. However, if participants were to a large extent quota or family reunification refugees, it is possible that many are familiar with the Norwegian healthcare system. This may have impacted their willingness to consider the GP as a viable source of help, and therefore influenced our results. Similarly, we did not collect specific data regarding time spent in Norway, which has been shown to be an important variable regarding help-seeking in previous literature (1). Time spent in the host country is often employed as a proxy for integration or acculturation. The use of proxies, however, may be imprecise and implies that integration and other relevant processes progress similarly for all migrants over time. Our study improves this approach by examining integration directly. It is, however, important to note that we employed several single item measures. Both navigational and economic integration were intended to be measured through several items, but due to a lack of correlation between items we reduced these to single measure items. This is sample specific and should be corrected in future research. Finally, the social integration measure had a lower than desired reliability in the current sample. Nevertheless, the measure correlated meaningfully with other variables, such as seeking help from the GP, Norwegian friends and psychological integration, which may act as a form of validity check.

Conclusion

Our findings suggest that participants in the current study consider some formal help-seeking sources, such as the GP and psychologist/psychiatrist, for symptoms of depression. However, our findings also suggest that certain informal sources, such as one's partner and Allah/God, may be preferred. Given that help-seeking sources are not mutually exclusive, it is likely that individuals would seek help, or advise someone else to seek help, from a combination of both formal and informal help-seeking sources. However, most participants indicated an average of two barriers to seeking help from the GP. These included, for example, language barriers as well as feeling that the GP would not be able to help. This suggests important areas for interventions and future study. Our study also shows that social ties with the majority population as well as feelings of connectedness with the host country are correlated with considering seeking MH support from the GP. The current study thereby contributes to our understanding of help seeking as dynamic and contingent on cultural context. In line with calls for more non-confirmatory research, which may facilitate making hypothesis tests more informative (78), we encourage the use of our findings as inspiration and basis for future hypotheses. Measures of integration, particularly social and psychological integration, which acknowledge the consequences of shifting cultural contexts, should be considered in future research. Furthermore, future studies should consider longitudinal designs to examine the development of help-seeking preferences, and/or behaviors, over time. Future studies should also consider gender differences in help-seeking. Finally, given our focus on Syrians with a refugee background and a vignette displaying depression symptoms, future research ought to examine a variety of migrant groups as well as employ vignettes with different mental disorders.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the Norwegian Center for Research Data. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

SH contributed to the conceptualization of the study, development of the methodology, conducted the formal analysis, wrote the initial draft, visualization of the findings, and writing- reviewing and editing subsequent drafts. GS contributed to supervision, conceptualization of the study, investigation and data collection, writing- reviewing and editing the manuscript, and acquired funding. HB contributed to the conceptualization of the study, the development of methodology, conducted the formal analysis, investigation and data collection, and writing- reviewing and editing the manuscript. P-EB contributed to supervision, conceptualization of the study, and writing-reviewing and editing the manuscript. LP contributed to the conceptualization of the study and writing- reviewing and editing the manuscript. All authors contributed to the article and approved the submitted version.

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SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpubh.2021.777582/full#supplementary-material

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From Whence Cometh My Help? Psychological Distress and Help-Seeking in the Evangelical Christian Church

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Seeking professional help for psychological distress is generally associated with improved outcomes and lower levels of distress. Given the saliency of religious teachings, it has been shown that aspects of Christian belief may influence adherents' attitudes towards mental health help-seeking. Based on existing research on American Evangelicals, it was hypothesised that religious social support would positively predict attitudes towards mental health help-seeking, whilst fundamentalism, mental distress, and the belief that psychopathology is caused by immoral or sinful living would negatively predict participants' attitudes. On a convenience sample of 252 British Evangelicals, our hypotheses were supported and these variables significantly predicted participants' attitudes towards seeking mental health help, $F(7{,}243) = 9.64$, $p < 0.001$, $R^2 = 0.195$. These findings together suggest that whilst religious support positively predicts help-seeking attitudes, Evangelical fundamentalism, in addition to beliefs that mental illness has a spiritual cause, as well as experiences of mental distress may be associated with more negative attitudes towards psychotherapeutic intervention. Thus, mental health practitioners should be aware of clients' religious worldviews and tailor interventions appropriately, acknowledging that working with religious organisations may yield the most positive outcomes for patients.

Keywords: help-seeking, psychological distress, religion, Evangelical, sin, fundamentalism

INTRODUCTION

With evidence of increasing rates of mental illness (Calling et al., 2017; Patalay and Gage, 2019), there is growing concern over the personal and socioeconomic impact of psychological distress (McDaid et al., 2019; Ausín et al., 2020). A key factor in alleviating the undesirable outcomes associated with mental illness is early therapeutic intervention (Cook et al., 2017). Research has shown that supportive attitudes towards mental illness and help-seeking are indispensable in mitigating barriers against service utilisation (ten Have et al., 2010; Mojtabai et al., 2016). However, it seems that a sizable proportion of the adult population have limited ontological and aetiological knowledge of psychiatric problems, which negatively influences their help-seeking attitudes (Jorm, 2000; Rüsch et al., 2011). As a result, many who experience poor mental health do not access treatment (Araya et al., 2018) despite the finding that psychotherapeutic care is efficacious for a number of mental health conditions (McAleavey et al., 2019). Taken together, understanding the factors that influence people's attitudes towards therapeutic interventions is important in tackling barriers against service non-utilisation.

Although other psychological variables play a role, culture and social identity strongly shape and influence our attitudes (Hogg and Smith, 2007). A particularly potent form of social identity is religion in which adherents have regular interaction with like-minded persons who affirm the validity of their in-group (Mavor and Ysseldyk, 2020). Such access to rich social resources has been suggested as one of the ways in which religious engagement has a buffering effect on the emergence of psychological distress (Hovey et al., 2014; Holt et al., 2018). Not only do members of the same religion benefit from social engagement in times of crisis, but feeling supported by one's religious community has also been associated with more positive attitudes towards using mental health services (Miville and Constantine, 2006). As a consequence, religion seems to provide a powerful social identity whose behavioural norms and beliefs can influence the extent to which individuals are likely to come forward for help when experiencing distress. Lloyd (2021), for example, claims that religious belief systems frequently carry ontological essences or "seedling psychologies" in that they offer specific frameworks for making sense of illness, disease, and life more generally, illustrating the strong impact of religion on one's attitudes.

However, religion is not a unified construct that can be consistently associated with more positive attitudes towards psychological interventions (Shadid et al., 2021). For example, a particular instantiation of Christianity known as Evangelicalism may promote reductive theological axioms, which discourage favourable attitudes towards psychotherapeutic participation (Lloyd and Waller, 2020). Although the definition is variable, Evangelicalism is a Protestant *trans*-denominational tradition, characterised by four main doctrines with over 600 million global adherents (Bebbington, 2003; Pew Research Centre, 2015). The main principles of Evangelicalism are the inerrancy of the Bible, a literal interpretation of scriptures, an exclusive soteriology through faith in Jesus Christ, and the importance of converting non-believers to this theological perspective through a personalised process of regeneration (i.e., being born again). In light of their fundamentalist theology, Evangelicals often conceptualise mental health as vertically representative of their spiritual life, which is not contingent on biopsychosocial mechanisms (Hartog and Gow, 2005).

Such a reductive understanding of mental illness has pitted secular and spiritual care against each other for many believers (Wesselmann et al., 2015). Research has suggested that Evangelicals are reluctant to seek professional help for psychological trouble and instead prefer support from their religious leaders (Chalfant et al., 1990). Indeed, the very act of soliciting professional help rather than trusting in God's provision may be interpreted as a sign of spiritual weakness or failure (Mayers et al., 2007). Within the context of such an ontology, individuals with psychological distress may have their lived experiences invalidated or ignored (Lloyd, 2021). Lloyd (2021, p. 2719) referred to this negative aspect of religion as "reductive spiritualisation": a process through which mental health problems may be connected solely with spiritual aspects (demons, sin, or generational curses), with relative neglect towards life context and experience. Furthermore, a recent qualitative study by Lloyd and Hutchinson (2021) also found that Evangelicals with lived experience of psychological ill health reported being socially ostracised and relationally disconnected from their fellow believers. As such, the Evangelical fundamentalist worldview in which mental illness is seen as the result of sinful living may be particularly detrimental as it encourages believers to seek a spiritual solution and be dismissive of secular interventions. Within the context of Evangelicalism, immoral or sinful living might be characterised by a lack of faith, diminished church attendance, lack of repentance of sins, and reduced prayer or devotional life. Scrutton (2020) argues that exclusively spiritual accounts may often be harmful as they potentially de-politicise the social, relational, and political context of mental distress and over direct attention to individual responsibility.

That being said, the majority of attitudinal research towards mental health help-seeking has been conducted on Evangelicals in America. Given these findings do not necessarily transfer to religious groups outside of the United States, this study aimed to investigate the relative contributions of (i) belief that mental illness is caused by immoral or sinful living, (ii) fundamentalism, (iii) religious support, and (iv) psychological distress in predicting attitudes towards psychotherapeutic participation (outcome variable) in United Kingdom Evangelicals. It was hypothesised that each explanatory variable would negatively predict attitudes towards help-seeking in United Kingdom Evangelicals, except religious support, which would be positively related to the outcome variable.

MATERIALS AND METHODS

Ethics

The procedures of the current study were approved by the Ethics Committee at the University of Derby (ETH2021-0070; see Lloyd and Kotera, 2021). Prior to engaging with the study, all participants provided informed consent. Given the online nature of the study, participants could withdraw their consent at any time by closing their browser and up to one week following study completion. Data were anonymised and stored on a GDPR-compliant server to which the researchers had exclusive access. In light of the potentially distressing research topic, information pertaining to mental health charities and helplines were provided in the debrief. The study adhered to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) reporting guidelines throughout (von Elm et al., 2007).

Participants

Participants self-identified as Evangelical Christians and were recruited from online faith communities across the United Kingdom. An *a priori* power analysis estimated a minimum sample size of 119 participants based on $\alpha = 0.05$, power = 0.95, and f^2 = 0.15 (G*Power 3.1; Faul et al., 2009). After recruiting a sample of 265 participants, a total of 252 (Male = 185; Female = 62; Non-Binary = 5) aged between 18 and 73 (*M* = 46.11 years, *SD* = 13.72) were included in our analyses. Thirteen were not included in the final sample due to missing data or not providing informed consent; however, no reason for withdrawal was asked per our ethical guidelines and no complaint was received by any participants. Regarding the representativeness of our sample, scarcely available data from the Office for National Statistics suggest that 43% of United Kingdom Christians are over 50 years old with a further 31% being between the ages of 25 and 49 (Serafino, 2020). As for gender, data from the Pew Research Centre suggest that women in the United Kingdom are more likely to rate religion as *very important* (25 vs. 18%), to pray daily (23 vs. 14%), and to attend weekly services (15 vs. 10%) compared to men (Hackett et al., 2016). Compared with the general population, the mean age was similar, but the ratio of males was larger in our sample. Participants were not recompensed for study participation.

Measures

Help-Seeking Attitudes

The Inventory of Attitudes Towards Seeking Mental Health Services was used to assess participants' help-seeking attitudes (IASMHS; Mackenzie et al., 2004). IASMHS consists of 24 items measured on a five-point Likert scale ranging from *disagree* (0) to *agree* (4). The questionnaire has a tridimensional structure, including *psychological openness, help-seeking propensity,* and *indifference to stigma.* In the current study we used participants' overall scores because we did not have any theoretical justification to focus on a specific dimension. Example items included "if I were experiencing a serious psychological problem at this point in my life, I would be confident that I could find relief in psychotherapy" and "I would feel uneasy going to a professional because of what some people would think." Participants could score between 0 and 96 on the IASMHS in which higher scores indicated more positive attitudes towards mental health help-seeking. IASMHS has been validated for construct and concurrent validity in a recent study by Hyland et al. (2015). In the current study, IASMHS's items were internally consistent (α = 0.82) above the field's minimally accepted standard of 0.70 (Taber, 2018).

Religiosity

To assess individual differences in participants' religiosity, we used the 10-item Religious Commitment Inventory (Worthington et al., 2003). Participants responded to the items on a five-point Likert scale, ranging from *not at all true of me* (1) to *totally true of me* (5). Example items included "my religious beliefs lie behind my whole approach to life" and "I often read books and magazines about my faith." Total scores ranged from 10 to 50 in which higher scores represented greater levels of religiosity. In the current sample, the items were internally consistent and closely related in their measurement of religious commitment (α = 0.88).

Psychological Distress

To measure participants' experiences of psychological distress over the past 2 weeks, the four-item Patient Health Questionnaire for Anxiety and Depression was used (Kroenke et al., 2009). Participants indicated how often they had experienced psychological distress on a four-point Likert scale, ranging from *not at all* (0) to *nearly every day* (3). Total scores ranged from 0 to 12 in which higher scores were indicative of more frequent experiences of psychological distress over the past 2 weeks. In the current sample, the items were closely related in their operationalisation of psychological distress (α = 0.88).

Religious Support

The multidimensional Religious Support Scale was used to assess the extent to which participants experienced a sense of support from their congregation, religious leaders, and God (Fiala et al., 2002). Each subscale has seven-items, leading to a 21-item questionnaire that is measured on a five-point Likert scale. Responses ranged from *strongly disagree* (1) to *strongly agree* (5), resulting in a total score of 21–105 where higher scores indicated a greater sense of religious support. Example items included "my church leaders care about my life and situation" and "I feel appreciated by God." Previous research has shown that this questionnaire has good criterion validity in predicting mental health outcomes (Willoughby et al., 2008). In the current sample, excellent reliability was observed (α = 0.94).

Fundamentalism

The Christian Fundamentalist Belief Scale was used to assess the extent to which participants affirmed the inerrancy and authority of the Bible (i.e., the key facet of Protestant fundamentalism; Gibson and Francis, 1996a,b). Participants responded to the 12-items on a five-point Likert scale, ranging from *strongly disagree* (1) to *strongly agree* (5). Example items included "I believe that the Bible is the word of God" and "I believe in hell." Total scores on the questionnaire ranged from 12 to 60 in which higher scores represented more fundamentalist beliefs in our sample of Evangelical Christians. In the present study, high reliability was observed (α = 0.88), which demonstrated that the questionnaire's items consistently measured the underlying fundamentalism construct.

Psychiatric Pathogenesis

To assess participants' aetiological beliefs, we used the Morality-Sin subscale of the Religious Beliefs about Mental Illness

TABLE 1 | Descriptive summary of the questionnaire variables.

	M	*SD*	α
Attitudes towards help-seeking	64.15	10.50	0.82
Psychiatric pathogenesis beliefs	18.21	10.46	0.85
Fundamentalism	34.38	5.43	0.88
Psychological distress	4.03	3.29	0.88
Religious support	84.03	13.94	0.94

This table shows the mean, standard deviation, range, and Cronbach Alpha for each of our questionnaires, which were used in the multiple linear regression.

TABLE 2 | Multiple linear regression fixed effect parameter estimates using attitudes towards seeking mental health services as criterion.

		Unstandardised coefficients		Standardised coefficients			95% confidence interval for B	
	Model	**B**	**Std. error**	**Beta**	***t***	***p* value**	**Lower**	**Upper**
1	Intercept	3.428	0.168	0.000	20.4	<0.001	3.097	3.759
	Not Male | Male[1]	–0.1466	0.062	–0.149	–2.37	0.0188	–0.269	–0.0245
	Age	–0.0005	0.0019	–0.0157	–0.251	0.8023	–0.0043	0.0033
	Religiosity	0.0030	0.0036	0.0532	0.842	0.4008	–0.0041	0.0101
2	Intercept	3.871	0.2439	0.000	15.87	<0.001	3.39	4.352
	Not Male | Male[1]	–0.1224	0.0575	–0.125	–2.13	0.0343	–0.236	–0.0091
	Age	–0.0024	0.00182	–0.077	–1.30	0.196	–0.0060	0.0012
	Religiosity	0.0025	0.00390	0.044	0.638	0.524	–0.0052	0.0102
	Psychiatric pathogenesis beliefs	–0.1108	0.02280	–0.305	–4.859	<0.001	–0.156	–0.0659
	Fundamentalism	–0.0865	0.0417	–0.139	–2.076	0.0389	–0.169	–0.0044
	Psychological distress	–0.0250	0.00792	–0.195	–3.158	0.0018	–0.041	–0.0094
	Religious support	0.0042	0.00203	0.139	2.076	0.0390	0.0002	0.0082

Model 1: $F(3,248) = 1.99$, $p = 0.117$, $R^2 = 0.012$. Model 2: $F(7,243) = 9.64$, $p < 0.001$, $R^2 = 0.195$. $\Delta R^2 = 0.183$.

[1] *Given that only 5 participants self-reported as non-binary, gender was dichotomised into male and not male to aid interpretation of the model parameters. Here, not male is the reference set to 0 against which male is compared in order to calculate the coefficients.*

Questionnaire (Wesselmann and Graziano, 2010). This nine-item subscale operationalises the extent to which respondents believe that mental illness can be attributed to immoral or sinful living. Example items included "moral weakness is the main cause of mental illness" and "mental illnesses are a result of original sin." Participants indicated their responses on a nine-point Likert scale, which ranged from *strongly disagree* (1) to *strongly agree* (9). Scores could range from 9 to 89 in which higher scores were indicative of a greater propensity towards attributing the cause of mental illness to immoral lifestyles. The questionnaire demonstrated high reliability in the current sample ($\alpha = 0.85$).

Procedure

The present study was disseminated using Microsoft Forms, which was licenced by the University of Derby. Participants were asked to provide informed consent and some demographic information (i.e., age, gender, religious affiliation, and the frequency of their engagement in religious activities). Afterwards, participants completed the psychometric measures of our key variables in a randomised order. To determine participants' familiarity with mental illnesses, participants were then asked to indicate the capacity in which they gained this knowledge (e.g., media, courses, or lived experience). To assess their commitment to Evangelical Christianity, participants were asked to endorse creedal statements that aligned with Stanford and McAlister (2008)'s research definition of Evangelicalism. Untimed breaks were given throughout the study, which had a mean completion time of 27 min.

Data Analysis

Data wrangling and statistical analyses were conducted using the statistical language R (Version 3.6.3). All collected data were screened for outliers and the assumptions of our parametric tests were assessed and satisfied. In the current study, we ran a multiple linear regression with a cross-sectional design. Our criterion variable was help-seeking attitudes as measured by scores on the Inventory of Attitudes Towards Seeking Mental Health Services (Mackenzie et al., 2004). We controlled for age, gender, and religious commitment as covariates before assessing the relevant contribution of our predictor variables in explaining the variance in the criterion. The predictor variables in our multiple regression were religious support, fundamentalism, psychological distress, and belief that mental illness is caused by immoral or sinful living.

RESULTS

Results revealed that after controlling for the demographic covariates, our four predictor variables explained 18.3% of the variance in participants' attitudes towards seeking mental health help, $F(7,243) = 9.64$, $p < 0.001$. The main contributors of the variability in our criterion in descending order were psychiatric pathogenesis beliefs that mental illness is caused by immoral or sinful living, fundamentalism, psychological distress, and religious support (for a summary of descriptives, see **Table 1**). Among them, religious support was positively correlated with attitudes towards help-seeking scores. For a full exposition of the model's parameters, see **Table 2**.

DISCUSSION

The current study aimed to investigate the relative contributions of the following variables in predicting Evangelical Christians' attitudes towards seeking mental health help: (i) psychiatric pathogenesis beliefs that mental illness is caused by immoral or sinful living, (ii) religious support, (iii) psychological distress, and (iv) religious fundamentalism. Based on existing literature coming mainly from American Evangelicals, it was hypothesised that all but religious support would negatively predict help-seeking attitudes in our sample of United Kingdom Christians. Our results revealed support for our hypotheses in that higher fundamentalism, psychological distress, and psychiatric pathogenesis beliefs (that mental illness is caused by immoral or sinful living) were significantly correlated with less positive attitudes towards mental health help-seeking. In contrast, religious support positively predicted help-seeking attitudes since higher religious support was correlated with better attitudes towards seeking psychotherapeutic intervention.

Regarding religious support, existing research has already shown that the social aspects of religion strongly influence one's attitudes. Evangelical Christianity emphasises the importance of interacting with fellow believers through regular fellowship at religious services, bible studies, and prayer meetings (Bebbington, 2003; Olson, 2008). These interactions increase the likelihood of engaging with individuals who have similar world outlooks, values, and meaning-making processes (Peteet, 2019). Such congeniality leads to the affirmation of the Evangelical in-group and gives its members a strong sense of coherence and identity (Ysseldyk et al., 2010). Not only has it been shown that religious support buffers the effects of mental distress (Nooney and Woodrum, 2002), but a study by Miville and Constantine (2006) reported that feeling supported by one's religious community is also associated with more favourable attitudes towards help-seeking. Thus, in line with our own findings, religious support seems to offer a strong sense of social identity, leading to behavioural norms associated with more positive attitudes towards seeking psychological intervention.

As for fundamentalism on the other hand, the growing body of literature has shown that Evangelicals with more fundamentalist beliefs (e.g., believing in the inerrancy of the Bible) have more negative attitudes towards mental health help-seeking. For example, Keating and Fretz (1990) found that increasing religiosity was associated with a lower likelihood of seeking psychotherapeutic intervention from secular mental health professionals. A possible explanation for this is that the bible depicts parables in which God through Jesus Christ heals people of sickness through miraculous intervention (e.g., Holy Bible, New Revised Standard Version Bible, 1989/2015, Matthew 8:16). As such, those with a fundamentalist religious orientation may also be encouraged to seek God's healing through prayer and not through secular means, which would be equated with being a bad Christian (Trice and Bjorck, 2006). As a result, religious fundamentalism may encourage persons with mental health concerns to preferentially solicit help from their religious leaders (VanderWaal et al., 2012). Although there have been notable changes to the Christian understanding of mental illness over the past 50 years, Evangelical Christianity continues to affirm the importance of deliverance ministry, commonly known as demonic exorcism (Malia, 2001). Whilst official guidelines from mainstream churches in the United Kingdom recognise contemporary biopsychosocial models of mental illness (e.g., Church of England, 2012), other Christian communities ascribe to the hyper spiritualisation of psychological illness (Mercer, 2013), sometimes vilifying the mental health professions (Vitz, 1994). In line with our own findings, such a spiritual ontology of mental illness may worsen attitudes towards psychotherapeutic intervention, and thereby encourage believers to seek pastoral or congregational help when experiencing distress (Trice and Bjorck, 2006).

Related to the correlation between more fundamentalist doctrines and worse help-seeking attitudes are the psychiatric pathogenesis beliefs that mental illness is caused by immoral living. Given the Evangelical teaching of regeneration in which believers are expected to be born again from their old life of sin, Evangelicals believe that certain behaviours increase one's propensity towards psychological trouble (Weaver, 2011). Research has shown that Evangelical Christians are likely to see mental health as the outworking of their inner spiritual condition and therefore have poorer attitudes towards help-seeking since these interventions are perceived to ignore the spiritual constituents (Hartog and Gow, 2005). Avent et al. (2015) conducted a qualitative interview with religious leaders whose parishioners often solicit their mental health advice and found that leaders suggest that the congregation's difficulties may be caused by neglecting their spirituality. According to Sullivan et al. (2014), there are three prevailing attitudes among religious leaders: (i) psychological disturbances are spiritual in nature with a spiritual cure, (ii) psychological disturbances are mental in nature and have a spiritual cure, and (ii) psychological disturbances are medical conditions with both spiritual and mental cures. With evidence of religious leaders not collaborating with mental health professionals when assisting their parishioners (Stansbury et al., 2012), Christians with lived experience of mental illness can find themselves being ignored or disregarded (Lloyd and Waller, 2020). Consequently, spiritual reductionism removes the person and their supposedly sinful experience from their broader life experiences (Lloyd, 2021). In line with the current findings, psychiatric pathogenesis beliefs that mental illness is caused by immoral living is then associated with less positive attitudes towards seeking secular mental health help for purportedly spiritual conditions.

Taken together, the results of this study fit squarely within and inform the theory of planned behaviour, which can be applied to formalise how one's attitudes inform one's intentions to use mental health services, which are the best predictors of actual service utilisation (Ajzen, 1985, 1991). In the current study, more fundamentalist beliefs in the inerrancy of scripture would dictate the normative beliefs and subjective norms of individual believers. In believing that mental illness has a spiritual cause and a spiritual solution through divine supplication or more moral living, the normative belief is that fellow believers would view psychological distress as the result of an unchristian lifestyle. As such, within the theory of planned behaviour framework, believers are less likely to have positive attitudes and intentions towards help-seeking as this could be stigmatised and raise questions over the quality of their faith. On the flip side, a greater sense of religious support is likely to reciprocally influence one's intentions to use mental health services since it would likely favour norms that are more supportive of service utilisation and perceived control over one's own behaviour through supportive relationships with like-minded believers.

In terms of the clinical implications of our study, although previously overlooked within the psychological sciences and clinical practice, religion and spirituality are now recognised as important clinical variables for psychologists to consider (American Psychological Association, 2017). Within counselling and psychotherapy, religious beliefs and value systems are afforded significance, equal to an individual's wider systems and relationships (Payne et al., 1992). Sue and Sue (1999) advocate that therapists should explore their clients' spiritual beliefs and values just as they query about their physical and social health. Furthermore, research suggests that if the therapist fails to pay due consideration towards religious and spiritual values, then effective outcomes may be impeded, with any benefits being largely restricted (Bergin, 1980). As the findings of the present study suggest that evangelical Christians with more spiritualised aetiological understandings of mental distress (as caused by sinful or immoral living) may have lower propensity to access secular mental health services, there is need for a greater strengthening between religious leaders and mental health services. This may include community based psychoeducational workshops, which encourage both clients, and religious communities, to be receptive to various levels or forms of help. This may include promoting access to help from religious leaders but also wider religious communities, and the social capital resources these may afford, in addition to, professional mental health support where appropriate. As such, the findings of the present study underline the need for clinical and psychotherapeutic practitioners to work with both clients and faith leaders in a culturally and religiously syntonic form. We suggest that psychotherapeutic practitioners should support Evangelicals to resist a binary or exclusively spiritualised approach in relation to the causes and treatments of mental distress (spiritual versus biopsychosocial factors), whilst remaining curious, tentative, and sensitive to the clients' own frames of reference.

That being said, the results of the current study should nonetheless be caveated by a few limitations. Firstly, the gender composition of our sample consisted of three times as many males as females. Research has shown that males tend to report more negative attitudes towards seeking mental health help than females (Gonzalez et al., 2005). It has been postulated that this gender difference may be explained, at least in part, by help-seeking's acting as a violation of gender norms in which men may feel emasculated if they cannot independently regulate their well-being (Addis and Mahalik, 2003). Within the context of religion, research has also shown that men are more likely to hold stigmatising beliefs about mental illness (Wesselmann and Graziano, 2010) and seek more religious help from pastoral leaders compared to women (Crosby and Bossley, 2012). Taken together, men may experience a compounding effect in which both society and their religion dissuade favourable attitudes towards disclosing and seeking help for mental health issues (Hammer et al., 2013). Thus, our sample of mostly males may have influenced our results in that men may have biased the negative help-seeking attitudes, which may not have been so evident in a sample with more female Evangelicals. Secondly, self-report scales were used in this study and therefore response biases, such as socially desirable responding, may have influenced our findings (Kotera et al., 2020). As such, future research in this area could consider the use of implicit measures of attitudes towards help-seeking in Evangelical populations to mitigate the impact of response biases associated with explicit self-reports (e.g., using an implicit association test; Greenwald et al., 1998). Thirdly, there might have been hidden variables that could have predicted help-seeking over and above the indices of religiosity used in the current study, such as mental health literacy (Kola-Palmer et al., 2020), sociodemographic factors (Picco et al., 2016) or previous experience of receiving psychotherapeutic care (Liang et al., 2020). These variables were not evaluated in this study and so future research should assess their contribution to the variance in help-seeking attitudes in United Kingdom Evangelical Christians. And lastly, the cross-sectional design of our regression study precludes the establishment of causality, which could have been explored using a longitudinal design to assess how changes in our predictors would affect help-seeking attitudes over time.

In conclusion, the current study aimed to investigate the factors that may predict United Kingdom Evangelicals attitudes towards seeking psychotherapeutic intervention. It was found that whilst religious support positively predicted help-seeking attitudes, psychiatric pathogenesis beliefs that mental illness is caused by immoral or sinful living, psychological distress, and religious fundamentalism were negative predictors of help-seeking attitudes. Taken together, our findings fit within a theory of planned behaviour framework, which suggests that service utilisation can be predicted from behavioural intentions, which can in turn be predicted from Evangelicals' attitudes towards psychotherapeutic participation. As a result of our findings, we suggest that mental health practitioners be aware of religious clients' worldviews and the impact that this can have on their propensity to seek professional help when experiencing distress.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by University of Derby Ethics Committee. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

This project formed a part of CL's earlier research projects in this area. CL led on study conception and design, ethical approval, recruitment, and data acquisition, as well as overall supervision of the research project, from literature review to study write up, and wrote the clinical implications section of the manuscript. GR conducted the literature review and statistical analyses and wrote the initial drafts of the manuscript. All authors contributed to the manuscript revision and approved the current form of the submitted version.

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Effects of COVID-19 on Mental Health and Its Relationship With Death Attitudes and Coping Styles Among Hungarian, Norwegian, and Turkish Psychology Students

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The purpose of this study was to investigate mental effects of coronavirus disease 2019 (COVID-19) and its relationship with death attitudes and coping styles among Hungarian, Norwegian, and Turkish psychology students. A total of 388 participants from Hungary (*N* = 122, 31.4%), Norway (*N* = 96, 24.7%), and Turkey (*N* = 170, 43.8%) were recruited during the pandemic. The Depression, Anxiety and Stress Scale, the Impact of Event Scale-Revised, the Carver Brief COPE Inventory, and the Death Attitude Profile-Revised were used. The results indicated that escape acceptance might be the most maladaptive death attitude during COVID-19, as it was related to poorer mental health among the Hungarian, Norwegian, and Turkish psychology students. Self-blame, behavioral disengagement, self-distraction, and substance use coping styles were also related to poorer mental health, whereas positive-reframing (only among the Hungarian and Turkish participants) and humor (only among the Norwegian participants) were related to better mental health among our sample in the context of COVID-19. The findings implied that death attitudes and coping styles may differ in their efficacy among the Hungarian, Norwegian, and Turkish participants. These differences were discussed in detail in the discussion part. During the pandemic, practitioners might pay closer attention to patients with higher escape acceptance death attitude and patients who use dysfunctional coping styles. Additionally, patients can be encouraged to use techniques involving positive reframing and humor coping styles.

Keywords: COVID-19, death attitudes, coping styles, cross-cultural comparison, mental health

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INTRODUCTION

Coronavirus disease-2019 (COVID-19) has caused a great deal of stress in almost all countries in the world (Gormsen and Koijen, 2020; Remuzzi and Remuzzi, 2020; Vahedian-Azimi et al., 2020; Xu et al., 2020). During the early stages of the pandemic, several studies were performed to understand how COVID-19 affected the emotion and behavior of people and their antecedents based on psychological aspects (Guo et al., 2020; Li et al., 2020; Skapinakis et al., 2020; Wang et al., 2020; Zacher and Rudolph, 2020).

Evidence from previous studies (e.g., Sim et al., 2010; Guo et al., 2020; Gurvich et al., 2020; Skapinakis et al., 2020; Zacher and Rudolph, 2020) suggested that in COVID-19 and similar outbreaks, coping strategies play a crucial role, as different coping styles are related to different psychological responses that can either increase or decrease the psychological and physical wellbeing of a person (Kasi et al., 2012; Gurvich et al., 2020). Several studies (Chew et al., 2020; Fu et al., 2020; Skapinakis et al., 2020) showed that positive/active, approach/problem-focused coping strategies are more effective than negative/passive, avoidant/emotion-focused coping strategies in terms of adaptation to and mitigation of mental effects of COVID-19. For instance, Zacher and Rudolph (2020) investigated subjective wellbeing during COVID-19 in a German population. They reported that life satisfaction was positively related to active coping and positive reframing and negatively related to planning. Regarding the finding about planning, the authors explained that high levels of insecurity related to the outbreak might have turned future planning into an unpleasant experience. In addition, they reported that positive affect was positively associated with active coping, using emotional support, and religion, and negatively associated with humor. Regarding the finding about humor, the authors concluded that during the outbreak, using humor can be a less effective coping strategy and might rather constitute gallows humor. Lastly, the authors stated that negative affect was positively correlated to denial, substance use, and self-blame, and negatively correlated to using emotional support. Another research was conducted by Gurvich et al. (2020) regarding coping styles and mental health during COVID-19. The outcomes of the study showed that positive reframing, acceptance, and humor were related to better mental health, whereas self-blame, venting, behavioral disengagement, and self-distraction were associated with poorer mental health.

Death anxiety is also a very important topic when investigating the psychological impact of COVID-19 (Menzies and Menzies, 2020; Pradhan et al., 2020; Pyszczynski et al., 2020). COVID-19 has resulted in deaths of more than 1,000,000 people worldwide at the time of writing (World Health Organization, 2020). Everyday people are hearing about thousands of deaths caused by the pandemic, and this has an influence on the wellbeing of people and creates a constant fear of death in many people's lives (Pradhan et al., 2020). Pyszczynski et al. (2020) argued that irrespective of whether an individual consciously believes that COVID-19 is a major threat to life or just a minor trouble, fear of death plays a crucial role in guiding one's attitudes and behavior regarding the virus. Pradhan et al. (2020) also investigated the relationship of death anxiety with neuroticism and perceived stress in the context of COVID-19. The authors found that death anxiety was positively correlated with both neuroticism and perceived stress (Pradhan et al., 2020). There are also several studies (Pollak, 1980; Abdel-Khalek, 1997; Abdel-Khalek and Tomás-Sábado, 2005; Iverach et al., 2014) that demonstrated the positive relationship of death anxiety with depression, anxiety, post-traumatic stress disorder (PTSD), and stress. Moreover, death anxiety has been proposed as a transdiagnostic construct (Iverach et al., 2014), meaning that death anxiety can play a significant role in the development and severity of symptoms of several diseases, such as depression, anxiety, eating disorders, and PTSD. In addition, Yalom (1980) stated that death anxiety is a primary fear that underpins a set of mental disorders, including panic disorder, anxiety, and depression. Furthermore, previous findings have shown that attitudes toward death do not necessarily include only fear and anxiety. Thus, studies revealed that death anxiety is a multidimensional concept (Collett and Lester, 1969; Ray and Najman, 1974; Hoelter, 1979; Florian and Kravetz, 1983). In fact, Wong et al. (1994) developed a multidimensional death attitude scale (Death Attitudes Profile-Revised; DAP-R), which includes five different death attitudes: (a) fear of death (experiencing feelings of fear at a conscious level that are triggered when faced with issues related to death), (b) death avoidance (avoiding thinking or talking about death in order to decrease death anxiety), (c) approach acceptance (believing in a happy afterlife), (d) escape acceptance (believing that death is an escape from a painful life), and (e) neutral acceptance (perceiving death as a natural part of life). Studies (Gesser et al., 1988; Wong et al., 1994) showed that neutral acceptance and approach acceptance are related to better psychological wellbeing, while fear of death, death avoidance, and escape acceptance are related to poorer psychological wellbeing. Due to the fact that one's knowledge and attitudes toward death influence the way one copes with diseases (Ho and Shiu, 1995; Nozari and Dousti, 2013; Wittkowski, 2015), investigating these five different death attitudes in the context of COVID-19 would be worthwhile in developing adaptive psychological strategies, techniques, and interventions.

The current pandemic is unique in terms of number of countries affected (Gurvich et al., 2020). In fact, 220 countries, areas, and territories have been diagnosed with cases (World Health Organization, 2020). Previous findings have suggested that for future studies, it is important to identify people prone to psychological disorders related to COVID-19 from different cultures, communities, and countries in order to deepen our understanding of psychological aspects of COVID-19 and eventually to develop adaptive psychological interventions (Salari et al., 2020; Zacher and Rudolph, 2020). Furthermore, studies have emphasized the need for follow-up studies (Xiong et al., 2020) to investigate the later stages of the pandemic in terms of its effect on mental health and in order to assess its long-term effects.

Present Research

This study aims to detect the mental effects of COVID-19 and its relationship with death attitudes and coping styles in different countries by examining a sample composed of Hungarian, Norwegian, and Turkish psychology students. Studies on COVID-19 showed that depression, anxiety, stress, and PTSD are among the leading psychological problems in the context of the pandemic (Gurvich et al., 2020; Xiong et al., 2020). Moreover, student status is found to be associated with greater psychological impact of the COVID-19 outbreak and higher levels of stress, anxiety, and depression (Wang et al., 2020). Lee (2020) also reported that higher education is related to higher coronavirus anxiety. Lee (2020) stated that additional research about this population is needed. Therefore, we decided to conduct our research among university students and examined their depression, anxiety, stress, and PTSD levels. Based on our literature review, this will be the first study to investigate the mental effects of COVID-19 and its relationship with death attitudes and coping styles among three different countries (Hungary, Norway, and Turkey).

These countries were selected for a number of reasons. First, death attitudes may change from culture to culture (Lehto and Stein, 2009; Gire, 2014), and this difference can play a critical role in buffering the anxiety, depression, and stress related to COVID-19 (Jovančević and Milićević, 2020). In addition, before COVID-19, in 2015, we had run a research where we compared Turkish and Norwegian psychology students with respect to their death anxiety and different death attitudes and the relationship of these variables with depressive and anxiety symptoms (Oker et al., 2019, 2020). Thus, we considered it worthwhile to examine the Norwegian and Turkish university student population again with the same variables during COVID-19. In addition, according to the cultural dimensions of Hofstede et al. (2010), there are both similarities and differences among Hungary, Norway, and Turkey: Power distance (Norway and Hungary = low, Turkey = high), individualism (Hungary and Norway = individualistic, Turkey = collectivistic), masculinity (Norway = low, Turkey = middle, and Hungary = high), uncertainty avoidance (Hungary and Turkey = high, Norway = middle), long-term orientation (Hungary = high, Norway = low, and Turkey = middle), and indulgence (Hungary = low, Norway and Turkey = middle) (Hofstede Insights, 2018). Thus, it can be worthwhile to examine these three distinctive countries during the pandemic (Jovančević and Milićević, 2020). We, therefore, suggest that this study will contribute to the literature in terms of providing deeper insight to our understanding of psychological aspects of COVID-19, and eventually will help to develop culture-specific adaptive psychological interventions. Additionally, to the best of our knowledge, this study was unique in terms of examining different death attitudes related to COVID-19 among the three countries.

As there is no previous research that compares these countries in the context of the pandemic related to death attitudes and coping strategies and because of the novelty of the virus, no specific hypotheses were drawn in this study. Therefore, this study is exploratory research. The main aim of this study is to check how these three distinctive countries may differ in terms of the effects of COVID-19 on mental health and its relationship with death attitudes and coping styles among psychology students. More specifically, we are interested in examining the relationship of approach coping, avoidant coping, humor, and religion coping styles with depression, anxiety, stress, and PTSD symptoms among the Hungarian, Norwegian, and Turkish participants. In addition, we are interested in exploring the relationship between the five different death attitudes (fear of death, death avoidance, neutral acceptance, approach acceptance, and escape acceptance) and depression, anxiety, stress, and PTSD symptoms among the three countries. Lastly, we are interested in investigating the relationship of the approach coping, avoidant coping, humor, and religion coping styles with the five different death attitudes among the three countries.

METHOD

Participants

This study included a total of 388 (female = 328, 84.5% and male = 60, 15.5%) participants from Hungary (*N* = 122, 31.4%), Norway (*N* = 96, 24.7%), and Turkey (*N* = 170, 43.8%). The participants were students of psychology from different universities in Hungary, Norway, and Turkey. Participant age ranged from 18 to 60 years (*M* = 24.2, SD = 6). Inclusion criteria were based on participant age (equal to or over 18 years old), whether they were studying psychology, and whether they were able to read and understand English. Convenience sampling method was used. There were several reasons for choosing psychology students. First, we had greater access to psychology students, and they were more responsive and more willing to volunteer to participate in the research. Second, our aim was to keep the sample homogeneous in terms of education and knowledge. **Table 1** presents the details of sample characteristics.

Measures

The research was based on five scales, including the demographic scale which was comprising questions about the participants' nationality, gender, age, education, economic status, marital status, current residential location, relationship with COVID-19, history of chronic illness and current physical health condition. All the respondents were given the English version of the scales. Participants were fluent in English, as the majority of participants' language of education in their university was English.

Mental health status was measured using the Depression, Anxiety and Stress Scales (DASS-21) (Lovibond and Lovibond, 1995). The scale is a set of three self-report scales designed to assess the emotional states of depression, anxiety, and stress. Items 3, 5, 10, 13, 16, 17, and 21 formed the depression subscale (example item: "I couldn't seem to experience any positive feeling at all"). The total depression subscale score was divided into normal (0–9), mild depression (10–12), moderate depression (13–20), severe depression (21–27), and extremely severe depression (28–42). Items 2, 4, 7, 9, 15, 19, and 20 formed the anxiety subscale (example item: "I felt I was close to panic"). The total anxiety subscale score was divided into normal (0–6), mild anxiety (7–9), moderate anxiety (10–14), severe anxiety (15–19), and extremely severe anxiety (20–42). Items 1, 6, 8, 11, 12, 14, and 18 formed the stress subscale (example item: "I found myself getting agitated"). The total stress subscale score was divided into normal (0–10), mild stress (11–18), moderate stress (19–26), severe stress (27–34), and extremely severe stress (35–42). In this research, Cronbach's alpha for the depression subscale was 0.91 for Hungary, 0.92 for Norway, and 0.9 for Turkey. For the anxiety subscale, it was 0.81 for Hungary, 0.76 for Norway, and 0.75 for Turkey. Lastly, for the stress subscales, it was 0.82 for Hungary and 0.87 for Norway and Turkey.

The psychological impact of COVID-19 was measured using the Impact of Event Scale-Revised (IES-R;

TABLE 1 | Characteristics of the sample.

Characteristic	Hungary (*N* = 122; 31.4%)	Norway (*N* = 96; 24.7%)	Turkey (*N* = 170; 43.8%)
Gender			
Female	101 (82.8)	75 (78.1)	152 (89.4)
Male	21 (17.2)	21 (21.9)	18 (10.6)
Economic Status			
Below	8 (6.6)	13 (13.5)	5 (2.9)
Average	89 (73.0)	66 (68.8)	128 (75.3)
Above average	25 (20.5)	17 (17.7)	36 (21.2)
Missing	0	0	1 (0.6)
Education			
BA	70 (57.4)	29 (30.2)	101 (59.4)
MA	43 (35.2)	55 (57.3)	40 (23.5)
PhD	9 (7.4)	12 (12.5)	29 (17.1)
Marital Status			
Married	5 (4.1)	8 (8.3)	15 (8.8)
Divorced	1 (0.8)	1 (1.0)	4 (2.4)
Single	60 (49.2)	47 (49.0)	99 (58.2)
With a partner	55 (45.1)	39 (40.6)	51 (30.0)
Other	1 (0.8)	1 (1.0)	1 (0.6)
Relationship with the COVID-19			
Healthy	105 (86.1)	86 (89.6)	150 (88.2)
Suspicious case	5 (4.1)	3 (3.1)	4 (2.4)
Diagnosed case	2 (1.6)	3 (3.1)	2 (1.2)
Relatives or friends of suspicious case	12 (9.8)	1 (1.0)	5 (2.9)
Relatives or friends of diagnosed case	16 (13.1)	7 (7.3)	19 (11.2)
Other	1 (0.8)	0	1 (0.6)
History of chronic illness			
No	111 (91.0)	84 (87.5)	137 (80.6)
Yes	10 (8.2)	12 (12.5)	33 (19.4)
Missing	1 (0.8)	0	0
Current physical health condition			
Very poor	1 (0.8)	0	0
Poor	3 (2.5)	5 (5.2)	8 (4.7)
Average	41 (33.6)	30 (31.3)	40 (23.5)
Good	45 (36.9)	40 (41.7)	80 (47.1)
Very good	32 (26.2)	21 (21.9)	42 (24.7)

Data are presented as N (%).

Weiss and Marmar, 1997). The IES-R is a self-administered 22-item questionnaire (example item: "any reminder brought back feelings about it"). In this study, the participants were asked to reply to questions with respect to COVID-19. The total IES-R score was divided into 0–23 (normal), 24–32 (mild psychological impact), 33–36 (moderate psychological impact), and >37 (severe psychological impact) (Creamer et al., 2003). In this study, Cronbach's alpha for this test was 0.90 for Hungary, 0.95 for Norway, and 0.93 for Turkey.

Coping styles were measured with the Brief COPE Inventory (Carver, 1997). The Brief COPE Inventory can identify 14 coping styles with 28 questions and 2 items per type. The scale includes two main coping style dimensions: approach and avoidant coping styles. Avoidant coping is characterized by the subscales of denial ($\alpha = 0.68$ for Hungary; $\alpha = 0.8$ for Norway; $\alpha = 0.7$ for Turkey), an example item of the subscale is, "I've been refusing to believe that it has happened"; substance use ($\alpha = 0.95$ for Hungary; $\alpha = 0.92$ for Norway; $\alpha = 0.92$ for Turkey), an example item of the subscale is, "I've been using alcohol or other drugs to make myself feel better"; venting ($\alpha = 0.51$ for Hungary; $\alpha = 0.5$ for Norway; $\alpha = 0.21$ for Turkey), an example item of the subscale is: "I've been expressing my negative feelings"; behavioral disengagement ($\alpha = 0.74$ for Hungary; $\alpha = 0.65$ for Norway; $\alpha = 0.68$ for Turkey), an example item of the subscale is: "I've been giving up the attempt to cope", self-distraction ($\alpha = 0.63$ for Hungary; $\alpha = 0.71$ for Norway; $\alpha = 0.61$ for Turkey), an example item of the subscale is, "I've been turning to work or other activities to take my mind off things"; and self-blame ($\alpha = 0.55$ for Hungary; $\alpha = 0.75$ for Norway; $\alpha = 0.52$ for Turkey), an example item of the subscale is, "I've been blaming myself for things that happened". Approach coping is characterized by the subscales of active coping ($\alpha = 0.68$ for Hungary; $\alpha = 0.72$ for Norway; $\alpha = 0.64$ for Turkey), an example item of the subscale is, "I've been taking action to try to make the situation better"; positive reframing ($\alpha = 0.81$ for Hungary; $\alpha = 0.75$ for Norway; $\alpha = 0.8$ for Turkey), an example item of the subscale is, "I've been looking for something good in what is happening"; planning ($\alpha = 0.81$ for Hungary; $\alpha = 0.75$ for Norway; $\alpha = 0.5$ for Turkey), an example item of the subscale is, "I've been thinking hard about what steps to take"; acceptance ($\alpha = 0.58$ for Hungary; $\alpha = 0.83$ for

Norway; α = 0.6 for Turkey), an example item of the subscale is, "I've been accepting the reality of the fact that it has happened"; use of emotional support (α = 0.8 for Hungary; α = 0.89 for Norway; α = 0.66 for Turkey), an example item of the subscale is, "I've been getting emotional support from others"; and use of instrumental support (α = 0.82 for Hungary; α = 0.89 for Norway; α = 0.77 for Turkey), an example item of the subscale is, "I've been getting help and advice from other people". According to the scale, humor (α = 0.9 for Hungary; α = 0.9 for Norway; α = 0.85 for Turkey) and religion (α = 0.81 for Hungary; α = 0.72 for Norway; α = 0.78 for Turkey) coping styles do not belong to neither approach nor avoidant coping. An example item for the humor subscale is, "I've been making jokes about it" and for the religion is, "I've been trying to find comfort in my religion or spiritual beliefs". In this study, the respondents were asked to read the statements and indicate how much they have been using each coping style to cope with COVID-19-related stress symptoms. With short scales (e.g., scales including less than 5 items), it is usual to observe low Cronbach's alpha (Briggs and Cheek, 1986). Because in the BRIEF COPE measurement each subscale includes only 2 items, some subscales showed low Cronbach's alpha in this study. However, since the subscales had only 2 items, we can consider an alpha score from 0.5 to 0.7 as showing moderate reliability (Hinton et al., 2014, p. 359). However, for the Turkish participants, the venting coping style subscale was lower than 0.5. Therefore, we excluded this subscale from further analysis.

Death attitudes were measured by the Death Attitude Profile-Revised scale (DAP-R; Wong et al., 1994). It comprises 32 items and five death attitudes: (a) fear of death (α = 0.85 for Hungary and Norway; α = 0.79 for Turkey), and an example item of the subscale is, "I have an intense fear of death"; (b) death avoidance (α = 0.91 for Hungary; α = 0.9 for Norway; and α = 0.81 for Turkey), an example item of the subscale is, "I avoid death thoughts at all costs"; (c) approach acceptance (α = 0.9 for Hungary; α = 0.93 for Norway; and α = 0.91 for Turkey), an example item of the subscale is, "Death is an entrance to a place of ultimate satisfaction"; (d) escape acceptance (α = 0.84 for Hungary; α = 0.89 for Norway; and α = 0.85 for Turkey), an example item of the subscale is, "Death will bring an end to all my troubles", and (e) neutral acceptance (α = 0.7 for Hungary; α = 0.69 for Norway; and α = 0.69 for Turkey), an example item of the subscale is "Death should be viewed as a natural, undeniable, and unavoidable event".

Procedure

Several psychology lecturers in different universities in Hungary, Norway, and Turkey were contacted to share our survey link with their students. The survey was administered online. Data were collected between July 2 and November 20, 2020. At the beginning of the survey, the participants were given detailed written information about the research, and informed consent was obtained voluntarily from all the participants. Ethical permission was obtained from the Institution of Review Board of ELTE Eötvös Loránd University (reference number: 2020/166).

Data Analysis

The Statistical Package for the Social Sciences (SPSS) 20.0 software was used to perform our analyses. Accordingly, descriptive statistics was used to summarize the characteristics of the sample all the participants. In addition, four separate hierarchical multiple linear regressions were applied to predict depressive, anxiety, stress, and PTSD symptoms from the five death attitudes and from the thirteen different coping styles for the three countries, after controlling for age and gender. The regression analyses were carried out in three steps: In the first step, age and gender control variables were entered as predictors. In the second step, the five different death attitudes were added. In the third step, the thirteen different coping styles were entered in the regression model. For the anxiety analysis part, case-wise diagnostic detected two outliers from Turkey (case numbers 273 and 313). These cases were filtered out from the analysis, and then the analysis was re-run. Lastly, a set of Pearson correlation tests were also run to assess the relationship between the five death attitudes and the thirteen coping styles.

RESULTS

The findings indicate that among the Hungarians, none of the control variables were significantly correlated with stress in any of the steps. Moreover, the fear of death and escape acceptance death attitudes were significantly positively related to stress in step 2, whereas only the escape acceptance death attitude remained significantly related to stress in step 3. In addition, the positive reframing and self-blame coping styles were significantly related to stress. Positive reframing was negatively associated, and self-blame was positively associated with stress. For the Norwegian participants, none of the control variables were significantly correlated with stress in steps 1 and 2. However, age was significantly and positively correlated with stress, after the coping styles were entered into the regression in step 3. Furthermore, the fear of death and escape acceptance death attitudes were significantly positively related to stress in step 2, while none of the death attitudes remained significantly correlated with stress in step 3. In addition, the emotional support and self-blame coping styles were significantly related with stress. The analysis showed that the both emotional support and self-blame coping styles were positively associated with stress among the Norwegians. For the Turkish participants, age was significantly and negatively correlated with stress in all the steps. In addition, fear of death and escape acceptance significantly positively predicted stress in step 2. Based on the results, both fear of death and escape acceptance death attitudes remained significantly associated with stress in step 3. Moreover, the behavioral disengagement, positive reframing, and self-blame coping styles were also significantly correlated with stress among the Turkish participants. The analysis showed that the self-blame and behavioral disengagement coping styles were positively related to and positive reframing was negatively related to stress. **Table 2** presents the details of the hierarchical multiple regression analysis for stress.

TABLE 2 | Summary of the hierarchical multiple regression analysis for the prediction of stress in the three countries.

	Hungary			Norway			Turkey		
	Step 1	**Step 2**	**Step 3**	**Step 1**	**Step 2**	**Step 3**	**Step 1**	**Step 2**	**Step 3**
Control variables									
Age	0.01	–0.02	–0.10	–0.07	0.04	0.19*	–0.31**	–0.25**	–0.14*
Gender	0.15	0.15	0.14	0.13	0.15	0.04	0.08	0.08	0.12
Independent variables									
Fear of death		0.26*	0.17		0.30*	0.11		0.23**	0.21**
Death avoidance		0.10	–0.02		0.12	0.10		–0.06	–0.10
Neutral acceptance		–0.07	–0.14		0.03	0.05		0.03	0.01
Approach Acceptance		0.03	0.00		0.02	0.01		–0.06	0.05
Escape Acceptance		0.42**	0.28**		0.21*	0.09		0.31**	0.21**
Self-distraction			0.11			0.21			0.11
Active coping			0.14			–0.02			0.02
Denial			0.01			0.00			–0.12
Substance use			0.05			0.08			0.13
Emotional support			–0.13			0.34*			0.08
Informational support			0.16			–0.21			–0.08
Behavioral disengagement			0.10			0.13			0.16*
Positive reframing			–0.32**			–0.22			–0.22**
Planning			0.18			–0.02			0.02
Humor			0.00			–0.13			–0.08
Acceptance			0.03			–0.09			0.01
Religion			0.08			0.11			0.04
Self-blame			0.30**			0.52**			0.35**
R^2	0.02	0.20	0.49	0.02	0.18	0.58	0.11	0.25	0.50
Adjusted R^2	0.01	0.15	0.39	0.00	0.11	0.47	0.10	0.21	0.43
R^2 –changed	0.02	0.17	0.29	0.02	0.15	0.40	0.11	0.14	0.25
F	1.40	3.96**	4.84**	1.14	2.71*	5.20**	10.28**	7.57**	7.30**
N	122	122	122	96	96	96	170	170	170

Figures shown are standardized coefficients (i.e., beta values). *$p < 0.05$, **$p < 0.01$.

Furthermore, the findings indicate that for Hungarians, none of the control variables were significantly correlated with depression in any of the steps. In addition, only escape acceptance death attitude was significantly positively related to depression in both steps 2 and 3. The substance use and self-blame coping styles were also significantly positively related to depressive symptoms among the Hungarian respondents. For the Norwegian respondents, age was significantly and negatively correlated with depression in step 1, but it was not in steps 2 and 3. Moreover, only the escape acceptance death attitude was significantly positively related to depression in both steps 2 and 3. The behavioral disengagement and self-blame coping styles were also significantly positively related to depressive symptoms. For the Turkish sample, age was significantly and negatively correlated with depression in steps 1 and 2, but it was not in step 3. Furthermore, the fear of death and escape acceptance death attitudes were significantly and positively correlated with depressive symptoms in both steps 2 and 3. The self-distraction, behavioral disengagement, and self-blame coping styles were significantly positively related to and positive-reframing was significantly negatively related to depressive symptoms among the Turkish participants. **Table 3** presents the details of the hierarchical multiple regression analysis for depression.

For the Hungarian participants, the analysis related to anxiety revealed that gender predicted anxiety significantly in all the steps, and that age was significantly and negatively related to anxiety only in step 3. In addition, only the escape acceptance death attitude was significantly positively related to depression in both steps 2 and 3. Substance use, self-blame coping, and active coping styles were significantly positively related to, and emotional support and positive reframing were negatively related to anxiety. For the Norwegian participants, none of the control variables were significantly correlated with anxiety in any of the steps. Similarly, none of the death attitudes were significantly correlated with anxiety in both steps 2 and 3, whereas the self-blame and religion coping styles were significantly positively related to and humor coping style was significantly negatively related to anxiety. For the Turkish sample, age was significantly and negatively correlated with anxiety in all the steps. Moreover, the fear of death and escape acceptance death attitudes were significantly and positively correlated with anxiety in step 2. However, in the third step, fear of death was not significantly related to anxiety; instead, the neutral acceptance and escape acceptance death attitudes were significantly and positively correlated with anxiety in step 3. Moreover, only the behavioral disengagement coping style was significantly positively correlated

TABLE 3 | Summary of the hierarchical multiple regression analysis for the prediction of depression in the three countries.

	Hungary			Norway			Turkey		
	Step 1	**Step 2**	**Step 3**	**Step 1**	**Step 2**	**Step 3**	**Step 1**	**Step 2**	**Step 3**
Control variables									
Age	–0.01	–0.07	–0.09	–0.24*	–0.17	–0.04	–0.31**	–0.26**	–0.11
Gender	–0.06	–0.06	–0.10	0.02	0.11	0.00	–0.02	–0.01	0.02
Independent variables									
Fear of death		0.17	0.04		0.17	0.06		0.20*	0.17*
Death avoidance		0.10	–0.07		0.10	0.03		–0.09	–0.12
Neutral acceptance		–0.08	–0.15		0.09	0.07		0.03	0.02
Approach acceptance		–0.09	–0.04		–0.11	–0.08		–0.11	0.04
Escape acceptance		0.46**	0.30**		0.44**	0.31**		0.35**	0.20**
Self-distraction			0.06			0.09			0.16*
Active coping			–0.06			0.05			–0.07
Denial			0.16			0.03			–0.01
Substance use			0.26**			–0.02			0.03
Emotional support			–0.06			0.08			0.05
Informational support			0.01			–0.13			–0.13
Behavioral disengagement			0.04			0.33**			0.26**
Positive reframing			–0.15			–0.20			–0.23**
Planning			0.12			–0.11			0.02
Humor			–0.02			–0.09			0.00
Acceptance			0.02			–0.01			0.02
Religion			–0.01			0.07			0.01
Self-blame			0.32**			0.43**			0.30**
R^2	0.00	0.18	0.49	0.06	0.24	0.56	0.10	0.25	0.52
Adjusted R^2	–0.01	0.12	0.39	0.04	0.18	0.44	0.09	0.22	0.46
R^2 –changed	0.00	0.17	0.32	0.06	0.18	0.32	0.10	0.15	0.27
F	0.20	3.46**	4.90**	3.03	4.00**	4.74**	8.99**	7.69**	8.21**
N	122	122	122	96	96	96	170	170	170

*Figures shown are standardized coefficients (i.e., beta values). *$p < 0.05$, **$p < 0.01$.*

with anxiety. **Table 4** presents the details of the hierarchical multiple regression analysis for anxiety.

The analysis related to PTSD symptoms demonstrated that for the Hungarian participants, gender predicted PTSD symptoms significantly in steps 1 and 2, but that the significant relationship disappeared in step 3. Contrary to gender, age was not significantly related to anxiety in steps 1 and 2; however, it was significantly and negatively related to PTSD symptoms in step 3. In addition, fear of death, death avoidance, and escape acceptance were significantly positively related to PTSD symptoms in step 2. However, fear of death and death avoidance were not significantly correlated with PTSD symptoms in step 3; instead, approach acceptance was significantly negatively related to and escape acceptance was positively related to PTSD symptoms in step 3. Moreover, self-blame, substance use, religion, and active coping were significantly positively related to PTSD symptoms. For the Norwegian respondents, age was significantly and negatively correlated with PTSD symptoms in steps 1 and s 2, but it was not in step 3. In addition, only the escape acceptance death attitude was significantly positively related to PTSD symptoms in step 2. However, none of the death attitudes were significantly correlated with PTSD symptoms in step 3. On the other hand, the self-distraction, behavioral disengagement and self-blame coping styles were significantly positively related and humor was negatively related to PTSD symptoms. For the Turkish participants, age was significantly and negatively correlated with PTSD symptoms in all the steps. In addition, the fear of death and escape acceptance death attitudes were significantly and positively correlated with PTSD symptoms in step 2, whereas none of the death attitudes were significantly correlated with PTSD symptoms in step 3. Lastly, the behavioral disengagement and self-blame coping styles were significantly positively related to and positive-reframing was significantly negatively related to PTSD symptoms. **Table 5** presents the details of the hierarchical multiple regression analysis for PTSD.

Lastly, a set of Pearson correlation tests were run to assess the relationship between the five death attitudes and the thirteen coping styles (see **Table 6**). According to the analysis, the significant correlations are as follows: for the Hungarian subsample, death avoidance was positively associated with denial and behavioral disengagement and negatively correlated with the acceptance coping styles. Neutral acceptance was positively associated with humor. Approach acceptance was positively correlated with emotional support and religion.

TABLE 4 | Summary of the hierarchical multiple regression analysis for the prediction of anxiety in the three countries.

	Hungary			Norway			Turkey		
	Step 1	**Step 2**	**Step 3**	**Step 1**	**Step 2**	**Step 3**	**Step 1**	**Step 2**	**Step 3**
Control variables									
Age	–0.15	–0.16	–0.28**	–0.17	–0.10	–0.03	–0.28**	–0.23**	–0.18*
Gender	0.21*	0.19*	0.18*	0.13	0.12	–0.01	0.06	0.06	0.11
Independent variables									
Fear of death		0.16	0.06		0.15	0.08		0.21*	0.16
Death avoidance		0.14	0.00		0.14	0.03		–0.12	–0.13
Neutral acceptance		0.00	–0.08		–0.03	–0.03		0.15	0.16*
Approach acceptance		0.04	0.02		0.08	0.03		–0.02	0.09
Escape acceptance		0.42**	0.28**		0.13	–0.06		0.30**	0.22**
Self-distraction			–0.06			0.03			–0.04
Active coping			0.27**			0.01			0.02
Denial			–0.06			0.20			0.10
Substance use			0.20*			0.17			0.05
Emotional support			–0.23*			0.04			0.03
Informational support			0.09			–0.04			–0.04
Behavioral disengagement			0.14			0.20			0.32**
Positive reframing			–0.22*			–0.12			–0.04
Planning			0.12			0.12			0.10
Humor			0.00			–0.21*			–0.04
Acceptance			0.00			–0.01			0.02
Religion			0.10			0.22*			–0.02
Self-blame			0.37**			0.36**			0.07
R^2	0.06	0.21	0.54	0.05	0.15	0.55	0.08	0.22	0.39
Adjusted R^2	0.04	0.16	0.45	0.03	0.08	0.43	0.07	0.18	0.31
R^2 –changed	0.06	0.15	0.33	0.05	0.09	0.41	0.08	0.13	0.18
F	3.78*	4.35**	5.96**	2.48	2.14*	4.61**	7.62**	6.31**	4.73**
N	122	122	122	96	96	96	170	170	168

Figures shown are standardized coefficients (i.e., beta values). $^*p < 0.05$, $^{**}p < 0.01$.

Escape acceptance was positively correlated with behavioral-disengagement. For the Norwegian subsample, fear of death was associated positively with self-distraction, emotional support, informational support, behavioral disengagement, and self-blame. Death avoidance was positively correlated with self-distraction, informational support, and self-blame, whereas it was negatively correlated with humor. Neutral acceptance was negatively correlated with emotional support and positively correlated with acceptance. Approach acceptance was positively associated with positive reframing and religion. Escape acceptance was positively associated with denial and humor. For the Turkish subsample, fear of death was associated positively with self-distraction, emotional support, and denial. Death avoidance was positively associated with self-distraction. Neutral acceptance was negatively correlated with denial and positively correlated with acceptance. Approach acceptance was negatively associated with substance use and behavioral disengagement, whereas it was positively correlated with religion and positive reframing. Escape acceptance was negatively associated with active coping, positive reframing, and acceptance, while it was positively associated with behavioral disengagement and humor.

DISCUSSION

The results of this study suggest that escape acceptance might be the most maladaptive death attitude among the Hungarian, Norwegian, and Turkish participants in the context of COVID-19, since it was the only death attitude that was found to be significantly correlated with poorer mental health among the three countries alike during COVID-19. This finding was consistent with our previous research (Oker et al., 2020), which was conducted before the pandemic, in which we posited that escape acceptance may be the most maladaptive death attitude among Norwegian and Turkish university students. As explained by Wong et al. (1994), individuals with escape acceptance death attitude are usually incompetent to cope effectively with the pain and problems of existence. Consistent with this statement, the analyses of this study showed that escape acceptance was correlated with some dysfunctional coping styles, such as behavioral disengagement. Thus, having both escape acceptance death attitude and ineffective coping styles can be the plausible explanation for significantly lower mental health in our sample with high escape acceptance death attitude. Additionally, fear of death was significantly related to higher stress among the three

TABLE 5 | Summary of the hierarchical multiple regression analysis for the prediction of post-traumatic stress disorder (PTSD) symptoms in the three countries.

	Hungary			Norway			Turkey		
	Step 1	**Step 2**	**Step 3**	**Step 1**	**Step 2**	**Step 3**	**Step 1**	**Step 2**	**Step 3**
Control variables									
Age	–0.12	–0.10	–0.18*	–0.29**	–0.23*	–0.07	–0.28**	–0.23**	–0.14*
Gender	0.23*	0.21*	0.13	0.10	0.12	–0.03	0.00	0.00	0.05
Independent variables									
Fear of death		0.24*	0.13		0.09	–0.07		0.19*	0.12
Death avoidance		0.23*	0.04		0.15	0.03		0.03	–0.01
Neutral acceptance		0.11	0.05		0.06	0.02		0.05	0.06
Approach acceptance		–0.10	–0.21**		0.01	0.02		–0.12	0.12
Escape acceptance		0.36**	0.19*		0.19*	–0.04		0.26**	0.12
Self-distraction			0.14			0.26*			0.05
Active coping			0.32**			–0.12			0.11
Denial			0.05			0.09			0.03
Substance use			0.18*			0.13			0.12
Emotional support			–0.15			–0.03			0.16
Informational support			0.15			0.04			–0.04
Behavioral disengagement			0.16			0.36**			0.34**
Positive reframing			–0.08			0.01			–0.16*
Planning			–0.06			0.15			0.06
Humor			–0.01			–0.20*			–0.01
Acceptance			–0.05			0.01			–0.08
Religion			0.16*			0.01			–0.13
Self-blame			0.33**			0.25*			0.19*
R^2	0.06	0.22	0.64	0.10	0.16	0.62	0.08	0.19	0.53
Adjusted R^2	0.04	0.18	0.57	0.08	0.09	0.52	0.07	0.16	0.46
R^2 –changed	0.06	0.16	0.42	0.10	0.06	0.46	0.08	0.11	0.34
F	3.70*	4.69**	9.16**	5.05**	2.37*	6.13**	6.95**	5.44**	8.34**
N	122	122	122	96	96	96	170	170	170

*Figures shown are standardized coefficients (i.e., beta values). *p < 0.05, **p < 0.01.*

TABLE 6 | Correlation analysis results.

	Hungary death attitudes					Norway death attitudes					Turkey death attitudes				
Coping Styles	**FD**	**DA**	**NA**	**AA**	**EA**	**FD**	**DA**	**NA**	**AA**	**EA**	**FD**	**DA**	**NA**	**AA**	**EA**
Self-distraction	0.03	0.10	0.05	0.03	0.13	0.39**	0.25*	–0.07	0.16	0.13	0.15*	0.17*	0.01	0.07	0.01
Active coping	–0.09	–0.09	0.07	0.14	–0.03	0.16	0.13	–0.01	0.17	0.03	0.02	0.09	0.02	0.03	–0.17*
Denial	0.15	0.30**	–0.08	0.03	–0.13	–0.05	0.12	–0.03	0.19	0.23*	0.22**	0.13	–0.33**	–0.04	0.07
Substance use	0.15	0.17	0.03	–0.04	0.09	0.00	–0.08	–0.07	–0.04	0.13	0.15	0.14	–0.02	–0.22**	0.04
Emotional support	–0.05	–0.08	0.06	0.22*	0.05	0.26**	0.09	–0.20*	0.10	0.02	0.18*	0.04	–0.05	0.05	0.01
Informational support	0.04	0.01	0.03	0.15	0.02	0.25*	0.22*	–0.19	0.16	0.03	0.11	0.03	–0.03	0.01	–0.01
Behavioral disengagement	0.08	0.23**	–0.08	0.10	0.21*	0.21*	0.14	–0.07	0.03	0.19	0.07	0.07	0.00	–0.16*	0.20*
Positive reframing	–0.08	–0.05	0.12	0.06	–0.01	0.10	0.02	0.10	0.28**	0.15	0.03	–0.02	0.08	0.30**	–0.16*
Planning	–0.07	–0.08	0.17	–0.05	0.05	0.15	0.14	0.02	0.14	0.17	0.12	0.03	0.08	0.06	0.02
Humor	–0.10	–0.06	0.31**	–0.01	0.14	–0.11	–26*	0.14	0.15	0.23*	0.13	–0.06	0.08	–0.02	0.16*
Acceptance	–0.07	–0.22*	0.10	–0.09	0.03	–0.08	–0.09	0.29**	–0.11	0.02	–0.01	0.01	0.25**	0.12	–0.16*
Religion	–0.04	–0.01	0.01	0.40**	0.06	0.01	–0.16	–0.04	0.42**	0.19	0.01	–0.10	–0.11	0.58**	0.03
Self-blame	0.15	0.12	0.03	–0.03	0.14	0.21*	0.24*	0.03	0.10	0.11	0.10	0.05	–0.01	–0.03	0.15

**Correlation is significant at the 0.05 level (2-tailed), **correlation is significant at the.01 level (2-tailed); FD, fear of death; DA, death avoidance; NA, neutral acceptance; AA, approach acceptance; EA, escape acceptance.*

countries alike in step 2. However, this relationship was not significant after the coping styles were entered into the regression in step 3 among the Hungarian and Norwegian participants. On the other hand, fear of death remained significantly and positively related to stress and depression among the Turkish individuals in step 3. One of the plausible explanations for this discrepancy between the Turkish and Hungarian individuals can be that for the Turkish people, the fear of death attitude was associated with some dysfunctional coping styles, namely, self-distraction and denial. However, for the Hungarian participants, the fear of death attitude was not correlated with any dysfunctional coping styles. Therefore, having both the fear of death attitude and some dysfunctional coping strategies among the Turkish respondents might have created this difference between the Turkish and Hungarian participants. With respect to the difference between the Turkish and Norwegian participants, distinction in socioeconomic status might be one of the possible explanations, as in several studies higher socioeconomic status was found to be related to lower levels of stress, depression, anxiety, and death anxiety (Iverach et al., 2014; Freeman et al., 2016). As the socioeconomic status of Norway is higher than that of Turkey, this might explain the differences between the Turkish and Norwegian participants in our sample.

The analyses of this study exhibited that the self-blame, behavioral disengagement, self-distraction, and substance use coping styles were related to poorer mental health during COVID-19 in our sample. We may conclude that self-blame might be the most maladaptive coping style, as it was associated with poorer mental health among the three countries alike during COVID-19. This result was consistent with previous studies (Gurvich et al., 2020). The items of self-blame in the questionnaire included the statements "I've been criticizing myself" and "I've been blaming myself for things that happened." Therefore, criticizing and appraising oneself as responsible for the possible unfortunate outcomes of COVID-19 can be destructive for the mental health of an individual. In addition, behavioral disengagement can be particularly risky for the Turkish participants during COVID-19, as it was related to higher stress, depression, anxiety, and PTSD symptoms among them. Similarly, substance use might be particularly risky for the Hungarian participants during COVID-19, as it was related to higher depression, anxiety, and PTSD symptoms among them.

Positive reframing might be the most adaptive coping style among the Hungarian and Turkish participants, since it was related to better mental health among them. Accordingly, positive reframing was related to lower stress, depression, and PTSD symptoms among the Turkish participants. Moreover, positive reframing was related to lower stress and anxiety among the Hungarian participants. Therefore, it seems that reappraising the current circumstances by placing them in a positive frame was useful for the Turkish and Hungarian participants during COVID-19. This finding was consistent with previous studies (Gurvich et al., 2020; Zacher and Rudolph, 2020). Positive reframing was also found as one of the most adaptive coping strategies and a buffering factor against distress among frontline healthcare workers during the pandemic (Fino et al., 2021a). Therefore, positive reframing might be an adaptive strategy during COVID-19 for a variety of circumstances and people including frontline healthcare workers who are exposed to intense distress during the pandemic. For the Norwegians, however, humor can be the most successful coping style in the context of COVID-19, as it was related to lower anxiety and PTSD symptoms among the Norwegian respondents. This finding was consistent with the results of Gurvich et al. (2020), who found that humor was associated with better mental health among the Australian population. However, Zacher and Rudolph (2020) found that humor was negatively related to positive affect among German participants. These conflicting results suggest that the function of the humor coping style may change from culture to culture. Additionally, the style of humor (e.g., affiliative, aggressive, self-enhancing, or self-defeating) might influence the effectiveness of this coping style. Future studies may investigate this in more detail.

The findings yielded some other results with regard to coping styles that might be important to dwell on. Active coping, for instance, was positively related to anxiety and PTSD symptoms among the Hungarian participants. According to Lazarus and Folkman (1984), people use different kinds of coping strategies depending on the nature of the stress and the efficacy of the same coping strategy, which may differ from one situation to another. Thus, how one perceives a situation (controllable vs. uncontrollable) may change the efficacy of the coping strategy (Lazarus and Folkman, 1984; Stanisławski, 2019). Our results suggest that active coping might have increased anxiety and PTSD symptoms among the Hungarian participants, because the situation they were in was not changing despite the efforts they made to change it. However, Lazarus and Folkman (1984) also stated that the efficacy of coping strategies may change in the long run. Thus, a coping strategy might be successful in the short term but then lose its efficacy in time, or the other way around (Sadaghiani and Sorkhab, 2013). Therefore, the active coping style might be dysfunctional temporarily for the Hungarian participants; however, it can develop into being functional in the long term. Future researchers may conduct longitudinal studies to investigate these possible associations. Another outcome was that emotional support was related to higher stress among the Norwegians, whereas it was related to lower anxiety among the Hungarians. One of the possible explanations for this discrepancy between the Norwegian and Hungarian participants can be that emotional support was positively correlated with approach acceptance among the Hungarian participants. However, emotional support was positively correlated with fear of death and negatively correlated with neutral acceptance among the Norwegian participants. Thus, these two death attitudes might mediate the relationship between emotional support and stress among the Norwegian participants, and having both the emotional support coping style and the approach acceptance death attitude may reduce anxiety among the Hungarian respondents. Another plausible explanation might be that the Norwegian participants in our study may not have gotten a right kind of social support when they needed it. Some researchers argued that sometimes an attempt to provide social support might result in higher psychological distress, as it can be experienced as intrusive, controlling, and directive by the recipient or the social support providers might give poor advice or fail to meet the certain needs of the person (Taylor, 2012). For example, if the person needs emotional support and, instead of this, gets only advice, then this can result in higher psychological distress (Taylor, 2012). Additionally, Sasaki and Yamasaki (2007) found that situational emotional support-seeking was related to higher somatic symptoms, anxiety, and insomnia. They explained that since emotional support-seeking does not focus on decreasing the stressor directly, the stressor can persist and may get even more powerful. Considering this explanation, our Norwegian participants might have used the emotional support coping style; however, as the pandemic continues to interrupt their daily lives, their stress levels might have continued to increase. However, similar to our previous explanation, this may change in the long run, and the emotional support coping style may become efficient in time. In addition, approach acceptance (believing in a happy afterlife) was negatively related to PTSD symptoms among the Hungarian participants. However, the religion coping style was related to higher PTSD symptoms in the Hungarian sample and higher anxiety in the Norwegian sample. In the literature, religiosity was divided into two dimensions (Neimeyer et al., 2004): (1) extrinsic religiosity, which displays a utilitarian perception of religion, and (2) intrinsic religiosity, in which people put faith at the center of their lives. Studies have demonstrated that intrinsic religiosity was related to lower death anxiety, whereas extrinsic religiosity was related to higher death anxiety (Neimeyer et al., 2004). Therefore, in our study, if the participants had mostly extrinsic religiosity, this may have increased their death anxiety, which may have led to higher levels of anxiety and PTSD symptoms. Lastly, the neutral acceptance death attitude was positively correlated with anxiety among the Turkish participants. For the Turkish participants, neutral acceptance was positively correlated with the acceptance coping style. However, this coping style was not associated with the mental health of our participants. Thus, it is possible that, for our Turkish sample, having only the neutral acceptance death attitude without some functional coping styles (e.g., positive reframing) might not be effective in buffering anxiety during COVID-19.

The analyses revealed some other results when we compared the relationships between the five death attitudes and the thirteen coping styles among the three countries that can be important to discuss. For instance, among the Norwegian and Turkish participants, informational support-seeking was positively correlated with fear of death, and for the Norwegian participants it was also positively associated with death avoidance. Some studies showed that obtaining information through social media was increasing anxiety among people during COVID-19, as the news mostly includes distressing and unreliable information (Xiong et al., 2020). Therefore, while seeking informational support, our Norwegian and Turkish participants might have been confronted with distressing and unreliable information, which might have resulted in higher fear of death and higher death avoidance for the Norwegian sample. In addition, emotional support was positively correlated with fear of death and negatively associated with neutral acceptance among the Norwegian respondents. Fino et al. (2020, 2021b) emphasized that physical and social isolation precautions related to COVID-19 might result in increased fear and distress regarding the disease itself among people. Additionally, some studies showed that stress may increase one's likelihood of seeking emotional support (Joo et al., 2020). Therefore, in our Norwegian sample, the relationship between emotional support and fear of death and neutral acceptance may be the other way around; that is, the higher fear of death level of the participants might have triggered their involvement in emotional support, and people with higher neutral acceptance may not feel the need to engage in emotional support. Lastly, humor was positively associated with escape acceptance for both the Turkish and Norwegian participants. We may conclude that viewing death as an escape from a painful life was associated with use of the humor coping style among these participants.

Lastly, the analyses of this study for the control variables exhibited that the three countries also differ in terms of the relationship of age and gender with depression, anxiety, stress, and PTSD symptoms. For example, after the independent variables were entered into the regression in the final step, age was significantly and positively correlated with stress among the Norwegian participants, whereas it was significantly and negatively correlated with stress among the Turkish participants. On the other hand, age was not related to stress among the Hungarian participants. In addition, the Hungarian female participants reported significantly higher levels of anxiety than the Hungarian male participants in all the steps. However, gender was not a significant predictor among the Norwegian and Turkish participants in any of the steps. Previous studies have shown inconsistent results regarding the effect of gender on coronavirus anxiety (Spitzenstätter and Schnell, 2020). As discussed above, in our study, both the gender and age variables also show inconsistent outcomes among the three countries. Therefore, further studies are needed to examine the effect of these variables on mental health with regard to the pandemic.

Limitations

While interpreting the results of this study, certain limitations should be taken into consideration. First, the method of convenience sampling was applied, as it has certain advantages (e.g., it is easy to carry out, relatively time efficient, and inexpensive). However, it also has drawbacks, such as inability to generalize the findings of the study to the population as a whole. For instance, in this research, the participants were psychology students. The results can, therefore, not be extrapolated to the entire population of Hungary, Norway, and Turkey. Moreover, the relatively small sample size used in this study might have increased the chance of committing a type II error (a false negative: rejecting statistically significant relationships when in fact there are). Therefore, one must be cautions while interpreting the results of this research. Thus, we may base the results of this study as exploratory. As a result, the significant findings may still be useful and give us some direction for future studies. Therefore, we encourage further research to replicate our study with larger sample size. Furthermore, the inconsistent results mentioned in the discussion part related to gender and age differences might be due to unbalanced samples in this study. Similarly, further studies with more balanced sample are needed to make these findings sounder. Lastly, as this study was correlational research, it is not possible to draw a causal interpretation from our outcomes.

Notwithstanding these limitations, this study was unique in terms of investigating different death attitudes related to COVID-19 among the three countries. In addition, by checking the effects on mental health and coping styles of the participants, we were able to see how the three variables (different death attitudes, coping styles, and mental health) might be related to each other and to COVID-19 among our sample in the three countries.

CONCLUSION, IMPLICATIONS, AND SUGGESTIONS FOR FUTURE STUDIES

Our results suggested that having the escape acceptance death attitude and using some dysfunctional coping styles (self-blame, behavioral disengagement, self-distraction, and substance use) were related to lower mental health during COVID-19 in our sample. Practitioners in the field might pay closer attention to patients with higher escape acceptance and those who use dysfunctional coping styles. In addition, our findings implied that death attitudes and coping styles may differ in their efficacy among different countries. For instance, the fear of death attitude and behavioral disengagement coping style can be particularly risky for the Turkish participants. Therefore, practitioners in Turkey can pay more attention to this death attitude and to behavioral disengagement while working with patients during COVID-19. In addition, substance use might be particularly risky for the Hungarian participants. Similarly, practitioners in Hungary can pay more attention to this coping style while working with patients during COVID-19. Furthermore, positive reframing can be more functional among the Turkish and Hungarian participants, while humor might be more effective for the Norwegian participants. Therefore, practitioners may encourage their clients using techniques involving positive reframing in Turkey and Hungary, and in Norway they might provide techniques involving humor. Lastly, our analyses indicated that using active coping styles can be related to lower mental health in the short term, but that it might become functional in the long term among our Hungarian sample. Thus, practitioners should be cautious when working with clients with this coping style, and alert them of this possibility. We consider that the practical implications of this study can be useful in other similar contexts as well as in possible future outbreaks. Further studies can be conducted to investigate the relationship of mental health with death attitudes and coping styles, considering their long-term efficacy among different countries.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved and the ethical permission was obtained from the Institution of Review Board of ELTE Eötvös Loránd University (reference number: 2020/166). The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

KO and MR worked on the statistical analysis. KO wrote the manuscript. MR and ÁS reviewed the manuscript and provided critical feedback. All authors made substantial contributions to conception, design, and data collection and interpretation of the data.

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CONCEPTUAL ANALYSIS
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The Yin–Yang Definition Model of Mental Health: The Mental Health Definition in Chinese Culture

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It is a common aim of psychologists to construct a definition model with universal cultural applicability for mental health. These models can be divided into two types in terms of definition: One is the negative mental health definition model based on the absence of mental illness symptoms; the other is the definition model of positive mental health based on subjective feelings, such as happiness and social identity. However, neither of these definitions can properly explain Chinese people's understanding of mental health or how mental health is dealt with in Chinese culture. This paper proposes a Yin–Yang definition model of mental health based on the theory of personality of Confucianism and Taoism. This model not only properly describes the understanding of mental health in traditional Chinese culture, but also explains East Asian psychotherapy and mental health practices in the context of Chinese culture.

Keywords: mental health, definition model, Confucianism, Taoism, Chinese culture

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INTRODUCTION

Although the term mental health was used in Europe as early as the mid-19th century (Rosen, 2015), until recently, mental health has lacked a clear and universal definition (Bertolote, 2008; Galderisi et al., 2015). In recent decades, as the WHO definition of mental health has been widely used in the academic world, many psychologists have devoted themselves to constructing a universal mental health definition model. With the development of cross-cultural psychology, psychologists have found it difficult to build a model of mental health that can be universally applied to all cultural communities (Galderisi et al., 2015; Zhaoyan, 2017). With this in mind, they have set out to find models of mental health based on different cultural traditions (Kuo and Kavanagh, 1994; Office of the Surgeon General [US], Center for Mental Health Services [US], and National Institute of Mental Health [US]., 2001; Leslie, 2002; Bass et al., 2007). These models can be divided into two types according to their cultural backgrounds: One is the individually centered definition model of mental health based on Western culture; the other is the non-individually centered mental health model based on Eastern culture. The former is built on egoism, emphasizing the individual's normal psychological state or happiness maintained by satisfying individual desires; the latter, based on Confucian morals, equates mental health with a sense of morality. Both models have limitations: They cannot properly explain the Yin–Yang model, which is constructed based on Confucian moralism and Taoist liberalism in the context of traditional Chinese culture.

INDIVIDUALLY CENTERED DEFINITION MODELS OF MENTAL HEALTH AND THEIR LIMITATIONS

The exploration of an individual's mental functions has always been an important issue in Western philosophy. The early philosophers represented by Plato used the soul to explain the uniqueness of human mental functions (Seeskin, 2008). With the development of natural science in modern times, Hume and other philosophers began to distinguish the mental and physical systems into two different entities from the perspective of empiricism and began to explore their structures (Flage, 1982). In the 19th century, psychology as a science formally became independent from philosophy. While continuing philosophers' discussion of an individual's mental structure and other issues, psychologists began to devote themselves to constructing a universally applicable mental health definition model under the influence of modern science. However, because scientism has not eliminated the influence of the long-standing humanist trend of thought on psychology, there have been two research directions in the construction of individually centered mental health models: one is the negative mental health model based on scientism, and the other is the positive mental health model based on humanism (Shuang and Minli, 2017).

Negative Definitions of Mental Health

Since Hume, Western philosophical scholarship has generally paid attention to this problem: any form of mental expression can be naturalized into the "experience world," and mental forms can be explained by the attributes and relationships that people find in the experience world (Cottrell, 2018). This explanation of mental functions that emphasizes experience causes modern psychologists to pay more attention to the empirical analysis of an individual's mental state with empirical methods. Under this theoretical background, when Clifford Whittingham Beers, the first advocate of mental health suffering from mental illness, launched a mental health campaign in the United States aimed at seeking individual mental health by eliminating mental illness, scientism-based mental health definition models emerged. In these models, the basic principle of judging whether an individual has mental health issues is checking for the presence or absence of mental illness symptoms. These models take the empirical analysis of mental illness as being sufficient. They regard non-illness as health and demonstrate mental health from the perspective of mental illness. Therefore, academic circles call these models negative mental health definition models.

At first, the negative definitions of mental illness relied on biological explanations. Mental health was considered to encompass diseases of the brain, such as advanced syphilis or poison-induced psychosis (Szasz, 1960). Some argue that treating mental illness as a general illness would avoid the stigma of associating mental illness with moral anomie and mental disorders (Weiner, 1995). However, many psychologists are dissatisfied with this approach. They believe that the physiological definition of mental illness brings three types of negative consequences: First, it completely equates mental illnesses with physical illnesses, and does not show the unique characteristics of mental illnesses (Corrigan and Watson, 2004). Second, equating mental illnesses with brain defects could result in people forming the idea that mental illnesses are difficult to cure and thus could encourage social prejudice (Corrigan et al., 1999). Third, attributing mental illness to a physiological difference could lead to the public marginalizing people with mental illnesses as a distinct minority of the human race (Mehta and Farina, 1997; Phelan, 2002).

Since it was considered inadvisable to think of mental illnesses as diseases of the brain, psychologists began to think about the differences between mental and physical illnesses. The subsequent models can be divided into two categories: The first pins mental health on personality, putting a strong emphasis on the importance of social/personality development (Jahoda, 2013). The second considers both cognitive disorders and unusual behavioral patterns to be causes of poor mental health (Clausen, 1956). Although these two methods of thinking about mental illness and mental health have overcome the shortcomings of biological definition methods, their accuracy for judging mental illness has been questioned because they rely on objective psychological lists and scales. Scott pointed out that psychological lists and scales have limitations in setting standards, and it is easy to be judged as mentally ill by one scale and healthy by another scale. In addition, if psychological lists and scales are the determining factors in diagnosis, subjects can easily perceive this and manipulate the results according to their own will (Scott, 1958).

To overcome the negative impact of personal intentions on the diagnostic accuracy of mental health scales, psychologists began to explore a mental illness evaluation standard combining expert clinical diagnosis and personal intentions to seek medical treatment. Paul b. Lieberman, M.D., advocated combining objective methods with subjective experience to investigate individual psychological states. He proposed that expression and interpretation methods should be used instead of purely objectifying approaches, such as psychological scales. Using an expression and interpretation method means that the clinician should ask the patient to describe his/her mental state and then objectively analyze what he/she has said. The advantage of this approach is that the patient can no longer be limited by the scale and can express all of the factors related to his/her psychological state, such as personal behaviors, the situations in which the illness occurs, the common belief of his/her community, and his/her past. This allows the psychologist to gain a holistic view of the patient to make the most accurate clinical diagnosis (Lieberman, 1989). Unfortunately, this approach still fails to solve the problem of diagnosing mental illnesses posed by the Rosenhan experiment. In 1973, Rosenhan published an article describing an experiment in which eight mentally healthy people visited several public hospitals and one private hospital pretending to have mental illnesses. Nearly all of them were diagnosed with schizophrenia (Rosenhan, 1973). This is cause for psychologists' ability to diagnose mental illnesses to be strongly questioned (Resnick, 1984; Wilson and Plumly, 1984; Moncrieff, 2010; Jabr, 2012).

To sum up, due to the uncertainties in diagnosing mental illnesses, psychologists cannot reach a unified standard for judging individual mental states from the perspective of mental illness. More importantly, since Goffman, psychologists have found that the public prejudice against mental illness is one of the important reasons for increasing the stringency of mental illness diagnostics: Once the individual is diagnosed with a mental illness, they often will be discriminated against, rejected, or looked down upon, so they may not want to admit their bad mental state (Goffman, 1963; Byrne, 2000). The emergence of this phenomenon made psychologists realize that it is not a good choice to define mental health from the negative perspective of disease, which made it possible for positive psychologists to explore the definitions of mental health from the perspective of humanism.

Positive Definitions of Mental Health

It is difficult for psychologists to form a unified definition of mental illness because of the difficulties in diagnoses, and it is easy to stigmatize mental illnesses by talking about them from the perspective of illness. Therefore, since World War II, psychologists have sought to replace the negative mental health definition focusing on mental illness with a positive mental health definition focusing on health (Pilgrim, 2009). Psychologists generally recognize that mental health is the ability of an individual to maintain his or her health, but have different ideas about what that ability is.

Of course, it should be noted that the above analysis is not intended to show that the negative and positive definitions of mental health are opposed. They are just different ways of describing the psychological characteristics that a mentally healthy person should have. Complete mental health includes both negative mental health and positive mental health (Schnfeld et al., 2017). From this point of view, the negative mental health definitions state that a mentally healthy person should be a person without mental illness, and the positive mental health definitions state that a mentally healthy person should have self-actualization, well-being, and meaning in life. They are not contradictory, but instead have a similar theoretical pursuit—that is, to help each individual construct a perfect self, a happy self (Træen et al., 2019; Bowins, 2021). However, positive mental health models, like negative models, have some limitations.

In 1951, the World Health Organization described mental health as an individual's ability to establish good interpersonal relationships with others and to actively adapt to changes in the natural and social environment (WHO, 1951). This indicates the popularity of defining mental health in terms of individual ability. By 1958, there were so many of these theories that Jahoda wrote a book summarizing and analyzing them. Jahoda divided these theories into six categories (Jahoda, 1958), all of which aim at building or maintaining a perfect self. The first category of theories hold that mental health is when individuals can face themselves with a good attitude. The second kind of theory holds that mental health is the ability of individuals to be unique and achieve good self-growth and development. The third theory holds that mental health is the individual's ability to integrate various excellent psychological qualities. The fourth theory holds that mental health is the ability of individuals to maintain autonomy in the face of social influences on themselves. The fifth theory holds that mental health is an individual's ability to understand reality. The sixth theory asserts that mental health is an individual's ability to control his/her environment. It is not difficult to see that the first three types of theories define mental health from the perspective of the individuals themselves, while the last three types of theories define health from the perspective of the relationship between individuals and reality. In addition to these definitions, there are some other comprehensive definitions. For example, Martin Seligman, who studies mental health based on "authentic happiness," believes that a happy person should pursue a pleasant, engaged, and meaningful life (Seligman, 2002). Another Japanese term for mental health, Ikigai, suggests that healthy people have a sense of happiness, worth, and gratitude for being alive (Trudel-Fitzgerald et al., 2021). However, there are two limitations in all these definitions: One is that there is great uncertainty in the criteria for judging whether an individual has these abilities. Another limitation is that these definitions are built on an individually centered cultural context, which makes it difficult to explain the psychological state of people living in non-individually centered cultures. Let us examine these two limitations in detail.

First, in terms of evaluation criteria, to judge whether individuals can properly deal with the relationship between themselves and the environment, which requires individuals to act normally, it is necessary to judge what is normal and what is abnormal (Jahoda, 1958). The problem, as many scholars have realized, is that it is very difficult to define normal and abnormal. Take two of the most popular definitions of normal and abnormal, for example. We found that, first, the statistical definitions of normal and abnormal regard frequently occurring behaviors as normal behaviors, while regard infrequent behaviors as abnormal. On the one hand, this definition does not answer the question—what is "frequent"? Indeed, what is "infrequent"? It is difficult to find universal and uniform answers to such questions in our complex reality. In addition, this definition does not have good cultural adaptability. People's behaviors vary greatly among different cultural communities, and behaviors that occur frequently in one community may be rare in another (Scott, 1958; Rogers and Pilgrim, 2014). Second, psychologists who define "normal" by ideal notions regard "normal" as some positive psychological state, such as self-actualization and stress resistance (Jahoda, 1958). The problem with this definition is that these ideal notions are theoretical presuppositions, and only those willing to accept these presuppositions as positive mental states will see them as normal. This definition is ineffective for those who are unwilling to acknowledge these ideal notions (Rogers and Pilgrim, 2014).

As far as cultures are concerned, Narayan and Hurriyet pointed out that cultural differences have an impact on different aspects of mental health, including perceptions of health and illness, coping styles, and patterns of seeking treatment (Galderisi et al., 2015). As Murphy stated, the abovementioned definitions mainly reflect North American cultural values (Murphy, 1978), so their limitation is that they do not have satisfactory cross-cultural validity; that is, they cannot be universally applied to all cultural systems. Specifically, the definition of mental health in the context of North American culture emphasizes the establishment and perfection of the individual, which is quite different from the non-individually centered Eastern culture, which emphasizes the elimination of self.

Although Western academic circles have noticed the limitations of individualism in strengthening individuals since 1912 (Hogg and Williams, 2000), and have tried to get psychologists to examine individual self-cognition from the perspective of collectivism; no matter how hard social psychologists try, under the influence of American individualism and European humanism, it is generally believed that forming a holistic and consistent concept of oneself is the key to maintaining individual health. Allport proposed, "There is no psychology of groups which is not essentially and entirely a psychology of individuals" (Graumann, 1986). From this angle, the conception of self from the perspective of collectivism still relies on individual psychology. In this context, the Western academic definition of mental health has always been in favor of enhancing personal belonging, satisfaction, and happiness, which is greatly different from the Eastern culture that emphasizes self-sacrifice (Feng, 1933), self-elimination (Wang and Wang, 2020), or self-transformation (Aggarwal, 2019). Therefore, we cannot apply these definitions of mental health to Eastern cultural communities, and it has become a new task for psychologists to establish a definition of mental health with oriental cultural characteristics.

NON-INDIVIDUALLY CENTERED DEFINITIONS OF MENTAL HEALTH AND THEIR LIMITATIONS

In recent years, due to the inapplicability of the Western definitions of mental health to other cultures, more and more psychologists began to explore definitions of mental health based on Eastern culture. These can be called "non-individually centered" definitions to show the self-deconstruction characteristic of Eastern cultures. Although these definitions are highly diverse, none explain mental health in the context of Confucian and Taoist integration in China. The following two representative models are used to prove this.

The Manas Model of Mental Health

Many psychologists have realized that the Western definitions of mental health are based on the theoretical background of the mind–body dualism in Western philosophy (Bennett, 2007; Santoro et al., 2009; Thirunavukarasu, 2011)—for example, the above analysis of mental health as the absence of illness is focused on the mental health definition from the perspective of the body. Additionally, defining mental health in relation to character and psychological states is focused on the perspective of the mind. This separation of body and mind is not common in Eastern cultures. Based on this consideration, Thirunavukarasu proposed the Manas mental health definition model by using the concept of Manas in Indian culture.

Manas is a concept widely used in Hinduism and Buddhism. Although it is widely translated as the mind in modern English literature, it is quite different from the mind in Western philosophy. In Western philosophy, the mind is an entity different from the body, whereas Manas in Indian philosophy refers to a divine spiritual entity that transcends the opposition between body and mind. This entity can be regarded as a pure and divine cosmic soul, and the individual is the product of its interactions with the body and mind. Manas can be divided into thought, mood, and intellect, but each part is closely connected and indivisible. Individuals want to keep healthy to maintain the balance of these three. However, according to Manas, it is necessary to realize that individuals and others belong to the whole universe. Hence, one must construct the universal self and eliminate the individual self. On this basis, Thirunavukarasu constructed the triangle Manas mental health model (see **Figure 1**), indicating that mental health can be defined as the realization of the following three characteristics: (a) self-awareness (realizing that the self is not an individual, but a common Manas of human beings), (b) the ability to relate well with fellow human beings, and (c) understanding that all one's deeds and activities are useful to oneself and others, or least not detrimental to oneself or others (Thirunavukarasu, 2011).

The limitation of the Manas model is that it is based entirely on Indian culture; therefore, the Manas model cannot explain the concept of mental health in different cultural contexts. Although Indian Buddhism was introduced into China, there is evidence that Buddhist beliefs are substantially altered in China. Some scholars have even put forward that Chinese Buddhism is not Buddhism (Stone, 1999). Therefore, this model certainly does not explain the concept of mental health in traditional Chinese culture.

The Confucian and Taoist Models of Mental Health

In recent years, spirituality and religious coping have received widespread attention from psychologists, and some scholars have pointed out that religious coping strategies are effective in the treatment of mental illnesses. Considering this, Kam-Shing Yip

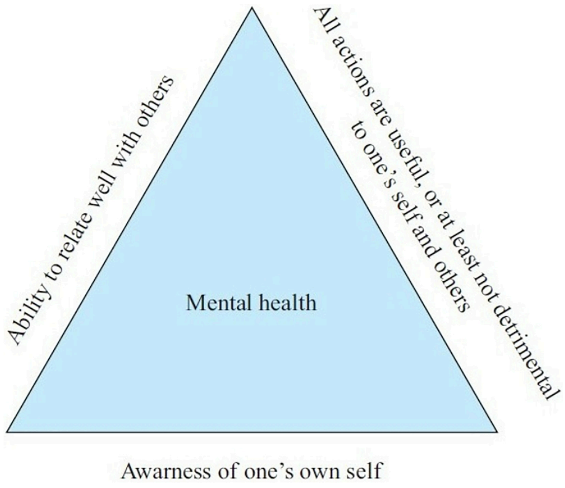

FIGURE 1 | Triangular model of mental health.

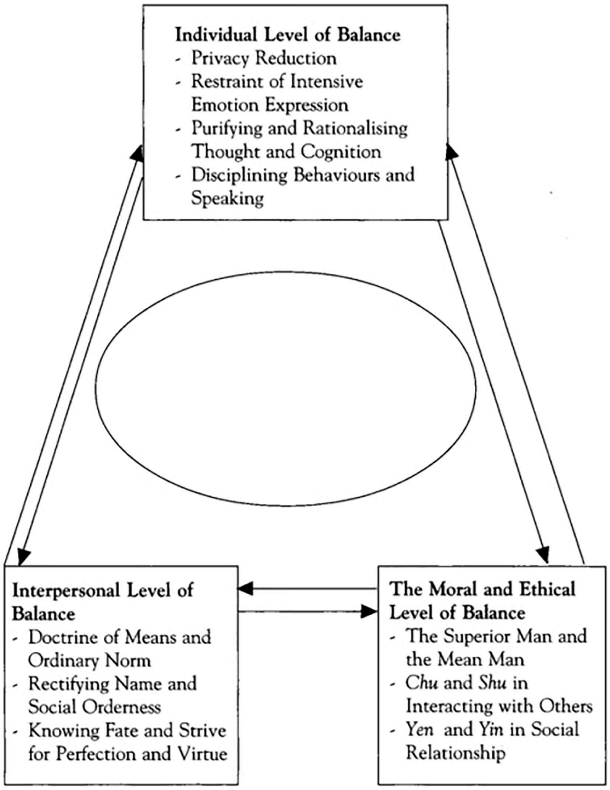

FIGURE 2 | Confucian model of mental health.

proposed the influential Confucian and Taoist mental health models by analyzing traditional Chinese culture.

Based on the classic Four Books of Confucianism, Kam-Shing Yip defined the Confucian understanding of mental health as a direction that suggests self-discipline and obedience to social order to maintain one's inner balance and external harmony with others. The three levels of harmony and balance are shown in a triangle model (see **Figure 2**). As the model indicates, to maintain mental health, individuals need to achieve three levels of balance—namely, the individual, interpersonal, and moral and ethical levels of balance (Yip, 2003). According to the viewpoints of Lao Zi and Zhuangzi, Kam-Shing Yip defined the Taoist understanding of mental health as the denial of self and the transcendence of individuals. Specifically, such transcendence is manifested in four aspects: First, the denial of the meaning of self-image and self-evaluation; second, going beyond one's social attainments and entering into the laws of nature and having true inner peace; third, maintaining a state of inaction or "natural silence"; fourth, pursuing absolute and ultimate happiness rather than individual happiness. Based on these considerations, we can obtain a Taoist model of mental health (see **Figure 3**) (Yip, 2004).

These two models are very useful in explaining the concept of mental health held by Chinese people. However, the two models were constructed separately, yet in Chinese history, Confucianism and Taoism have always been closely combined and have had a joint cultural influence on Chinese people. The literature on which Kam-Shing Yip built the models mainly came from the pre-Qin period, which is insufficient to show the characteristics of Chinese culture after the Qin Dynasty. Therefore, these models cannot perfectly reflect the concept of mental health in traditional Chinese culture.

THE YIN–YANG DEFINITION MODEL OF MENTAL HEALTH

Individual Desires, the Law of Nature, and the Moral Norm

Although, generally speaking, people tend to divide traditional Chinese culture into Confucianism, Buddhism, and Taoism, there is ample evidence that Confucianism and Taoism were inseparable at each stage of development (Yanqing, 2002; Yuxia, 2011; Cai and Geng, 2014). From the perspective of their origins, Confucius, the founder of Confucianism, and Lao Tzu, the founder of Taoism, are believed to have had contact. This is most well reflected in that Confucius once consulted Laozi. In addition, both early Confucianism and Taoism attached great importance to Zhouyi (*The Book of Changes*), and their ideological stances had many similarities. From the perspective of their development, although Confucianism and Taoism gradually developed in different directions after the pre-Qin dynasty, both Confucianism and Taoism still used Taiji diagrams to construct their theoretical systems until the Song Dynasty.

Based on Zhouyi (Zhenfu, 2018) and Taiji diagrams, which are valued by both Confucianism and Taoism, we can construct a Yin–Yang definition model of mental health with the common goal of eliminating individual desires.

Zhouyi is an early philosophical work in China. It expresses the basic views of Chinese people on the universe and life and has attracted much attention since its creation. Taiji and Yin–Yang are the basic concepts of Zhouyi. Taiji is the noumenon of the universe, and Yin and Yang respectively represent the static and dynamic states of Taiji. The static and dynamic changes of Taiji produce everything in the world (Ching, 1980; Baynes and Wilhelm, 2011).

In terms of the interpretation of Taiji and Yin and Yang by Confucianism and Taoism, Taoism attaches importance to Yin, believing that Yin represents the law of nature and Yang represents the activities of people in pursuit of fame, wealth, and individual desires. Individual obedience to Yang's activities will lead to the expansion of desires, creating a man-made world in opposition to nature, resulting in opposition between man and nature, bringing bondage to the individual's mind. Meanwhile, if the individual obeys Yin, that is, the law of nature, he/she will eliminate the opposition between human and nature, so that the mind is free and mental health is sound. This view expressed in the model is embodied in **Figure 4**. In the figure, white represents Yang (desire) and black represents Yin (the law of nature). Tai Chi works clockwise, Yin into Yang: Personal desires are eliminated, Taiji becomes a harmonious whole, and individual freedom is united with nature. This provides mental health.

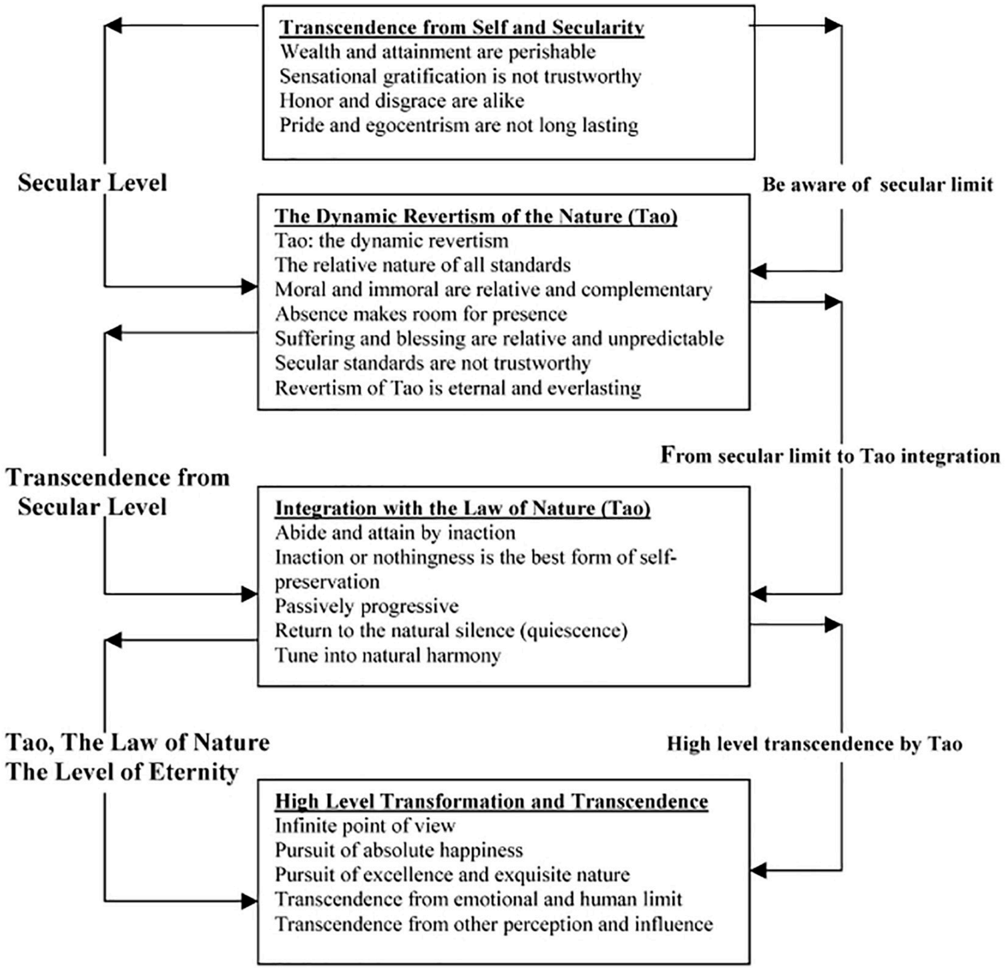

FIGURE 3 | Mental health concept of classical Taoism by Lao Tzu and Chuang Tzu.

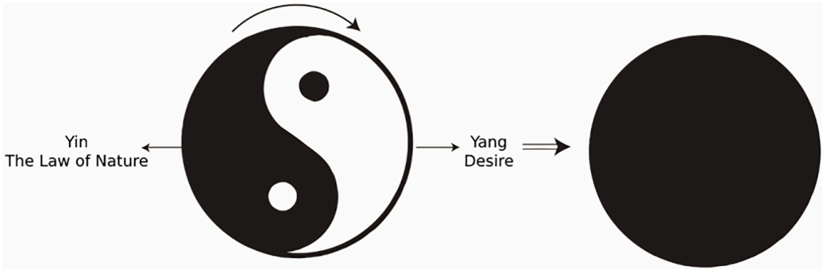

FIGURE 4 | Taoist mental health definition model.

Confucianism values Yang and considers Yang to be the driving force for the formation of a good human society—the moral norm, whereas Yin is the individual's pursuit of pleasure, fame, and wealth. An individual's obedience toward Yin's activities will lead to the expansion of desires, creating a selfish world that opposes society—a contradiction between the individual and the society—and bringing bondage to said individual's mind. If an individual obeys Yang's activities, he is in line with social ethics and actively seeks for the welfare of others, which will eliminate the contradiction between himself and society, free his mind, and maintain his mental health. This view is expressed in the model embodied in **Figure 5**, in which white areas represent Yang (the moral norm) and black areas represent Yin (personal desires). Taiji works clockwise, Yang into Yin: Personal desires are eliminated, Taiji becomes a harmonious

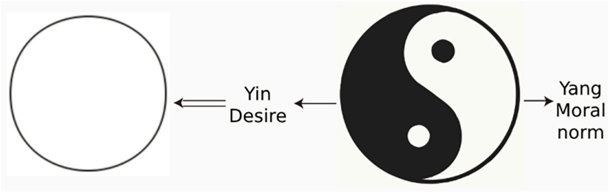

FIGURE 5 | Confucian mental health definition model.

whole, and the individual is unified with society; he has realized mental health.

Confucian and Taoist Approaches to Mental Health

It can be seen from the Yin–Yang model that both Confucianism and Taoism regard individual desires as the fundamental cause of mental illness, so eliminating desires is the main way of achieving mental health. However, because Confucianism and Taoism focus on different aspects of Yin and Yang, and they have different approaches to eliminating desires.

Specifically, Taoism emphasizes eliminating individual desires by bringing humans back to their natural state and integrating them with natural laws. According to the degree of desire elimination, humans can be divided into three types: Suren, Shanren, and Zhiren. Confucianism emphasizes suppressing selfish tendencies by transforming individual desires into collective desires. According to the degree of transformation, humans can be divided into the Xiaoren, Junzi, and Shengren types. The classifications of humans by Confucianism and Taoism is more clearly shown in **Figure 6**.

As far as Taoism is concerned, the first situation is that in the mind of a person, the power of natural law is weakest and the power of desire is strongest (both point A), and this person is Suren. A Suren is characterized by being smart and calculating, and he is bent on satisfying his desires without thinking about

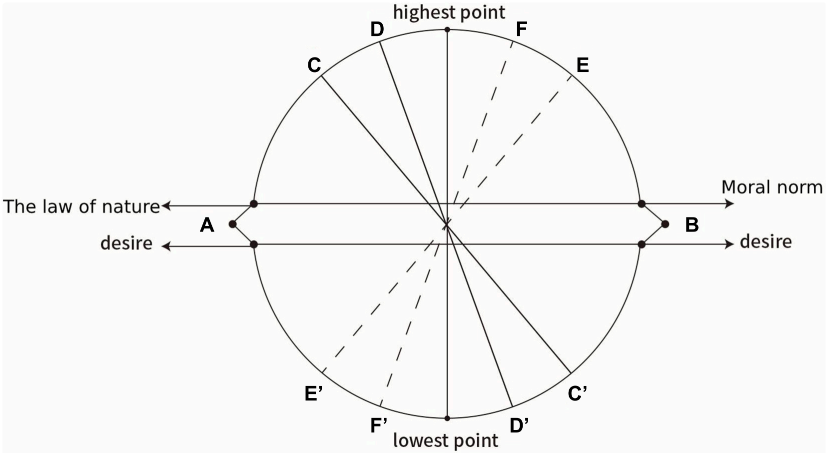

FIGURE 6 | The changes in mental states of Confucianism and Taoism.

TABLE 1 | Confucian and Taoist approaches to mental health.

Taoism (Nature)				Confucianism (Society)			
Cultivation level	**Types**	**The type of uncontrollable desire**	**Practice**	**Practice**	**The type of uncontrollable desire**	**Types**	**Cultivation level**
High	Zhiren	None	1. Forget the difference and opposition between self and the universe	1. Benevolence	None	Shengren	High
	Shanren	Affinity for the law of nature	2. Keep mind empty and void	2. Righteousness	Affinity for the moral norm	Junzi	
	Ordinary people	Love		3. Propriety	Acquisitiveness	Ordinary people	
Low	Suren	Clinging		4. Wisdom 5. Fidelity	Selfish	Xiaoren	Low

his relationship with nature and does not know that his desires deviate from natural laws. In the second case, in one's mind, the force of natural law rises to point C and desire falls to point C'. At this point, the person can realize the importance of natural laws, but cannot completely control his/her desires, and this person is ordinary. In the third case, in one's mind, the force of natural law rises to D and that of desire falls to D prime. At this point, that person is Shanren. He has a relatively good understanding of the natural law and can control his desires according to the natural law, but he still regards himself as having an independent existence, separate from nature. In the fourth case, in one's mind, the force of natural law rises to its highest point and desire falls to its lowest point. This person is Zhiren. He regards himself as only a part of nature; to conform with nature is his principle for action.

In Confucianism, the first situation is that in the mind of a person, the powers of natural law and desire are both at point B: The power of moral norms is weakest, and the power of desires is strongest. This person is Xiaoren. Xiaoren is self-centered and focuses on satisfying his desires without thinking about his relationships with others. He does not know that his desires are not conducive to the development of society and his country. In the second case, the strength of the moral norms rises to point E and that of desires falls to point E'. At this point, the person can realize the importance of moral norms, but cannot completely control his/her desires. This person is ordinary. In the third case, moral strength rises to the F point and desires fall to point F'. In this case, the person is Junzi; he has a very good understanding of moral norms and can mostly control his desires to conform with moral norms, but he still makes mistakes. In the fourth case, the moral force rises to its highest point and desires fall to their lowest point in a person's mind. In this case, that person is Shengren; he is characterized by the complete integration of himself with society as a whole, acting according to the needs of all mankind.

Both Taoism and Confucianism regard individual desires as the root of mental illness, and the integration of the individual with nature/society as a sign of mental health. Therefore, in real life, ordinary people need to improve themselves by practicing some approaches to eliminate or transform their desires to maintain mental health. The specific process is shown in **Table 1**.

It is worth noting that in Confucianism and Taoism, the goal of eliminating desires is not to achieve a better self but to eliminate the self completely and make oneself part of society or nature, which is the concept of selflessness often mentioned in their writings (WEI Xindong, 2020). This idea is not only at odds with the Western definition of mental health, which aims to construct and perfect the self, but is also at odds with the existing Confucian and Taoist definitions of mental health, which only emphasize the elimination of individual desires.

CONCLUSION

Mental health has lacked a clear and universal definition since the term was first used in Europe in the mid-19th century. According to the cultural ideas in question, the former definitions of mental health could be divided into two types: One is the individually centered definitions based on Western culture; the other is the non-individually centered definitions based on Eastern culture. The former type is based on egoism, emphasizing the realization of individual happiness by maintaining the unity of self and constructing a good self-image. The latter type, based on the Hindi, Confucian, and Taoist cultures, advocates the maintenance of a free psychological state by deconstructing the self and eliminating one's own desires. Both models have their limitations and cannot correctly explain the Yin–Yang model based on Confucian moralism and Taoist liberalism in the context of traditional Chinese culture. Given this limitation, this study constructed a Yin–Yang mental health model based on Zhouyi and Taiji diagrams, which both Taoism and Confucianism attaching importance, using the historical fact that both Taoism and Confucianism influence Chinese people simultaneously. This model proposes, for the first time, that the basic view of Taoism and Confucianism on mental health is to eliminate or transform individual desires, and the specific way to eliminate or transform individual desires is to promote the unity of man with nature or society. This model not only establishes a mental health standard more in line with the actual thinking of Chinese people, but also helps to provide cultural resources for thinking about the psychological problems of modern Chinese youth.

AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and has approved it for publication.

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CONCEPTUAL ANALYSIS
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Cultural Representations of Borderline Personality Disorder

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Background/Objective: Borderline Personality Disorder (BPD) is characterized by unstable interpersonal relationships, impulsivity, and self-harm. There are many distinct stressors that predispose individuals to develop BPD or engage in self-harm behaviors. The objective of this systematic review was to compare methods of self-harm and psychological stressors in BPD across different cultures.

Methods: A PubMed database search was conducted with the goal of capturing all articles ($n = 22$) that discussed methods of self-harm in BPD in any culture. Data extracted from the articles included methods of self-harm, psychological stressors, sample size, rurality, geographical location, and proportion of males to females.

Results: Key differences were noted in the methods of self-harm. Eastern nations ($n = 5$) reported higher rates of self-poisoning (60%) than Western nations (11%). Western nations ($n = 9$) reported higher rates of skin-mutilating behavior (100%) than Eastern nations (80%). Two of the articles included participants from rural settings, one in the Sundarban region of India and the other in Mississippi. Notably, the Sundarban region reported the highest rate of poisoning (93%) whereas the Mississippi region reported high rates of skin mutilation. Differences were also noted in psychological stressors as the rates of interpersonal problems were higher in Western than in Eastern nations.

Conclusions: Additional research should be conducted into the presentation of BPD in different cultures. An improved understanding of the cultural presentations of BPD could improve diagnosis and treatment in various populations.

Keywords: borderline personality disorder, culture, self-harm, non-suicidal self-injury, stressors, parasuicide

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INTRODUCTION

According to the Fifth Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), Borderline Personality Disorder (BPD) is characterized by "a pervasive pattern of instability of interpersonal relationships, self-image, affects, and marked impulsivity" (Chowdhury et al., 2013). Patients with BPD have a history of unstable and intense relationships, along with an extreme fear of abandonment, and they often engage in self-injurious and/or self-mutilating behaviors to seek attention from others which may or may not include suicidal intent (Chowdhury et al., 2013). Occasionally patients will accidentally complete suicide making it very difficult to discern whether suicidal intent occurred prior to the incident. It is important to classify self-harm behavior on the basis of the intent to die because psychopathological characteristics differ between the two

(Del Bello et al., 2015). For instance, patients who perform non-suicidal self-injury are more likely to be women and diagnosed with BPD. The prevalence of BPD in the general population is about 1% compared to 10–12% and 20–22% in outpatient psychiatric clinics and inpatient clinics, respectively (Ellison et al., 2018). This prevalence estimate has been determined by research in primarily Western countries whereas little research has been conducted on BPD in other cultures (Ellison et al., 2018).

The few studies that have investigated the presentation of BPD in non-Western cultures have found that the manifestations of BPD are varied between cultures, which is not accounted for in the DSM-5 diagnosis for BPD. For example, Ronningstam et al. (2018) found that the occurrence of aggressive behaviors is heightened in Iranian society, meaning an Iranian patient with BPD may be more likely to demonstrate aggression. Additionally, Italian patients with BPD show less impulsivity and parasuicidal acts, which may be linked to the Italian culture which is predominantly collectivistic and Catholic (Ronningstam et al., 2018). Collectivistic and family-oriented culture may prevent Italian individuals from exhibiting the classic impulsive and suicidal behaviors of BPD. Thus, it is possible that BPD can go misdiagnosed or undiagnosed when failing to account for a patient's cultural context.

Because there has been minimal research on BPD in non-Western cultures, there is a debate on whether or not BPD is solely a "Western" disorder with the development of BPD prevented in traditional and collectivistic societies of non-Western cultures. In attempt to study this hypothesis, suicide attempters from a Mumbai, India hospital were studied for the presence of BPD (Pinto et al., 2000). Using the DSM-IV criteria, Pinto and associates found that 17.3% ($n = 13$) of suicide attempters had a diagnosis of BPD, suggesting that BPD does exist in India and may go underreported. However, the study was conducted at a large urban hospital which may be more "westernized" than small, rural communities. There is still an incomplete understanding on whether BPD goes undiagnosed in non-Western cultures or that it simply does not exist in these societies.

Additionally, some studies use different terminology for BPD such as "emotionally unstable" or "impulsive" which may indicate different BPD pathology depending on the culture (Nath et al., 2008). China has not included BPD in the Third Edition of the Chinese Classification of Mental Disorders (CCMD-3), but does include "impulsive personality disorder" which heavily overlaps with BPD (Wang et al., 2012). There are certain behaviors that define BPD that may not be suitable for Chinese culture, such as reckless driving, promiscuous sex, and substance abuse (Wang et al., 2012). Owning a car is uncommon in China, sex is a taboo topic in Chinese culture, and many illicit drugs are heavily controlled in China (Wang et al., 2012). Therefore, certain behaviors associated with BPD may not be appropriate for the CCMD-3. This begs the question: can the diagnosis of BPD be used for all cultures or is it primarily Western-driven?

The primary purpose of this paper is to investigate BPD behaviors across cultures. This report will focus on non-suicidal self-injury or "parasuicide" which includes any self-mutilating behavior without the explicit intent to die by suicide. Many distinct psychological stressors predispose individuals to BPD, such as interpersonal or family issues. This report will investigate cultural differences in these stressors. To our knowledge, there has been no analysis of cultural differences in BPD.

This literature review will address the following questions:

1. How does non-suicidal self-harm or BPD behaviors differ across cultures?
2. How do psychological stressors of BPD vary across cultures?

METHODS

A literature search was conducted using PubMed to identify articles that discuss various cultural presentations of Borderline Personality Disorder. The keywords were established with the assistance of an experienced librarian (see **Table 1**). Additionally, non-exhaustive initial searches and reference/citation lists were explored to identify important keywords and to find articles pertaining to BPD not captured in the main search. The details of these searches may be found in the **Appendix**. The results of the PubMed search were screened according to the inclusion and exclusion criteria defined in **Table 2**. Articles were included if they discussed BPD and parasuicidal behaviors in a specific culture or discussed various clinical manifestations of BPD from a cultural context. Articles were excluded if they did not mention BPD and parasuicidal behaviors in a specific culture, were not in English, did not contribute relevant information to the review, studied a screening method or therapy for BPD, focused on non-generalizable populations, or focused heavily on suicidal behaviors. The initial 66 articles were screened by title and

TABLE 1 | Literature search keywords.

	AND	AND
borderline[tiab] OR *"borderline disorder"[tiab]* OR *"borderline personality disorder"[tiab]*	*suicide[ti] AND (pattern*[ti] OR behavior[ti]) OR "parasuicidal"[ti] OR "self harm"[ti] OR "self injurious behaviors"[ti] OR "suicidal behavior*"[ti] OR "suicidal behavior*"[ti] OR "suicide ideation"[ti] OR "suicidal ideation"[ti]*	*"North America" OR Canada OR Africa OR Asia OR India OR Europe OR China OR Japan OR Korea OR Taiwan OR Russia OR "South America" OR Eastern OR western OR race OR ethnicity OR origin OR "geographic region" OR "countries of origin" OR "country of origin" OR immigrant* OR refugee* OR Indigenous OR "First Nations" OR "Alaska Native" OR "Native American" OR latin* OR Hispanic OR "African American" OR black*

abstract using these criteria, resulting in the exclusion of 37 articles (**Figure 1**). The full texts of the remaining 29 articles were screened using **Table 2** criteria, resulting in the exclusion of an additional 17 articles. Thus, this literature search identified 12 published articles pertaining to BPD presentations, in addition to 5 articles from initial searches and 4 from reference/citation lists. Finally, 1 additional article was discovered by a reviewer giving us a total of 22 articles for review.

Data extracted from the articles included methods of self-harm, psychological stressors, sample size, rurality, geographical location, and proportion of males to females. Some articles explicitly attributed particular self-harm methods and psychological stressors to people with a diagnosis of BPD whereas others did not make this distinction between BPD and other psychiatric disorders. The articles that did not make this distinction were still included because some cultures may underdiagnose BPD or classify it as a different disorder (Pinto et al., 2000).

TABLE 2 | Inclusion/exclusion criteria used to screen the results of the PubMed search.

Inclusion criteria

Any article that mentions BPD and parasuicidal behaviors in a specific culture or in multiple different cultures

Articles that discuss the various clinical manifestations of BPD and the socio-cultural context of personality disorders

Articles are not limited to any particular geographic location

Exclusion criteria

Articles with no mention of BPD and parasuicidal behaviors

Articles that are not in English

Articles that do not contribute relevant Information (self-harm methods, psychological stressors, cultural context) to the diagnosis of BPD

Articles that are studying the effectiveness of a screening method for identifying BPD

Articles that are studying the effectiveness of a therapy for treating BPD

Articles focused on non-generalizable populations, such as inmates

Articles that focus heavily on suicidal behaviors with the explicit intent to die by suicide

The articles were divided into the subgroups Eastern and Western nations. Eastern nations included East Asia, East India/Morocco, Hong Kong, India, and Japan. Western nations included Canada, Croatia, Italy, Norway, Sweden, United States, and Western Australia. While this classification system results in a broad generalization of multiple unique cultures into only two categories, it highlights the need for more data on BPD from a global perspective. There are vast cultural differences within each of these categories, thus this analysis may not represent the complexities of BPD presentation in multiple distinctive cultures. Rurality was defined by each article. Some articles defined their study population as "rural," "urban," or "mixed rural/urban" which is indicated in **Tables 3**, **4**.

RESULTS

Literature Search

The initial PubMed search performed in March 2020 yielded 66 results. After a screening of titles and abstracts, 37 articles were excluded because they did not mention BPD and parasuicidal behaviors, were not in English, did not contribute relevant information to the objectives of this analysis, or focused on a non-generalizable population. After screening the full text of the remaining 29 articles, 17 were excluded because they did not contribute relevant information to the objectives of this literature review or they focused very heavily on suicidal behaviors with the explicit intent to die by suicide. A repeat literature search with the same keywords was conducted in January 2022 which yielded 72 total results, 66 articles from our previous search and 6 new articles. None of the 6 articles were included for the following

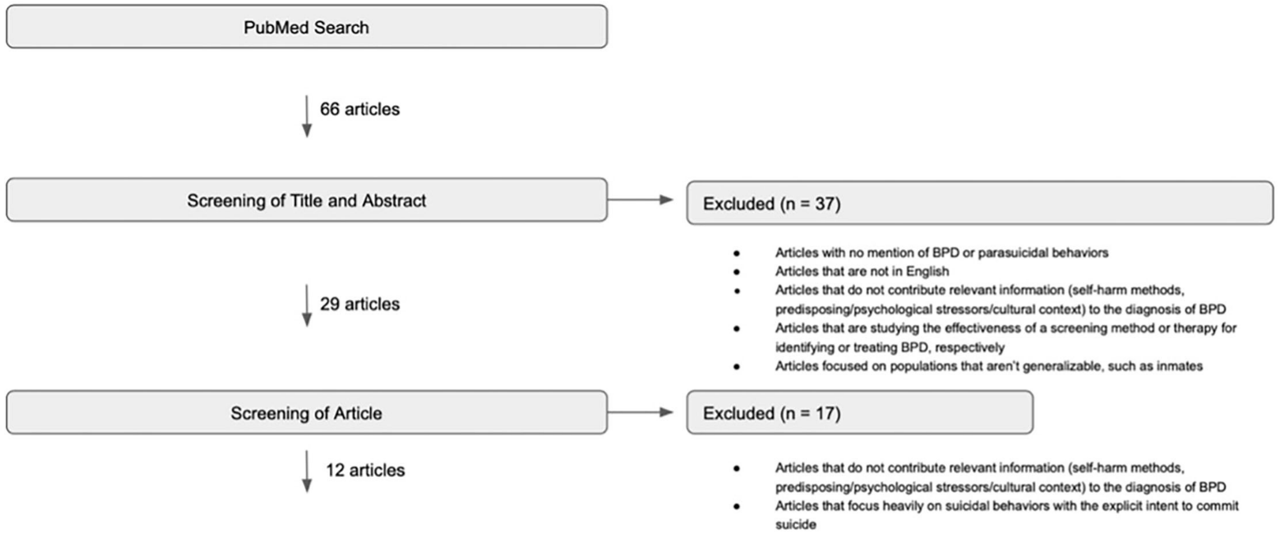

FIGURE 1 | PubMed search for articles pertaining to Borderline Personality Disorder presentations (3/2020).

TABLE 3 | Methods of self-harm by study based on 13 BPD articles.

	Publication year	Sample size (*n*)	Rurality	Population	BPD mentioned clearly with self-harm	Skin mutilation %	Burning %	Poisoning %	Overdose %	Impact %	Asphyxiation %
Hong Kong Prevalence of borderline personality disorder and its clinical correlates in Chinese patients with recent deliberate self-harm	2010	30	Urban	Chinese	X[a]	20	3	3	87	3	
India (Sundarban Region) Sociocultural Context of Suicidal Behavior in the Sundarban Region of India	2013	89	Rural	Indian		[b]		93	2		5
Japan (Tokyo) Clinical characteristics of suicidal behavior in an intensive care unit at a university hospital in Japan: A 7-year observational study	2018	971	Urban	Japanese		9	4	4	75	5	3
Japan (Tokyo) Motivation factors for suicidal behavior and their clinical relevance in admitted psychiatric patients	2017	155	Urban	Japanese		40			30	20	14
Croatia (Osijek) Self-injury in adolescents: A five-year study of characteristics and trends	2019	105	Urban	Not specified		92	4			4	
Italy (Rome) Deliberate self-harm behavior among Italian young adults: correlations with clinical and nonclinical dimensions of personality	2012	365	Urban	Italian		65	7			11	
Italy (Naples) Prevalence and clinical correlates of deliberate self-harm among a community sample of Italian adolescents	2011	234	Urban	Italian		65	6			12	
Norway (West Coast) Desire to survive emotional pain related to self-harm: A Norwegian hermeneutic study	2010	13	—	Not specified	X	✓[c]	✓		✓		
Sweden (Umeå) Personality disorders in parasuicide	2001	35	Urban	Not specified	X	✓		✓	✓	✓	✓
United States (Rhode Island) Nonsuicidal self-injury and suicide: Differences between those with and without borderline personality disorder	2020	389	Urban	87.2% Caucasian, 4.1% African American, 2.8% Hispanic, 1.0% Asian, 3.3% Portuguese, 0.1% American Indian, 1.5% Other	X	95	5			26	
United States (Mississippi) Deliberate self-harm among underserved adolescents: the moderating roles of gender, race, and school-level and association with borderline personality features	2011	1931	Rural	67.0% Caucasian		60	15			46	
				33.0% African American		77	21			58	

(Continued)

TABLE 3 | Continued

	Publication year	Sample size (*n*)	Rurality	Population	BPD mentioned clearly with self-harm	Skin mutilation %	Burning %	Poisoning %	Overdose %	Impact %	Asphyxiation %
United States (New York) Psychiatric impairment among adolescents engaging in different types of deliberate self-harm	2008	30	Urban	69.0% Hispanic, 20.0% African American, 4.0% Caucasian, 4.0% Other		74	10		33		3
Western Australia Risk factors for repetition of a deliberate self-harm episode within seven days in adolescents and young adults: A population-level record linkage study in Western Australia	2016	16966	Mix (mostly urban)	93.3% Non-Aboriginal, 6.7% Aboriginal		✓			45		

[a] *X Signifies that the article clearly attributes the methods of self-harm to BPD patients.*

[b] *Blank squares signify no data.*

[c] *✓ Signifies that the article mentioned this method of self-harm but did not provide a percentage.*

reasons: focused very heavily on suicidal behaviors, focused on non-generalizable populations, or did not contribute relevant information to this study. The details of the PubMed search performed in March 2020 can be found in **Figure 1**.

Using a reference and citation search from the 12 articles (Jacobson et al., 2008; Nath et al., 2008; Holm and Severinsson, 2010; Wong et al., 2010; Cerutti et al., 2011, 2012; Gratz et al., 2012; Del Bello et al., 2015; Hu et al., 2016; Hayashi et al., 2017; Takeuchi et al., 2018; Bježančević et al., 2019) identified through the PubMed search, an additional 4 articles (Paris, 1996; Pinto et al., 2000; Söderberg, 2001; Wang et al., 2012) were identified. Five other articles (Bježančević et al., 2019; Ronningstam et al., 2018; Haliczer et al., 2019; Chartrand et al., 2020; Levine et al., 2020) included in the literature review are from non-exhaustive initial searches that were conducted while refining the keywords for the main search. One additional article was discovered by a reviewer and included in the review (You et al., 2012). Overall, a total of 22 articles were included in the literature review, 5 from the non-exhaustive initial searches, 12 from the main search, 4 from the reference and citation search, and 1 from the reviewer. Eighteen of the 22 articles directly contributed data to the self-harm methods and psychological stressors (**Tables 3**, **4**). From the remaining 4 articles (Nath et al., 2008; Wang et al., 2012; Del Bello et al., 2015; Haliczer et al., 2019), relevant information was extracted and incorporated into the introduction and discussion sections because they provided cultural context on BPD. Of the 22 articles reviewed, 14 (64%) mentioned methods of self-harm and 11 (50%) mentioned psychological stressors within the context of BPD.

The articles that clearly defined self-harm methods and psychological stressors in participants with BPD can be identified in **Tables 3**, **4** with a check mark in the column "BPD mentioned clearly with self-harm/psychological stressors." Seven of the 22 articles (32%) clearly attributed self-harm methods/psychological stressors to a BPD diagnosis. All of the articles besides one (95%) used a diagnosis of BPD. The exception was conducted in Kolkata, India and used the diagnosis of emotionally unstable personality disorder which they defined as impulsive, borderline or both (Nath et al., 2008).

Methods of Self-Harm

Fourteen (64%) studies mentioned methods of self-harm that were seen in a particular culture (Söderberg, 2001; Jacobson et al., 2008; Holm and Severinsson, 2010; Wong et al., 2010; Cerutti et al., 2011; Gratz et al., 2012; You et al., 2012; Hu et al., 2016; Hayashi et al., 2017; Takeuchi et al., 2018; Bježančević et al., 2019; Chartrand et al., 2020; Levine et al., 2020). The total sample size for these studies is 26,095, with 63% ($n = 16{,}313$) women and 37% ($n = 9{,}782$) men. The methods of self-harm reported in each article were summarized into the following categories: skin mutilation, burning, poisoning, overdose, impact, and asphyxiation which is detailed in **Table 5**.

Out of the 14 self-harm studies, 93% ($n = 13$) reported skin mutilation, 71% ($n = 10$) reported burning, 71% ($n = 10$) reported impact, 62% ($n = 8$) reported overdose, 38% ($n = 5$) reported asphyxiation, and 31% ($n = 4$) reported poisoning. There were notable differences in the methods of self-harm

TABLE 4 | Psychological stressors by study based on 12 BPD articles.

	Publication year	Sample size (*n*)	Rurality	Population	BPD mentioned clearly with psychological stressors	Interpersonal problems %	Family issues %	Financial problems %	Health problems %	Abuse %	Violence/ accident %	Miscarriage/ abortion %	Examination failure %	Moving %	Mental shock %	Imprisoned Relatives/ Personally Imprisoned %
Hong Kong Prevalence of borderline personality disorder and its clinical correlates in Chinese patients with recent deliberate self-harm	2010	30	Urban	Chinese	X[a]	[b]				63						
East Asia Cultural aspects in symptomatology, assessment, and treatment of personality disorders	2018	—	—	East Asian	X	✓[c]										
East India/Morocco Cultural factors in the emergence of borderline pathology	1996	2	—	East Indian/Moroccan		50	50					50				
India (Mumbai) Borderline personality disorder exists in India	2000	75	Urban	Indian						62						
India (Sundarban Region) Sociocultural Context of Suicidal Behavior in the Sundarban Region of India	2013	89	Rural	Indian		12	88	9	3	19			3		4	
Japan (Tokyo) Clinical characteristics of suicidal behavior in an intensive care unit at a university hospital in Japan: A 7-year observational study	2018	971	Urban	Japanese		24	33	18	6							
Japan (Tokyo) Motivation factors for suicidal behavior and their clinical relevance in admitted psychiatric patients	2017	155	Urban	Japanese		✓										

(Continued)

TABLE 4 | Continued

	Publication year	Sample size (*n*)	Rurality	Population	BPD mentioned clearly with psychological stressors	Interpersonal problems %	Family issues %	Financial problems %	Health problems %	Abuse %	Violence/ accident %	Miscarriage/ abortion %	Examination failure %	Moving %	Mental shock %	Imprisoned Relatives/ Personally Imprisoned %
Canada (Manitoba) A comparison of self-harm presentations to emergency services: Nonsuicidal self-injury versus suicide attempts	2020	158	—	Not specified		35										
Croatia (Osijek) Self-injury in adolescents: A five-year study of characteristics and trends	2019	105	Urban	Not specified		39	13		3	19	5	5		16		
Italy Cultural aspects in symptomatology, assessment, and treatment of personality disorders	2018	—	—	Italian	X		✓									
Italy (Naples) Prevalence and clinical correlates of deliberate self-harm among a community sample of Italian adolescents	2011	234	Urban	Italian		61		12	49	50	Y[d]	1				30
Norway (West Coast) Desire to survive emotional pain related to self-harm: A Norwegian hermeneutic study	2010	13	—	Not specified	X					Y[d]	46					

[a] *X Signifies that the article clearly attributes the psychological stressors to BPD patients.*
[b] *Blank squares signify no data.*
[c] *✓ Signifies that the article mentioned this psychological stressor but did not provide a percentage.*
[d] *Y signifies that the article reported data on specific subcategories of violence or abuse but did not provide data on the total number experiencing violence or abuse.*

TABLE 5 | Self-harm methods for BPD which were indicated in the literature.

Skin mutilation	Cutting skin (Jacobson et al., 2008; Holm and Severinsson, 2010; Wong et al., 2010; Cerutti et al., 2011; Gratz et al., 2012; You et al., 2012; Hu et al., 2016; Takeuchi et al., 2018; Bježančević et al., 2019; Levine et al., 2020), wrist/arm cutting (Söderberg, 2001; Hayashi et al., 2017), cutting other parts of body (Hayashi et al., 2017), carving words into skin (Cerutti et al., 2011; Bježančević et al., 2019; Levine et al., 2020), carving pictures into skin (Cerutti et al., 2011; Bježančević et al., 2019), scratching skin (Cerutti et al., 2011; Gratz et al., 2012; Bježančević et al., 2019; Levine et al., 2020), picking skin (Levine et al., 2020), wound picking (Levine et al., 2020), interference with wound healing (Cerutti et al., 2011; Bježančević et al., 2019), stab/puncture (Jacobson et al., 2008), biting (Cerutti et al., 2011; Gratz et al., 2012; You et al., 2012; Bježančević et al., 2019), chewing mouth (Levine et al., 2020), sticking pins, needles, staples, into skin (Cerutti et al., 2011; Bježančević et al., 2019), rubbing glass into skin (Cerutti et al., 2011; Bježančević et al., 2019), using bleach/oven cleaner to scrub skin (Cerutti et al., 2011; Bježančević et al., 2019), rubbing sandpaper on skin (Cerutti et al., 2011; Bježančević et al., 2019), genital injury/mutilation (Levine et al., 2020), hurt self while masturbating (Levine et al., 2020), and hair pulling (Levine et al., 2020)
Burning	Burning with cigarettes (Cerutti et al., 2011; Bježančević et al., 2019), burning with lighter/match (Cerutti et al., 2011; Bježančević et al., 2019), burning skin (unspecified) (Söderberg, 2001; Jacobson et al., 2008; Holm and Severinsson, 2010; Gratz et al., 2012; You et al., 2012; Bježančević et al., 2019; Levine et al., 2020), charcoal burning/gas poisoning (Wong et al., 2010), and use of charcoal briquettes (Takeuchi et al., 2018)
Poisoning	Corrosives ingestion (Wong et al., 2010), chemical poisoning (Takeuchi et al., 2018), Carbon monoxide intoxication (Söderberg, 2001; Takeuchi et al., 2018), poisoning with agrochemical pesticides (Chartrand et al., 2020), poisoning with household chemicals (Chartrand et al., 2020), and poisoning with indigenous poisons (Chartrand et al., 2020)
Overdose	Poisoning with non-illicit drug (Hu et al., 2016), poisoning with illicit drug (Hu et al., 2016), poisoning with medicines (Chartrand et al., 2020), overdosing on prescribed psychotropics (Hayashi et al., 2017), overdosing on other prescribed medicine (Hayashi et al., 2017), overdosing on OTC medicine (Hayashi et al., 2017), drug overdose (Söderberg, 2001; Jacobson et al., 2008; Holm and Severinsson, 2010; Wong et al., 2010; Takeuchi et al., 2018), and alcohol overdose (Holm and Severinsson, 2010)
Impact	Traffic (Hayashi et al., 2017; Takeuchi et al., 2018), banging (Gratz et al., 2012), banging head (Cerutti et al., 2011; You et al., 2012; Bježančević et al., 2019), banging head, arms, and legs (Levine et al., 2020), stabbing items in the body (Bježančević et al., 2019), hitting self (Levine et al., 2020), hitting body on a subject (Bježančević et al., 2019), punching self (Cerutti et al., 2011; Gratz et al., 2012; You et al., 2012; Bježančević et al., 2019), and jumping from height (Söderberg, 2001; Wong et al., 2010; Hayashi et al., 2017; Takeuchi et al., 2018)
Asphyxiation	Drowning (Takeuchi et al., 2018) and strangulation (Söderberg, 2001; Jacobson et al., 2008; Hayashi et al., 2017; Takeuchi et al., 2018; Chartrand et al., 2020)

between Eastern and Western nations which can be found in **Table 6**. In Eastern nations, the predominant forms of self-harm were overdose and poisoning. Wong et al. (Hong Kong) reported 87% ($n = 26$) of participants with BPD overdosed, Takeuchi et al. (Tokyo, Japan) reported 75% ($n = 732$) of participants overdosed, and Chowdhury et al. (Sundarban, India) reported 93% ($n = 83$) of participants self-poisoned. The predominant form of self-harm in Western nations was skin mutilation which was seen in 92% ($n = 97$) of participants from Croatia (Bježančević et al., 2019), 95% ($n = 431$) of participants from Rhode Island (Levine et al., 2020), and 77% ($n = 1,487$) for the African American population from Mississippi (Gratz et al., 2012).

Two of the articles included participants from rural settings, one in the Sundarban region of India (Chartrand et al., 2020) and the other in Mississippi (Gratz et al., 2012). Notably, the Sundarban region reported the highest rate of poisoning (93%) which included agrochemical pesticides, household chemicals, and indigenous poisons. Additionally, the Sundarban article was the only article which did not mention skin mutilation as a method of self-harm. The rural Mississippi article showed high rates of skin mutilation, 77% for African Americans ($n = 1,487$) and 60% for Caucasians ($n = 1,159$), and impact, 58% for African Americans ($n = 1,120$) and 46% for Caucasians ($n = 888$).

TABLE 6 | Comparison of methods of self-harm between Eastern and Western nations.

Method of self-harm	Eastern nations ($n = 5$[a])	Western nations ($n = 9$[a])
Skin mutilation	80% ($n = 4$)	100% ($n = 9$)
Burning	60% ($n = 3$)	78% ($n = 7$)
Poisoning	75% ($n = 3$)	11% ($n = 1$)
Overdose	100% ($n = 4$)	44% ($n = 4$)
Impact	80% ($n = 4$)	67% ($n = 6$)
Asphyxiation	75% ($n = 3$)	22% ($n = 2$)

[a] *Number of journal articles.*

Psychological Stressors

Eleven (52%) studies mentioned psychological stressors that predisposed participants to perform self-harm (Paris, 1996; Pinto et al., 2000; Holm and Severinsson, 2010; Wong et al., 2010; Cerutti et al., 2012; Hayashi et al., 2017; Ronningstam et al., 2018; Takeuchi et al., 2018; Bježančević et al., 2019; Chartrand et al., 2020). The total sample size for these studies is 1,832, with 66% ($n = 1,209$) women and 34% ($n = 623$) men. The psychological stressors reported were grouped into the following categories: interpersonal problems, family issues, financial problems, health problems, abuse, violence/accident, miscarriage/abortion, examination failure, moving, mental shock, and imprisoned relatives/personally imprisoned (**Table 7**).

Out of the 11 studies that mentioned psychological stressors, 67% ($n = 8$) reported interpersonal problems, 50% ($n = 6$) reported abuse, 42% ($n = 5$) reported family issues, 33% ($n = 4$) reported health problems, 25% ($n = 3$) reported financial problems, 25% ($n = 3$) reported violence/accident, and 8% ($n = 1$) reported examination failure, moving, miscarriage, and abortion each. There were notable differences in psychological stressors between Eastern and Western nations which can be found in **Table 8**.

TABLE 7 | Psychological stressors for BPD which were indicated in the literature.

Interpersonal problems (Hayashi et al., 2017; Ronningstam et al., 2018; Takeuchi et al., 2018)	End of a dating relationship (Bježančević et al., 2019), broken love affair (Paris, 1996; Chartrand et al., 2020), death/loss of a close person (Bježančević et al., 2019), social shame (Chartrand et al., 2020), low social support (Cerutti et al., 2012), and threat of rejection (Chartrand et al., 2020)
Family issues (Paris, 1996; Ronningstam et al., 2018; Takeuchi et al., 2018)	Marital conflict (Chartrand et al., 2020), conflict with parents/guardians (Chartrand et al., 2020), conflict with in-laws (Chartrand et al., 2020), parents' divorce (Bježančević et al., 2019), and family discord (Chartrand et al., 2020)
Financial problems (Takeuchi et al., 2018; Bježančević et al., 2019)	Economic distress (Chartrand et al., 2020), dowry conflict (Chartrand et al., 2020), and occupational problems (Takeuchi et al., 2018)
Health problems (Takeuchi et al., 2018; Bježančević et al., 2019)	Chronic illness (Chartrand et al., 2020), disease in family (American Psychiatric Association, 2013), and providing care for someone ill (Bježančević et al., 2019)
Abuse	Sexual abuse (Holm and Severinsson, 2010; Wong et al., 2010; American Psychiatric Association, 2013; Bježančević et al., 2019), physical abuse (Holm and Severinsson, 2010; Wong et al., 2010; Bježančević et al., 2019), childhood sexual/physical abuse (Pinto et al., 2000), emotional abuse (Holm and Severinsson, 2010), psychological maltreatment (Bježančević et al., 2019), neglected (Holm and Severinsson, 2010; Bježančević et al., 2019), rape (Bježančević et al., 2019), and domestic violence (Chartrand et al., 2020)
Violence/accident	Peer violence (Bježančević et al., 2019), witnessed violence (Holm and Severinsson, 2010), witnessed family violence (Bježančević et al., 2019), injured in a serious accident (Bježančević et al., 2019), witnessing a serious accident (Bježančević et al., 2019), natural disasters (Bježančević et al., 2019), witnessed assault/robbery (Bježančević et al., 2019), and robbed/physically assaulted (Bježančević et al., 2019)
Miscarriage/abortion	Miscarriage (Bježančević et al., 2019), abortion (Paris, 1996), and spontaneous/deliberate termination of pregnancy (Bježančević et al., 2019)
Other	Examination failure (Chartrand et al., 2020), moving (Bježančević et al., 2019), mental shock (Chartrand et al., 2020), and imprisoned relatives/personally imprisoned (Bježančević et al., 2019)

TABLE 8 | Comparison of psychological stressors between Eastern and Western nations.

Psychological stressors	Eastern nations ($n = 7^a$)	Western nations ($n = 5^a$)
Interpersonal problems	71% ($n = 5$)	60% ($n = 3$)
Family issues	43% ($n = 3$)	40% ($n = 2$)
Financial problems	29% ($n = 2$)	20% ($n = 1$)
Health problems	29% ($n = 2$)	40% ($n = 2$)
Abuse	43% ($n = 3$)	60% ($n = 3$)
Violence/accident	0% ($n = 0$)	60% ($n = 3$)

[a] *Number of journal articles.*

One of the articles (Chartrand et al., 2020) included participants from a rural region, the Sundarban region of India. Notably, this article had the highest rate of family issues, with 88% ($n = 74$) of participants reporting a family issue such as marital conflict, conflict with parents/guardians, and/or conflict with in-laws. Several of the articles reported interpersonal problems, but the rates were higher in Western than in Eastern nations. For rates of interpersonal problems, Chartrand et al. (Manitoba, Canada) reported 35% ($n = 55$), BjeŽančević et al. (Osijek, Croatia) reported 39% ($n = 41$), and Cerutti et al. (Naples, Italy) reported 61% ($n = 143$). In comparison, Eastern nations reported lower rates for interpersonal problems such as 12% ($n = 11$) in the Sundarban region of India (Chartrand et al., 2020) and 24% ($n = 233$) in Tokyo, Japan (Takeuchi et al., 2018).

DISCUSSION

This literature review has identified notable cultural differences in self-harm and psychological stressors for patients with BPD. These findings warrant further study into the cultural presentations of BPD.

Based on the studies reviewed, self-poisoning and overdose are more commonly seen in Eastern vs. Western nations. All of the articles that were conducted in Eastern nations (Hong Kong, India, Japan) (Wong et al., 2010; Hayashi et al., 2017; Takeuchi et al., 2018; Chartrand et al., 2020) reported self-poisoning or overdose at higher rates than Western nations. Ronningstam et al. and Haliczer et al. reported that East Asians are more likely to engage in suppression of emotions and attenuated behavioral reactivity to emotional stimuli compared to European Americans. Additionally, traditional Chinese culture, which is heavily influenced by Confucian philosophy, encourages group cohesion, collectivism, self-control, and stoicism. Chinese culture typically discourages impulsive actions and overtly expressing one's emotions (Wong et al., 2010). Also, self-poisoning may be more common in Eastern nations because poisons/chemicals may be more readily accessible in these rural regions. Chowdhury et al. reported that the most common method of self-harm among a sample of people from the rural Sundarban region of India was poisoning with agrochemical pesticides. In this Eastern region of the world, agrochemical pesticides may be more accessible than other modes of self-harm.

Another possible explanation for the differences in self-poisoning and overdose rates between Eastern vs. Western countries may be the patient populations. Most of the studies in Eastern nations identified patients that were admitted to tertiary care facilities such as ICUs, psychiatric hospitals, or emergency rooms. In contrast, the Western studies included patients from outpatient as well as inpatient settings (emergency rooms, inpatient psychiatric hospitals, outpatient psychiatry programs, and schools). Feasibly, more life-threatening methods of self-harm, such as poisoning, were detected in Eastern nations. This finding points to the need for more school and community-based research in Eastern nations, which may help detect minor methods of self-harm, such as cutting and scratching the skin.

Supporting this hypothesis is one study conducted by You et al. that interviewed Chinese adolescents from six secondary schools in Hong Kong about BPD symptoms (You et al., 2012). Adolescents reported the following methods of self- harm: cutting, burning, biting, punching, and banging of the head. This article demonstrates that minor methods of self-harm may be present in non-Western societies but have not been well studied.

In contrast, skin mutilation is a more common method of self-harm in Western vs. Eastern nations. All of the Western articles (conducted in Croatia, Italy, Norway, Sweden, United States, and Western Australia) reported skin mutilation at higher rates than Eastern nations. Methods of skin mutilation, such as cutting or carving skin, are very expressive methods of self-harm which fits the concept that people from Western nations tend to be more emotionally expressive.

There is debate on whether BPD is solely a Western disorder and more traditional societies are protected from engaging in BPD behavior. Because BPD is defined as "a pervasive pattern of instability of interpersonal relationships, self-image, affects, and marked impulsivity", some have theorized that more collectivistic, traditional societies thwart the development of BPD pathology (Paris, 1996; Pinto et al., 2000; Ronningstam et al., 2018). Globalization has permitted the rapid transmission of ideas across cultures which may have heightened the susceptibility of non-Western nations to DSM-5 BPD pathology. Little research on the presentation of BPD has been conducted in rural societies with limited exposure to the forces of globalization.

One non-Western, rural study was identified in this review which looked at suicidal behavior in the Sundarban region of India (Chartrand et al., 2020). They interviewed participants who had engaged in suicidal behavior and asked about their intent to die. Interestingly, many said that they were "uncertain" about their intent to die because if they said yes they would face legal complications and if they said no they may face social humiliation or stigma. Deliberate self-harm without the intent to die is locally known as "Jukhimara" or "Jukhi" which means one wants to communicate his/her sufferings as an alarm or wants to achieve something (Chartrand et al., 2020). Socially, Jukhi is seen as bad character and may negatively affect a woman's marriage prospects (Chartrand et al., 2020). This cultural definition for parasuicidal behavior in a relatively remote region of the world suggests that BPD may exist without the influences of globalization. However, the presentation of BPD appears to differ in this culture as many of the participants engaged in self-poisoning but not skin mutilation, the latter being a more emotionally expressive form of self-harm. Interestingly, only 2 out of the 89 participants were diagnosed with BPD which may indicate a lack of awareness of this disorder. Additional research should be conducted to gain more insight into BPD presentations in rural settings.

The Western studies identified in this review consisted mainly of Caucasians, with little investigation into other races. One article conducted in rural Mississippi did investigate self-harm and BPD comparing African American to Caucasian youth but still had a predominantly Caucasian sample (67% Caucasian, 33% African American) (Gratz et al., 2012). In this study, African American boys reported higher rates of most self-harm behaviors than their peers. The highest rates of cutting were seen in African American boys and Caucasian girls. Interestingly, BPD features did not explain the higher rates of self-harm among African American boys indicating that the current diagnostic criteria for BPD may be non-inclusive for this population (Gratz et al., 2012). Further research should be conducted with participants of African American race to create more inclusive BPD criteria.

Based on this review, BPD presentation may differ across cultures. Hence, it is important to consider how BPD may present in immigrants. It is unknown if immigrants are more likely to demonstrate BPD manifestations of their native culture or of their host culture. Their presentation may depend on the age at which they immigrated and the amount of exposure to their native culture they have experienced while living in their host culture. Paris and associates have proposed a model of BPD pathology in immigration (Paris, 1996). Briefly, psychological risk factors which predispose individuals to BPD pathology may be present in individuals from traditional societies but social protective factors suppress the diagnosis of these traits as BPD in their native culture. Thus, the BPD pathology emerges only after immigration once one loses community support from their native country. More research should investigate how BPD pathology is affected by immigration. Research on immigration and BPD would expand our knowledge on how globalization shapes BPD pathology. It will help us better understand how sociocultural factors may be protective against BPD pathology.

LIMITATIONS

Very few articles ($n = 7$) that were identified in this review investigated self-harm methods and psychological stressors directly in a population of people with diagnosed BPD (Söderberg, 2001; Holm and Severinsson, 2010; Wong et al., 2010; Ronningstam et al., 2018; Levine et al., 2020). Most articles included samples of participants with multiple different psychological disorders, including major depressive disorder, generalized anxiety disorder, and various personality disorders. These articles were included to expand the scope of this review and account for cultures who may underdiagnose BPD. Because many of these articles included multiple disorders, it was difficult to attribute our findings directly to BPD when they may be manifestations of another diagnosis. Additionally, BPD commonly co-occurs with mood disorders and other personality disorders, making it more difficult to identify manifestations of BPD. More research should be conducted with a focus on people with diagnosed BPD and their presentation so it can be more clearly defined. Research on BPD would improve our understanding of BPD presentation, which would help providers accurately diagnose and treat BPD.

Many of the articles included in this study attempted to determine whether or not suicidal intent was present when a self-harm action occurred, however it is very difficult to accurately discern intent. Seven of the fourteen articles that mentioned self-harm used an objective method to determine whether or not suicidal intent was present, including the Suicide Intention Scale, Deliberate Self-Harm Inventory, Lifetime Parasuicide Count, or simply asking if they had intentions to die by suicide (Jacobson et al., 2008; Wong et al., 2010; Cerutti et al., 2011; Gratz et al., 2012; Hayashi et al., 2017; Bježančević et al., 2019; Chartrand et al., 2020). The remaining articles either did not investigate intent or assumed no suicidal intent because the self-harm methods were less severe, i.e., scratching, picking, or cutting skin. Even articles that did investigate suicidal intent had difficulty truly discerning whether or not a person wanted to die by suicide. Many people will say they are uncertain and often there is a spectrum to defining intent. This review focused on self-harm without the intent to die by suicide but there is uncertainty of the intent in many articles. Therefore, our results may represent more severe methods of self-harm if articles included participants who had some intent to die.

Another limitation of this review is that the terminology used to describe BPD and its manifestations is not universal. We attempted to use a wide range of terms that encompass "self-harm" but it was difficult to capture all possibilities. There may be articles that have been missed because of varying terminology.

Our classification of countries into "Western" and "Eastern" societies was necessary to draw comparisons between different regions, but it oversimplified the cultural differences within each country. Thus, this analysis may not represent the complexities of BPD presentation in multiple distinctive cultures. This limitation highlights the need for more data on BPD from a global perspective.

This review resulted in a small sample size of articles ($n = 22$) which highlights the need for more research on this topic. All of the reviewed articles were in English, which further limits this review. Research is especially lacking in the continents of South America, Africa, and Asia. To address this need, we have developed a survey and administered it globally with the goal of expanding the literature on BPD presentation in different cultures, especially in the aforementioned regions.

CONCLUSION

This literature review contributes an improved understanding of methods of self-harm and psychological stressors in BPD across cultures. Several articles were identified from various cultures, including but not limited to India, Hong Kong, Japan, Croatia, Norway, and Sweden. Poisoning and overdose were more prevalent in Eastern nations, whereas skin mutilation was more common in Western nations. We hypothesize that self-poisoning and overdose are more common in Eastern nations because they are less expressive acts than cutting or skin mutilation. Self-poisoning and overdose allow one to remove oneself from a situation and avoid engaging in emotional discourse. Future research should focus on BPD presentation in different cultures, races, and in more rural regions of the world. Further research will enhance our understanding of the pathogenesis of BPD in different cultures, thus improving diagnosis and outcomes for patients with BPD across the globe.

AUTHOR CONTRIBUTIONS

KAM: performed the literature review, compiled and interpreted the data, and drafted the article. CAJ: contributed to the design of the literature review, analysis of the data, and critically revised the article. KG: contributed to the literature review, compilation of data, and critical review of the article. MN: conceived the research question, contributed to the analysis of the data, and critically revised the article. All authors contributed to the article and approved the submitted version.

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Conflict of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

APPENDIX

Summary of Searches

1. **Google Scholar**

“Cultural presentations of BPD”
28,700 results
1 article (Ronningstam et al., 2018)

2. **Embase**

“borderline personality disorder”:ti
AND
cultur* OR race OR racial OR ethnic OR ethnicity OR ‘cross cultural’ Or sociocultural OR immigrant* OR immigration* OR ‘socioeconomic status’ OR social OR spiritual* OR religious OR religion*
1,044 results
1 article (Haliczer et al., 2019)

3. **PubMed Search**

(suicide[ti] AND (pattern*[ti] OR behavior*[ti] OR behaviour*)) OR “parasuicidal”[ti] OR “self harm”[ti] OR “self injurious behavior*”[ti] OR “self-injurious behaviour*”[ti] OR “suicidal behavior*”[ti] OR “suicidal behaviour*”[ti] OR “suicide ideation”[ti] OR “suicidal ideation”[ti]
AND
(“North America” OR Canada OR Africa OR Asia OR India OR Europe OR China OR Japan OR Korea OR Taiwan OR Russia OR “South America” OR Eastern OR western OR race OR ethnicity OR origin OR “geographic region” OR “countries of origin” OR “country of origin” OR immigrant* OR refugee* OR Indigenous OR “First Nations” OR “Alaska Native” OR “Native American” OR latin* OR Hispanic OR “African American” OR black)
AND
(sociocultural[TIAB] OR cultural[TIAB] OR psychology[TIAB] OR psychological[TIAB] OR “psychology” [Subheading])
2,934 results
1 article (Chowdhury et al., 2013)

4. **PubMed Main Search**

(borderline[tiab] OR “borderline disorder”[tiab] OR “borderline personality disorder”[tiab]) AND ((suicide[ti] AND (pattern*[ti] OR behavior[ti])) OR “parasuicidal”[ti] OR “self harm”[ti] OR “self injurious behaviors”[ti] OR “suicidal behavior*”[ti] OR “suicidal behavior*”[ti] OR “suicide ideation”[ti] OR “suicidal ideation”[ti]) AND (“North America” OR Canada OR Africa OR Asia OR India OR Europe OR China OR Japan OR Korea OR Taiwan OR Russia OR “South America” OR Eastern OR western OR race OR ethnicity OR origin OR “geographic region” OR “countries of origin” OR “country of origin” OR immigrant* OR refugee* OR Indigenous OR “First Nations” OR “Alaska Native” OR “Native American” OR latin* OR Hispanic OR “African American” OR black)
66 results
12 articles (Jacobson et al., 2008; Nath et al., 2008; Holm and Severinsson, 2010; Wong et al., 2010; Cerutti et al., 2011, 2012; Gratz et al., 2012; Del Bello et al., 2015; Hu et al., 2016; Hayashi et al., 2017; Takeuchi et al., 2018; Chartrand et al., 2020)

5. **PubMed Search**

Self harm behavior prevalence in borderline personality disorder
428 results
2 articles (Bježančević et al., 2019; Levine et al., 2020)

6. **Reviewed the references of the article: “Prevalence of Borderline Personality Disorder and Its Clinical Correlates in Chinese Patients with Recent Deliberate Self-Harm”**

4 articles (Paris, 1996; Pinto et al., 2000; Söderberg, 2001; Wang et al., 2012)

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BRIEF RESEARCH REPORT
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The Compassionate Engagement and Action Scales for Self and Others: Turkish Adaptation, Validity, and Reliability Study

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Aim: This study aims to translate the Compassionate Engagement and Action Scales (CEAS) into Turkish and to test their subsequent validity, reliability, and psychometric properties. Turkey is one of the blended cultures with eastern and western elements under the influence of traditional religion. This cultural diversity brings about a rich context to study compassion and its relationship to mental health. The scales assess the ability to be sensitive to suffering and engage and then take helpful actions in compassion. The motivation for compassionate engagement and action is measured at three 'flows' as follows: (1) compassion for others; (2) compassion from others; and (3) compassion for self.

Methods: The sample consists of 525 college students aged 18 years or older. The participants completed the CEAS Turkish Form for Others, Self and from Others, Self-Compassion Scale Short Form, Compassionate Love Scale, and Self-Criticism Scale.

Results: The confirmatory factor analyses were conducted using AMOS version 27 to examine the validity of the three scales with two different factor structures each. All the three models show good fits to the data. The Cronbach's alpha coefficient for the CEAS for Others and for Self and from Others are good to excellent (between 0.70 and 0.95 for all subscales). Compassion for self, compassion for others, and compassion from others correlated modestly.

Conclusion: It can be concluded that the Turkish version of the Compassionate Engagement and Action Scales for Others and Self and from Others has sufficient psychometric properties and can be used as a reliable and valid measure to assess compassionate engagement and action.

Keywords: compassion to others, compassion from others, self-compassion, engagement, action, validity, reliability, confirmatory factor analysis

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INTRODUCTION

Although compassion has a long history in Eastern cultures, there is now growing research interest in compassion as a psychological construct in Western literature. The positive effect of compassion on mental health has been studied empirically and investigated as a therapeutic intervention. The research shows that compassion is related to one's wellbeing, mental health, and physical health (Jinpa, 2015; Zessin et al., 2015; Phillips and Hine, 2021). Thus, compassion warrants further investigation, especially in a cross-cultural way. Turkey is one of the transcontinental countries between Asia and Europe, unifying the Western education system and Anatolian tradition together. Thus, studying compassion within Turkish culture can provide new insights and constructs (Chang et al., 2021). Compassion has also been evaluated from different perspectives such as the evolutionary and social psychology and the spiritual traditions of Buddhism, and Sufism (Gilbert, 2015). Mevlana Celaleddin Rumi, one of the most referenced compassion scholars in Turkey's cultural tradition, connected compassion to the mercy of God. As Rumi invited all humanity with his famous quote "Come, come, whoever you are," he reflected the most embracing compassion tradition in this particular land (Williams, 2019).

Evolutionary psychology and Buddhist psychology, both focus on compassion as a core human motive. Accordingly, compassion is intended to reduce stress and increase wellbeing (Dalai Lama, 1995). A different approach to compassion focuses on self (Neff, 2003a). Neff (2003a) suggested self compassion is comprised of three factors: awareness of one's suffering, accepting that all humans suffer, and approaching oneself with kindness. These related three factors are commonly referred to as mindfulness, common humanity, and self-kindness.

The acquaintance of the Western world with the old Eastern construct "compassion" has continued with abundant research emphasizing its role in wellbeing and its positive effects on mental health, with the inclusion thereof with therapies or intervention programmes (Barnard and Curry, 2011; Özyeşil and Akbağ, 2013; Chang et al., 2021). Gilbert (2017, p. 73) defined compassion as a basic algorithm of '*sensitivity to suffering in self and others with a commitment to try to alleviate and prevent it*.' Hence first we need to pay attention to and engage with suffering and then second, we need to work out how to be helpful. According to this evolution based definition, compassion presents a multiple flow perspective (Gilbert, 2020). Compassion has three orientations, which are compassion for others, for self, and from others. Gilbert et al. (2017) emphasized that compassion can be realized once the developmental and motivational stages are understood. If one is sensitive to others' suffering, then one can seek to alleviate pain and devote oneself to preventing it. Connecting prosocial behavior, as well as engaging in others' suffering, brings not only many social and interpersonal benefits to one's life (Brown and Brown, 2015) but also many self-related advantages and benefits (Wang et al., 2014). The process of the evolution of this sensitivity to compassion has been explained using a model that includes the two psychologies engagement and action (Gilbert et al., 2017).

According to the Gilbert's model, the first psychology of engagement includes sensing stimuli, which is the sensitivity to pay attention to one's suffering and being motivated to get engaged. Compassion means accepting the pain without criticism and tolerating it with a rationalist approach. There might be negative thoughts and feelings that might prevent one from being compassionate (Gilbert et al., 2014; Gilbert and Mascaro, 2017). As part of be sensitive people can become more more focused on their attention (Gillin et al., 2013) and be empathically attuned to suffering and what would be helpful (Zaki, 2014).

The second psychology in Gilbert's model relate to the competencies to take compassionate action, such as implementing coping strategies for suffering and distress. The first step of the process is to learn to direct attention toward and then to imagine and plan the action. Empathizing enables one to prepare to focus on those insights, which are converted into compassionate action. To summarize, there are four areas that the second psychology focuses on, which are attention, thought, behavior, and emotion.

Gilbert et al. (2017) developed an assessment scale based on the two psychology and algorithm models. The first psychology is related to being engaged with compassion, which includes the following six basic qualities: (1) the motivation to approach pain; (2) sensitive attention; (3) emotional bonding; (4) tolerance to stress; (5) cognitive empathy and perspective-taking; and (6) not being judgmental. In contrast, the second psychology is based on being attentive to pain and to take action. The scale consists of two psychologies as well as three orientations, these being compassion for others, self, and from others.

Compassion for others requires one to pay attention to others' signals of distress, tolerance, and empathy without being judgmental to motivate the individual to help. Those individuals who are high with compassion for others are prone to seek compassion from others and also tend to be high with self-compassion. However, those who are high with compassion for others but not open to receiving compassion from others are themselves low on self-compassion (Hermanto and Zuroff, 2016).

Compassion from others is related to one's experiences with others and how others give compassion and support to the one. Social support is known to shield one from depression and distress (Wang et al., 2014) and as a factor that increases psychological resilience (Guidances and Watch, 2007). In the absence of social support or in the presence of criticism and disturbance, depression and other mental problems increase (Hirschfeld and Cross, 1983). Thus, being open to the compassion coming from others is a protective factor from criticism and depression (Hermanto et al., 2016).

Self-compassion is being open and aware of one's own suffering, and trying to alleviate the associated suffering with self-kindness (Neff, 2003a). Being self-critical or having feelings of insufficiency impairs mental health (Neff, 2015) while being self-compassionate would help one to develop a non-judgmental attitude toward one's own inadequacies, accepting that all humans suffer. Previous research has indicated that Eastern cultures reported lower levels of self-compassion and higher levels of self-judgment, where the interdependent self-construals are predominant (Neff et al., 2008). Recent research with Turkish college students demonstrated a positive relation of relational interdependent self-construal with self-compassion (Akın and Eroglu, 2013). There are Turkish adapted versions of Neff's self-compassion scale (Deniz et al., 2008) and compassion for others as loving-kindness, Compassionate Love Scales (CLS) (Akın and Eker, 2012; Sarıçam and ve Erdemir, 2019). However, there is neither scale for compassion from others nor a comprehensive scale as CEAS based on a motivational model, which could also be used in clinical settings. Thus, the addition of adapting the three measures into Turkish will be a valuable contribution to the literature.

There are three other measures used in this study to test the convergent and divergent validity. Self-compassion (SCS) and CLS have been chosen to be parallel, while the self-criticism scale has been chosen to be a reverse scale. Self-compassion (Neff, 2003b) and CEAS-compassion for self (Gilbert et al., 2017) are two measures measuring the same construct with some nuances; while the former measures the perception toward self, the latter measures the compassionate behaviors toward self. On the other hand, compassionate love is defined as a motivation to reduce one's suffering (Sprecher and Fehr, 2005), which is very similar to Gilbert et al. (2017) conceptualization of compassion. Finally, self-criticism is the negatively poled element of self-kindness, which is one of the three components of self-compassion as Neff (2003a) indicated. The high negative correlation of this construct with self-compassion also shows the direction of their relationship (Neff, 2003b).

To summarize, this study aims to adapt the three measures of compassion into Turkish as follows: (1) compassion for others; (2) Compassion from others; and (3) self-compassion. Each scale measures the following two dimensions: (1) engagement with compassion to suffering and (2) take action compassionately to cease the suffering. This study sought to test the validity and reliability of the scale as adapted into Turkish.

MATERIALS AND METHODS

Participants

A total of 583 college students participated in this study. Notably, 58 participants were excluded from the study since 41 of them had not completed more than one scale, and 17 participants were outliers as their total scale standardized z-score was either higher than 3.29 or less than -3.29 (Tabachnick and Fidell, 2007). Thus, 525 participants were included (84.6% men and 15.4% women). The sample mean age was 21.39 (SD = 3.04). The participants identified themselves as being of low, middle, and high socio-economic status (SES). The majority (53.1%) classified themselves in the middle, 38.1% in high, and 8.7% in low SES. Additionally, 75.5% stated that they spent most part of their lives in metropolises or cities, while 14.5% said that they spent most of their lives in villages or small towns. Most of the participants (88.6%) were not working.

Measurements

The Compassionate Action and Engagement Scales

The original scale was developed by Gilbert et al. (2017). Each participant was asked to rate the frequency of the statement on a 10-point Likert-type scale (1 = never to 10 = always). Higher scores indicate higher compassion. Compassionate Action and Engagement Scales (CAES) consists of three scales, namely, compassion for others, compassion from others, and self-compassion. In each scale, there are two dimensions, as reflected by the Gilbert (2017) two psychology models. The first part of the three scales, reflecting compassionate engagement, related to the first psychology, consists of eight items (e.g., compassion for others: I am motivated to engage and work with other peoples' distress when it arises; compassion from others: other people are actively motivated to engage and work with my distress when it arises; and self-compassion: I am motivated to engage and work with my distress when it arises). The second part of the scale, revealing compassionate action, related to the second psychology, constitutes five items (e.g., compassion for others: I take the actions and do the things that will be helpful to others; compassion from others: others take the actions and do the things that will be helpful to me; and self-compassion: I take the actions and do the things that will be helpful to me). There are 39 items in total for the three scales. There are two reverse items (item 3 and item 7) on the engagement scale and one reverse item (item 3) on the action scale. These three items were removed from the final analyses as in the original since they were mentioned to be fillers and shadow face validity (Gilbert et al., 2017). The Cronbach's alpha for compassion is $\alpha = 0.90$, compassion from others is $\alpha = 0.91$, and compassion for self is $\alpha = 0.86$ for this study.

Self-Compassion Scale-Short Form (SCS-SF)

Raes et al. (2010) developed a short form of the scale to measure self-compassion. The Turkish validation of the scale was conducted by Yıldırım and Sarı (2018). The validated version consists of one dimension, 11 items with a five-point Likert-type scale (e.g., "When I'm going through a very hard time, I give myself the caring and tenderness I need."). Higher scores indicated higher self-compassion. The Cronbach's alpha reliability of the scale was 0.86. The Cronbach's alpha of the scale for this study is 0.75.

Levels of Self-Criticism Scale (LSCS)

This scale, developed by Thompson and Zuroff (2004), measures individuals' levels of self-criticism. Participants rated 22 items with five-point Likert scores. The Turkish validation study was completed by Öngen (2006). Although the original scale consists of three factors, the Turkish validation of the scale consists of two factors, the first being "comparative self-criticism" and the second "internalized self-criticism." In this study, only internalized self-criticism factor was conducted, which consisted of 10 items (e.g., "I often get very angry with myself when I fail" and "I frequently compare myself with my goals and ideals."). Higher scores indicated higher self-criticism. This factor in this study has a Cronbach's alpha coefficient of 0.77.

Compassionate Love Scale

This scale, developed by Sprecher and Fehr (2005), aims to measure compassionate love for all humanity. There are 21 items with seven-point Likert scores (e.g., "When I hear about someone (a stranger) going through a difficult time, I feel a great deal of compassion for him or her."). Higher scores indicated higher compassionate love. There are two factors, which are "compassionate love for close others" and "compassionate love for all others." The Cronbach's alpha coefficients of these two factors are 0.95 and 0.94. The Turkish adaptation study was conducted by Akın and Eker (2012). The Turkish version consists of one factor, where higher scores indicate higher compassionate love for all human beings. The Cronbach's alpha for the scale is 0.89, and the test-retest reliability coefficient is 0.82 for this study.

Procedure

To conduct the Turkish adaptation, validation, and reliability study, the researchers gained consent from the author, Paul Gilbert, who developed the original scale. Then, the ethical committee of the university provided the ethical approval for the study. Then, the scale was translated by two volunteer bilingual researchers into Turkish separately. They agreed on the version that was back-translated into English by two of the co-authors. Later, the back translation was sent to the two co-authors who also had created the original scale. The recent form of the scale was assessed by a Turkish language specialist and scale developers, who also checked if the translated version corresponded to the original.

Once the scales were updated according to these individuals' feedback, they were distributed and collected anonymously from college students for course credit. They were informed, and their consent was taken before the study. They completed the printed version of the scale, which took approximately 15 min.

Data Analysis

SPSS version 27 and AMOS version 27 were used for all the statistical analyses in this study. First, before starting the analyses, 583 participants took part in this study. Then, the scale items with outliers' values were detected ($-3.29 < z < +3.29$), and 17 participants were excluded from the study. Apart from that, 41 of the participants did not complete more than one scale. The final analyses were run with the 525 participants. Then, a confirmatory factor analysis (CFA) was conducted to examine whether the factor structure was similar to that of the original scale. In CFA, relative chi-square, comparative fit index (CFI), normative fit index (NFI), Tucker-Lewis index (TLI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR) are used as a goodness-of-fit indices. Later, Pearson correlation analysis is used to examine construct and divergent validity. Finally, the Cronbach's alpha coefficients and Spearman-Brown split-half test were used to check reliability.

RESULTS

Confirmatory Factor Analyses

Confirmatory Factor Analysis of the Compassion for Others

The CFA was conducted using AMOS version 27 to examine the validity of the scale of compassion for others. The first-order two-factor model was tested. Acceptable threshold levels for the goodness-of-fit indices are as follows: relative chi-square (χ^2/df = 3:1) (Kline, 2015); for CFI, NFI, and TLI, values greater than 0.95 (Tabachnick and Fidell, 2007). The RMSEA values less than 0.07 (Steiger, 2007) and SRMR values less than 0.08 (Hu and Bentler, 1999) are acceptable.

The model was good fit to the data (χ^2 = 187.58, *df* = 34, *p* = 0.000; CFI = 0.95, NFI = 0.94, TLI = 0.94, RMSEA = 0.09, and SRMR = 0.039). When the modification indices were analyzed, there was a notable relation between the error covariance of the following items: compassion for others – engagement items 1 and 2 and action item 1 with 2, which existed under the same factor in this model. These item pairs were also close to each other with respect to meaning. It was therefore decided to correlate the errors for these items, and the CFA was repeated after each correlation. Consequently, it was revealed that the modified model fits the data better (χ^2 = 85.3, *df* = 32, *p* = 0.000; CFI = 0.98, NFI = 0.97, TLI = 0.98, RMSEA = 0.06, and SRMR = 0.032; refer to **Figure 1**).

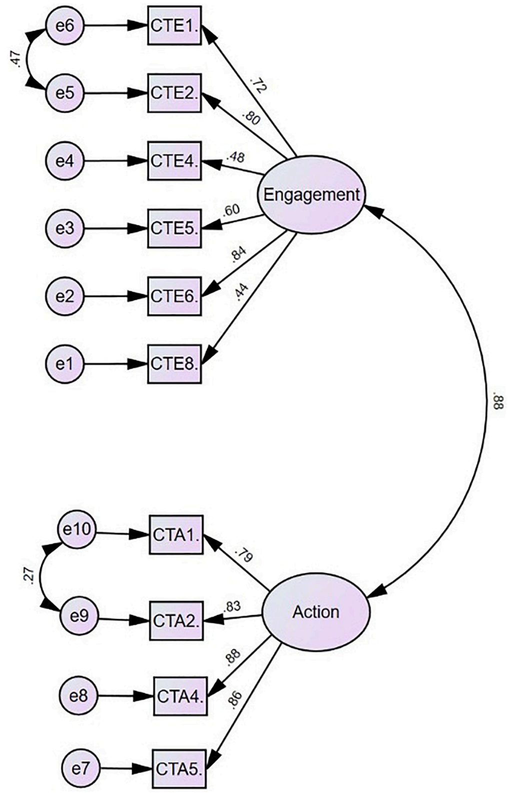

FIGURE 1 | CFA result of compassion for others.

Confirmatory Factor Analysis of the Compassion From Others

The CFA was conducted using AMOS version 27 to examine the validity of the scale of compassion for self. A first-order two-factor model was tested. The model was good fit to the data (χ^2 = 184.3, *df* = 34, *p* = 0.000; CFI = 0.97, NFI = 0.96, TLI = 0.96 RMSEA = 0.09, and SRMR = 0.026). When modification indices were analyzed, there was a notable relationship between the error covariance of the following items: Compassion from others – engagement items 1 and 2 and action item 1 with 2, which existed under the same factor in this model. These item pairs were also close to each other in terms of meaning. Therefore, it was decided to correlate the errors for these items, and the CFA was repeated after each correlation. Consequently, it was revealed that the

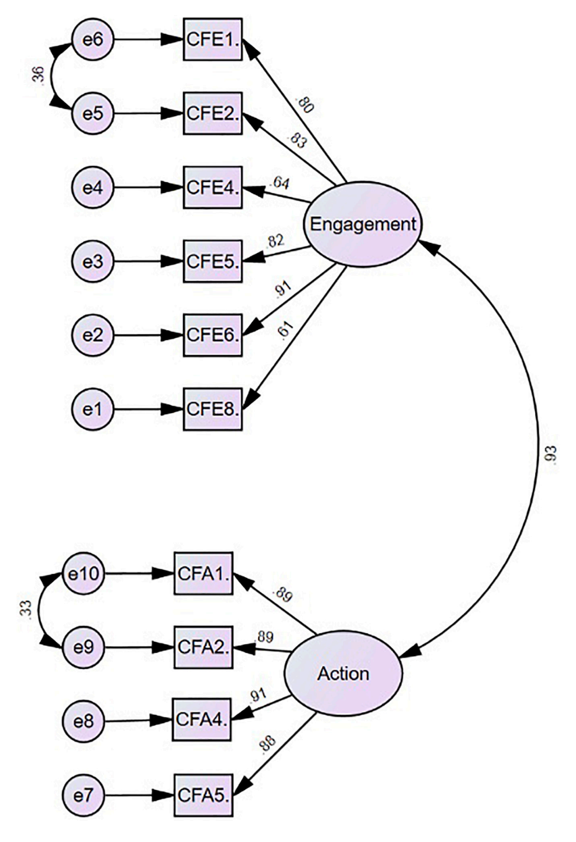

FIGURE 2 | CFA result of compassion from others.

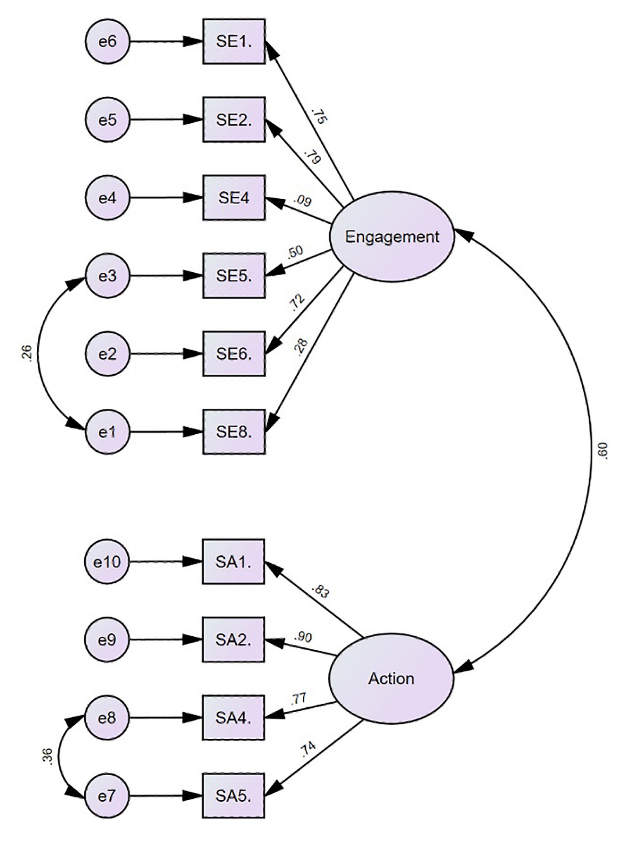

FIGURE 3 | CFA result of compassion for self.

modified model fits the data better ($\chi^2 = 99.3$, $df = 32$, $p = 0.000$; CFI = 0.99, NFI = 0.98, TLI = 0.98, TLI = 0.98, RMSEA = 0.063, and SRMR = 0.02; refer to **Figure 2**).

Confirmatory Factor Analysis of the Compassion for Self

The CFA was conducted using AMOS version 27 to examine the validity of the scale of compassion for self. A first-order two-factor model was tested. The model was good to fit the data ($\chi^2 = 207.84$, $df = 34$, $p = 0.000$; CFI = 0.92, NFI = 0.91, TLI = 0.89, RMSEA = 0.099, and SRMR = 0.059).

When modification indices were analyzed, there was a notable relationship between the error covariance of the following items: Compassion for self-action items 4 and 5 and engagement items 5 and 8, which existed under the same factor in this model. These item pairs were also close to each other with respect to meaning. Therefore, it was decided to correlate the errors for these items, and the CFA was repeated after each correlation. Consequently, it was revealed that the modified model represented a better fit to the data (refer to **Figure 3**) ($\chi^2 = 129.44$, $df = 32$, $p = 0.000$; CFI = 0.96, NFI = 0.94, TLI = 0.94, RMSEA = 0.08, and SRMR = 0.052; refer to **Figure 3**).

Construct, Convergent, and Divergent Validity Analysis

After the modifications, the goodness-of-fit indices of the model for compassion for others (χ^2/df = 4.02, $p = 0.000$; CFI = 0.99, NFI = 0.97, TLI = 0.98, RMSEA = 0.056, and SRMR = 0.03) were found to be fairly close to those in the original study (χ^2/df = 3.89; CFI = 0.96, TLI = 0.95, RMSEA = 0.096, and SRMR = 0.05). As for the compassion from others, the goodness-of-fit indices of the model after modification (χ^2/df = 3.10, $p = 0.000$; CFI = 0.99, NFI = 0.98, TLI = 0.98, RMSEA = 0.063, and SRMR = 0.024) were also found to be fairly close to those in the original study (χ^2/df = 3.92; CFI = 0.96, TLI = 0.95, RMSEA = 0.06, and SRMR = 0.03). Finally, after the modifications, the goodness-of-fit indices of the model for compassion for self (χ^2/df = 4.04, $p = 0.000$; CFI = 0.94, NFI = 0.94, TLI = 0.96, RMSEA = 0.08, and SRMR = 0.052) were shown to be close to those in the original study (χ^2/df = 3.66; CFI = 0.94, TLI = 0.91, RMSEA = 0.092, and SRMR = 0.049).

To assess the convergent and divergent validity of the compassion scales, we conducted a Pearson product-moment correlation analysis on the sample of 525 (refer to **Table 1**). The convergent validity result revealed that there was a positive correlation between the compassion scales (ranging from 0.19 to 0.74). The self-compassion scale was positively correlated with compassion for self and compassion from others. Besides, the

TABLE 1 | Pearson product-moment correlation results.

		1	2	3	4	5	6	7	8	9
1	Compassion for self-engagement	–								
2	Compassion for self-action	0.46**	–							
3	Compassion for others-engagement	0.32**	0.17**	–						
4	Compassion for others-action	0.26**	0.25**	0.74**	–					
5	Compassion from others-engagement	0.24**	0.27**	0.41**	0.37**	–				
6	Compassion from others-action	0.19**	0.30**	0.36**	0.40**	0.85**	–			
7	Self-compassion scale	0.28**	0.48**	−0.03	0.02	0.14**	0.12**	–		
8	Self-criticism scale	−0.09*	0.16**	0.08	0.16**	−0.03	−0.03	−0.51**	–	
9	Compassionate love scale	0.08	0.07	0.42**	0.42**	0.17**	0.19**	−0.07	0.04	–

***Correlation is significant at the 0.01 level (two-tailed). * Correlation is significant at the 0.05 level (two-tailed).*

CLS was positively correlated with compassion for others and compassion from others. In contrast, to check divergent validity, the self-criticism scale was negatively correlated with compassion for self and positively with compassion for others scale.

Factor Structure

As CFA suggested two-factor analysis results, all items' beta coefficients were above 0.40 except items 4 and 8 in compassion for self-scale (**Figure 3**). Thus, item 4, which is "I am emotionally moved by my distressed feelings or situations," and item 8, which is "I am accepting, non-critical and non-judgmental of my feelings of distress," factor loadings are, respectively, 0.09 and 0.28, which are considered as low.

Reliability

The Cronbach's alpha coefficient for the compassion for the self-engagement subscale was 0.70 and for the compassion for self-action subscale was 0.89. As an alternative to the reliability of the sum subscales, we applied Spearman-Brown split-half test reliability to each subscale that has two parts as engagement and action. The compassion for the self-engagement scale two-half Spearman-Brown correlation resulted as $r = 0.63$, and action was $r = 0.91$. The Cronbach's alpha coefficient for the compassion for others' engagement subscale was 0.78, and for the compassion for others' action subscale was 0.91. The result of the Spearman-Brown split-half test reliability of the compassion for others' engagement scale was $r = 0.75$ and action was $r = 0.89$ The Cronbach's alpha coefficients for the compassion from others' engagement subscale was 0.89, and for the compassion from others' action subscale was 0.95. The result of the Spearman-Brown split-half test of the compassion from others' engagement scale was $r = 0.087$ and action was $r = 0.93$.

DISCUSSION

The aim of this research was to provide the Turkish version of the CEAS scale as a valid and reliable measure of compassion for the three different orientations of compassion for others, compassion from others, and compassion for self. The results reveal that the scales are valid and reliable measures of compassion. Also, the two-factor model, according to the two psychologies of Gilbert et al. (2017), has been confirmed. The factor structure indicated two separate subscales of engagement and action for each orientation, similar to the original study. In the original study, the CEAS consisted of 39 items (each orientation has 13 questions) and six subscales (each orientation has two subscales).

Construct Validity

The two-factor models for each scale with the modified first-order model were found to be a better fit to the data. After the modification, the goodness-of-fit indices of the model were close to those in the original study. First, the two models were tested with CFA for CEAS compassion for others, compassion from others, and compassion for self. The two-factor models were a better fit to the data for all subscales. In this study, CFI, NFI, and TLI were close to or above 0.90 (Hu and Bentler, 1999), the RMSEA was between 0.05 and 0.08, and the SRMR was less than 0.05 (Browne and Cudeck, 1992), indicating that the model is a good fit. When all the above are evaluated together, it can be said that the fit indices are within acceptable limits, and the model obtained shows a good fit to the data. Based on these findings, it can be stated that the Turkish version of the three orientations of CEAS has sufficient construct validity.

Factor Structure

All items in three scales have loaded successfully except items 4 and 8 in compassion for self-scale. Item 4, which is about being "emotionally moved by distressed feelings," might not evoke self-compassionate feelings for this sample. "Being sensitive, tolerating, making sense" as used in other items may be expressions that better explain compassion in Turkish culture. The Japanese version of CEAS also did not include this item due to the cultural dissimilarities to approach to own emotional reaction as weakness, which would be expected to be similar to Turkish culture. In contrast, Henje et al. (2020) also preferred not to include this item in the Swedish version of CEAS for all three scales, which might have lost meaning once translated, or indicate increased depression if one does not know how to cope with suffering (Gilbert et al., 2017). In the Turkish sample, this item loads very low on compassion for self (0.09) but higher on compassion for others (0.48) and compassion from others (0.64).

Furthermore, item 8 loads low on compassion for self (0.28) but higher on compassion for others (0.44) and compassion from others (0.61). This item has been also removed in the Japanese sample where being non-judgmental is not considered to be related to compassion for self (Asano et al., 2020). Besides, we would like to emphasize that "accepting one's feelings of distress" may be an unusual terminology, which needs to be concretized, embodied, and experienced, especially if one is not familiar with compassion for self. Similar to item 4, item 8 is not yet understood when referred to compassion for self. Consequently, we would like to keep these two items believing that future self-compassion educational, self-help, and therapeutic interventions will serve better for Turkish individuals to embrace one's distressed feelings as part of their compassion for themselves since they can do for and from others.

Correlations Among Scales

The relationships between the CEAS engagement and the action aspects are correlated for each orientation (ranging from 0.19 to 0.85). As for the orientations, the compassion for others' scale (both engagement and action orientations) was positively correlated with compassion for self and compassion from others, indicating a high convergent validity. Turkey is known more for its interdependent self and collectivistic orientations (Kagitcibasi, 2005). Thus, it would be expected to have similar shaming motivation to improve self to Taiwan in terms of how to treat oneself and the other.

In the original study, compassion for self-engagement was only weakly associated with experiencing compassion from others (Gilbert et al., 2017). This study indicates moderate correlations both for the engagement and action subscales for compassion for self and from others ($r = 0.24$ and $r = 0.19$). This finding also confirms the findings of an earlier study that showed that self-compassion and high caregiving are related (Hermanto and Zuroff, 2016). Although there are several studies whose findings show small positive correlations between compassion for others and compassion for self (Neff and Pommier, 2012; Breines and Chen, 2013), there is one contradictory experimental study that found that self-compassion and compassion for others are not related (Leary et al., 2007).

Divergent Validity

The self-criticism scale is not meaningly correlated with compassion for self, compassion for others, and compassion from others. However, the correlation coefficients with compassion for self and compassion for others are slightly high but not at a significant level. This result may be related to the sample and also to cultural characteristics. There are some studies that show the relation of self-criticism with self-compassion to be low as conducted in Japanese culture (Arimitsu, 2014) and high as conducted in American culture (Gilbert and Procter, 2006; Zhang et al., 2019). According to the Neff's conceptualization of self-compassion, individuals who are more self-compassionate criticize themselves less, while people who are open to giving compassion resort to self-criticism, criticizing themselves more. Being self-kind and embracing one's sufferings with feelings of warmth increases taking good care of oneself (Neff, 2003b). However, this explanation might have different nuances in different cultures. As Asano et al. (2020) indicated that not being self-critical does not contribute to self-compassion in the Japanese cultural context, this study results are expected since it has been conducted in Turkish culture, considered as more collectivistic and closer to Japanese culture. Zessin et al. (2015) is also in accord with the current work as compassion for the self is negatively correlated with negative emotion. Furthermore, being open to compassion from others did not work in the same direction as an adaptive emotion regulation strategy, which would protect one from self-criticism and thus from negative feelings directed toward oneself and depressogenic effects (Hermanto et al., 2016). Meanwhile, compassion for others was positively correlated with self-criticism. A recent study by Hermanto and Zuroff (2016) showed that the combination of low care-seeking and high caregiving, which is closer to the conceptualization of compassion for others' behavior, is related to more compulsive caregiving. This might explain self-criticism and compassion for others' positive relationships since caring for others without the opportunity to receive might lead to self-criticism. Turkish collectivistic culture devotes oneself compassionately to others, while not valuing to take compassion from others in adulthood. One may not be able to embrace compassion to moderate self-criticism, which has been built over the years of parenting.

Convergent Validity

The convergent validity of the CEAS compassion for self and compassion from others was also confirmed through a positive significant correlation with the Self-Compassion Scale. It was noted that the Self-Compassion Scale (Raes et al., 2010) and CEAS Compassion for self correlate. The difference between Neff (2003b) and, later, Raes et al. (2010) and Gilbert et al. (2017) conceptualization is that the latter considers it to be a unipolar concept whilst the former regards compassion as a bipolar concept consisting of a positive and a negative pole. According to the study by Gilbert et al. (2017), compassion embraces engagement and action, where compassion is identified as a behavior rather than an evaluation of self. López et al. (2015) showed that the negative pole of compassion is correlated more strongly to mental illnesses. This study finding confirmed that self-criticism's correlation with the Self-Compassion Scale (Neff, 2003b) is greater than CEAS self-compassion for self and compassion from others. These findings imply that a unipolar conceptualization might be more appropriate with regard to the model proposed by Gilbert et al. (2017).

Besides, compassion for others is strongly associated with CLS ($r = 0.36$ for both engagement and actions). Compassion for self and compassion from others are also positively correlated with the CLS ($r = 0.17$ and $r = 0.19$, $p < 0.01$). Despite the good validity results for the CEAS, the reliability of the three scales is also high (between 0.74 and 0.90). All these findings implied that CEAS is a robust measure by which to assess compassion in all three orientations.

Reliability

The Cronbach's alpha coefficients of the CEAS compassion for self, compassion from others, and compassion for others are between 0.70 and 0.95. The Cronbach's alpha reliability coefficients above 0.70 indicate a sufficient level of reliability (Nunnally and Bernstein, 1994). The Spearman-Brown two-half reliability coefficient for the subscales is between 0.63 and 0.93. The current scales' reliability scores show a satisfying level of internal consistency of the Turkish version.

Limitations and Future Work

One of the limitations of this study is that all the scales used were self-reported. Another limitation is that all the participants in this study were college students and mostly unemployed females. A more distributed sample in terms of age, gender, and working status might result in a higher level of variability. Another limitation in terms of methodology is that test-retest reliability has not been investigated.

Conclusion

This study aimed to adapt the Compassionate Engagement and Action Scale for self and others into Turkish. They are all distinct and related processes. All the three orientations in the Turkish version proved to be valid and reliable measures of compassion, which can also be used for research purposes. Additionally, since compassion is a construct related to various research areas, the Turkish adaptation of the psychometric assessment scale provides a valuable cultural contribution to the literature. Furthermore, it is crucial for future research to understand compassion from different orientations to be able to intervene in the related areas. Compassion is a skill that could be developed for protective mental health. Thus, alongside the use in clinical practice, each scale of CEAS can be used in educational, social, and care institutions to follow the progress of compassion-focused interventions.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the Istanbul Commerce University, 65836846-044. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

EA, GC-S, JB, and PG contributed to conception and design of the study and wrote sections of the manuscript. EA organized the data collection. EA performed the statistical analysis with GC-S support. JB helped to translate the CEAS items into Turkish with PG help. EA and GC-S wrote the first draft of the manuscript and JB and PG contributed a lot. All authors contributed to manuscript revision, read, and approved the submitted version.

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“His Main Problem Was Not Being in a Relationship With God”: Perceptions of Depression, Help-Seeking, and Treatment in Evangelical Christianity

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Some Christian communities may understand mental illness as the result of spiritual causes, such as sin, demons, or a lack of faith. Such perceptions are likely to influence how Christian individuals conceptualise and experience their mental health and enact help-seeking behaviours. This study explores perceptions of depression and mental health help-seeking in evangelical Christianity by using a novel qualitative story completion task. A convenience sample of 110 Christian participants from the United Kingdom completed a third-person, fictional story stem featuring a male with depression who entered his local church. A contextualist-informed thematic analysis illustrated how the disclosure of depression was represented as eliciting negative social reactions, potentially rendering individuals with depression as socially dislocated. Stories suggested that, increasingly, evangelical Christians may perceive a spiritualisation of mental illness, which negates reference to psychological, social, and biomedical representations, as unhelpful. Findings reveal the risks of a solely spiritual aetiology of depression and highlight how existing mental ill-health can be exacerbated if fundamentalist beliefs and approaches to therapeutic care are prioritised over holistic models of care. Methodologically, this study demonstrates the value of a rarely-used tool in psychology—the story completion task—for examining socio-cultural discourses and dominant meanings surrounding stigmatised topics or populations.

Keywords: Christian, evangelical, mental illness, depression, stigma, qualitative, story completion task, social perception

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INTRODUCTION

A growing body of research has shown that religious engagement may provide individuals with a sense of belonging, shared beliefs, and social identification, which may be associated with better mental wellbeing (Corrigan et al., 2003; Hayward and Krause, 2014). Religiosity can be defined as a multidimensional construct that refers to the variability in people’s commitment to some transcendental entity and related practices (Cohen et al., 2017). One of the ways in which religious engagement may serve this wellbeing benefit is through the provision of social support from like-minded believers who affirm the importance of the in-group membership (Sullivan, 2009;

Starnino, 2016). Indeed, there is some evidence to suggest that involvement in religious life may provide an important social setting for adherents to develop coping strategies and worldviews, which lend themselves to better mental wellbeing (Hayward and Krause, 2014; Kinghorn, 2016). Taken together, religious engagement seems to be broadly associated with enhanced wellbeing outcomes, which may be partly explained by the inherently social nature of belonging to a religious group (Lloyd et al., 2021). In addition to the socially-derived wellbeing benefits, research has also shown that religious cognition is related to health outcomes (Page et al., 2020). Religion provides a framework for making sense of one's existence and possible answers to life's ultimate questions (Park, 2005). Studies have shown, for example, that religious struggles surrounding ultimate meaning are associated with the extent to which believers with depression experience therapeutic improvement (Currier et al., 2019). Looking at a spiritually integrated programme for individuals suffering from depression, Abernethy et al. (2018) found reductions in depressive symptoms from patients' initial intake in the programme to their discharge. The authors also found that depressive symptoms were positively correlated with religious strain, whereas religious comfort was negatively correlated with participants' level of depression. Interestingly, however, reductions in religious struggle over the course of the programme were not related to reductions in patients' depressive symptoms. In contrast, the authors found that religious comfort was associated with a reduction in participants' depression at discharge, suggesting a protective role of the positive aspects of religion in healthcare settings. In other research, religious comfort and struggle mediated the relationship between participants' imagery of God at intake into a psychiatric programme and the change in their depressive symptoms at discharge. Currier et al. (2017) found that participants with positive relational imagery of God during initial inpatient assessments reported higher levels of positive affect at discharge in which the relationship was mediated by religious comfort. Looking at the results of these studies together it seems that the cognitive aspects of religion may confer some protection on believers' mental wellbeing.

That being said, religion is not a monolithic construct, which can be persistently associated with positive effects on one's mental wellbeing (Shadid et al., 2021). For example, research has suggested that in some Christian circles mental ill-health may be understood as the outworking of one's inner spiritual condition (Webb, 2017). Indeed, there is some indication that for Evangelical Christians, discourse surrounding mental health may situate distress as emblematic of sin, demonic activity, or personal sinful behaviour (Dein, 2020; Lloyd and Waller, 2020; Lloyd, 2021a; Lloyd and Panagopoulos, 2022). With over 600 million global followers in which over 2 million are in the United Kingdom (Pew Research Centre, 2015; Evangelical Alliance, 2020), evangelicalism can be thought of as a Protestant transdenominational movement, which places an emphasis on the literal interpretation of biblical texts; the need for a personal saving relationship with Jesus Christ; and the expectation of spiritual health and wellbeing for believers (Bebbington, 1989; Stackhouse, 2007). Considering their global prominence and potentially spiritualised conceptualisation of mental illness (Lloyd and Kotera, 2021; Lloyd et al., 2021), there is clear need to better understand the Evangelical worldview and how this relates to perceptions of mental health and help-seeking behaviours.

Indeed, such an understanding of the perceptions of mental ill-health in Evangelical Christianity may reveal the importance of social influence on mental health help seeking and the emphasis placed on spiritual intervention in Evangelical communities (Wesselmann et al., 2015; Lloyd et al., 2021). By way of illustration, research has shown that the extent to which religious leaders endorse secular intervention seems to be associated with the help-seeking behaviours of their congregations (Cook and Hamley, 2020). This is important since whilst seeking religious social support may be helpful for some individuals, encouraging others with mental health difficulties to pursue exclusively spiritual interventions may be ineffective and at worse detrimental (Mercer, 2013; Asamoah, 2016). For example, encouraging evangelical Christians with mental health concerns to engage in frequent prayer as a form of treatment has the potential to prolong their distress if evidence-based interventions are not pursued in a timely manner (Keefe and Curtin, 2013; Lloyd, 2021a). Altogether, although religious participation has been associated with improved health outcomes in some studies, it is clear that the relationship between religion and health is not consistent. That is, that some religious communities may hold worldviews that preferentially favour spiritual over evidence-based secular interventions, which may have undesirable effects on people's mental health (Lloyd and Hutchinson, 2022).

Of particular interest in the intersection between religion and mental health are experiences of depression. Depression can occur on a continuum, ranging from acute periods of distress to recurrent major depressive episodes, requiring psychosocial interventions (Patel, 2017). Though depression can be experienced in several stages of severity, it remains a common experience affecting almost 300 million people and representing the leading cause of mental health-related disorders across the globe (Herrman et al., 2019). Anti-depressants and psychological therapies present beneficial and efficacious interventions for depression; however, a large proportion of people with depression experience recurrent episodes which are to some extent treatment resistant (Hardeveld et al., 2013). Diverse experiences of depression reveal that the disorder does not always fit neatly within biomedical models of illness; instead, depression is both a subjective and socially located experience, where its trajectory is likely to be contingent upon broader social and cultural narratives of individuals and their communities (Haroz et al., 2017).

Bringing depression into the context of religious groups, it has been argued that understanding depression as the result of sin may pathologise depression as the individual's choice (Scrutton, 2020). This conceptualisation of depression where the disorder results from wilful behaviours that are seen as unchristian means that treatments looking to increase one's spirituality would be seen as efficacious. Indeed, research has shown that evangelical Christians may express heightened ambivalence toward secular treatments in which they question their suitability, preferentially endorsing faith-based interventions (Trice and Bjorck, 2006).

For example, contemporary Christian self-help literature has described depression as a product of demonic influence (Webb et al., 2008), with other studies showing that over a third of Christians would prefer religious treatments for mental ill-health, including depression (Hartog and Gow, 2005).[1]

Yet despite the increasing growth of evangelical Christian denominations, in the United Kingdom and beyond (Leavey, 2010), we know little about how United Kingdom evangelical Christians perceive and respond to mental illness. Whilst the majority of previous research has quantified relationships between religiosity, spirituality, and depression (e.g., Ai et al., 2013; Balbuena et al., 2013; Braam and Koenig, 2019), or has taken place within a United States context, there is still a need to qualitatively capture perceptions of depression, particularly within a United Kingdom context. This is especially relevant due to the growing mental health debates within Christian communities that have been centred around theological and philosophical ontologies (see Scrutton, 2015, 2018; Swinton, 2015; Scrutton, 2020), which often omit societal perceptions and representations of mental ill-health. Researchers have either qualitatively captured lived experiences of depression and help-seeking (Martínez-Hernáez et al., 2014; Doblyte and Jiménez-Mejías, 2017) or mental wellbeing and its connection to Christian beliefs and practices. The philosophical groundwork laid by Scrutton (2020) warrants empirical research to contextualise how depression is represented within United Kingdom evangelical Christian communities and its influence on local discourses around mental ill-health and help-seeking.

In the current study, we aimed to use the novel story completion task (Clarke et al., 2019) to understand how evangelical Christians in the United Kingdom make sense of depression. Specifically, we were interested in understanding the intersections between depression and evangelical Christian faith through exploring how a (hypothetical) evangelical church community responds to a (hypothetical) male Christian who experiences low mood. The objectives of this research were to capture implicit individual perceptions and views of depression and the wider socio-cultural and religious discourses related to mental health help-seeking in evangelical communities. By focussing on evangelical Christians, this research sought to capture the connection between spiritual aetiologies and mental health help-seeking, revealing socially located assumptions, perspectives, and understandings of depression amongst evangelical Christians living in the United Kingdom.

MATERIALS AND METHODS

Research Design

Data were collected using a story completion (SC) method, which is a novel qualitative method for accessing participants' socially contextualised assumptions about a given topic (Clarke et al., 2019). SC has a long history in psychoanalytic (clinical) contexts (Rabin and Zlotogorski, 1981) where SC forms part of an intentional projective technique, where ambiguous stimuli are presented to access unconscious "truths." Recently, SC emerged from the confines of psychoanalytic discourses and entered qualitative research (for a historical discussion of this qualitative method, see Moller et al., 2021). SC contrasts with direct and traditional self-report techniques, such as interviews or focus groups, which have dominated the field of qualitative research and have amassed numerous merits in their own right (Frith, 2013).

Clarke et al. (2019) state that the SC does not require participants to describe their experiences but rather imagine how a scenario would unfold in a particular context. This method encourages participants to complete a short story that responds to a first or third-person story cue, which is also the story's opening sentence. As SC requires participants to draw upon the socio-cultural sense-making resources and repertoires at their disposal, this innovative method becomes a valuable technique for exploring implicit perceptions toward a given phenomenon. Because this method does not explicitly collect individual opinions or experiences, SC permits access to a range of meanings around the research topic, subverting the risks of collecting responses that are perceived to be socially desirable or immediately available (Clarke et al., 2017), which are both significant considerations when researching stigmatised contexts or marginalised groups.

Theoretical Assumptions

Morrow (2005) recommends that qualitative researchers explicitly define the philosophical assumptions that influence their research. SC can be positioned in a varied range of epistemological contexts, extending from essentialist to social constructionist to contextualist. In an essentialist (i.e., realist) epistemology, analytic attention is directed toward defining psychological meanings thought to motivate stories, which demand personal motivations and feelings from the story writer. In a social constructionist lens, stories are not framed as capturing any singular psychological reality but rather are believed to reflect a discursive or relativist reality (Kitzinger and Powell, 1995; Burr, 2015). And in a contextualist epistemology, which lies somewhere between essentialist and social constructionist, stories are thought to reflect individual and social perceptions that are socially mediated and embedded (Moller et al., 2021; Lloyd and Panagopoulos, 2022). This study adopts a contextualist epistemology.

Reflexivity

The notion of reflexivity, or reflecting upon one's perspective, and how this might invariably shape and direct analytic interpretation, has a long history in qualitative research (Willig, 2012). Both CL and BSM were raised in evangelical Christian homes that emphasised charismatic spirituality and miraculous healing, whereas GR came to Christianity during early adulthood. CL is interested in the negotiation that ensues between faith, lived experience, and mental distress and how certain theodicies

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[1] It is worth noting the existence of psychological therapies which are rooted in faith, e.g., Religiously-Integrated Cognitive Behavioural Therapy (Pearce et al., 2015). Such treatments are significant as they may offer an important bridge between the often bifurcated evangelical and secular clinical settings, thus avoiding the potential pitfalls of discarding either the beneficial role of faith for wellbeing, or, psychotherapeutic intervention.

and theologies may influence individual and collective meaning making and wellbeing. He brings a range of intersectional standpoints and perspectives in relation to this research in that he is a Christian, psychologist, theologian, and scholar who is critical of theologies that demonise individuals or groups or prevent holistic help-seeking. BSM is a Global Mental Health researcher who investigates conceptualisations of mental distress and help-seeking behaviours in vulnerable communities. She has personally witnessed the complex relationship between evangelicalism and mental ill-health and has come to appreciate the need for researching and critiquing the nuances of mental health and religion. GR is a neuropsychological researcher interested in risk, resilience, and help-seeking for psychiatric conditions. He is a Christian with experience across different denominations who ascribe to differing views surrounding the issue of mental health and faith. All authors' overlapping interests, experiences, and perspectives have allowed them to critically engage with the data through a motivating desire to investigate the potential impact of social and theological understandings of depression for evangelical Christians.

Ethics

The procedures of the current study were approved by the Ethics Committee at the University of Derby (ETH2021-0074; see Lloyd, 2021b). All participants were fully briefed regarding the nature of the study prior to their engagement, with all participants providing informed consent. Given the online nature of the study, participants could withdraw their consent at any time by terminating their browser and up to 1 week following study completion. Data were anonymised and stored on a GDPR-compliant server to which the researchers had sole access. In light of the potentially distressing research topic, information pertaining to religiously sensitive mental health charities and helplines were provided in the debrief. All authors abided by the British Psychological Society's Ethics Guidelines for Internet-mediated Research (The British Psychological Society, 2017).

Data Collection and Analysis

Participants identifying as evangelical Christian, currently residing in the United Kingdom and aged 18 years or older were recruited to participate in this study. To assess their commitment to Evangelical Christianity, participants were asked to endorse creedal statements that aligned with Stanford and McAlister's (2008) definition of Evangelicalism: (1) the Bible is the highest authority for what I believe; (2) it is very important for me personally to encourage non-Christians to trust Jesus Christ as their Saviour; (3) Jesus Christ's death on the cross is the only sacrifice that could remove the penalty of my sin; and (4) only those who trust in Jesus Christ alone as their Saviour receive God's free gift of eternal salvation.

Following ethical approval, individuals were recruited primarily through online Christian social media groups and subsequent snowball sampling between 2020 and 2021. A recruitment statement was posted onto group pages with the following text: "This study aims to explore perceptions of mental distress in the church community. Please consider taking part in this short, online creative study in which you will complete a short story. Anyone who is an evangelical Christian and lives in the United Kingdom is eligible to take part." Participants were directed to Microsoft Forms to provide consent, basic demographic information, and to complete the story stem. All participants were provided with the following third-person story stem:

> *"Tom had been extremely depressed and life has felt hopeless for a few years. Tom visited his local church where...'*

Participants were requested not to ponder but to provide their initial responses that captured "readily available" meanings and perceptions of depression. They were asked to dedicate a minimum of 10 min to completing the story, producing approximately 200 words or 10 lines. The SC was piloted with three individuals to ensure that participants understood the instructions and could engage with the study independently. A third-person story stem allows researchers to access less socially desirable responses, which might not otherwise be available through first-person accounts (Moller et al., 2021). These responses are captured by situating participants outside the story, where inferences of personal experience or viewpoints are often excluded (see Braun and Clarke, 2013). A single-story stem was provided to allow participants to go in-depth about the story, which could positively impact the length and quality of the story.

Participant stories were downloaded into Microsoft Word and imported into NVivo for data management and analysis. Data were analysed using Braun and Clarke's (2006, 2013) approach to thematic analysis (TA), which includes six phases of coding and progressive theme development. The second author read and re-read all data, making initial notes, and analytic observations (phase 1). Systematic data coding followed, including isolating and identifying core features of the data (phase 2), which were then scrutinised for more prominent and recurring patterns of meaning to identify overarching themes (phase 3). Throughout this process, regular research analysis meetings between CL and BSM were used to further refine and solidify findings (phases 4 and 5). This manuscript constituted the final phase of analysis (phase 6), which incorporated selecting salient data extracts alongside theme definitions to produce a coherent analytic narrative. Spelling and typographical errors have been remedied in the excerpts of data provided, and participants have been assigned pseudonyms.

Analysis Validity Procedures

Yardley's (2008) quality measures for qualitative research were used to ensure research validity. Firstly, the researchers assessed their contextual sensitivity combined with an awareness of the existing research literature, ensuring that all data analyses were closely matched to the participants' stories. This process was also supported with researcher theme validation meetings, whereby both CL and BSM discussed emerging themes and resultant disagreement. This helped to ensure that individual author's biases were bracketed from undue influence upon the data analysis.

RESULTS

Results Overview

A total of 110 participants provided a story, with the majority being female (n = 79) and aged between 21 and 75 years old (**Table 1**). The majority of the participants attended church several times a week (n = 32) or on a weekly basis (n = 59), and most participants had experienced mental health problems or had loved one with mental health conditions (n = 99). Participant stories ranged from 10 to 718 words (Mean = 183 words), consistent with published story completion work and indicative of data "quality" (Clarke et al., 2019).

Using a story mapping technique, which is a strategy that reveals common patterns and components of participants' stories (Braun and Clarke, 2013), many responses followed a similar trend: (1) congregants welcomed Tom and offered him a sense of community and belonging; (2) Tom was invited to participate in Bible study groups, where he would eventually disclose his experiences of depression; (3) attempts of healing Tom's depression led to spiritual growth or exit from the church. This linear trend in participant stories was more noticeable in succinct responses:

> *"He was greeted with open arms, welcomed with cheering hospitality. . .and given a sense of belonging and family. . .He would hear a talk about someone who gives the ultimate hope and love no matter background, personal struggles and situations."* (Anna, female)

TABLE 1 | Descriptive summary of the participant demographics.

Characteristics	*n* (%)
Age	
21–40	35 (31.8%)
41–60	52 (47.3%)
61–80	23 (20.9%)
Gender	
Male	29 (26.4%)
Female	79 (71.8%)
Non-Binary	2 (1.8%)
Church attendance	
Daily	3 (2.7%)
Several times weekly	32 (29.1%)
Weekly	59 (53.6%)
Monthly	7 (6.4%)
Seasonal	4 (6.4%)
Yearly	2 (1.8)
Never	3 (2.7%)
Self-identify as evangelical	
Yes	91 (82.7%)
No	19 (17.3%)
Experience of mental illness	
Yes	99 (90.0%)
No	7 (6.4%)
Unsure	4 (3.6%)

Fewer stories (n = 11) described Tom's receiving an unwelcoming or mixed response from congregants, where individuals with depression were made to feel invisible against the backdrop of social interactions before church services. One story mentioned, "*It was very busy around him with people chatting in groups, clearly all already knowing one another. Tom felt even more alone than he normally did*" (Gabby, female). Hesitations in making oneself visible were compounded by perceptions of congregants, who were often described as "*happy*," "*fulfilled*," "*smiley*," and additional adjectives that painted a positive imagery of evangelicals. These stories illustrate how individuals with depression may perceive religious social interactions as challenging to navigate:

> *"This was hard to sit through for Tom, surrounded by people who just talked about how great everything was made him feel bad about how sad he was"* (Lucy, female).

Many stories (n = 33) described the importance of spirituality and faith in addressing depressive symptoms, whereas a smaller sample of stories (n = 23) described depression as having a biological component. The latter stories emphasised the importance of seeking formal mental health care from a GP or through counselling. One participant described, "*he decided he had to try the doctor who recognised the symptoms right away, prescribed some medication, and recommended some counselling and CBT*" (Thomas, male). Other stories (n = 17) described how the decision to seek help was aided by social support networks within and, at times, outside of the church. Where clinical approaches to depression were mentioned, Tom's story always concluded with a happy ending, describing a reduction in depressive symptoms, increased confidence, or becoming a mental health advocate.

However, not all stories ended adaptively, as the prevailing perceptions of treating depression were sometimes driven by spiritual interventions. The following sections pay closer analytic attention to how depression is represented within the evangelical church. After the disclosure of depression, it appeared that normative discourses constructed individuals with depression as problematic, which is reinforced through external and internalised stigma. Experiences of stigma then influenced social interactions within the evangelical church. We describe two commonly mentioned modes of healing (spirituality and sociality) and its connection to perceptions of curing and treating depression. We conclude this section by describing perceptions of failed expectations of healing and offer a critique on how the pressure to experience miraculous healing may exacerbate mental ill-health and push individuals out of the evangelical church. As a whole, this section describes the perceptions of depression and help-seeking amongst evangelical Christians by analysing stories that underscore social reactions to Tom's lived experiences of depression and the varied modes of treatment.

Problematising Individuals With Depression

In several stories (n = 18), the social reactions to Tom's disclosure of depression revealed how mental ill-health was problematised within the evangelical church. The problematisation of depression appeared to be grounded in normative spiritual aetiologies: a phenomenon that is characteristic of evangelical Christian perceptions of mental distress (Lloyd, 2021a). The construction of depression as problematic emerged in conversations with congregants, which simultaneously reduced depression to a spiritual deficit:

> "*He was told his main problem was not being in a relationship with God. (Logan, male; emphasis added) [We] helped him understand there was a way forward with God that would rid him of his problem." (Lyla, female; emphasis added)*

Stories problematising Tom revealed how depression was understood as an elusive, temporary condition that could be quickly and easily cured by spiritual remedies, like building a relationship with God. In some cases, these distinctions also differentiated physical from mental ill-health. For example, one participant wrote:

> "*They told him to snap out of it but never said anything similar to people with physical disabilities or health problems.," (Maria, female).*

Deviating from the SC task, one participant who indicated attending church several times a week critiqued the presence of a mental health discourse in the evangelical church, revealing how the problematisation of depression was deeply intertwined with theological beliefs:

> *They said, "Often, people, these days are depressed because they are not getting something they do want (materially or experientially) or they are getting something they don't want" (Edward, male).*

He continued by arguing that in many cases, depression is "*illegitimate*," adding:

> *"Depression does not automatically make you a victim. In this instance, the hope of the gospel should be able to lift him out of his despair if he is able to believe it, take responsibility for the things he might have done wrong and repent."*

By comparing depression to victimisation, this participant situated depression as an experience that occurred because of one's wrong behaviour, thus requiring ownership, reconciliation and heightened spirituality to overcome mental ill-health. Such stories parallel Scrutton's (2020) view that solely spiritualised aetiological accounts of mental distress overemphasise the role of individual responsibilities, whilst minimising its social and relational context. Furthermore, this construction of depression may reinforce notions of mental ill-health as antithetical to Christian faith, thus requiring a spiritually-oriented treatment. This interpretation of mental ill-health eschews secular conceptualisations for a theological interpretation (Wesselmann and Graziano, 2010). Stories suggested that the problematisation of depression also influenced how congregants interacted with individuals experiencing depression for an extended period. Though the majority of stories ($n = 39$) began with Tom's being welcomed into the church, social relationships had the potential to negatively change if Tom's depression did not dissipate:

> *"When he tried to get more involved with the church. . .his mental illness was seen as a real problem in the selection process. Soon Tom was seen as a bit of a problem, and leadership no longer really wanted him involved in things. There was an attitude of 'thus far, but no further, as really you're broken" (Nathan, male; emphasis added)*

Social interactions that problematise mental ill-health can influence an individual's self-perception, where the notion of being problematic becomes internalised as self-stigma (Corrigan, 2004). Self-stigma within the evangelical church is not uncommon as studies have shown evangelical Christians to display higher degrees of self-stigmatised depression than non-Christians (McGuire and Pace, 2018). The connection between the external and internal stigmatisation of depression emerged in participants' stories as internal dialogic self-reflections, where Tom would contemplate the cause of his depression and his comfortability in opening up to fellow congregants. In some stories ($n = 13$), Tom worried about congregants' reactions to his experiences:

> *"He was scared that if he was honest about his difficulties people would avoid him and disregard him. He was embarrassed by his depression and kept it secret" (Amber, female).*

Experiences of self-stigma were also illustrated through descriptions of depression's being "*embarrassing*," where Tom lacked "*self-confidence*" and resorted to self-blame and shame as a means of withholding his experiences of depression.

The problematisation of individuals with depression revealed how stigma could be experienced and perpetuated within the evangelical church and how disclosure could render depression visible. The visibility of depression appeared to garner similar reactions as the (visibly) disabled community, where their differences have primarily been considered troublesome within Christian churches (e.g., Eiesland, 1994; Creamer, 2012; Reynolds, 2012). Though congregants often perceived the prognosis of physical and mental ill-health to be different, the stigma and treatment of individuals with depression as "*broken*" amplified the visibility of individuals with mental ill-health and subsequent approaches to treatment. As disability theologians and scholars have noted (Eiesland, 1994), the problematisation of visible impairments is accompanied by a perception that "problems" should be fixed or cured, thus drawing attention to how Christian communities perceive remedies to various illnesses. The following sections explore representations of common spiritual remedies and reveal how a theology of healing has dominated informal treatments of depression.

Healing Through Social Connection

Many stories ($n = 58$) stressed the importance of social support in alleviating Tom's depressive symptoms. By describing how Tom was invited to converse and develop relationships with congregants, stories revealed how evangelical Christians perceived interpersonal relationships as preferred modes of providing emotional, social, and spiritual support and a remedy for depression. By describing Tom as sitting alone in the back of the church, several stories ($n = 15$) situated the experience of depression as connected to social isolation, revealing how social connection was positioned as the principal route to recovery. Moments of social contact typically began when congregants noticed Tom sitting alone in the back of the church and invited him to converse:

> *"...a middle-aged man sat near him and simply chatted, asking Tom a few non-invasive questions and introducing himself. Then bought Tom a cup of tea and a biscuit. He didn't evangelise or get pushy, but he did try to make Tom feel welcome." (Harrison, male)*

> *"People noticed he was unhappy and didn't seem to know anyone. So, a kind couple invited him to their house after church for lunch. They didn't want to intrude, but they made it clear they would be there for him..." (Oscar, male)*

In some stories (n = 25), these moments of social interaction developed into relationships that encouraged Tom to join Bible study groups. Descriptions of Tom's receiving invitations to develop relationships with congregants highlighted how Bible study groups were perceived to be a therapeutic resource. Though most research on social support in religious settings has routinely conceptualised its dimensions to include emotional, informational and instrumental (Merino, 2014; Salusky et al., 2021), exploring the spiritual dimension of sociality elucidates the nuances of support in religious settings. Spiritual social support like prayer and reading the Bible are perceived as ideal types of support an evangelical Christian can offer individuals experiencing depression (Wesselmann et al., 2015). Stories suggested that individuals with depression may feel accepted and supported in these settings after disclosing their experiences within a trusted social group. For example, one story succinctly said:

> *"As he got to know people, he shared more of his life and they offered him practical help and moral support," (Riley, female).*

Another story echoed similar sentiments, directly challenging the problematisation of individuals with depression:

> *"It was a relief to Tom to feel accepted, and to be considered a person, rather than to be treated as a problem to be solved." (Bella, female).*

In stories where social support was mentioned, the concept of healing often followed, frequently being described as increasing positive attributes (e.g., hope, confidence, and calmness) and decreasing depressive symptoms. For example, one story mentioned, *"He met a group of Christians who uplifted him and supported him through his trials and tribulations. Very soon, Tom slowly began to come out of darkness and was filled with hope, love and patience" (Cody, male).* However, one story explicitly connected sociality to healing: "*...where he was made welcome and was encouraged to be part of a life group and eventually healed from his depression as he was able to experience God's love" (Nancy, female).*

Though this last statement omits the complexities around help-seeking and social reactions to individuals with depression, it reveals the dangers of a reductive perspective on addressing mental health issues within evangelical settings. By explicitly connecting "experiencing God's love" to miraculous healing, individual experiences of depression risk being minimised to an acute experience that is overcome by spiritual social support.

In some stories (n = 18), sociality became a bridge to spirituality, where individuals developed a greater sense of "*faith*" because of their interpersonal relationships and involvement in Bible study groups. For example, one story mentioned, "*He made some great friends who got alongside him, helped him to explore biblical hope. Over time he gave his life to Jesus and, alongside medical support, was able to claim he was free from depression*" *(Tommy, male).* While social interaction is important for alleviating experiences of depression, these excerpts reveal that the emotive element is key to enhancing individual mental wellbeing, as it provides the "comfort of knowing that one has support" (Hovey et al., 2014, p. 387). Additionally, the spiritual component of social support is also widely supported amongst evangelical Christians because of the dominant spiritual aetiology that is primarily attributed to the cause of mental ill-health (Wesselmann et al., 2015).

Though not all stories that centred sociality ended with a reduction in depressive symptoms, they illustrate how the long-term effects of social interactions were considered a conduit of healing grounded in ideals of fellowship, where spiritual and emotional social support could aid individuals experiencing depression. The following section further explores the perceptions of spirituality as a mode of healing.

Healing Through Spirituality

Despite the story stem's omitting Tom's religious affiliation or spiritual background, most stories (n = 59) described him as areligious and in spiritual deficit. These stories alluded to how individuals with depression should become more spiritual as a more intimate relationship with God would provide healing from depression. In this context, Christian spirituality, or the pursuit of a relationship and connection with God (Koenig et al., 2012) becomes an avenue for healing. These perceptions are similar to the experiences of disabled Christians (Clifton, 2014), illustrating how attaining healing has become an automatic response to curing individuals of (in)visible ailments. Though prayer is often described as a primary mode of healing (Clifton, 2014), participant stories also listed conversion, church attendance and additional practices that constitute increased faith or belief in miraculous healing:

> *"They offered to pray with him and suggested he attend a [conversion] course...they would encourage him to come to church on Sunday... May offer 'prayer counselling' a form of quasi counselling delivered by respected members of the community but who are not necessarily qualified counsellors." (Jessica, female)*

> *"The Minister tried to convert him and assured him that once he became a Christian his depression would leave him for good. And encouraged him to come to Church regularly. The Minister wanted to lay hands on Tom to drive out the sickness of his mind." (Arthur, male)*

Though the emphasis placed on healing reveals elements of spiritual reductionism, participants' stories also revealed how the relationship between healing and spirituality was perceived as much more complex and nuanced. These stories revealed that heightened spirituality and religiousness, or the adherence to religious practices (Koenig et al., 2012), can be achieved through multiple avenues, occurring independently. However, the perceived relationship between spirituality and healing was clear: heightened spirituality was the precursor for healing.

These perceptions about healing also reveal the interplay between social support and theological beliefs, where social interaction precedes the spiritual encounters necessary to experience miraculous healing. A few stories (n = 9) detailed Tom's piqued curiosity in Christianity and interest to return to church the following Sunday, and some stories (n = 11) described his depressive symptoms slowly dissipating due to heightened spirituality:

> *"...he learnt more of the Lord, His truths and promises along with understanding more of scriptures...this gave him a sense of hope, raising his spirits...Over time, Tom was able to share with others how [the bible study] group and the Lord, helped him to overcome his depression." (Clara, female).*

Heightened spirituality did not always lead to healing, however, as very few stories (n = 6) described the possibility of becoming more spiritual and experiencing depressive symptoms simultaneously. For example, one story concluded, "*At the end...Tom gave his life to the Lord. His troubles were not over but he knew the Lord walks with him...*" *(Zoe, female). While another one read,* "*...he still had mental health issues but now he felt God was behind him, calling him back from the dark abyss*" *(Dylan, male).*

Though stories revealed a dominant perception that healing occurs through spirituality facilitated social interactions, a smaller sample of stories revealed the harms associated with expectations of healing. The following section outlines how perceptions of prolonged experiences of depression, despite attempts of healing, may worsen mental ill health and create the conditions for exiting the evangelical church.

The Failure to Heal

The inability to receive miraculous healing for depression was routinely phrased as Tom's failure and lack of spirituality to obtain healing. This perception further problematises individuals with depression, having the potential to cause significant harm to an individual's mental health. Like one story mentioned, "*He was encouraged to pray more and trust God more. Tom felt that he had failed as a Christian as well as failed in life. However much he prayed, he still felt depressed*" *(Ruby, female).* Generally, individuals with depression may struggle to complete or engage with everyday tasks (Fuchs, 2014; Stanghellini et al., 2017), but when performing religious acts are predicated on receiving miraculous healing, the inability to heal may compound existing experiences with mental ill-health. For example, one story described Tom's receiving prayer and being told that Jesus would heal his depression. After not receiving immediate healing, Tom was encouraged to "press in" by reading the Bible and praying more frequently. The story continues:

> *"Tom tried, he really did, but with his depression, getting up was hard enough anyway, forget leaving time to read his Bible too. He did pray, but that seemed to become more about feeling anxious because he hadn't read his Bible that day and because he didn't seem to be praying the right way to be healed. Other friends in the church suggested he just needed to "have more faith," but no one ever seemed to say what that meant or how you would go about it. Now he was feeling guilty about that too. He began to avoid church meetings and people. He just couldn't face having to tell them their prayers hadn't been answered AGAIN." (Eleanor, female)*

Feelings of anxiety, guilt, loneliness, and intensified depressive symptoms were mentioned as outcomes of failed attempts to heal, consistent with Dein's (2020) assertion that the inability to strictly adhere to religious performances could escalate experiences of anxiety and depression. These experiences can potentially exacerbate existing mental ill-health despite individual efforts to "*press in*." "Pressing in" emerged as a concept related to religiousness and spirituality; however, this idea was abstract for individuals unfamiliar with evangelicalism. For example, one participant mentioned, *"They told him if he "pressed into God" he would feel better, but he didn't really know what this meant." (Grace, female).* The disconnect between religious-informed care and individuals unfamiliar with a theology of healing reveal how its performance can be unclear and poorly defined. Here, it is important to consider Clifton's (2014) critique of healing ministries. Clifton argues that the inability to experience supernatural healing negatively impacts people who are not healed, resulting in disappointment, confusion, anger, and guilt. These experiences and expectations of healing cause individuals with (in)visible disabilities to feel uncomfortable attending churches who embrace healing theologies. Though Clifton's argument centres experiences of the disabled community, the relationship between healing and distress are also applicable to individuals experiencing depression. Participant stories revealed that people who enter the evangelical church in search of belonging and support may feel more isolated and unwelcomed when their experiences do not conform to the normative ideological expectations of recovery and healing.

The inability to achieve miraculous healing through sociality and spirituality often resulted in Tom leaving the church: *"Tom realised that he did not have the personal resources to be able to be a useful member of the congregation...this compounded his depression and feelings of hopelessness, and Tom made the decision to leave the church" (Alice, female).* Stories of departure revealed how the stigma of mental ill-health and failed healing created negative social interactions that isolated individuals with depression, where they eventually sought support outside of the evangelical church. In these stories (n = 10), Tom either joined a non-evangelical church, sought support from the medical community or left the Christian faith. However, three stories described a permanent, more intense exit from the evangelical church – suicide.

Though a suicidal outcome constituted a fraction of stories, it is essential to note that this form of exit, from the church and life, may be a reality for individuals experiencing depression. As one story described:

> *Tom soon began to notice his community avoiding him as without miraculous healing they thought that he was not a "true" Christian. Still, Tom tried his best and soon stopped talking about his struggles.*

> *People were more accepting and welcoming of him that way but it took its toll and his depression got worse and worse. One Sunday night, after an evening service, he couldn't take it anymore. Why had God made him this way and why was he not helping? Why did his community ostracise him when he talked openly about his struggles? Tom took an overdose and died. His community blamed it on the devil and him not having enough faith to get through. (Skyler, non-binary)*

Christian perceptions of reasons individuals take their own lives range from hopelessness, despair, social disconnect, depression, lack of support, and not believing in Jesus (Bazley and Pakenham, 2019). Though several of these factors emerged in participants' stories, the role of healing and problematisation of mental ill-health has not been considered in research on suicide in Christian churches, especially in evangelical communities. Presently, research has shown that increased religiosity correlates with low suicidality in Christian communities (Bonelli and Koenig, 2013; Stack, 2018). Participants' stories presented here illustrate how the pressure to experience miraculous healing for depression may exacerbate experiences of mental ill-health, including the possibility of suicide. This dominant perception on the role of healing for depression reveals it to be cyclical where failed expectations of receiving a cure subsequently render individuals problematic.

DISCUSSION

The aim of the current study was to explore religious discourse and the wider socio-cultural perceptions of depression and help-seeking in evangelical Christians in the United Kingdom. To this end we used a novel story completion task to understand how evangelical Christians constructed and made sense of depression by asking participants to write a short narration of how a hypothetical individual with low mood would be received by a hypothetical Christian community (Clarke et al., 2019). This third-person story stem allowed participants to deflect their personal experiences of mental ill-health in which participants crafted expressive stories about depression, help-seeking, and treatment that revealed the interconnectedness and complexities of seeking psychosocial support within evangelical communities. Depression was frequently represented in stories as being viewed as a spiritual deficit, where individuals were rendered responsible for their experiences of depression. Whilst this finding aligns with earlier research, such as Scrutton's (2020) "sin account of depression," and other qualitative data (Lloyd, 2021a; Lloyd and Hutchinson, 2022), there is also some nuance. Specifically, data from the present study suggests that increasingly, evangelical Christians may recognise the dangers of a solely spiritualisation of psychological distress, oftentimes recognising that this may create a climate of stigma. In this regard, many stories positioned solely spiritual solutions (prayer, deliverance, and healing) as leading to negative conditions for individuals with depression, including failed expectations, stigma, and marginalisation.

Analogous to this, healing through sociality and spirituality seemed to be the preferred and primary mode of treatment, often being prioritised over biomedical models of therapeutic care. While some individuals may experience improvements to their mental health, failed expectations of care remain a reality for others, exacerbating their mental-ill health, heightening their visibility, and solidifying their positioning as problematic within their community.

The fear of disclosing experiences of depression became apparent in stories where the internal dialogic self-reflections illustrated a paradox of help-seeking within the evangelical church. In these stories, the longing for social contact that would render depression visible contrasted feelings of invisibility and loneliness. As a result, the disclosure of depression inadvertently exposes an individual's mental health needs and negatively alters social interactions that reinforce discourses that individuals with depression are problematic or spiritually inadequate. Disclosing experiences of depression may result in individuals experiencing similar social interactions to the Christian disabled community, highlighting familiar realities for individuals with disabilities and mental health issues (Swinton, 2020).

Participant stories illustrated how the problematisation of depression is deeply connected to perceptions of mental health treatment and cures in the evangelical church (Lloyd and Waller, 2020; Lloyd, 2021b). As such, the discourses surrounding depression, help-seeking and religious treatment can become pathogenic for individuals seeking support in evangelical communities. Turning to a theology of healing, this manuscript revealed the unintended consequences of a total reliance on healing for mental ill-health. Researchers have noted that healing for mental ill-health may occur when individuals develop a closer relationship with God and repent from sin and demonic influences (Dein, 2020), but this manuscript revealed the role of social relationships in all aspects of healing. Increased sociality with congregants was not only perceived to be a cure of depression, but it was also a precursor to heightened spirituality. Still, spiritualisation and healing were revealed to be a normative ideology for illness, thus shaping socio-cultural discourses on mental health in evangelical spaces. This ideology can be oppressive for many individuals and prompt them to internalise blame and ignore their potential to live well with their illness (Eiesland, 1994; Clifton, 2014). As a hallmark of evangelicalism, miraculous healing promises that individuals can be cured of physical and mental ailments and perceived as superior to biomedical treatments and alternative religious healing practices and beliefs (Gunther Brown, 2011). Gunther Brown (2011) describes that the characterisation of the evangelical God as a supernatural and ultimate healer continues to amass global followers where the recipients of divine healing believe their experiences to be a manifestation of God's love. Illness, on the other hand, is considered sinful, demonic, and antithetical to God's will of health and wholeness, a perception that many scholars have also documented.

Whilst this manuscript presented original insights into the construction of depression in the evangelical church using the story completion task but the nature of this method did not explicitly capture individual experiences of living with depression in an evangelical community. Future research should ethnographically capture the lived experiences of individuals with mental ill-health in United Kingdom

Christian communities. The global evangelical church remains a heterogenous field for exploration, as the conceptualisation of depression and manifestation of illness and healing may vary across diverse communities. The demographic data collected in this research revealed that individuals with experiences of mental ill-health, either personal or through a friend or family member, were overwhelmingly represented in this sample. This strengthens our argument in the manuscript, as numerous stories were constructed from social interactions between individuals with mental ill-health and congregants. Though demographic variables such as gender identity and age were collected, future studies would benefit from a wider range of intersectional characteristics of research participants. Characteristics such as participants' sexual identity, disability status, socioeconomic status, and racial and ethnic identity could reveal how individuals from diverse backgrounds experience mental health in addition to biases related to their intersectional positioning within and outside of the evangelical church.

That being said, the limitations of this research do not overshadow the novel insights gained from using story completion to understand representations of depression and help-seeking amongst evangelical communities in the United Kingdom. As Christians seek to find solace to withstand everyday distress, especially amidst the COVID-19 pandemic, the role of Christian communities becomes increasingly important in providing psychosocial support. The challenges that remain in fundamentalist communities require further critical engagement with the biopsychosocial model of depression along with trained practitioners to ensure that mental-ill health does not become exacerbated because of reductive theologies. It is then that coordinated psychosocial support of evangelical Christians can produce positive narratives of mental ill-health, whether it be learning to live well with depression or journeys toward recovery.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by University of Derby. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

This project formed one component of CL's earlier research projects in this area. CL conceptualised and designed the study, applied for ethical approval, carried out recruitment and data acquisition, provided supervision of the research project, from literature review through to study write up, wrote the methods section of the manuscript, contributed to the introduction, and edited the entire manuscript prior to submission. BM conducted qualitative analyses and the initial draft of the analysis, and introduction and discussion under supervision. GR assisted with the literature reviews and manuscript revisions for publication. All authors contributed to the manuscript revision and approved the current form of the submitted version.

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Benefits of group compassion-focused therapy for treatment-resistant depression: A pilot randomized controlled trial

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Major depression is one of the most common mental health problems worldwide. More than one-third of patients suffer from treatment-resistant depression (TRD). In this study, we explored the feasibility of group compassion-focused therapy (CFT) for TRD using a randomized controlled trial with two parallel groups. Eighteen participants were randomly allocated to the intervention group (CFT and usual care) and control group (usual care alone) and a participant in each group withdrew. Participants in the intervention group received a 1.5-h session every week for 12 weeks. The effects of the intervention on the participants' scores were calculated using a linear mixed model. There was a larger reduction in their depressive symptoms and fears of compassion for self and a greater increase in their compassion for self compared to the control group participants. The reliable clinical indices showed that in the CFT (intervention) group, three of nine participants recovered (33%), two improved (22%), two recovered but non-reliably (22%), and the condition of two remained unchanged (22%). These findings indicate adequate feasibility of group CFT for TRD in Japanese clinical settings.

Clinical trial registration: [https://clinicaltrials.gov/], identifier [UMIN 000028698].

KEYWORDS

compassion focused therapy (CFT), treatment-resistant depression, self-compassion, randomized controlled trial (RCT), compassion, group psychotherapy

Introduction

Major depression is a common mental health problem worldwide. James et al. (2018) reported that more than 264 million people suffered from depressive disorders. The situation is similar in Japan, where the lifetime prevalence of mood disorders is 4.12% in men and 9.80% in women, and the 12-month prevalence is 1.29% in men and 3.70% in women (Nishi et al., 2019).

Various guidelines recommend cognitive behavioral therapy (CBT) as a psychological treatment for major depression (National Institute for Health and Care Excellence, 2009; American Psychological Association, 2019). However, despite treatment, some patients struggle with chronic symptoms and experience treatment-resistant depression (TRD; EMEA, 2009). Although the definition of TRD is not universal, it is most commonly defined as "an inadequate response after at least 2 antidepressant trials of adequate dose, duration, and treatment adherence" (Thase, 2011). Rush et al. (2006) found that over 50% of patients diagnosed with depression do not remit after first-line antidepressant medication, and approximately 30% may not remit after multiple treatments. Thomas et al. (2013) reported that 55% of patients with major depressive disorder were eligible for a diagnosis of TRD. These findings highlight the importance of treating chronic depression. However, patients with TRD present complex clinical problems related to multiple risk factors and may need novel psychotherapies (Al-Harbi, 2012).

For treating chronic depression or TRD with psychological intervention, the National Collaborating Centre for Mental Health (2011) guidelines recommend Dialectical behavior therapy (DBT), CBT, Interpersonal Psychotherapy (IPT), and short-term dynamic psychotherapy. A systematic review assessing the effectiveness of psychological interventions reported that although these psychotherapies delivered to patients were reliable, further evidence is needed on the effectiveness of the different types of psychotherapy (Ijaz et al., 2018).

Relatedly, psychological interventions focused on compassion have been garnering attention in recent years. This trend is evidenced by the emergence of various concepts related to compassion. The most popular one is self-compassion, defined as "being open to and moved by one's own suffering, experiencing feelings of caring and kindness toward oneself, taking an understanding, non-judgmental attitude toward one's inadequacies and failures, and recognizing that one's own experience is part of the common human experience" (Neff, 2003). Meta-analyses of cross-sectional data have revealed that self-compassion is negatively correlated with psychopathology (MacBeth and Gumley, 2012) and psychological distress (Marsh et al., 2018) and positively correlated with well-being (Zessin et al., 2015), physical health and health behavior (Liao et al., 2021; Phillips and Hine, 2021), physical activity (Wong et al., 2021), and sleep quality (Brown et al., 2021). These findings indicate that enhancing or developing self-compassion can promote mental and physical health. However, this concept and measure of self-compassion can be difficult to interpret because it combines positive factors such as kindness with "negative" factors of self-criticism which have long known been linked to depression and for which there many different therapies (Ferrari et al., 2022; Muris and Otgaar, 2022). In addition MSC was not (originally) developed as a psychotherapy but for self-help (Neff, 2003).

Meta-analyses of different types of compassion-based interventions (CBIs) with clinical applications have also been conducted. Wilson et al. (2019) showed that self-compassion-related therapies (compassion focused therapy, mindfulness-based cognitive therapy, and acceptance and commitment therapy) improved anxiety and depression, based on the data from 22 randomized controlled trials (RCTs). Kirby et al. (2017) also revealed that CBIs significantly improved scores related to mental health or well-being. Craig et al. (2020) systematic review with meta-analysis found that compassion focused therapy (CFT) reduced depression and anxiety and could be an alternative treatment for severe and complex mental health problems.

Indeed, two studies specifically investigated CBIs for chronic depression or TRD. Graser et al. (2016) pilot study with a single-group design examined the effectiveness of a 12-week mixed-group program on mindfulness, CFT, and loving kindness meditation. The results showed that the symptoms of patients with chronic depression decreased after participating in the program; this progress was also observed in the three-month follow-up. Moreover, in Asano and Shimizu (2018) case study, a patient with recurrent depression responded to individual CFT. These reports suggest the potential effectiveness of CBIs for TRD, which is also supported by evidence that CBIs reduce self-criticism and shame. Self-criticism has long been shown to be associated with depressive symptoms and is a factor that influences recovery or chronicity (Marshall et al., 2008; Zeeck et al., 2020). Additionally, shame is related to depressive symptoms (Orth et al., 2006; Guimón et al., 2007; Kim et al., 2011), and a recent meta-analysis shows that shame-related schemas are highly correlated with depression (Bishop et al., 2022). This evidence suggests that interventions focused on self-criticism and shame can be particularly effective for TRD.

Especially among CBIs, CFT is more expected to be effective because it was special developed with and for people with chronic mental problems (Gilbert and Procter, 2006; Gilbert and Simos, 2022). Compassion is viewed as a basic motive with processes for engaging with the causes and nature of a depression (e.g. develop emotion tolerance and empathy)

Abbreviations: TRD, treatment-resistant depression; CFT, compassion focused therapy; UC, usual care; CBT, cognitive behavioral therapy; CBI, compassion-based interventions; BDI-II, beck depression inventory-II; GRID-HAMD, GRID-Hamilton depression rating scale; CEAS, compassionate engagement and action scales; FCS, fears of compassion scale; SCS–SF, self-compassion scale–short-form.

and then develop the person's courage and wisdom for a range helpful personable practices and actions (Gilbert, 2010). One central focus is self-criticism and shame (Gilbert, 2010; Gilbert and Simos, 2022). CFT hypothesizes that self-criticism and shame are influenced by a cold tone of self-talk toward the self and aims to transform it into a warm tone by developing compassion. To achieve this goal, some forms of psychoeducation are used in CFT to alleviate self-criticism and shame. Typical examples include the detailed psycho-eduction on the evolution-built nature of the motives and emotion process of the brain that can be very difficult to manage hence called the "tricky brain" which conveys a clear message that many of our difficult mental states like depression are linked to the activation of unwanted brain systems and states which is "not your fault" (Gilbert and Simos, 2022). In addition, patients are encouraged to practice a breathing technique—soothing breathing rhythm breathing—which helps bring them to a physiological state of grounding and slowing and enables a compassion focus for attention and reasoning. Accompanying these practices, patients work on techniques to directly develop compassionate images of themselves and others and practice acts of compassion (Gilbert and Simos, 2022). While addressing these processes, the therapist also fosters warmth and compassion in their relationship with the client. As an early report of CFT was for patient with chronic and severe mental health problems (Gilbert and Procter, 2006), CFT is a psychotherapy developed to help patients with chronic and severe problems like TRD.

As patients with TRD present severe and complex problems, exploring the feasibility of CFT for TRD can increase the number of available treatment options. Hence, this study evaluated the feasibility of group CFT for TRD in the Japanese population using an RCT design.

Materials and methods

Study design

This study was conducted as a prospective randomized controlled unmasked endpoint trial with two parallel groups and simple randomization at the individual level. Participants were randomly allocated to either a 12-week group CFT combined with usual care (UC; CFT group) or UC alone (UC group). Ethical approval was obtained from the Ethical Committee of the Safety and Health Organization, Chiba University (29-05), and the trial was registered at University hospital Medical Information Network (UMIN) (UMIN000028698).

Participants and procedures

The CONSORT diagram for the study is shown in **Figure 1**. Participants were recruited between July 2017 and September 2018 through posters and leaflets distributed at medical institutions in Chiba and Tokyo prefectures. Participants were asked to provide a referral letter from their psychiatrist with their application. After being fully apprised of the research, written informed consent was obtained from all the participants. They were then assessed based on the eligibility and exclusion criteria.

The inclusion criteria included: (a) primary diagnosis of major depressive disorder or dysthymia; (b) refractory to two Selective Serotonin Reuptake Inhibitor (SSRI) treatments; (c) while remaining at least moderately ill (Beck Depression Inventory-II (BDI-II) score $\geqq$ 20; Kojima et al., 2002); (d) aged 18–60 years. We applied the criterion (a) above based on Diagnostic and Statistical Manual (DSM)-IV (American Psychiatric Association, 2000) because of the deficits of the structured interview tool based on DSM-5 in Japanese; we included major depressive disorder and dysthymia as diagnoses characterizing a depressive episode. We also applied criteria (b) and (c), based on the identification of TRD by Rush et al. (2006). Criterion (d) was adopted to avoid the need for parental consent. The exclusion criteria included: (1) psychosis; (2) active suicidality; (3) organic brain disorder; (4) substance abuse or dependence; (5) antisocial personality disorder; and/or (6) other severe mental/physical conditions. All exclusion criteria were set to ensure the protection and safety of the participants.

Participants were assessed using the Japanese version of the Mini-international Neuropsychiatric Interview (M.I.N.I.; Otsubo et al., 2005) to check their primary diagnosis (major depressive disorder or dysthymia) and comorbidity. BDI-II was then used to evaluate the participants' symptoms and verify the inclusion criteria; whether patients were refractory to SSRI treatments was confirmed using the referral letters from their psychiatrists. Suicidal risk was evaluated based on the M.I.N.I. Even though an old version of the M.I.N.I. based on DSM-IV was used in this study, it was the latest available tool translated into Japanese.

After checking the eligibility and exclusion criteria, pre-intervention primary and secondary outcomes were measured. Post-intervention measurement was conducted after completing 12 weeks of sessions. The CFT group received a 12-week group CFT program in addition to UC. The CFT sessions were provided once a week, each session lasting 90 min. The UC group received care as usual during the 12 weeks. The number of participants ranged from four to six per group. A therapist and a co-therapist conducted the sessions. The therapist was a clinical psychologist with a Ph.D. in psychology who had trained at a three-day CFT workshop (KA). The co-therapist was an industrial counselor (YO). Both the therapist and co-therapist had completed a CBT training course at Chiba University (Kobori et al., 2014). Peer supervisions were conducted once a week by the therapist and co-therapist for quality control, and the fidelity checklist was confirmed. In addition, the therapist received supervision via a video meeting system from the other CFT therapists (PG or CI) once a month.

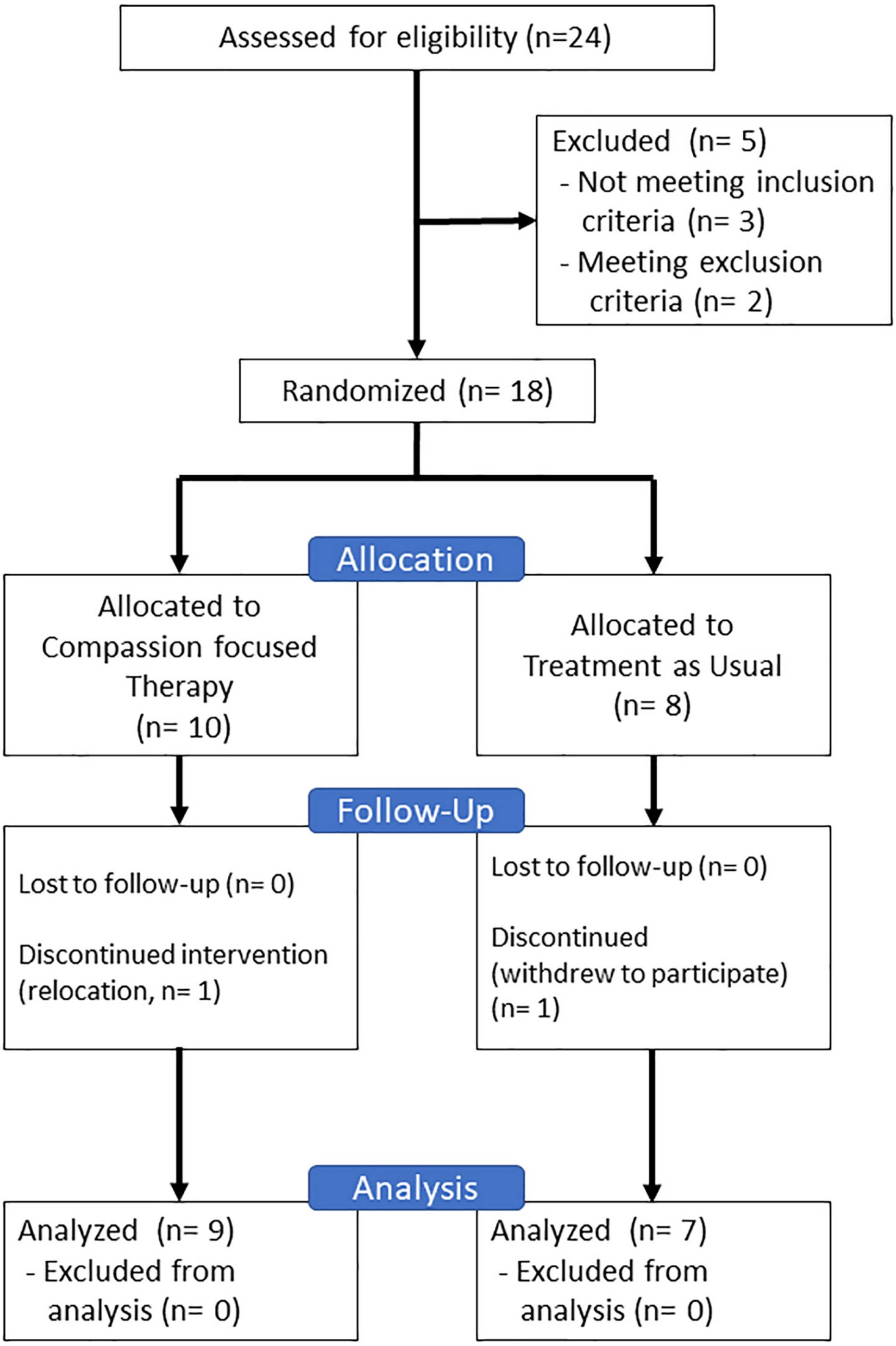

FIGURE 1
CONSORT diagram in this study.

A 12-week group compassion-focused therapy program

The contents of the CFT program are shown in **Table 1**. The program materials were adapted from Judge et al. (2012) and translated into Japanese with adjustments based on Japanese culture. We also added psychoeducation about depressive symptoms to increase the participants' understanding of their mental health problems.

In session 1, participants received psychoeducation about depression in terms of the tricky brain phenomenon, which is a popular and fundamental concept from the evolutionary psychology perspective (Gilbert and Simos, 2022). Mindfulness for sound exercise was also introduced and assigned to participants as homework. In session 2, participants were educated about the three-circle model, and the mechanisms of emotion and motivation were explained from a neuroscience perspective. Soothing rhythm breathing was introduced as homework. In session 3, participants learned about the functions of emotion and were assigned compassionate color and place image exercises as homework. Session 4 consisted of psychoeducation regarding compassion and the compassionate self for an understanding and developing a compassionate mind. Compassionate memory image exercises were introduced as homework. In sessions 5 and 6, participants were guided using image exercises pertaining to the compassionate self and others and asked to try the exercises at home.

In sessions 7 and 8, participants were taught to use compassionate images for switching from unhelpful thoughts to compassionate thinking using columns. Session 9 comprised a CFT case formulation to develop participant-specific formulations that reflected their vicious cycles. In session 10, participants were encouraged to replace their safety behaviors by following a case formulation to transform their cycles. Session 11 consisted of a compassionate letter writing exercise, wherein the participants were encouraged to write a letter addressed to themselves. Finally, in session 12, we summarized the program and devised plans to continue the participants' efforts.

TABLE 1 Contents of the group compassion-focused therapy program.

Session No.	Contents of Session
1	Psychoeducation of depression, tricky brain, and mindfulness
2	Three-circle model and soothing rhythm breathing
3	Psychoeducation of emotion, compassionate color or place
4	Psychoeducation for compassion and the compassionate self and memories
5 and 6	Images of compassionate self and others
7 and 8	Compassionate thinking
9	Case formulation for shame and self-criticism
10	Key fears and safety behaviors
11	Compassionate letter writing
12	Wrap-up and relapse prevention

Measures

Primary outcome

We used the BDI-II, which is the most popular self-reported questionnaire in clinical trials or meta-analyses, as the primary outcome (Beck et al., 1996; Kojima et al., 2002; Cuijpers et al., 2013). The BDI-II consists of 21 items, rated on a 4-point Likert scale ranging from 0 to 3. The score on the Japanese version of the BDI-II is classified as follows: 0–13, 14–19, 20–28, and 29–63, described as minimal, mild, moderate, and severe depression, respectively. The Japanese version of the BDI-II has been standardized and has demonstrated excellent reliability and validity. Cronbach's α at pre-intervention was.73. Additionally, the BDI-II score was used as an inclusion criteria (participants who scored higher than 20 were included).

Secondary outcomes

We used the GRID-Hamilton Depression Rating Scale (GRID-HAMD), which has high reliability and validity, as the secondary outcome measure for depressive symptoms (Tabuse et al., 2007; Williams et al., 2008). The GRID-HAMD is a revised version of the Hamilton Depression Rating Scale, which is a widely-used structured interview that was developed by Hamilton (1960). The GRID-HAMD evaluates depressive symptoms on both intensity and frequency. The scale has two versions with 17 and 21 items, respectively. In this study, we used the 17-item version with scores ranging from 0 to 52 points. Cronbach's α at pre-intervention was 0.58.

To assess the change in compassion, we used the Compassionate Engagement and Action Scales (CEAS). The CEAS was developed by Gilbert et al. (2017) and translated into Japanese (Asano et al., 2020); it includes three subscales of compassion (for others, from others, for self). The Japanese version has shown good reliability and validity. Each of the 3 subscales consists of 10 items rated on a Likert scale of 1 (*never*) to 10 (*always*). Cronbach's α at pre-intervention were.94 (for others), 92 (from others),0.68 (for self).

To assess the resistance to developing compassion, we used the Fears of Compassion Scale (FCS; Gilbert et al., 2011). This reflects individuals' problems in developing compassion, such as fear, resistance, or blocks that can be barriers to recovery. Kirby et al.'s (2019) meta-analysis showed that the fears of compassion are correlated with mental health difficulties. A cross-sectional study by Merritt and Purdon (2021) demonstrated that fears of compassion relate to ambivalence and the expectations regarding treatment. The FCS has been translated into Japanese and has demonstrated sufficient reliability and validity (Asano et al., 2017). It includes three subscales— fear of compassion for others, fear of compassion from others, and fear of compassion for self. The fear of compassion for others subscale consists of one factor with seven items. The fear of compassion from others contains two factors, namely, concern about compassion from others with four items, and avoidance of compassion from others with four items. The fear of compassion for self subscale comprises two factors: miserable with self-compassion, with five items, and demerit of self-compassion, with eight items. All the subscales are rated on a Likert scale of 0 (*do not agree at all*) to 4 (*completely agree*). Cronbach's α at pre-intervention were 0.85 (for others), 69 (concern about compassion), 74 (avoidance of compassion from others), 80 (miserable with self-compassion), 65 (demerit of self-compassion).

To assess self-compassion (Neff, 2003), the Self-compassion Scale–Short Form (SCS–SF) was used. The SCS–SF is the short version of the Self-compassion Scale (SCS), and both SCS and SCS–SF have been translated into Japanese with high reliability and validity (Arimitsu, 2014; Arimitsu et al., 2016). SCS–SF and SCS include six factors. However, as most studies use the total score as a measure of self-compassion (MacBeth and Gumley, 2012; Zessin et al., 2015; Marsh et al., 2018; Liao et al., 2021), we also used the total score as the outcome measure. The SCS–SF consists of 12 items rated on a Likert scale of 1 (*almost never*) to 5 (*almost always*). Cronbach's α at pre-intervention was 0.69.

We used a dropout rate and the Client Satisfaction Questionnaire (CSQ; Hisateru Tachimori, 1999) as indicators of the feasibility of the program. The CSQ consists of eight items rated on a Likert scale of 1 (*poor*) to 4 (*excellent*).

Evaluation of feasibility

Bowen et al. (2009) proposed eight areas of focus to discuss the feasibility of research on public health, four of which we examined in this study: acceptability, implementation, and limited efficacy testing. To evaluate acceptability, we used participants' session attendance rates, dropout rates, and satisfaction levels as measured by CSQ. Implementation was evaluated according to the number of canceled, truncated, or postponed sessions. Therapist adherence was evaluated using a session checklist (part of the implementation of each session). Limited efficacy testing was evaluated based on differences in primary outcomes.

Data analysis

All analyses were performed using R Statistical Software (v4.1.0; (R Core Team, 2021) and R Studio (v.2021.09.1 + 372 (Rstudio Team, 2021). To evaluate the change in outcomes, intent-to-treat linear mixed models were employed for all outcomes, assuming that the missing values occurred randomly, using lme4 package (v.1.1-27.1; (Bates et al., 2015)). The models included time, group, and time*group as the fixed effects and participant as a random effect. Standardized effect sizes for the difference from the baseline between conditions in linear mixed models were calculated using lme.dscore() function in EMAtools package (v.0.1.4 (Kleiman, 2021)).

We also performed Jacobson and Truax analysis to explore the clinically reliable indices (CRI) in the BDI-II score post intervention (Jacobson and Truax, 1991) using the R package JTRCI (Kruijt, 2021). The reliabilities were based on a previous BDI-II report confirming validity for a Japanese general sample (Kojima et al., 2002), and the mean score of 8.9 ± 6.5 was used as a norm (Kojima et al., 2002). The calculated cutoff point for recovery of c was 9.22; we therefore determined the cutoff point of recovery as less than 10 points on BDI-II.

Results

Participants' characteristics

Twenty-four individuals consented to participate in the study. However, three of them did not meet the inclusion criteria, and two met the exclusion criteria. As a result, 18 participants were randomized, with 10 participants allocated to the CFT group and 8 to the UC group. A participant in the CFT group withdrew because of relocation. A participant in the UC group withdrew to participate while waiting and requested to have their data removed. Finally, the study comprised 17 participants, whose demographic and clinical characteristics are shown in **Table 2**.

Based on the M.I.N.I. assessment, 14 participants were primarily diagnosed with major depressive disorder and the remaining 3 with dysthymia. Comorbidities were present as follows: six participants with social anxiety disorder, three with generalized anxiety disorder, two with panic disorder, two with obsessive-compulsive disorder, 1 with post-traumatic stress disorder, and one with bulimia nervosa. The TRD scores (Fekadu et al., 2009) were in the moderate range of 7 to 10 points, and the duration of the episode was over 4 years for all participants. Several other participants' characteristics may have contributed to bias. For example, more participants in the CFT group were married than in the UC group (70% and 29%, respectively). Additionally, the duration of the current episode was longer among the UC group participants (UC = 12.63 years; CFT = 4.57).

Changes in the primary outcome

The pre- and post-treatment assessments for both groups including interaction effects and between-group effects are presented in **Table 3**. The pre–post change for the BDI-II as the primary outcome was larger in the treatment group than in the control group post treatment, with a large between-group effect size of $d = 2.30$. The statistical results are provided in **Table 3**.

The CRI indicated that three of nine participants recovered (33%), two improved (22%), two recovered but non-reliably (22%), and the condition of two remained unchanged (22%) in the CFT group. Only one patient non-reliably recovered and the other six patients' conditions remained unchanged (17%) in the UC group.

TABLE 2 Participants' characteristics.

Demographic variables		All (n = 17)	CFT (n = 10)	UC (n = 7)
Gender	Women, *n* (%)	15 (88)	8 (80)	6 (85)
Age (years)	Mean (*SD*)	39.88 (10.96)	39.8 (11.22)	40.0 (11.46)
	Median	42	42.5	38
	Range	28-56	24-56	26-55
Marital status, *n* (%)	Single	8 (47)	3 (30)	5 (71)
	Married	9 (53)	7 (70)	2 (29)
Educational background, N (%)	High school	6 (35)	4 (40)	2 (29)
	2 years vocational school	3 (18)	2 (20)	4 (57)
	≧ 3 years of college/university	7 (41)	3 (30)	1 (14)
	Graduate school	1 (6)	1 (10)	0 (0)
Duration of the current episode, years	Mean (*SD*)	7.89 (7.83)	4.57 (3.24)	12.63 (10.15)
	Median	5.67	3.08	9.91
	Range	1.33 − 28.58	1.33 − 10.0	2.0 − 28.58
Severity of treatment resistance (TRD score)	Mean (*SD*)	9.63 (1.02)	9.44 (1.13)	9.86 (0.90)
	Range	7 - 10	7 - 10	8 - 10
Primary diagnosis	Major depressive disorder	14 (82)	8 (80)	6 (86)
	Dysthymia	3 (18)	2 (20)	1 (14)
Comorbidity	Any psychiatric disorder	10 (59)	5 (50)	5 (71)
	Social anxiety disorder	6 (35)	4 (40)	4 (57)
	Generalized anxiety disorder	3 (18)	3 (30)	0 (0)
	Panic disorder	2 (12)	0 (0)	2 (29)
	Obsessive-compulsive disorder	2 (12)	1 (10)	2 (29)
	Post-Traumatic Stress Disorder	1 (6)	1 (10)	0 (0)
	Bulimia Nervosa	1 (6)	1 (10)	0 (0)

Changes in secondary outcomes

Similar to BDI-II, the pre–post change for the GRID-HAMD was larger in the CFT group than in the UC group post treatment, with a large between-group effect size of $d = 1.03$.

Regarding the CEAS scores, the post-treatment change on the compassion for self subscale was larger in the CFT group than in the UC group, with a large effect size of $d = -1.08$. There was a medium effect size of $d = -0.61$ on the compassion for others subscale.

With respect to the FCS, the post-treatment changes in the subscales "miserable with compassion for self" and "demerit of self-compassion" were larger in the CFT group than in the UC group, with large effect sizes of $d = 1.04$ and 1.42, respectively. Conversely, the post-treatment change on the avoidance of compassion from others subscale was larger in the UC group than in the CFT group, with a large effect size of $d = -1.06$. On the fears of compassion for others and concern about compassion from others subscales, there were medium effect sizes of $d = -0.34$ and -0.38.

The post-treatment change on SCS–SF (Neff, 2003) was larger in the CFT group than in the UC group, with a large effect size of $d = -0.91$.

Evaluation of feasibility

On acceptability, attendance rates were from 75 to 100%, 2 participants were absent once and 1 participant was absent twice and 1 participant was absent three times. The remaining 4 participants attended all sessions. The rate of intervention completion was 90% (dropout rate was 10%). The mean Client Satisfaction Questionnaire score was 28.17 (*SD* = 2.29), and all responses were higher than 3 (*good*). On implementation, all sessions were conducted as planned even if some of the participants were absent, so no sessions were canceled, truncated, or postponed sessions. All components of session check list were conducted as planned. Limited efficacy testing was as described in 3.2 section.

Discussion

In this study, we verified the feasibility of group CFT for TRD using an RCT design. Building on the scarce literature on the effectiveness of CBIs for chronic depression or TRD (Graser et al., 2016), our results illustrate the possibility of using CFT to treat patients with TRD. Furthermore, as

TABLE 3 Changes in outcomes.

		CFT		UC			
		pre *n* = 10	post *n* = 9	pre *n* = 7	post *n* = 7	Between-group differences in pre–post change	
BDI-II	*M*	34.90	22.22	39.29	38.86	Δslope	11.62 [6.37, 16.88]
	SD	5.20	6.42	8.01	13.22	Effect size *d*	2.30
GRID-HAMD	*M*	16.20	10.00	16.43	15.50	Δslope	5.02 [−0.03, 10.07]
	SD	3.01	5.45	7.55	8.78	Effect size *d*	1.03
CEAS							
for self	*M*	53.20	67.89	47.00	42.43	Δslope	−19.05 [−37.04, −1.05]
	SD	12.44	12.47	14.90	20.18	Effect size *d*	−1.08
for others	*M*	73.78	82.22	55.86	58.83	Δslope	−8.15 [−22.17, 5.87]
	SD	14.36	9.05	18.28	26.10	Effect size *d*	−0.61
from others	*M*	55.78	59.78	53.86	57.14	Δslope	−2.17 [−18.95, 14.60]
	SD	24.05	24.62	17.16	18.22	Effect size *d*	−0.14
FCS							
for others	*M*	15.33	12.33	16.57	12.00	Δslope	−1.85 [−7.51, 3.83]
	SD	6.91	5.92	8.26	6.23	Effect size *d*	−0.34
Concern from others	*M*	10.30	9.78	10.57	9.00	Δslope	−1.10 [−4.08, 1.88]
	SD	2.63	3.73	4.47	4.86	Effect size *d*	−0.38
Avoidance from others	*M*	6.30	6.89	8.43	6.00	Δslope	−3.23 [−6.39, -0.07]
	SD	4.14	2.37	2.76	3.27	Effect size *d*	−1.06
Miserable with SC	*M*	10.10	7.78	13.57	13.86	Δslope	2.99 [−0.01, 5.99]
	SD	4.95	2.86	2.70	3.58	Effect size *d*	1.04
Demerit of SC	*M*	20.00	14.78	22.14	22.57	Δslope	5.73 [1.59, 9.86]
	SD	5.75	6.04	4.45	4.79	Effect size *d*	1.42
SCS–SF	*M*	33.90	36.22	35.71	35.14	Δslope	−2.57 [−5.62, 0.48]
	SD	2.77	2.44	3.50	3.72	Effect size *d*	−0.91

BDI-II, Beck Depression Inventory-II; GRID-HAMD, GRID-Hamilton Depression Rating Scale; CEAS, Compassionate Engagement and Action Scales; FCS, Fears of Compassion Scale; Concern from others, Concern about compassion from others; Avoidance from Others, Avoidance of compassion from others; Miserable with SC, Miserable with self-compassion; Demerit of SC, Demerit of self-compassion; SCS–SF, Self-compassion scale–short form.

studies investigating the effectiveness of CBIs for the Japanese population are very limited (Arimitsu, 2016; Asano and Shimizu, 2018; Asano, 2019), our study also demonstrates the possibility of using CFT or CBIs in the Japanese context. A cross-cultural study indicated that the Japanese population has the highest self-criticism among 13 countries (Halamová et al., 2018); hence, it is beneficial to verify the feasibility of CFT, which focuses on self-criticism (Gilbert, 2010), for Japan.

Participants' characteristics in this study

In terms of the participants' demographic data, the percentage of men and the mean duration of major depression were low compared to those found by a previous study (Jaffe et al., 2019); however, the education level was higher, whereas age and marital status were almost equivalent on average. The low proportion of men participants may have been because of the available time frame for participation, subject to gender roles in Japanese society, and the differences in resistance to the group format across genders. The reason for the high percentage of college graduates is unknown but may be related to the program being provided at a university campus.

Duration of the current episode was considerably greater for UC group. Although episode length relates to severity and comorbidity (Melartin et al., 2004), measured severity and comorbidity in this study were not seemed to be differed between groups. It is not easy to identify which factor affected to biased duration of the current episode, there is a possibility that a few people with longer duration were assigned to the UC group. In any case, the result of this study should be carefully interpreted with considering for this bias.

Approximately 60% of the participants had psychiatric comorbidities. This was in line with the findings of previous studies, which showed that more than half of the TRD patients presented anxiety disorders or other psychiatric problems (Casher et al., 2012; Kubitz et al., 2013; Huang et al., 2020; Fabbri et al., 2021).

Changes in the primary outcome

A recent meta-analytic review by Cuijpers et al. (2020) showed that the effect size *g* of CBT ranged from 0.50 to 0.69 compared to the care-as-usual group; for problem-solving therapy, which showed the largest effect size, *g* ranged from 0.42 to 2.05. Regarding group CBT, an old meta-analysis by McDermut et al. (2001) reported the effect size *d* as 1.03 (range: −0.07 to 2.30, 48.2%). Based on studies of CBIs, Kirby et al. (2017) revealed that the effect size *d* of CBI ranged from 0.45 to 0.82. Wilson et al. (2019) estimated that the effect size *g* of self-compassion-related interventions ranged from 0.23 to 0.57. Considering these reports, the effect size on BDI-II in this study using a therapy developed for and with patients was large ($d = 2.30$), suggesting that this program can be a new treatment choice for patients with TRD. However, unchanged symptoms in the UC group should be considered. A recent review reported that 12.5% of patients with depression remit within 12 weeks even when untreated (Mekonen et al., 2022). In a similar study among the Japanese population, the score for depressive symptoms reduced in the treatment as usual group (Nakagawa et al., 2017). In contrast, the BDI-II score in the UC group in this study remained at the same level during the research period. This may be related to the inclusion criteria we used, such as patients with TRD being at least moderately ill prior to the study.

The CRI results showed that five of nine (56%) participants with TRD responded (recovered or improved) in the CFT group, whereas only one of seven (14%) responded in the UC group. Cuijpers et al. (2021) have pointed out that 41% of patients with psychiatric diagnosis respond to psychotherapy. Another CBT trial by Wiles et al. (2013) for TRD reported that 46% of patients recovered. A meta-analysis of group CBT by McDermut et al. (2001) indicated that 48.2% of patients showed improvement. Although differences in calculation exist, the CRI of this program can be deemed sufficient.

Changes in secondary outcomes

With regard to GRID-HAMD scores, the effect size was large and showed sufficient reduction in depressive symptoms. The difference in effect sizes between GRID-HAMD and BDI-II may have been caused by discrepancies in the two measurements. The BDI-II is associated with the psychological symptoms of depression and is more sensitive when patients are older (over 50 years old), with higher neuroticism or atypical depression, compared to GRID-HAMD (Enns et al., 2000). Therefore, CFT can be expected to be more effective in addressing psychological symptoms of depression and atypical depression that may lead to chronic depression.

Compassion-related outcomes

First, we found that in the CFT group, compassion for self increased; two factors of fears of compassion for self (demerits of self-compassion and miserable with self-compassion) decreased greatly. Cuppage et al. (2018) showed that decreased fears of compassion for self are correlated with changes in psychopathology. Hence, we may assume that depressive symptoms reduced via increasing compassion for self and decreasing fears of compassion for self.

Second, compassion for others increased more in the CFT group than in the UC group. Increased compassion for others may be associated with the intervention delivered in the CFT program. Guided imagery, in which one directed compassion toward others, along with other skills included in the CFT program may have stimulated participants' compassionate attitudes toward others. We also found that fears of compassion for others decreased in both groups, but the decrease was higher in the UC group. Therefore, it cannot be concluded that fears of compassion for others decreased because of the intervention.

Third, no great difference was observed between the groups in terms of the change in compassion from others, but fears of compassion from others showed a greater reduction in the UC group. These results were also unexpected. However, compassion from others may be more affected by interpersonal relationships beyond therapy.

Finally, SCS–SF scores showed a greater increase in the CFT group, which can be considered as an indicator of participants' recovery. Previous research has shown that increased self-compassion predicts improved symptoms (Galili-Weinstock et al., 2018). Therefore, our program is likely to have resulted in improving depressive symptoms via self-compassion.

Evaluation of feasibility

CFT is designed to reduce patients' shame and prevent dropouts (Lucre and Corten, 2013). However, there is not enough evidence to conclude that the dropout rate is low for this therapy. The program in this study had a low dropout rate (10%), a high attendance rate (from 75% to 100%), and high CSQ scores. Although further RCTs with larger sample sizes are needed to verify the CFT dropout rate, our program showed sufficient acceptability. Moreover, as all sessions were conducted as planned, the implementation was also acceptable.

Limitations and future directions

This study is subject to some limitations. First, the sample size was small, most of the participants were women, and bias may have affected the between-group "duration of the current episode" and "comorbidity." Hence, larger and balanced samples are needed to verify the program's effectiveness. Second, sampling biases should also be considered: our study was primarily conducted in Japan's metropolitan areas of Chiba and Tokyo, and the range of application was limited to patients with TRD who remained at least moderately ill. Thus, program feasibility should be examined with participants from other regions and cultural areas and with various depressive episode histories. Third, the results of this study cannot determine the mechanism of CFT. Variables that affect treatment should be measured during the treatment period using larger samples, particularly because reduction in fears of compassion for others and from others were observed in both CFT and UC groups. Steps should be taken to examine the role of relevant variables to further refine treatment, especially using longitudinal surveys. Fourth, there were no indicators to evaluate group dynamics, which is considered to be an important factor in group psychotherapy. Qualitative data from observation and objective measurements are also needed to optimize the effectiveness of the intervention.

Notwithstanding these limitations, the group CFT program showed adequate feasibility, and preliminary efficacy for TRD. Psychological treatments for TRD are limited; hence, CFT can be a new treatment option. The program follows a group format, which is more cost effective and resolves the shortage of therapists. Further research is warranted to improve the robustness of these findings.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by Ethical Committee of the Safety and Health Organization, Chiba University. The patients/participants provided their written informed consent to participate in this study.

Author contributions

KA initiated and wrote a protocol for ethical approval of the study and manuscript, and worked as the therapist. YO worked as the co-therapist. TSe, AM, and AI conducted structured interviews (GRID-HAMD) for the independent evaluation. MT conducted the analysis and wrote the analysis and results sections of the manuscript with KA. TO and MS assessed the inclusion criteria from the perspective of participants' safety. KA, TSh, and ES managed recruitment, and PG supervised the intervention. CI developed the original program of intervention and advised KA to implement the program for the Japanese population. All authors contributed to the article and approved the submitted version.

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Conflict of interest

MT was employed by Advantage Risk Management Co. Ltd.

The remaining authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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The experiences of caregivers of children with epilepsy: A meta-synthesis of qualitative research studies

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Objective: Epilepsy is one of the most common chronic neurological disorders in children. The caregivers of these children bear heavy burden of care in the process of taking care of them. The objective of this metasynthesis was to explore the experiences and needs of caregivers of children with epilepsy.

Methods and data sources: Eight databases (PubMed, CINAHL, EMBASE, Web of Science, CNKI, Wanfang Data, VIP database, and CBM) were searched for qualitative studies from each database's inception to 31 June 2021. Studies were critically appraised using the Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Qualitative Research. Qualitative data were extracted, summarized, and meta-synthesized.

Results: 13 studies were included, covering the data of 316 participants. 36 research results were extracted from these studies, which were combined into 11 categories, and finally formed 4 themes: (a) heavy burden of care; (b) emotional experience; (c) coping strategies; (d) care needs.

Conclusion: Caregivers beared a heavy burden of care and psychological burden. Despite the adoption of different coping strategies, their emotional distress was still very serious. Caregivers had unmet care needs. In order to improve caregivers' care capacity, the society and healthcare workers need to provide them with information support, psychological support, and take measures to create a friendly medical and living environment for them.

Impact: Understanding the experiences of caregivers of children with epilepsy will inform future research and practice. Healthcare workers could develop interventions to reduce caregiver burden and improve the level of caregivers' mental health. On the other hand, effective programs should be designed to improve caregivers' knowledge of the disease and enhance their ability to care. Society needs to take steps to improve the medical environment and the social stigma that is not friendly to epilepsy.

KEYWORDS

experience, caregiver, children, epilepsy, burden of care, qualitative study, meta-synthesis

Introduction

Epilepsy is one of the most common chronic neurological disorders in children (1), with an estimated global incidence of childhood epilepsy ranging from 41 to 187 per 100,000 people (2). Epilepsy is characterized by sudden onset, recurrence, long course of disease, long time of taking medication, and great drug side effects (3). Due to social stigma and prejudice, children with epilepsy have a higher incidence of psychological disorders. Studies have shown that nearly half of teenagers with epilepsy suffer from depressive symptoms. At the same time, 30～40% of epileptic patients have cognitive impairments, including daily learning, memory, attention and executive control (4), which seriously affect children's normal learning and social activities, reduce the quality of life of children and their families.

Due to the lack of self-management ability, caregivers are often faced with great challenges in the process of treatment and rehabilitation of children. Caregivers often experience uncertainty due to fear of seizures at any time and need to continuously monitor the child's status. In addition, parents need to cope with specific diets, activity restrictions, long-term medication and side effects, school and social challenges, and stigma (5). The psychological, behavioral, social, educational and cultural factors involved have a significant impact on the lives of children and their families (6). Previous studies have shown that nearly half of caregivers of children with epilepsy develop psychopathological symptoms, including post-traumatic stress disorder, depression, anxiety and high levels of stress, and they even had trouble sleeping (7). Caregivers' mental state and disease management ability are important factors affecting children's rehabilitation (8).

The experiences of caregivers of children with epilepsy are complex and heavy. Studies have shown that caregivers of children with epilepsy bear a heavy burden of care and psychological burden (9, 10). At the same time, caregivers' lack of disease management knowledge (11) indicates that caregivers' need for disease management knowledge is not being met. Therefore, it is necessary to understand the experiences and needs of caregivers of children with epilepsy in the process of care.

In recent years, a growing number of studies explored the experiences of caregivers of children with epilepsy (3, 8, 12–14), but there was no related systematic review or metathesis. Therefore, it is necessary to integrate the experiences and challenges of caregivers, and identify their care needs. This will enable policy makers to take targeted measures to improve caregivers' mental health, remove barriers to care, enhance care capacity, and ultimately promote children's recovery and development.

The review

Aims

To synthesize qualitative studies on the experiences of caregivers of children with epilepsy.

Design

A systematic qualitative review and meta-synthesis was performed in this study. The process of meta-synthesis included analyzing, classifying, evaluating and summarizing the results of qualitative research. The protocol for this review has been registered (PROSPERO: CRD42021262770).

Search methods

A systematic search strategy was carried out in June 2021. Eight English and Chinese databases were searched, including PubMed, CINAHL, EMBASE, Web of Science, CNKI, Wanfang Data, VIP database, and CBM. English search keywords included: "epilepsy" or "falling sickness" or "epilepsia" or "seizure" or "epileptic"; "caregivers" or "parent" or "take care" or "look after" or "nursing"; "qualitative study" or "qualitative research"; "experience" or "reaction" or "perception" or "need" or "feeling." The language was limited to Chinese and English, and no date restrictions were applied to database searches. Further, references of discovered papers were also checked, and those that met the inclusion criteria were included in this study. The inclusion criteria were set based on PICo-D (participant, interest in phenomena, context and design). The detailed contents of PICo-D can be seen in Table 1.

Search outcomes

The literatures retrieved in this review were imported in Endnote X9 programme (Clarivate Analytics) and duplicates were removed through it. Two reviewers independently read and evaluated the title, abstract and full text of the literatures according to the inclusion and exclusion criteria. If they were controversial during the literature screening process, a third reviewer would make the decision. A total of 221 literatures were retrieved from eight databases and 77 duplicates were excluded. After reading the title and abstracts according to inclusion and exclusion criteria, 118 unrelated articles were excluded. Then, 26 literatures were left and their full texts were read, and finally 13 literatures that met the research criteria were obtained. Figure 1 is the flow diagram of this review.

TABLE 1 Review inclusion and exclusion criteria.

Inclusion criteria	Exclusion criteria
- P (population): Inclusion criteria: (1) Relatives of children with epilepsy who took care of the children every day to at least 4 hours;(2) To be able to express their care experience in words;(3) Volunteer to participate in this study. - I (interest of phenomena): Experiences, feelings and needs in the process of caring for children with epilepsy. - Co (Context): The experience of the caregiver of a child with epilepsy in taking care of the child in daily life. - D (design): Qualitative research, including phenomenology, grounded theory, ethnography and other qualitative research methods articles.	- Exclusion criteria: paid daily care for the child - Papers not written in Chinese or English. - Papers with abstracts and without full texts. - Duplicate records. - Papers with incomplete data.

Quality appraisal

Two reviewers independently assessed the qualitative literatures included in this review according to the Joanna Briggs Institute (JBI) Critical Appraisal Checklist. The items of the checklist included research methods and their philosophical perspectives, research objectives, methods of data collection, methods of data analysis, interpretation of results, statements of positioning the researcher from a cultural or theoretical perspective, and the researcher's influence on the research. Each evaluation item in the checklist included four options: yes, no, unclear, and not applicable. The quality of the included literatures was classified into three grades: A, B, and C. In case of disagreement among reviewers, discussion was held together, and if necessary, a third reviewer would decide whether to include the literature. Detailed quality assessment results are shown in Table 2.

Data abstraction

Each study was thoroughly read by reviewers, and then useful data were extracted. The extracted content included author (year), country, aim, sample size, study design, data collection and data analysis, setting, and results. The details of the extraction are shown in Table 3.

Synthesis

In this review, a meta-synthesis method (23) was adopted to integrate the results of qualitative studies. Each study was read and re-read to ensure familiarity with the content. Two reviewers, respectively collected the research results including the theme, implied meaning, category, etc., and then integrated and summarized the research results according to their meanings to make them targeted, persuasive and general. On the premise of understanding the philosophical thought and methodology of qualitative research, reviewers repeatedly read, analyzed and interpreted the previous research results, summarized and combined similar results to form new genera, and then summarized the new genera into integrated results. Any discrepancies that arose were discussed between the two reviewers until a consensus was reached.

Results

Study characteristics

This qualitative meta- synthesis included a total of 13 studies, with 316 participants from eight different countries and cultures: China ($N = 3$) (3, 8, 12), America ($N = 2$) (13, 14), Malaysia ($N = 1$) (15), Ireland ($N = 2$) (19, 21), Iran ($N = 2$) (16, 22), Australia ($N = 1$) (17), Sri Lanka ($N = 1$) (18), Greece ($N = 1$) (20) (Table 3). Among the 13 included studies, 12 used phenomenological research methods and one study Jones et al. (14) used grounded theory methods. Whilst one study (18) used focus group discussions, the other 12 studies used interviews for data collection.

Qualitative synthesis

The included studies covered a wide range of experiences of caregivers of children with epilepsy. 36 research results were extracted from these studies, which were combined into 11 categories, and finally formed 4 themes: (a) heavy burden of care; (b) emotional experience; (c) coping strategies; (d) care needs. Figure 2 shows the research results, categories and integrated results of included studies.

Theme 1: Heavy burden of care

Almost all caregivers reported that the burden of caring for children with epilepsy was heavy. The burden included three aspects: physical health status, economic status and social life.

Category 1: Physical burden

As caregivers focused all their energy on the child, their own physical condition became overwhelmed. Long-term care for the child made the caregiver neglect their own health, and coupled with long-term mental stress, the caregiver's own health was threatened.

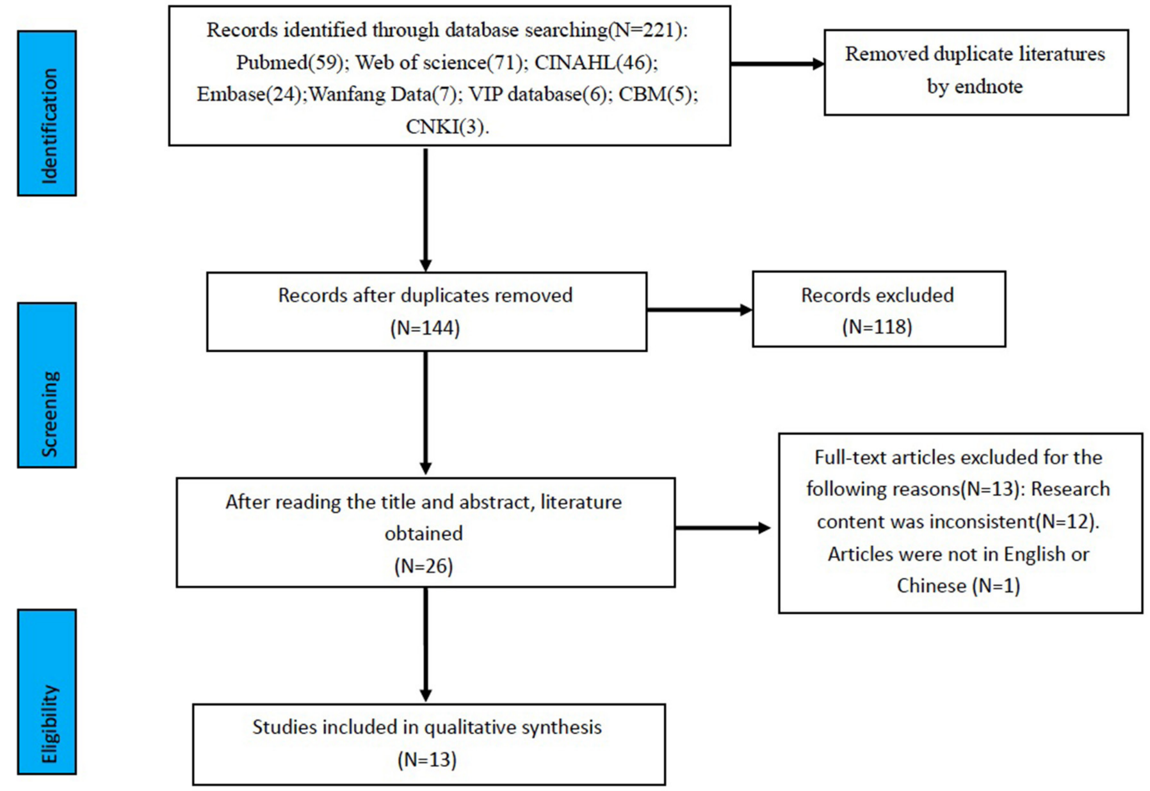

FIGURE 1
Flow diagram of literature selection.

TABLE 2 Methodological quality appraisal of the included studies.

References	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Item 9	Item 10	Overall appraisal
Wu et al. (12)	Y	Y	Y	Y	Y	N	N	Y	U	Y	B
Zhang et al. (3)	Y	Y	Y	Y	Y	N	N	Y	Y	Y	B
Smith et al. (13)	Y	Y	Y	Y	Y	N	N	Y	Y	Y	B
Wang et al. (8)	Y	Y	Y	Y	Y	N	N	Y	Y	Y	B
Wo et al. (15)	Y	Y	Y	Y	Y	N	N	Y	Y	Y	B
Amjad et al. (16)	Y	Y	Y	Y	Y	N	N	Y	Y	Y	B
Nguyen et al. (17)	Y	Y	Y	Y	Y	N	N	Y	U	Y	B
Murugupillai et al. (18)	Y	Y	Y	Y	Y	N	N	Y	Y	Y	B
O'Toole et al. (19)	Y	Y	Y	Y	Y	N	N	Y	Y	Y	B
Kampra et al. (20)	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	B
Benson et al. (21)	Y	Y	Y	Y	Y	N	N	Y	Y	Y	B
Jones et al. (14)	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	B
Amjad et al. (22)	Y	Y	Y	Y	Y	N	N	Y	U	Y	B

Appraisal checlist: ① Is there congruity between the stated philosophical perspective and the research methodology? ② Is there congruity between the research methodology and the research question or objectives? ③ Is there congruity between the research methodology and the methods used to collect data? ④ Is there congruity between the research methodology and the representation and analysis of data? ⑤ Is there congruity between the research methodology and the interpretation of results? ⑥ Is there a statement locating the researcher culturally or theoretically? ⑦ Is the influence of the researcher on the research, and vice- versa, addressed? ⑧ Are participants, and their voices, adequately represented? ⑨ Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body? ⑩ Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?
Appraisal result: Y, Yes; N, No; U, Unclear; N/A, Not applicable.

TABLE 3 Description of included studies.

References	Country	Journal	Aim	Sample size	Study design	Data collection and data analysis	Setting	Results
Wu et al. (12)	China	Chinese Journal of Nursing	To explore the lived experience of primary caregivers of children with epilepsy	Twelve caregivers	Phenomenological research method	Data collection: Interviews Data analysis: LoBiondo-Wood Phenomenological analysis method	Ward	Four t hemes: Bearing the burden of care (the original rhythm of life has been disrupted, the health status of caregivers themselves is affected, economic overburden); Psychological overload (remorse and guilt, fear, anxiety and helplessness, uncertainty about the future); Lack of knowledge of family care (lack of knowledge of first aid, lack of knowledge about the disease, lack of ability to make treatment decisions); Weak support system (lack of family support systems, limited medical conditions, lack of social support systems)
Zhang et al. (3)	China	Qilu Nursing Journal	To understand the needs of nursing services in the process of out-of-hosptial home care for the main caregivers of children with epilepsy	Eleven caregivers	Phenomenological research method	Data collection: Interviews Data analysis: Colaizzi Phenomenological analysis method	Ward	Four themes: Information needs (epilepsy knowledge information needs, drug management information needs, the need for coping methods during an acute attack, the need for healthy living guidance); Psychological needs (psychological support need, family support needs); Need for social support
Smith et al. (13)	America	Epilepsy & Behavior	To explore caregivers' perceptions of the caregiving process at different time periods postepilepsy diagnosis	Nineteen caregivers	Qualitative research method	Data collection: Focus group Data analysis: Thematic analysis method	Unclear	Four themes: Navigating the non-contingencies, Blessings and sacrifices, Constant vigilance, Caregiving is more than parenting
Wang et al. (8)	China	Modern Nurse	To explore the home care needs of primary caregivers of children with epilepsy	Twelve caregivers	Descriptive qualitative research method	Data collection: Interviews Data analysis: Content analysis method	Reference room	Three themes: The need to acquire knowledge of the disease (the need for first aid knowledge, the need for medication knowledge, diet and activity guidance needs, the need for professional guidance, the need for disease treatment decisions); The need for psychological counseling (fear and anxiety, worry and remorse); The need to reduce the burden of care (the need to lighten your body's load, the need to lighten the financial burden, the need to relieve pressure on schools, the need to reduce the stress of medical care)
Wo et al. (15)	Malaysia	Epilepsy & Behavior	To explore the experiences of parents and their children, and to identify the needs and challenges faced by parents and children in childhood epilepsy care	Fifteen families	Descriptive phenomenology approach	Data collection: Interviews Data analysis: Thematic analysis method	Paticipants' home	Experiences during child's first seizure: Parents' initial reactions (emotional reactions to child's first seizure, causes of epilepsy, sociocultural role in health-seeking behavior) Experiences while growing up with epilepsy: Impact of epilepsy on the family (the positive impact on the family, the negative impact on the family); Management of epilepsy care (vigilance in caring for a child with epilepsy, parents' coping strategies, disclosure of epilepsy); Unmet parental needs (need for epilepsy-related information, need for continuity of care, need for a parental support group); Parents' perceived impact of epilepsy on their child (physical changes, emotional changes, behavioral changes, academic achievement, interpersonal relationship)

(Continued)

TABLE 3 (Continued)

References	Country	Journal	Aim	Sample size	Study design	Data collection and data analysis	Setting	Results
Amjad et al. (16)	Iran	Journal of Caring Sciences	To understand the experiences of parent of child with epilepsy in Iran	Ten parents	Interpretative phenomenological approach	Data collection: Interviews Data analysis: Van Manen's method	In a quiet room	Main theme: Family stigma Three subthemes: Becoming verbally abusive; A dull and heavy shadowed look; Associates interference
Nguyen et al. (17)	Australia	Clinical Child Psychologyand Psychiatry	To understand parents' internal narratives and experience of chronic illness in their child	Twenty mothers	Phenomenological research methods	Data collection: Interviews Data analysis: Theory-driven thematic analysis	Unclear	Three themes: adjustment process, (Experience promotes adaptation) cognitive appraisals (Normalizing epilepsy, Maintaining a positive focus, One day at a time, control, Meaning in adversity) and coping behaviors (Emotional ventilation, Problem-solving, Time to self, Speaking with other parents)
Murugupillai et al. (18)	Sri Lanka	Seizure	To identify the parental concerns regarding their children and adolescents with epilepsy in Sri Lanka	The parents of sixteen children with epilepsy and Four primary health care members	Qualitative study	Data collection: Interviews Data analysis: Content analysis	Home and workplace	Concern about physical functioning, Concern about behavioral and cognitive functioning, Concern about education, Concern about psychological/emotional functioning, Concern about social functioning, Concern about epilepsy in general and Concern about treatment with anti-epileptic medicines
O'Toole et al. (19)	Ireland	Epilepsy & Behavior	To explore the challenges that parents of children with epilepsy experienced when engaging in dialog with their child about epilepsy and epilepsy-related issues	Thirty-four parents	Qualitative study	Data collection: Interviews Data analysis: Braun and Clarke's six-step thematic analysis	The place Convenient for participants	Normalizing epilepsy, the invisibility of epilepsy, information concealment, fear of misinforming the child, and difficulty in discussing particular epilepsy-related issues
Kampra et al. (20)	Greece	Epilepsy & Behavior	To explore the challenges that Greek parents/caregivers of children with controlled epilepsy (CwE) face regarding the disorder	Ninety one parents/caregivers	Phenomenological research methods	Data collection: Interviews Data analysis: Van Manen's process	Hospital	The disclosure of epilepsy (How can I explain epilepsy to my child, Why should I inform the school staff about my child's epilepsy, Why should I tell anyone about my child's epileps), Absence of adequate information about coping with epilepsy (Where could we seek help to cope with our child's epilepsy after our visit to the doctor, No expert support in regular schools)
Benson et al. (21)	Ireland	Patient Education and Counseling	Aim to present the stigma experiences of children with controlled epilepsy and their parents, in the context of communicating about epilepsy within and external to the family unit	Thirty children with controlled epilepsy and fourty parents of children with controlled epilepsy	Mixed-methods sequential exploratory design	Data collection: Interviews Data analysis: Braun and Clarke's six-step thematic analysis	Unclear	Concealment (the potential for stigmatization due to epilepsy), stigma-coaching (parents' perceiving seizures Negatively)

(Continued)

TABLE 3 (Continued)

References	Country	Journal	Aim	Sample size	Study design	Data collection and data analysis	Setting	Results
Jones et al. (14)	America	Epilepsy & Behavior	To understand parents' needs, values, and preferences to ultimately reduce barriers that may be impeding parents from accessing and obtaining help for the child's co-occurring problems	Twenty-two parents	A qualitative study	Data collection: Interviews Data analysis: Grounded theory approach	Unclear	Describe their concerns about the child's struggles, their understanding of the struggles, and the parent's view of the child's future
Amjad et al. (22)	Iran	Acta Medical Mediterranea	Aimed at exploring experience of parents of children with epilepsy	Fourteen parents	Phenomenological research methods	Data collection: Interviews Data analysis: Van Manen's process	A quiet room	Fenced in by the child disease (Limitation in relationships, travel restrictions, drop out from school, leaving the job)

> *"... We couldn't get a good rest... In order to take care of the children, my own illness dragged on for months?"* (12).

Category 2: Economic burden

Because of the specific nature of epilepsy, caregivers often needed to be around to monitor the condition of the child in order to cope with the sudden seizure, and many caregivers gave up their education and work, resulting in the interruption of their career development. In addition, epilepsy treatment cycle was long, and needed long-term medication, no source of income increased their economic burden.

> *"When my wife realized my son was having seizures again, she left work and began spending more time to take care of him. If she didn't do that and was working instead we would have a better economic status."* (22).

Category 3: Changes in family and social relationships

In the process of treating epilepsy, treatment decisions were involved. Differences in parental treatment decisions, coupled with physical stress, led to deteriorating family relationships and affected family functioning. Some caregivers were forced to give up socializing because of caring for the child. However some other caregivers showed family members had become more united in coping with epilepsy.

> *"It's been a big impact on my husband and myself, our relationship.... We have arguments about everything from what to do with medications to what her schooling should be, to riding the bus to school, I mean... "* (13).

Theme 2: Emotional experience

Catogory 4: Negative emotions

The caregivers' emotional experience was complex. Most caregivers had experienced negative emotions at one time. Some caregivers said they felt frightened and scared about the seizure because they didn't know how to deal with them. Some parents felt remorse and guilty because they believed they were the cause of their child's epilepsy. They worried that epilepsy could affect children's learning, social interaction and daily life, and they often felt anxious, sad and even hopeless.

> *"The child's sudden delirium, convulsions, foaming at the mouth, scared me almost to faint."* (12).
>
> *"... I blamed myself. Why my child got this disease? Was it because I ate wrong food when I was pregnant? "* (8).

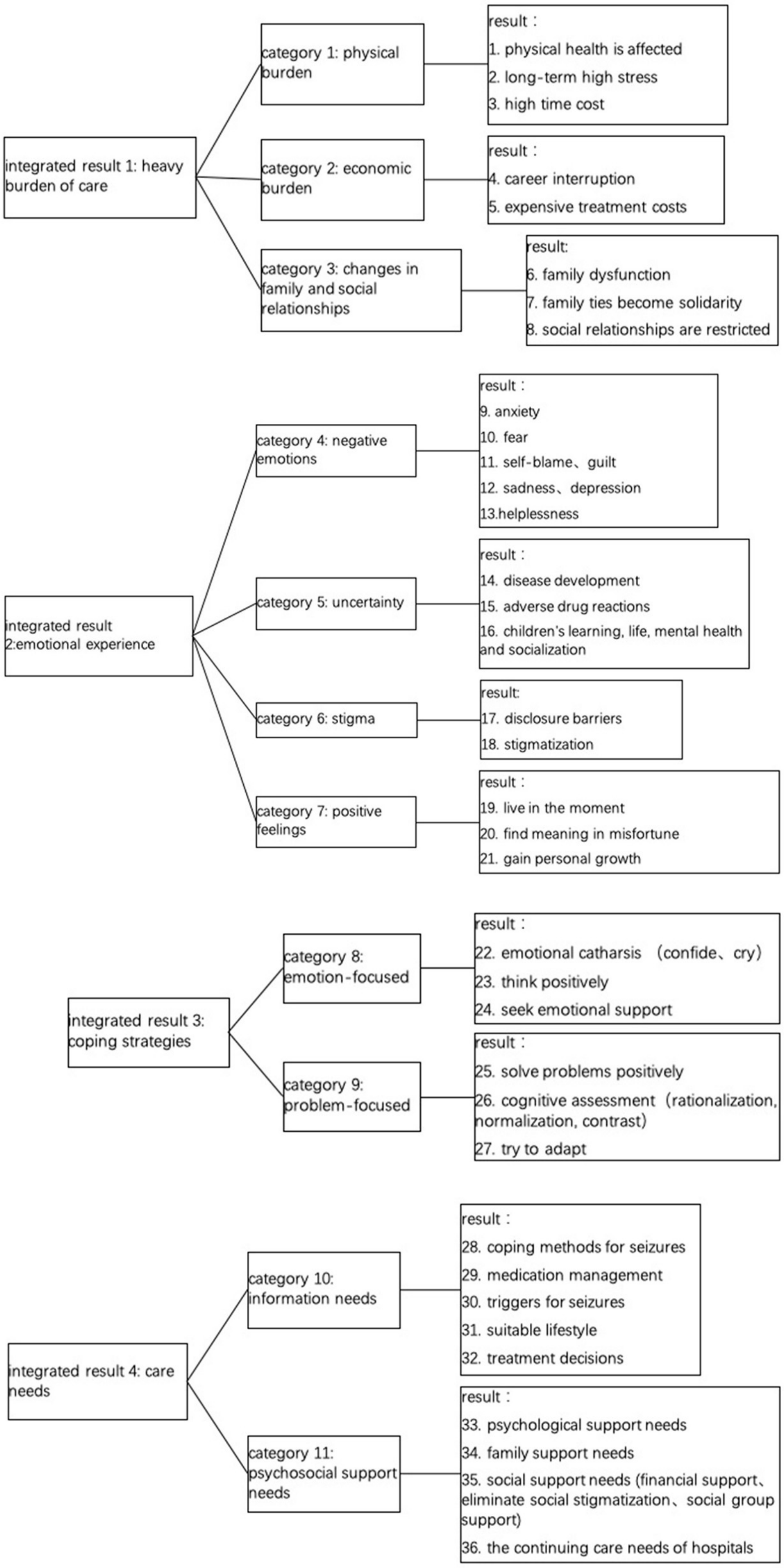

FIGURE 2
Research results, categories and integrated results of included studies.

> *"I am worried about his future career. I'm worried that he cannot find a job due to his epilepsy. And he would not get equal treatment like others when he works in a company."* (15).

Category 5: Uncertainty

The typical and unique experience of caregivers of children with epilepsy was the sense of uncertainty. They were full of uncertainty about the child's physical health, study, social life, daily life and future. They did not know whether the disease will affect the child's future study and work, which made them very anxious. The side effects of medication could add to the uncertainty.

> *"See, my daughter is 10 and she started having seizures when she was 5 and, I guess the biggest impact on me would just be the stress of not knowing what was going on, what was going to happen to her, and how things were going to go, and why it happened, and then, just, worry for her, worry, about difficulties in school, and with friends and things like that."* (13).

Category 6: stigma

In some countries and cultures, epilepsy was poorly understood and was often associated with social stigma. Some caregivers were even afraid to tell others about their child's seizure for fear of abuse, discrimination and isolation. Some caregivers were stigmatized as a result. They didn't know how to teach their children to deal with the stigma of epilepsy, and caregivers were struggling with stigma all the time. They longed for the understanding and support of society.

> *"They looked us as if our child has AIDS, our child is sick and we are not responsible for it. I do not know why people look at me like that, it's so irritating that I want to die. It is so good that others are unaware of my child's disease."* (16).

Category 7: Positive feelings

Some caregivers experienced positive feelings during the caring process. They chose to live in the present moment and tried to focus on the good aspects of the decease. They believed that their faith would help them get through it. They found value and positive meaning in their misfortune. In this process, they gained personal growth and the family relationship became more united.

> *"We knew we were dealing with something that down the track will have a great outcome so really it was just a short-term issue that we're happy to deal with."* (17).

Theme 3: Coping strategies

Category 8: Emotion-focused coping strategies

Caregivers adopted different coping strategies to deal with problems in the caring process: problem-focused coping strategies and emotion-focused coping strategies. Caregivers who used emotion-focused coping would try to reduce the negative emotions associated with the problem, such as positive thinking and seeking emotional support. Most caregivers used emotion-focused coping strategies, such as crying to let their emotions out or talking about their pain with family and friends to reduce negative emotions. Or they tried to accept epilepsy, normalize it, live with it.

> *"I talked to my neighbor when I was upset… Sometimes, she taught me how to handle my son when he has fits… Otherwise, I will call my mother. We talked about anything. Although I did not tell her much about my problem, I feel much better after talking to her."* (15).

Category 9: Problem-focused coping strategies

Caregivers who used problem-focused coping would address the problem that caused the distress. They were active in solving problems and adapting to the status through reasonable cognitive assessment.

> *"No, I'm not going to lay down and say it's all terrible and he's going to struggle with this; we'll do what we can to be pro-active about it."* (17).

Theme 4: Care needs

Category 10: Information needs

Caregivers expressed their unmet needs and desired for support from health workers and society. There was a common need for caregivers to acquire knowledge about the disease, such as how to deal with seizure, medication management, seizure triggers, and access to the right sources of information. Children with epilepsy were limited in diet and activity, and their caregivers had blurred boundaries. They urgently needed lifestyle guidance from professional.

> *"…It would be a blessing if there were some kind of help from the school, the doctors, or anyone else to help me cope with the way I should handle epilepsy and my daughter's social life without being scared for her…"* (20).
>
> *"The doctor said the child needed proper activities, but I don't know what he can do."* (3).

There is a wide range of treatments methods to choose for caregivers, and caregivers are often indecisive in treatment decisions. They want professionals to help them make treatment decisions. They need continuity of care to ensure long-term outcomes. It may be helpful to establish care groups where caregivers can share information.

> *"Because even if the doctor wants (to give more information about epilepsy), other patients are waiting outside… He is rushing… So, I am not satisfied. That's why, we should at least have a community… so that all parents can share their problems… I don't have anyone to share my problem with. My husband said it is fine to have a seizure. But what is the way to solve it? How to share?"* (15).

Category 11: Psychosocial support needs

There would be a lot of negative emotions in the process of care, and caregivers hoped to get professional psychological support. More importantly, caregivers wanted to gain social understanding and support, to be free from stigma, and to provide children with a good learning and living environment. In addition, financial support from the community, support from social groups and continuous care in hospitals were also necessary.

> *"…I'm devastated. I feel like I can't hold on."* (3).
>
> *"I'm worried about who will support my child after me."* (18).

Discussion

This review addresses the experiences and needs of caregivers of children with epilepsy. Caregivers beared heavy burden of care, which made them generate a lot of negative emotions. The caregivers adopted different coping strategies, and a small number of caregivers could cope effectively, and found positive meaning of life in the process of caring. Disease-related knowledge were needed for caregivers to improve care capacity. Support from multiple levels, including the social level, school level and health care institution level were essential, to improve their existing difficulties.

In this review, a majority of caregivers reported heavy burden of care and negative emotional experiences, which was consistent with other studies that suggested that epileptic caregivers had a high burden of disease socially, emotionally, functionally, and economically (24). The long-term burden led to an increased prevalence of mental disorders among caregivers. Recent results showed that the prevalence of anxiety symptoms and depression in caregivers of children with epilepsy was 25.0 (25) and 23.5% (9), suggesting that healthcare providers should pay attention to the psychological and emotional symptoms of caregivers. Screening for mental health problems in caregivers should be incorporated in a family-centered approach to the management of childhood epilepsy. What's more, there is a need to identify the best ways of supporting caregivers of children with epilepsy who present with significant levels of mental health symptoms (26). However, there are currently few reported interventions that can reduce the burden on caregivers of children with epilepsy. Rabiei et al. (27) evaluated the effects of the Fordyce's 14 Fundamentals for Happiness Program on happiness and caregiver burden among caregivers of patients with epilepsy. Findings showed that this program significantly increased happiness and reduced caregiver burden. The Fordyce's 14 Fundamentals for Happiness Program could help individuals better understand their problems and more effectively cope with them through improving their logical thinking ability. Another study (28) evaluated the effectiveness of Web-based Epilepsy Education Program (WEEP), and the results showed that WEEP could improve caregivers' self-efficacy and reduce anxiety. WEEP could provide caregivers with information about epilepsy, treatment, and first aid, which was considered one of the most important components of epilepsy self-management to provide accurate, reliable, and accessible information sources that were not limited by time and space. Future research can explore the effectiveness and extensibility of these programs, and more effective interventions should be developed based on the actual situation.

Epilepsy has long been stigmatized, and people with epilepsy experience social stigma and discrimination in their daily lives. Stigma refers to a strong feeling of disapproval. Studies have shown that more than half of family members of patients with epilepsy experience stigma, and stigma negatively impacts caregivers' mental health, such as shame, low self-esteem, anger, and disorder disclosure (29). While interventions have been implemented to reduce epilepsy stigma at the public awareness level, policy-based level, school-based level, and targeted at people with epilepsy and their caregivers and peers level, stigma and discrimination remain widespread worldwide, and the lack of research on interventions to reduce stigma suggests an urgent need for more research, policies and actions (30).

Heavy burden of care affects caregivers' quality of life, but positive or adaptive coping strategies can improve caregivers' mental health status (31). Coping strategies can generally be divided into problem-focused coping and emotion-focused coping (32). In this review, most caregivers of children with epilepsy adopted emotion-focused coping strategies, such as catharsis and seeking emotional support, which was consistent with the research results of Hajisabbagh (33). Compared with emotion-focused coping, problem-centered coping was generally believed to improve caregivers' happiness (34, 35), but it could not be denied that emotion-focused coping could also help individuals adapt to stressful situations. Because emotional catharsis could prevent the accumulation of negative emotions, seeking emotional support could increase the resources to cope with stress. healthcare and social workers should help caregivers to develop effective coping strategies, and specific interventions are needed to be developed.

In this review, caregivers still had some unmet needs, including the need for disease information, psychological support and social support, etc. As far as we know, caregivers of children with epilepsy have insufficient information about epilepsy disorders. In one study, only 5% of caregivers knew the first-aid basics to apply in the case of a seizure (36). Unmet information needs led to greater stress, poorer psychosocial outcomes and lower satisfaction with healthcare services (37). There is a need for healthcare professionals to target information needs with interventions such as support groups and accessible websites. Establish a professional psychological support team to carry out continuous care for caregivers, and intervene as early as possible for caregivers with mental disorders. In addition, social support is also necessary. The government should take measures to reduce the stigma of epilepsy and provide a convenient medical environment for families of epilepsy to reduce the burden on caregivers.

Limitations

This review has some limitations. First of all, we only searched eight databases and did not search gray literature, and due to the limitation of language, we only searched and included relevant literatures in both Chinese and English, so some literatures might be omitted from this review. Secondly, the included studies may not represent all the caregivers of children with epilepsy, because some children with epilepsy have more severe symptoms or multiple comorbidities, leading to differences in the experience of caregivers. Therefore, to some extent, the comprehensiveness and objectivity of integration may be affected. Despite its limitations, this review integrates the available literature on the experiences of caregivers of children with epilepsy and has implications for further understanding of the caregivers' experiences.

Implications on future research and practice

Although the caregiver burden of epilepsy is recognized, existing reports of effective interventions are insufficient. Future research could develop interventions to reduce the caregiver burden and improve their mental health. In addition, health care institutions need to take steps to make disease information more accessible to caregivers and enhance caregivers' ability to care. The society needs to increase investment and make policies to improve the medical environment for families of epilepsy and eliminate the social stigma of epilepsy.

Conclusion

This review synthesized the available evidence on the experiences and needs of caregivers of children with epilepsy. The caregiver burden and psychological stress were enormous and their care needs were unmet. Healthcare workers need to develop interventions to reduce the burden of care, improve mental health status, provide disease-related information and enhance their caring capacity. Society needs to take measures for children with epilepsy and their families to create a friendly medical environment and free from stigma living environment.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

ZY made substantial contributions to conception and design, acquisition of data, analysis, and interpretation of data. ZY, QS, KH, and YW were involved in drafting the manuscript and making critical changes to important intellectual content. ZY and QS participated sufficiently in the work to take public responsibility for appropriate portions of the content. QS, KH, YW, and XS agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All authors contributed to the article and approved the submitted version.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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Generation Y medical doctors' experiences of a positive psychology 2.0 intervention for burnout in a South African public hospital

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The aim of the research was to explore experiences of a Positive Psychology 2.0 (PP2.0) intervention for burnout among Generation Y medical doctors working in a South African public hospital. The emphasis was on the potential benefits and recommended intervention amendments in a specific cultural context of South Africa. A phenomenological approach was followed in the collective case study. The Maslach Burnout Inventory was administered in phases I and III to quantify the level of burnout. This study offers findings that could be incorporated into a bigger burnout intervention strategy in the South African public hospital, involving all stakeholders to ensure that burnout is combatted on a long-term basis. Furthermore, the findings emphasized certain culture-specific structural issues and the impact that the neglection of burnout has on newly qualified medical doctors working in a South African public hospital and patients in their care. Certain recommendations were made for the South African public hospital for future research in PP2.0 interventions and for facilitators working with burnout among newly qualified medical doctors.

KEYWORDS

burnout, Generation Y, medical doctors, South African public health sector, positive psychology 2.0 intervention, culture-specific research

Introduction

New models in existential positive psychology (EPP) are needed to capture and promote a complex and systemic understanding of the world and life. Existential positive psychology (Wong, 2009, 2011) is also termed the second wave of positive psychology (PP2.0) (Ivtzan et al., 2015; Lomas and Ivtzan, 2016); and PP2.0 is an expansion of the first wave of positive psychology – PP1.0 (Seligman and Csikszentmihalyi, 2000) – a theory criticized for being extremely fixated on positivity (e.g., Held, 2004; Wong and Roy, 2017). In addition to the positive virtues of human performance offered in the PP1.0 research, PP2.0 asserts that to bring out the best in people, it is essential to include the dark side of life. According to this PP2.0 perspective, heart-breaking experiences, shock, fatality, disease and existential abysses, among other encounters, may intuitively be deemed detrimental to individual and spiritual development (Wong, 2011; Carreno and Pérez-Escobar, 2019; Wong et al., 2021).

PP2.0 recognizes that most people's lives are lived in negative territory, which is in contrast to PP1.0's focus on the neutral and positive territories of life. People are harmed or injured on many levels – personally, interpersonally, and societally. Those with different beliefs can be tortured and killed in an authoritarian society. When people are not morally constrained by their conscience, smart people can destroy many lives in pursuit of their own happiness and success aided by wealth and digital power. PP2.0, as conceptualized by Wong (2011), suggests that the most promising method for achieving the mission of PP1.0 is to confront the darker aspects of human existence and understand the unique expressions of well-being in different cultures. PP2.0 emphasized on the one hand the existential universal, while on the other it focused on indigenous cultural expression. To summarize, PP2.0 refers to a new approach to PP1.0 that is more nuanced and balanced. There are two pillars of PP2.0: existential psychology (Wong, 2009, 2016) and indigenous psychology (Wong, 2013; Chang et al., 2016). The combination of these two themes results in positive psychology with greater depth and breadth by including existential perspectives (Jans-Beken and Wong, 2019).

Burnout

Burnout has been identified as a growing topic in the context of the medical profession (Bahrs, 2019). Burnout was added to the World Health Organizations' International Disease Classification (ICD-11) as an occupational phenomenon (World Health Organization [WHO], 2019), indicating global prevalence globally, which is a cause for concern. This study contextualized burnout, as described by Maslach and Jackson (1981), and the proposed process model by Leiter and Maslach (1988). Burnout is a three-dimensional construct characterized by increased emotional exhaustion, depersonalization, cynicism, disengagement or detachment; thereby, implying a negative attitude toward several aspects of the job; and an increased tendency for negative evaluation of self as lacking professional accomplishment or competence with reduced feelings of personal job-related efficacy (Maslach and Jackson, 1981, 1986; Maslach, 1982; Maslach et al., 1996). The process model suggests that emotional exhaustion is the preliminary central component that often leads to the other two factors, namely depersonalization and reduced personal accomplishment (Maslach and Jackson, 1981; Leiter and Maslach, 1988). Thereby, emotional exhaustion is explained as the depletion of psychological resources; or the feeling of being strained beyond one's ability and being depleted of emotional and physical resources (Maslach and Jackson, 1986). Cynicism or depersonalization typically involves negative, pessimistic, insensitive attitudes and a detachment from work that can lead to a dehumanizing view of patients, work and/or workplace relationships (Nuallong, 2013). In extreme cases, this dehumanized view of patients can lead to employees who view patients as undeserving of their services (Maslach et al., 1996). The lack of professional competence, which is the final component in the process model (Leiter and Maslach, 1988), is a negative self-perception, especially in the work context, and an extreme feeling of dissatisfaction about job accomplishments (Maslach et al., 1996). This type of view is indicative of a distorted thinking pattern and an incongruous view of self, which often leads to a lack of involvement in the workplace and having feelings of decreased work performance or the ability to complete tasks (Nuallong, 2013). While burnout is an important aspect connected to the individual, it is at the same time an expression of the socio-cultural context (Bahrs, 2019).

The results the study by Schaufeli et al. (2020) provide initial evidence for a new conceptualization of burnout and an associated measure, the Burnout Assessment Tool (BAT). Specifically, evidence is found for the reliability and factorial and construct validity of the BAT. According to their results the BAT can be seen as a viable, alternative burnout measure, that assesses the burnout syndrome as such (total score), as well as its core components and secondary symptoms. Empirically based burnout interventions are urgently needed due to the negative impact of burnout on at-risk professionals, such as newly qualified medical doctors in South Africa (Mathias and Wentzel, 2017; Discovery Health, 2018; Liebenberg et al., 2018; Hlatshaneni, 2019). Employees in developing countries, such as South Africa, must deal with increased levels of job stress due to the reality of their work environments, which includes a low number of staff in the under-resourced and ailing public hospital (Carod-Artal and Vázquez-Cabrera, 2013; Mathias and Wentzel, 2017; Discovery Health, 2018; Liebenberg et al., 2018; Hlatshaneni, 2019). There are limited empirically based interventions for burnout (Sorenson et al., 2016; Werneburg et al., 2018), even for at-risk populations, such as medical doctors working in a South African public hospital. Burnout has a negative impact on their private lives, the services offered and recipients of care (Discovery Health, 2018; Liebenberg et al., 2018; Hlatshaneni, 2019); yet, most research focuses on identifying the risk factors for medical doctors in the described context and rarely on potential intervention (Sorenson et al., 2016; Werneburg et al., 2018). The medical doctors are mainly in the Generation Y cohort in South Africa aged between 25 and 35 (Generation project, 2018; Kane, 2019). They are exposed to various demanding and traumatic circumstances such as poor resources; an increased number of patients that the public hospital is meant to serve; appalling infrastructure; and high cases of trauma and/or severe chronic and untreatable diseases (HIV/AIDS, cancer and resistant TB), which are a common reality in South Africa (Phalime, 2014; Mathias and Wentzel, 2017; Hlatshaneni, 2019), resulting in increasing patient deaths, a higher burden of disease (Liebenberg et al., 2018) and unjust prejudiced working conditions with illegal labor practices (Erasmus et al., 2012; Hlatshaneni, 2019). Currently, the COVID-19 pandemic is putting increased pressure on a non-functional South African public health care system, overwhelming Generation Y medical doctors and putting them at a higher risk of burnout (Mbunge, 2020). The public hospital in South Africa is reported to have alarming labor practices such as staff shortages, long shifts with no ability to take adequate leave, reduced mentoring and teaching, and reduced support services (required of their seniors) to help with trauma from the work environment (Erasmus et al., 2012; Liebenberg et al., 2018; Hlatshaneni, 2019) that impair Generation Y medical doctors, their patients and familial and societal systems. They work long hours as they are required to work 30-h shifts with little or no provision for illness (Erasmus et al., 2012; Sirsawy et al., 2016; Discovery Health, 2018; Liebenberg et al., 2018; Hlatshaneni, 2019). These realities add to the workload burden, leading to a complex decision-making process, forcing them to make critical, on-the-spot decisions and dealing with crisis situations continually (Sirsawy et al., 2016; Lemaire and Wallace, 2017; Liebenberg et al., 2018). Combined with other influences such as personality traits, limited working experience, personal and work stressors; and the South African government, politics, society and the economy (Bährer-Kohler, 2013; Lemaire and Wallace, 2017), these factors increase the burnout rate among newly qualified medical doctors working in the public hospital (Mathias and Wentzel, 2017; Discovery Health, 2018; Liebenberg et al., 2018; Hlatshaneni, 2019). Erasmus et al. (2012), (p. 655) labeled Generation Y medical doctors in the South African public health context as "slaves of the state" due to the illegal labor practices they are exposed to as part of their mandatory training to become medical doctors; sadly a similar negative narrative is seen in recent research (Discovery Health, 2018; Hlatshaneni, 2019; Mbunge, 2020). Irrespective of whether the experiences of Generation Y doctors are similar to those of other generations, or completely different, they must be reported; and supportive models must be developed for the South African public hospital to ensure that they do not emigrate or exit the field, but rather stay and grow in the field of medicine.

Positive psychology 2.0 intervention

PP1.0 highlights the importance of virtues and people's personal strengths, such as optimism and appreciation (Peterson and Seligman, 2004; Lopez and Snyder, 2009). In contrast, PP2.0 (Wong, 2011, 2019a, 2021; Wong et al., 2021) accentuate collective essential principles that are vital for endurance and flourishing, such as courage and kindness, specifically during challenging times (Wong, 2020; Chen et al., 2021; Arslan and Wong, 2022), and accountability (Wong, 2008, 2016, 2019b). This is where PP2.0 plays a huge role, as the focus is on shifting one's perspective. The emphasis of PP2.0 intervention for newly qualified medical doctors was on promoting the shift for them toward adapting and coping; taking control of what they can; and being empowered to care for themselves amid the ongoing challenge that is their compulsory training and internship in the public hospital in South Africa.

A facilitated exploration of experiences falling within the definition of PP2.0, and the choices for understanding and change that this PP2.0 intervention may present, was considered. It employs certain communication skills to support clients in developing different perspectives to their situations; thereby, uncovering new, goal-oriented solutions (Cox, 2013). The aim was not on alleviating dysfunction or distress, but rather on facilitating well-being and favorable adjusted functioning (Joseph, 2006). This is closely related to Rogers' person-centered approach (1959, 1963), which focuses on facilitation toward better functioning by using a non-judgmental environment and certain skills to promote inherent potential such as congruence, unconditional positive regard, acceptance; and lastly, precise empathetic support (Rogers, 1959, 1963). A person-centered PP2.0 approach was adopted in this study as the facilitator of the focus group sessions applied selected Rogerian attitudes, skills and behaviors in the various PP2.0 intervention phases to establish rapport with the group of medical doctors; to facilitate the gaining of skills toward optimal functioning; and to accumulate indications of their experiences of the intervention.

Focus of study

The study focused on the at-risk group of newly qualified Generation Y medical doctors working in a public hospital in South Africa and a proposed PP2.0 intervention for burnout. It explored their experiences of the intervention, thereby emphasizing potential benefits and recommended amendments. The aim of the research was to describe the lived experience of a sample of Generation Y medical doctors working in a South African public hospital in a way that increases the understanding of their experience of an intervention for burnout to explore its benefits and applicability. The research question is: How does a sample of South African Generation Y medical doctors working in a South African public hospital understand and experience the PP2.0 intervention to combat burnout?

Materials and methods

Research approach

A qualitative phenomenological and humanistic facilitator perspective (Rogers, 1959; Mason, 2002; Finlay, 2008; Christensen et al., 2017; Creswell and Creswell, 2018) was followed to obtain descriptions of the lived phenomenon of the experiences of Generation Y medical doctors with a group PP2.0 intervention for the burnout process.

Research design

The research design was qualitative using triangulation from an interpretive paradigm (Creswell and Creswell, 2003; Mertens and Hesse-Biber, 2012; Creswell, 2013; Shannon-Baker, 2015; Creswell and Creswell, 2018). The rationale for the triangulation was an attempt to get a full picture of the phenomenon being studied (Kopala and Suzuki, 1999; Shannon-Baker, 2015). The study took on a phenomenological design, using a collective case study method in three phases: phase I – pre-PP2.0 intervention; phase II – PP2.0 intervention; and phase III – post-PP2.0 intervention. The Maslach Burnout Inventory – General Survey (MBI-GS) was administered in phases I and III to quantify the level of burnout; and some questions were incorporated in phase II as part of the semi-structured guiding questions of the burnout intervention.

Sample

The clinical manager at the hospital responsible for the intern and community service doctors was approached for the study. The clinical manager introduced the researcher – which presented a motivation to 98 participants – to participate. The interested participants were recruited to participate in the study. The purposive sampling approach was used to select the relevant participants in terms of the research question (Babbie and Mouton, 2010). The aim of the study was not to generalize across the larger group, but rather to understand their lived experiences in the group intervention. The selection criteria were as follows: aged 25 to 35, Generation Y (Generation project, 2018; Kane, 2019); a medical degree (MBChB); current employment in the public hospital in South Africa for more than 12 months; and a high level of burnout, as measured by the MBI-GS in phase I. Participants who met all criteria in phase I were eligible to participate in phases II and III of the study. Most participants were from a black South African cultural background, including different ethnic group members, such as Sotho, Venda, Tsonga, Tswana and Pedi.

Measures

The Maslach Burnout Inventory – General Survey (MBI-GS) was used as part of the data collection process in all three phases of the study. The MBI-GS is a valid and reliable tool to measure burnout, which has been used by researchers in South Africa in several studies with similar samples (Peltzer et al., 2003; Thomas and Valli, 2006). A validation study in South Africa on the BAT (De Beer et al., 2022) was underway during the times of this research, thus the preference of the MBI-GS. It was used in phase I to evaluate and measure the level of burnout objectively, which was the final criterion for selecting participants. In phase II, some MBI-GS questions were adapted and used as semi-structured guiding questions as part of the burnout intervention process, using focus group sessions. The level of burnout post-exposure to the intervention was evaluated in phase III.

Data collection, analysis and interpretation

The data collection involved administering the Maslach Burnout Inventory – General Survey (MBI-GS) and a designed focus group intervention session for burnout (Moustakas, 1994; Creswell, 2013). An interpretive framework was adopted where the focus of ontological interest was on the experiences and meanings of the sample (Whitley, 2002; Scotland, 2012). An idiographic approach, being an all-inclusive representation that attempts to describe experiences of participants (Maykut and Morehouse, 1994; Beck and Jackson, 2020), was also employed to understand and describe the experiences of Generation Y medical doctors of a burnout intervention process (Maree and Van der Westhuizen, 2007). The unit of analysis, which promotes replication for comparison (Yin, 2018), was the descriptions of the experiences of a group intervention process for burnout among Generation Y medical doctors.

For data interpretation: recorded sessions for phases II and III were transcribed verbatim and analyzed, using the descriptive analysis technique of Tesch (1990). The findings were interpreted in light of the literature review to evaluate support for previous research; highlight new findings; and contextualize them according to the research design (Creswell, 2013, 2016). MBI_GS questionnaires were scored in phase I to determine the levels of burnout for participation and phase III to assess the level of burnout in phase III; and the findings were integrated into the conclusions. Descriptive phenomenological analysis and coding were done for phases II and III to organize the data. Observations were highlighted and bracketing notes revised. Data was re-read to further uncover deeper meanings. The descriptive analysis technique, suggested by Creswell and Creswell (2003) and Creswell (2013) was used; transcription of the interviews followed by the identification of statements related to the participants' experiences. The actual views and feelings of burnout, as well as the intervention and practical application information gathered, were noted. The relevant information was broken down into smaller phrases that reflected specific thoughts. Statements were grouped into measurement units, reflecting various meanings or aspects of the experience of the intervention as the process proceeded and concluded. Deviating viewpoints were sought regarding the intervention for burnout. Lastly, the focus was on constructing a combination of viewpoints to develop an overall description of the intervention for burnout as the participants experienced it. The data was verified and scrutinized by the participants to ensure that it was a true reflection of their experiences.

Research procedure

The burnout PP2.0 intervention process among Generation Y medical doctors working in the public hospital in South Africa was completed in three phases. Phase I was the pre-PP2.0 intervention; phase II the PP2.0 intervention; and phase III the post-PP2.0 intervention. Phases II and III made use of focus groups to collect data.

Phase I: Pre-PP2.0 intervention

Phase I was aimed at conducting a literature review, and applying for and receiving ethical approval for the research from the academic institution and the public health hospital. It was aimed at screening the potential group of participants for the final criterion of participation – a high level of burnout, as determined by MBI-GS scores. The screening was conducted 2 weeks before the actual implementation of the intervention in phase II. The clinical manager invited 30 Generation Y medical doctors who met the first three initial criteria of participation to a meeting on the researcher's behalf. The group members included black, white and colored doctors. The clinical manager introduced the researcher and left the room. The study was briefly introduced, and 12 non-interested participants were excused. Eighteen consenting participants from different cultural backgrounds (black and white South Africans) remained and voluntarily completed the MBI-GS for screening purposes for the final criterion of selection.

All 18 Generation Y medical doctors met the final criterion of high levels of burnout. The 18 qualifying and willing participants were randomly listed. All of them were contacted telephonically and invited to participate in the focus group discussions (phases II and III) 2 days after the meeting. All 18 voiced interest in participating in phases II and III. Initially, two groups with nine participants each were envisaged. Once the Generation Y medical doctors showed interest and had committed to attend, they were randomly allocated to a group and given a potential date, time and venue for the first focus group. Although 18 confirmed, only ten participants attended the session for phase II. Reasons given for absence a day before the scheduled focus group included sickness; an emergency that required the doctor to travel home; taking on extra calls for a sick colleague; and one doctor had a sudden event at home that required his/her presence. Only ten participants remained and the decision was taken to have only one focus group on a specific day with available participants. After the difficulties faced in securing a group and dates suitable for all 18 to attend the intervention, the group format and intervention process had to be adjusted to fit the reality.

Phase II: PP2.0 intervention

The initial envisaged group intervention for burnout among Generation Y medical doctors, comprising three sessions, had to be adjusted due to the challenges the participants had in taking time off, and the final intervention was a 4.5-h session. Six female and four male participants arrived at the venue; they signed an informed consent form for participation and the session commenced. The participants were reminded of their voluntary participation, and the ethical considerations were explained. The rules of the focus group were described, including anonymity, recording and note-taking. The use of pseudonyms, open communication and anonymity of the content was reiterated.

An ice breaker commenced, then the purpose and format of the sessions were discussed and the participants were informed that the final session (phase III) would be held 6 months after the initial session. The participants' expectations were presented and questions were posed. The first part of the session focused on discussing the experiences of working as a medical doctor in the public hospital at the hospital. Each participant was given a chance to speak and was requested to state his/her pseudonym before speaking for the first time. The focus group session – which was the adjusted designed intervention for the study – started slowly, but with time the participants seemed to lower their guard; it could be that the focus group was a platform that fit their need for debriefing and that they were comfortable with the approach taken in the intervention.

The initial question posed was:

- "What has been your experience of working at the hospital in the Limpopo Province?"

A discussion of burnout followed and some of the sub-questions posed were:

- How do you understand burnout?
- How was completing the questionnaire?

The definition of burnout and the process model of burnout were discussed. The third discussion point started with stories and personal experiences of burnout. The question posed was:

1. "What has been your experience of burnout?"

The risk factors for burnout were explained and the discussion was summarized.

The following discussion focused on individual experiences of the manifestation of burnout. Each participant was given a chance to speak about his/her experiences and coping strategies. Ways of coping were suggested, including relaxation and breathing exercises. Each participant was given the opportunity to pose questions or comments he/she had.

Table 1 below provides – in detail – the possible guiding questions comprising items from the MBI-GS (Maslach et al., 1996) and the Professional Quality of Life Scale (ProQOL 5) (Stamm, 2009) that considered burnout measures. These were paraphrased in the 4.5-h session and were essential to ensure validity, reliability and easy replication of the intervention process in future studies.

Phase III: Post-PP2.0 intervention

Phase III was primarily a feedback discussion conducted 6 months after the intervention for burnout among Generation Y medical doctors, reflecting on their post-PP2.0 intervention experience of work. Only six Generation Y medical doctors were available and able to participate in phase III. The reasons for the absence of some doctors included illness, having to go home unexpectedly and having to be on call unexpectedly due to an ill colleague. The duration of the session was 1.5 h with an additional 30 min allocated for completion of the MBI-GS. The details of the 10 participants in phase II and the six participants in phase III of the study are as shown in **Table 2**.

Table 3 that follows gives a guideline of questions that were posed in phase III, to the six participants during a 2-h session and potential follow up inquiry to elicit more detail. The questions were paraphrased.

Ethical considerations and quality criteria

Ethical clearance was obtained from a South African academic institution as well as the hospital where the research was conducted. The study was classified as a psychological risk at a low level. An external network of private and public professionals was established by the facilitator comprising several identified professional colleagues in the province in the private/public sector for when interventions were needed on a long-term basis; or for psychological issues that could be evoked in the research process. Each participant had a medical aid and could use the professionals at their own cost; and the public sector professionals offered a free service.

The research was conducted in an ethical manner bounded by the ethical code of psychology in South Africa (Health Professions Council of South Africa [HPCSA], 2022). The following ethical aspects that guide research were considered (Health Professions Council of South Africa [HPCSA], 2022): The participants were granted privacy. The group agreed that the discussion was considered confidential outside the group. Anonymity was maintained as the participants used pseudonyms in the focus groups and their real names are not quoted in the study. All the information was stored safely.

This study employed certain validation strategies, namely credibility, transferability, dependability, confirmability and authentic inquiry (Creswell and Miller, 2000; Creswell and Plano Clark, 2011; Creswell, 2013). These were achieved in the study using methods such as ongoing bracketing throughout the entire process; so the perspectives heard were those of the participants, and not those of the facilitator, to ensure that personal biases were put aside. Comments on past experiences, biases, prejudices and orientations could likely shape the approach and interpretation of the study. The researcher's positioning in the study is important to note. The study was motivated by the facilitator's experience of burnout when she studied for her master's degree in Clinical Psychology at the age of 22. She was expected to see clientele in the South African public hospital. She also had a compulsory internship year and subsequently a mandatory community service year in the same sector. In retrospect, she suffered burnout and its consequences – which manifested as severe emotional exhaustion – and she subsequently wanted to leave the field. She interacted with a number of newly qualified medical doctors suffering the same experience. She fortunately did not leave the field due to burnout and managed to develop coping strategies with constant help. Her experience sparked interest in burnout and its consequences within newly qualified professionals employed in the South African hospital, specifically medical doctors. Furthermore, it highlighted the need to develop intervention strategies to prevent severe consequences to the field, the professionals and their private life, and/or society at large with the high numbers of beneficiaries. The research was approached with the assumption that burnout is present among newly qualified medical doctors working in that sector as there were reports of ongoing malfunctions in the system, and a high level of burnout was confirmed by the MBI-GS. It was also expected that burnout would impact various levels (personal, work, society, and beneficiaries). Member-checking was done to obtain the views of the findings and interpretations to establish credibility (Lincoln and Guba, 1985). The data was verified and scrutinized by the participants to ensure that it was a true reflection of their experiences. Detailed observation notes and reflection notes were kept to enhance dependability. Furthermore, a lengthy data collection process and interpretation of the data was undertaken; a full description was given of the setting, participants and methods; and a constant peer review process was established. Verbal statements, crucial pauses and overlaps were transcribed. Coding was applied to ensure reliability and the quality of the study based on phenomenological standards (Creswell, 2013). The findings

TABLE 1 Phase II intervention.

(1) Emotional exhaustion component guideline:

(1.1) Describe the feelings you experience because of work. Describe how work makes you feel emotionally. How would you describe the feeling at the end of your workday and when you get up in the morning?

(1.2) Describe what working with people the entire day does to you. Depending on the answers, the researcher would then follow up with: would you say that working with people puts a strain on you? If yes, how so?

There was a short discussion about their understanding of burnout, the three dimensions of burnout Maslach and Jackson (1981), and the proposed process model (Leiter and Maslach, 1988).

(1.3) From the explanations and your understanding of burnout, would you say that you feel burnt out from your work? Give a full description of the experience. What is your individual experience of the dimensions, if any?

(1.4) How do you feel about your job? Do you feel you have strength to carry on in the environment and circumstances?

(2) Depersonalization component guideline:

(2.1) Certain coping mechanisms are used by various individuals. Describe the way you find yourself treating patients.

(2.2) Looking back to how you were before qualifying, and now, describe what has happened to your feelings toward people? Follow up with the following if needed: do you have concerns about being hardened emotionally?

(3) Reduced accomplishment or personal inefficiency component guideline:

(3.1) Do you deal with your patients' problems effectively?

(3.2) Think back to your interaction with patients. Are you able to create a relaxed atmosphere with them? What makes it difficult/easier?

(3.3) Has there ever been a time when you were able to feel overjoyed after working with patients? If so, are you still able to feel this euphoria now? Describe the worthwhile accomplishments in this job.

(3.4) Are there a few emotional problems that you need to deal with in the work environment? How often do they occur? Describe how you deal with them.

(4) Compassion fatigue and burnout factor guideline:

(4.1) Describe your feelings. Would you say you are generally happy? Would you describe yourself as connected to others?

(4.2) Would you describe yourself as a sensitive person? Has it always been this way? Do you feel you are overly sensitive? Have you been told that you are overly sensitive? Give details of your experiences with traumatic cases that you see at work. What sort of cases? How do they impact you? How do you cope?

(4.3) What is your experience of the amount of work? What do you think about the system or structure generally at work?

(4.4) How do you feel about being a helper (medical doctors) now? How do you feel about your future as a medical doctor?

(5) Coping strategies and view/perceptions of situations:

(5.1) Describe in detail situation(s) that cause negative (such as burnout) and positive experiences within you that occur in your work environment. What have you done previously to cope with these negative situations that often lead to negative experiences? How do you deal with the work and pressure or events that lead to the negative experiences mentioned? How do you cope? What are the positives and negatives? Suggest any better way of coping.

(5.2) What is your view of your ability to cope or deal with the situation(s) that lead to the negative experiences? Describe the support you have for your experiences.

There was a discussion regarding negative and alternative coping strategies. Responses were written on flipchart paper, starting with a typical situation/event that often leads to burnout based on the participants; the negative coping strategies that were used before; and possible alternative coping strategies, as discussed in the group. There was also a discussion on why the coping strategies were considered negative, or why they were positive/beneficial. The group reflected on their feelings at the end of the session and a discussion followed of the lessons learnt. A feedback process was conducted to deepen the experiences of the intervention. Participant were asked the following questions: Describe how you are feeling following the session? What have you learnt? What will you embrace and what do you think you will remember the most?

To conclude, there was a discussion of an action plan for the weeks prior to phase III; this was done with the hope to have an ongoing process. The needs for the next session were discussed, as well as the venue, time and date. The availability of the facilitator in-between sessions was discussed and the session was ended.

TABLE 2 Participants in phase II and phase III.

	Age	Race	Gender	Marital status	Phase III participation
Participant 1	25	Black	Female	Single	Yes
Participant 2	25	Black	Female	Single	Yes
Participant 3	27	Black	Female	Single	No
Participant 4	27	Black	Female	Single	No
Participant 5	26	Black	Female	Married	Yes
Participant 6	27	Black	Male	Single	Yes
Participant 7	28	Black	Male	Single	Yes
Participant 8	25	Black	Female	Single	No
Participant 9	27	White	Female	Married	Yes
Participant 10	27	Black	Male	Single	No

were discussed taking the established theories and methods into account (Yin, 2018). Rigor was promoted through thick descriptions and transparent processes. The study provides an in-depth insight into the data, the findings and the topic, but does not provide generalizability since this is usually not in the scope of a qualitative study (Lincoln and Guba, 1985; Creswell, 2013).

Findings

The findings are articulated in the following themes about the experience of the PP2.0 intervention for burnout among Generation Y medical doctors working in a South African public hospital **Table 4** provides the overview of the themes and subthemes analyzed from the data set. The findings under the different subthemes respond directly to the overall research question: How do a sample of South African Generation Y medical doctors working in a South African public hospital understand and experience the intervention to combat burnout?

Opinions of the PP2.0 intervention

The first theme was the general view of the PP2.0 intervention for burnout among Generation Y medical doctors. The main question posed was: "How did you feel about this PP2.0 intervention session?" The participants highlighted "excitement at the idea of intervention" and some "lack of interest developed into appreciation" as subthemes when describing their experiences of the intervention.

Subtheme 1.1: Excitement at the idea of PP2.0 intervention

Some participants welcomed the idea of PP2.0 intervention with the hope of sustainability since they feel they need constant PP2.0 intervention. This is indicated by the following remark by participant 1: "*Excitement I had about this intervention because my first year of working in the public hospital was terrible; I wish the intervention could happen more often*"; and participant 2 added, "*I'm hoping we get this sort of debriefing sessions regularly because we need them to cope.*" The other participants also perceived the PP2.0 intervention as an opportunity that was provided for self-reflection, which they deemed essential. It was seen in the following quotes: participant 5 stated, "*The MBI-GS questionnaire made one think and reflect. And to look within which I hardly do nowadays because of the work pressure.*" Participant 6 added, "*Even the intervention session created a need to introspect and reflect within which is important.*"

At the same time, they were cynical about whether stakeholders would respond positively and hear their pleas for better working conditions in the South African public hospital. They deemed that the findings would show they are overwhelmed and in need of help and emphasized that help is beneficial. Participant 10 said, "*I do not know whether the stakeholders would take the research to heart, they seem not to care about us.*" Another Generation Y medical doctor, participant 7, added, "*This research and intervention will show we are overwhelmed because of the poor working conditions and that we need help continually to cope, and how we benefited from your intervention, but I wonder if they will take it to heart.*"

TABLE 3 Phase III intervention session.

The participants were given a maximum of 30 min to complete the MBI-GS and to determine objective levels of burnout post the intervention. Following that, a 1.5-h session ensued and participants were asked the following: (1) Did you experience burnout and burnout dimensions following our past session? Describe any negative experiences or challenges at work, in detail. What emotions or feelings did the experiences elicit? How did you cope? (2) Was there the opportunity to attempt to use the coping strategies discussed previously? Any challenges with the coping strategies? How were you feeling after your attempt at coping? How are you feeling now? (3) Looking back, was it the best or better way to cope? Explain. Should you add or remove anything from your coping strategies attempted? (4) What would be the best way to handle challenges going forward to elicit positive coping? (5) What are the views of others in the group? What should the person add/remove from their coping strategies? (6) Describe your feelings. How are you feeling in the morning about going to work? Would you describe yourself as connected to others? Are there any changes following the last session? Elaborate. (7) How do you feel about being a medical doctor now? How do you feel about your future? (8) Each participant was asked the following to evaluate the intervention: • How are you post the intervention? • Describe the experience of the intervention for burnout. What did you struggle with in the intervention? What did it lack? What would you add to or change in the intervention you were exposed to? What would you always remember from the experience? Lessons learnt? Were your expectations met by the intervention? • What have you gathered about burnout and your personal experiences at the workplace? • What is your experience and coping strategies now at work? (9) Conclusion and the way forward. The discussion around burnout and the experiences of the intervention were summarized. The negative and alternative coping strategies to attempt in the future work context were discussed. The group reflected on their feelings and the lessons learnt. Feedback was given to deepen the experience of the intervention. The following questions were asked for participants: Describe how you are feeling following exposure to the intervention for burnout. What have you learnt? What will you take forth and what do you think you will remember the most? To conclude, there was a discussion of possible future stressors and action plan discussions for everyone for future coping strategies. The participants were encouraged to elicit self-management in order to prevent and manage burnout in an attempt to cope. Psychoeducation of available help and resources was done and the session was closed.

TABLE 4 Findings.

Overall theme	Subtheme
Opinions of the PP2.0 intervention	*Subtheme 1.1: Excitement at the idea of PP2.0 intervention.* *Subtheme 1.2: Lack of interest developed into appreciation.*
Alterations to the PP2.0 intervention	–
Benefits of the PP2.0 intervention	*Subtheme 3.1: Intimacy of the group.* *Subtheme 3.2: Comfortable group and one-on-one interaction.*
Lessons gained from the PP2.0 intervention	–
Implemented coping strategies	*Subtheme 5.1: Coping strategies expanded.* *Subtheme 5.2: Reframing of challenges and developing a positive outlook.*
Post-PP2.0 intervention experiences	*Subtheme 6.1: Failing health system and lack of support.* *Subtheme 6.2: Coping strategies continually under pressure.* *Subtheme 6.3: Need for ongoing PP2.0 intervention and debriefing sessions.* *Subtheme 6.4: Implemented coping strategies post-PP2.0 intervention.*

Subtheme 1.2: Lack of interest developed into appreciation

Some participants were skeptical about the PP2.0 intervention session. The intern leader, who also attended, had reportedly pre-empted that the Generation Y medical doctors would not attend the PP2.0 intervention due to low morale; however, the intern leader encouraged them to attend. This came out during the PP2.0 intervention process. Voluntary participation was encouraged. Once the PP2.0 intervention session got underway, their previous reluctance turned into appreciation of the experience. Participant 6 said, "*Initially I was not looking forward to it, I came only because it was encouraged. I realize though I would have missed out if I stayed away.*" Participant 4 added, "*I imagined it will be a boring PowerPoint presentation. But glad it was not.*" Participant 3 reiterated, "*The idea of it being run by a clinical psychologist led to some weariness, because I have never been to a clinical psychologist. I am honestly pleasantly surprised by how it unfolded.*"

Alterations to the PP2.0 intervention

The second theme highlighted was proposed changes or additions to the PP2.0 intervention. The main question posed was: "Is there anything that you wish could be changed or added to the PP2.0 intervention for burnout among Generation Y medical doctors?" All the participants in the phase II and III sessions perceived the PP2.0 intervention process for burnout among Generation Y medical doctors to be adequate. They were comfortable with the researcher's approach and with the researcher as the coach. Participant 2 stated, "*Nothing really needs to be added or changed in the intervention process*"; participant 5 added, "*The approach of the intervention and you as the facilitator worked for me.*" Participants 1 and 8 stated, "*Can we do this again soon and keep all as was, in terms of numbers and the approach and you as the facilitator?*" and "*It felt informal and worked well for us.*"

Benefits of the PP2.0 intervention

The third theme was the highlighted benefits of the PP2.0 intervention for burnout among Generation Y medical doctors. The question posed was: "Is there anything that stood out for you about the PP2.0 intervention and its approach?" The participants highlighted the intimacy of the group, the group being comfortable, and one-on-one interaction as subthemes when describing their experiences of the PP2.0 intervention for burnout among Generation Y medical doctors.

Subtheme 3.1: Intimacy of the group

There was an overall appreciation of the group size, which led to them being open, feeling heard and having shared experiences to normalize their experience. Participant 1 stated, "*The size was just perfect; not too big and overwhelming*"; and participant 3 added, "*I could be open because of the size of the group and the way you gave each person a chance to speak. I felt heard. I also felt like I am not going crazy because my colleagues are going through similar experiences.*"

Subtheme 3.2: Comfortable group and one-on-one interaction

There was a shared view that the interaction as a group with the facilitator was a good fit because they still received one-on-one attention. Each person was given a chance to speak. All the participants commented that they felt understood and listened to; and that the shared experiences led to them bonding as a team, normalizing their personal experiences and humanizing one another. They believed that a safe environment was created where they could be vulnerable in the presence of the others and yet be empowered to go forth. Participant 2 said, "*I felt we were all heard. Each of us was given a chance, not one talking over the other. It was not just you talking and we listening*"; participant 5 added, "*I felt safe and comfortable.*" Participant 6 stated, "*It made us reflect. It was not a formal presentation with boring PowerPoint slides.*" Participant 8 said, "*We got to know the others better in this – not just as a colleague*"; participant 7 added, "*It promoted cohesion for us as group and encouraged doing things outside the workplace as a group to relieve stress.*"

There was a general sense of normalization of the experiences of burnout and feelings of being supported and not being alone. Participant 3 said, "*I feel I am not going* *crazy or alone in experiencing negative emotions.*" There was a shared opinion that they could relate to the coach and that the approachability enhanced the interaction. Participant 1 said, "*Your openness and honesty, easy going manner was helpful for us*"; participant 4 added, "*You are relaxed and comfortable even about your experiences of burnout that made us comfortable.*" Participants 9 and 10 added, "*You made us feel safe and relaxed,*" and "*You were very professional in an 'informal human' manner.*"

Lessons gained from the PP2.0 intervention

The fourth theme highlighted was about the lessons gained from the PP2.0 intervention. The main question posed was: "Is there anything that you can take with from today?" The overall view was that they significantly benefited from attending and that they wish for sustainable services of this nature. In support of this statement, participant 8 said, "*We truly gained from this experience, I wish there could be more sessions for support like this continually.*" There was verbalized empathy for colleagues who could not attend, but could also have benefited from the session. Participant 10 stated, "*The absent participants missed out because we really did benefit.*" There was an awareness of the indications of burnout, the potential ability to adjust, and the ability to refer others because of increased recognition of burnout presentations. Participant 3 said, "*I gained an increased awareness of depersonalization, emotional exhaustion and reduced professional competence manifestations in myself and my colleagues* (*including the seniors*)"; and participant 1 added, "*This awareness will create less personalization when attacked by senior doctors and conscious coping strategies in dealing with personal stress.*" Lastly, participant 5 noted that "*The junior medical doctors who are actually on sick leave really needed this. Thank you.*"

Participant 2 said, "*We as medical doctors always want to come across as having it together and that emotional things are not for us, because we are expected to cope as if we are not humans, thank you for reminding us that we are humans and it is ok*", to which participant 4 added, "*Working with medical doctors who do not care is sad. Thank you for reminding us that it is ok to be different and still care.*" There was an unexpected benefit from the group intervention verbalized by the participants. Participant 9 said, "*It was a pleasant surprise how much value we got from this intervention,*" and participant 7 declared, "*We appreciate the leader of our group encouraging attendance, else we would have missed out on what we needed.*"

Implemented coping strategies

The fifth theme highlighted was that the Generation Y medical doctors implemented coping strategies after being exposed to the PP2.0 intervention for burnout. The participants highlighted the expansion of their coping strategies. Reframing the challenges helped them to develop a positive outlook, which were the subthemes in describing their experiences of the PP2.0 intervention.

Subtheme 5.1: Coping strategies expanded

Coping strategies were expanded and the participants gained a better understanding of burnout and its impact on the self and others. There was also an awareness of required self-care activities. Participant 1 stated, "*This motivated me to care for myself even more*"; participant 2 added, "*I will develop more hobbies outside the medical field. I now have seen the need for self-reflection and have an increased awareness*"; and lastly, participant 3 stated that: "*When the intern group leader suggests activities outside of work, I will make a point of attending it, seeing it is a beneficial way to de-stress that we can adopt.*" There was a shared view of learnt burnout manifestation and related self-treatment, referral and self-care. Participant 6 said, "*I learned of secondary traumatization, which I often experience from hearing, seeing or working with trauma. I see now that I need to find a professional to vent out, not to traumatize family members/friends or pass on the trauma*"; while participant 5 stated, "*I need to take charge of my mind and perceptions. Additionally, my thoughts, emotions/feelings and actions/reactions; which is all I can take charge of and change.*"

Participant 4 noted, "*I know that I was called to do this, and I was reminded of this. The negative experiences I will not personalize and let them define me*"; participant 7 added, "*I will appreciate more attempts of the leader of our intern group who organizes certain events; and make more effort to attend.*" Participant 10 stated, "*I will identify a mentor and clinical psychologist to offload to regularly*"; and participant 9 said, "*I will use relaxation and breathing exercises I gathered here.*" Lastly, participant 8 stated, "*I need to talk more about my experiences at work instead of trying to process them alone, because then I end up snapping at everyone.*"

Subtheme 5.2: Reframing of challenges and developing a positive outlook

The participants gained the ability to reframe their challenges and develop a positive outlook. The Generation Y medical doctors verbalized a better understanding of senior doctors and potential ways to cope. Participant 1 stated, "*This awareness I gained from the intervention created less personalization when I feel attacked by senior doctors and conscious coping strategies in dealing with personal stress*"; and participant 2 stated, "*I understand that the environment, manager, health department and public sector difficulties are not in my control; therefore, I need to work on what I can control which is my thoughts, actions and emotions.*"

Participant 3 said, "*I understand that the failing system is not a reflection on me*"; participant 4 stated, "*The senior medical doctors themselves are burnt out, therefore we all need* *intervention*"; and lastly, participant 5 said, "*Going forth at least I understand they are burdened too and I would need to work on me personally*." There was an awareness about not being alone in this experience of burnout, which was emphasized by participant 6: "*I know I am not alone and what I feel is also felt by other junior medical doctors,*" and participant 7 stated, "*This session created cohesion in our group.*" Based on observation, the Generation Y medical doctors learnt to be change agents. This was suggested by participant 4: "*What I gathered from the session I gave to my fiancé and that helped him process some of the things he was going through*"; participant 8 added, "*I would not want to be like senior medical doctors going forth to the junior medical doctors if I am still in the public hospital.*"

Post-PP2.0 intervention experiences

The sixth theme highlighted were their experiences after being exposed to the PP2.0 intervention of burnout among Generation Y medical doctors. The question posed was: "How are you doing post the PP2.0 intervention?"

Subtheme 6.1: Failing health system and lack of support

The participants seemed to be motivated to continue positively in the face of challenges in the public hospital. They were aware of the burnout experience and what is required to overcome it, which the public hospital system is unable to offer them. Therefore, they need to find ways to help them focus on themselves to survive.

Participant 1: "*The system is really failing us still, but I am still trying*"; participant 2 added, "*The support structures still need to be placed for us ASAP. I always have in mind and apply where possible what we discussed in the session.*" Participant 5 stated, "*Management needs to be more supportive. I struggle but at least I know now what I can control and that I am not alone and that it is not a reflection on me*"; to which participant 6 added, "*There is still a lack of or minimal support from hospital management and senior doctors. But post-intervention session we almost understand that it is like that because the system promoted this, and it is what they know therefore we need to focus on making sure I am able to constructively cope.*" Lastly, participant 7 stated, "*There still needs to be change in the public hospital and broader government in South Africa. I focus on what I can do and doing my best, not what I cannot change.*"

Subtheme 6.2: Coping strategies continually under pressure

There was a shared notion that even though they were ready to face challenges in the different rotations with a gained coping and reframing ability, the doctors' coping strategies were constantly under pressure, especially in certain placements. Participant 9 mentioned that "*Some placements are harder than others still, but I have in the back of my mind coping strategies I need to access*"; participant 1 added, "*Some senior medical doctors are harder to handle than others, but I continually bear in mind that they are also struggling in a failing system*"; and lastly, participant 2 stated, "*I have on and off days. I wanted to specialize in pediatrics, but I see pediatrics consultants working longer hours than us, so I am not sure still. I am going to surgery and the call roster is not for us to influence, that is going to be a strenuous rotation. I can't wait for it to go by.*"

Subtheme 6.3: Need for ongoing intervention and debriefing sessions

The participants continuously mentioned the need for sustainable and consistent support for coping; career path development; repeated interaction; and a relationship with a mentor to help with challenging cases. Participant 5 said, "*We need regular debriefing and support sessions for emotional/psychological beings*"; participant 9 declared, "*We need ongoing intervention to cope.*" Participant 1 stated, "*I need assistance to deal with stress regarding specialization. Because of the negative experiences in the public hospital, it takes away some of the pleasure in specializing in certain fields. I feel we need ongoing debriefing to choose a specialty objectively and to also not move away from the field because we are burnt out*"; and participant 2 said, "*When can we see you again, this was so helpful?*"

Subtheme 6.4: Implemented coping strategies post-PP2.0 intervention

Generation Y medical doctors mentioned that they implemented certain coping strategies after the PP2.0 intervention session, although they still experienced a high level of burnout, especially emotional exhaustion. The implemented coping strategies included self-care strategies, being aware of burnout, and applying coping strategies. There was a shared notion from the participants that they should start focusing on caring for themselves amid the difficult working conditions to prevent their burnout from becoming worse. They appeared to be empowered by the self-care strategies, even though they still needed more support in the long run and the conditions still had to change for the better.

Participant 1 said, "*I have some self-care strategies which I implemented: I am spacing out my calls, sleeping early, doing other things, meeting people and reflecting so that I am not on autopilot missing out on life's precious moments.*" Participant 2 emphasized that they organized themselves to experience less strain: "*The public health system is still the same but working in flexible rotations where one can suggest or create a good environment for self-care like pediatrics made it easier*." Participant 5 added, "*Working with less severely ill patients made it easier to cope. For example, at pediatrics wards we were able to arrange that we start early and finish before 6 pm. Unlike oncology where I am always working with very sick patients, some dying.*"

The group indicated that they were more aware and had a better understanding of burnout; therefore, they could identify it in themselves, which makes it more manageable. A statement from participant 5 alluded to this: "*Indications of burnout I experienced before are now more manageable because I am able to identify them* (*have awareness of them*) *and I know I am not going crazy or alone.*" The awareness also made them more mindful of the coping strategies that work for them and those that exacerbate the negative experience as can be seen in the statement of participant 9: "*I have my days, but now I talk more about what I experienced at work instead of keeping it in. When do we see you again for our next session? Can we arrange one? This was so helpful.*"

The coping techniques include an ability to identify out-group connections/activities for minimal detachment to become energized between work times. Participant 7 stated, "*I am now meeting other people, making time to do other things outside of work and not with people from my work,*" to which participant 6 replied, "*I exercise and gym more; I am forcing myself to make time.*" They became potential change agents by using learnt awareness and experiences of self-care. Participant 5 said, "*I showed the notes to my husband when he was going through something and it helped him process some of the things,*" to which participant 7 added, "*I will be able to identify burnout and suggest to someone to seek help.*" Lastly, participant 1 said, "*I am more understanding that the senior medical doctors are also under pressure, experience burnout, though it does not excuse some of their behavior. I wish they could see the need to seek help and for stakeholders to assist everyone in this regard.*"

There will be a need for ongoing PP2.0 intervention for burnout among Generation Y medical doctors to maintain the ability to cope to some extent when working in the public hospital.

Findings show that Generation Y medical doctors are challenged within the South African context due to challenges on micro-, meso-, and macro-levels of culture and structural aspects. Findings further show which specific coping strategies the participants have developed within their socio-cultural context. Some culture-specific aspects are highlighted in the discussion.

Discussion

The study presents ten Generation Y medical doctors' burnout experiences and six of their post- PP2.0 intervention experiences of working in a local hospital that is part of the South Africa's public health care sector. As highlighted in the limitation section, the discussion only presents the views of the participants of the study. In summary, the findings point to a need for ongoing PP2.0 intervention for burnout in the limited sample, and appreciation for the PP2.0 intervention received. This study could open a discussion for a bigger sample and further research into an empirically based PP2.0 intervention for the at-risk population.

The development of burnout is gradual, and it can isolate individuals even if they experience it in a team. However, solidarity is only felt when members of the group realize that they all have similar burnout experiences and weaknesses (Bährer-Kohler, 2013), as the participants of this study experienced during the intervention. Additionally, psychological interventions in the South African context are often stigmatized. It takes courage to admit that there is a problem, to seek help, to do some self-reflection, and to recognize your own vulnerability (Vogel et al., 2006). The Generation Y medical doctors were aware of their difficulties, yet they could not articulate their experience; they did not receive the expected support in their workplace and believed that they were expected to cope, even using maladjusted coping strategies. In the PP2.0 intervention they were able to better understand burnout, identify it in their seniors, and have increased awareness of the impact of burnout. Furthermore, the need to work on their personal beneficial coping strategies and changing internal views of the workplace was encouraged during the PP2.0 intervention.

According to the literature (Cox, 2013), interventions should be customized to the clients' needs, like in the case of the Generation Y medical doctors. During the PP2.0 intervention, active listening and empathy were used as methods and the doctors felt heard and understood. The facilitator emphasized a humanistic paradigm and its qualities, such as unconditional positive regard and reflection of feelings, which promoted a sense of being heard (Rogers, 1959). The working hypothesis developed in this study, based on the intervention experience is *A customized intervention for burnout among Generation Y medical doctors where they feel heard, understood, have shared experiences, and understand their own experiences will promote intrinsic growth.*

For the Generation Y medical practitioners, opening up in group PP2.0 interventions needs trustful relationships initiated by the facilitator, prioritizing the needs of the clients. Their needs such as a comfortable group size, one-on-one discussions, and rapport with the facilitator, were met. According to the feedback from the participants, certain lessons, benefits and skills were gained from the PP2.0 intervention, which were according to the clients' needs. The clients' openness led to the overall learning of skills and an appreciation of the benefits of PP2.0 interventions. Being heard and understood in a PP2.0 intervention environment was a catharsis, support and normalization, which, in turn, promoted group cohesion and common hope (Rogers, 1959; Mason, 2002; Finlay, 2008), and contributed to an overall positive experience for the participants.

Overall investment in employees' mental health and burnout prevention will give a return on investment for employers (Maslach et al., 2001; Bauer et al., 2003; Walter et al., 2013; Ruiz, 2019). The experience of the PP2.0 intervention promoted participants' expansion of their coping strategies, reframed challenges and developed positive outlooks. Generally, suggestions for burnout intervention in literature include a need to focus on a combination of self, organizational and situational factors (Felton, 1998). Prevention and intervention strategies were individual, or group-directed, focused on the organization; or a combination of both (Walter et al., 2013). In general, an integrative interdisciplinary approach to burnout was followed that incorporates prevention, medical, psycho-educational and communication promotion in the South African health care context. The intervention is classified as a PP2.0 intervention since it addresses on the one hand the factors of burnout and helps the participants on the other hand to get into a PP space to work constructively and positively with the experiences.

This study focused on individual PP2.0 intervention in a specific small group and did not aim to change the public hospital system. The study rather aimed to empower them to cope with challenging situations. Post the PP2.0 intervention, the participants were still challenged as their workplace was still the same. However, they felt better prepared to cope with the situation. Therefore, the individual focus of the intervention seemed to benefit individual and group-oriented levels. At the same time, the benefits from the PP2.0 intervention for burnout are likely to be short-lived, because they are constantly under pressure. They might experience even more pressure from their life challenges; therefore, ongoing intervention sessions for debriefing in future are essential for them and are highly recommended. However, special enrichment was the time spent with the facilitator who listened to them. The PP2.0 intervention session may only be a starting point, but it initiated a personal awareness and consciousness of how to increase coping skills. It is the first step toward developing long-term coping strategies and empowerment to take decisions.

Conclusion

The PP2.0 intervention benefited the participants: they gained an increased self-knowledge of burnout, insight into their seniors and peers, and coping skills. However, the benefits could be short-lived due to the poor working conditions and the individual's burnout experience. The participants are always under pressure and might experience other stressors as they are facing the challenges of life. This could challenge the skills they gained. Therefore, there is a need for continuous PP2.0 intervention sessions and restructuring of parts of the local hospital. The phenomenological and qualitative approach followed during the PP2.0 intervention sessions made the participants feel understood, comfortable and open to the intervention process; thus, leading them to gain from the process. The PP2.0 intervention was non-threatening, informal, allowed for self-reflection and gained from a good match of the facilitator and the client to be successful. The following limitations should be noted for the study. All analyses are interpreted very cautiously, given the underpowered design. Also, the sample size is limited.

Recommendations for future research and practice, the public hospital, and consultants and facilitators

In terms of theoretical contributions, previous studies suggested that burnout should be treated as an organization-wide problem (Panagioti et al., 2016; Lemaire and Wallace, 2017). This is also reflected in the findings and should be investigated in larger samples in the same at-risk population – the Generation Y medical doctors working in the public hospital.

Future studies could also focus on exploring the differences between Generation Y and other generations; and should also include more diverse groups of health professionals who could benefit from PP2.0 interventions, such as nurses. Since this study primarily included black people from various ethnic groups, future studies should include individuals from other South African cultural groups.

On a practical note, future studies should also aim to intervene at all three levels: the individual, the group and the organization. They should specifically take emotional exhaustion and new burnout developments into consideration.

Furthermore, consultants and facilitators need to develop awareness of generation-specific needs and develop PP2.0 interventions and strategies accordingly. The consultants and facilitators should be empathetic; act on the needs of the clients; be approachable and interactive; and strive for internal and external growth.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by University of South Africa and Polokwane Mankweng Hospital Complex, Department of Health Limpopo Province. The research was conducted in an ethical manner bounded by the ethical code of psychology in South Africa (Health Professions Council of South Africa). The patients/participants provided their written informed consent to participate in this study.

Author contributions

RO and C-HM wrote and edited the manuscript. KD conducted the research and wrote the manuscript. All authors contributed to the article and approved the submitted version.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Mental and physical health correlates of the psychological impact of the first wave of COVID-19 among general population of Pakistan

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The primary aim was to assess the role of mental and physical health of COVID-19 and its psychological impact in the general population of Pakistan during the first wave of COVID-19. It was hypothesized that there would be a significant predictive association among socio-demographic variables, psychological impact and mental health status resulting from COVID-19, and poor self-reported physical health would be significantly associated with adverse psychological impact and poor mental health status because of COVID-19. A cross-sectional survey research design was used in which 1,361 respondents were sampled online during lockdown imposed in the country. The Impact of Events Scale-Revised (IES-R) was used to assess the psychological impact of COVID-19, and the Depression Anxiety Stress Scales (DASS-21) was used to assess participants' mental health status. 18% of the respondents reported moderate to severe event-specific distress, 22.6% reported moderate to severely extreme depression, 29% reported moderate to extreme anxiety, and 12.1% reported moderate to extreme stress. Female gender, having graduate-level education, currently studying, and self-reported physical symptoms (persistent fever, chills, headache, cough, breathing difficulty, dizziness, and sore throat) were significantly associated with higher levels of psychological impact exhibited through higher scores on the IES-R and poorer mental health status exhibited through higher scores on the DASS-21 (Depression, Anxiety, and Stress Subscales).

KEYWORDS

mental health, physical health, first wave of COVID-19, stress, anxiety, depression

Introduction

In December 2019, a severe acute respiratory illness, referred to as Corona Virus (COVID-19), originated in Wuhan, Hubei Province, China. Since then, the disease rapidly expanded to almost all countries in the world (Zhou et al., 2020; Zu et al., 2020). Initially, the disease was referred as an epidemic primarily since impact of the disease was initially limited to China, Iran, and a few other countries. On 11th January 2020 China documented its first death from COVID 19. As of 31st March 2020, about 785,000 cases have been reported worldwide, with almost 37,820 deaths (WorldoMeter, 2020). COVID 19 was declared a pandemic by the World Health Organization on 11th March 2020 (Lai et al., 2020). Research has also shown that the initial pace of transmission was initially slow, but in the last 10 days of March 2020, the pace increased to almost 70,000 to 900,00 cases per day (World Health Organization, 2020).

COVID-19 is an infectious disease that has resulted from a new virus. The disease causes a respiratory illness with many symptoms, including cough, flu, persistent fever and, in more severe cases, difficulty in breathing (Rodríguez-Rey et al., 2020b; Russell et al., 2020). Researchers have documented it as an extension of SARs (severe acute respiratory syndrome), due to which it is also referred to as SARS-COV-2 (Peeri et al., 2020). It has been assessed that the virus spread mainly through infected respiratory droplets released from the cough or sneeze of the infected person. Though the virus is not generally airborne, evidence suggests that the infected droplets containing variable amounts of the virus can stay suspended in the air for some time (Rothan and Byrareddy, 2020).

Moreover, people can contract this virus by contacting infected surfaces through touching or other means (Repici et al., 2020). The global population is being told to wash their hands multiple times in a single day because the virus can remain viable on different surfaces for up to 72 h (Meyers et al., 2021). In most cases, the average incubation period of the virus is 5.2 days (Backer et al., 2020). However, there are significant variations that have been reported among individuals, especially in relevance to the onset and severity of symptoms. Moreover, many asymptomatic cases have been reported globally with varying transmission speeds (Mizumoto et al., 2020). The virus has spread rapidly in South Asian countries, including Pakistan.

It was on 26th February 2020 that Pakistan had reported its first two cases of COVID-19. As of 30th March 2020, there are a total of 1,717 confirmed cases of the novel coronavirus in Pakistan (Dawn.com, 2020). Since the emergence of this outbreak, the response efforts of the Pakistani Government have been swift. On 20th March, a partial lockdown was imposed in the Province of Sindh and on 23rd March 2020, in Punjab Province. It was around the same time that other provinces had imposed a lockdown in a bid to contain the spread of COVID-19 (Bol News, 2020). The lockdown, however, was not as swift and massive as seen in Wuhan, China, and other countries. As a result of this lockdown, many stayed at home and continued to isolate themselves socially. There have also been numerous accounts of food and mask shortages. In the healthcare sector, multiple reports have emerged regarding the shortage of protective equipment, medicine, and other forms of protective gear (Raza, 2020).

TABLE 1 Psychological impact scores of participants (*N* = 1361).

Variables	*N*	%
Impact of events		
Minimal impact	960	70.5
Mild impact	167	12.3
Moderate impact	36	2.6
Severe impact	198	14.5
Total	1361	100
Scores (IES-R)		
24 or more	960	70.5
33 or more	223	16.38
37 or more	189	13.88
Depression subscale		
Normal	942	69.2
Mild depression	112	8.2
Moderate depression	170	12.5
Severe depression	64	4.7
Extremely severe	73	5.4
Anxiety subscale		
Normal	882	64.8
Mild anxiety	85	6.2
Moderate anxiety	186	13.7
Severe anxiety	58	4.3
Extremely severe anxiety	150	11
Stress subscale		
Normal	1128	82.9
Mild stress	69	5.1
Moderate stress	67	4.9
Severe stress	58	4.3
Extremely severe stress	39	2.9

TABLE 2 Psychometric properties for Impact of Events Scale-Revised and DASS (Depression, Anxiety, and Stress Subscales) (*N* = 1361).

Variables	*M*	*SD*	Range	Cronbach's α
Impact of events scale-R total score	19.19	16.72	0–88	0.95
DASS total score	11.06	12.99	0–126	0.96
Depression	22.14	4.70	0–42	0.91
Anxiety	3.60	4.37	0–42	0.86
Stress	3.71	4.59	0–42	0.89

M, mean; SD, standard deviation; α, Cronbach's alpha.
Table shows the mean, standard deviation, Cronbach alpha value and response range. It was found that the Cronbach alpha values of the scales and sub-scales were in the good to excellent range (0.86–0.96).

TABLE 3 Regression of associations between demographic variables and scores on Impact of Events Scale-Revised and the DASS-21 Depression, Anxiety and Stress Subscales ($N = 1361$).

		Impact of events			Depression			Anxiety			Stress		
Variables	***n* (%)**	R^2	$^{A}R^2$	**β [95% CI]**	R^2	$^{A}R^2$	**β (95% CI)**	R^2	$^{A}R^2$	**β (95% CI)**	R^2	$^{A}R^2$	**β (95% CI)**
Gender													
Male	456 (33.5)	0.01	0.01	−0.10* [−0.5.65, −1.91]	0.00	0.00	−0.01 [−1.38, 0.68]	0.00	0.00	0.03 [−1.62, 0.45]	0.00	0.00	−0.03 [−1.78, 0.33]
Female	905 (66.5)			Reference			Reference			Reference			Reference
Age (years)													
18–30	1086 (77.9)	0.01	0.01	0.08 [−1.72, 8.92]	0.01	0.00	0.08 [−1.16, 4.69]	0.00	0.00	0.07 [−1.15, 4.43]	0.00	0.00	0.04 [−1.98, 4.02]
31–40	177 (13.0)			0.04 [−3.78, 7.75]			0.06 [−1.33, 5.02]			0.08 [−0.73, 5.32]			0.08 [−0.96, 5.45]
41–50	59 (4.3)			−0.05 [−10.81, 2.65]			−0.05 [−6.32, 1.18]			−0.04 [−5.39, 1,67]			−0.04 [−1.08]
51–60	39 (2.9)			Reference			Reference			Reference			Reference
Marital status													
Single	949 (69.7)			0.18 [−17.08, 3.80]			−0.11 [−7.92, 3.47]			−0.15 [−8.44, 2.47]			−0.17 [−9.48, 2.25]
Married	389 (28.6)	0.00	0.00	0.22 [−18.75, 2.24]	0.00	0.00	−0.16 [−9.21, 2.33]	0.00	0.00	−0.19 [−9.27, 1.70]	0.00	0.00	−0.19 [−10.28, 1.79]
Divorced	13 (1.0)			−0.02 [−17.29, 10.27]			−0.01 [−9.11, 6.04]			−0.02 [−9.46, 4.97]			−0.01 [−8.96, 6.56]
Widowed	10 (0.7)			Reference			Reference			Reference			Reference
Educat-attainment													
Under-matriculation	8 (0.6)			0.07 [2.42, 31.43]			0.08 [1.74, 17.68]			0.10 [3.97, 19.10]			0.08 [2.33, 18.66]
Matriculation	22 (1.6)	0.00	0.00	0.07 [−0.85, 21.52]	0.01	0.00	0.05 [−1.88, 10.40]	0.01	0.01	0.05 [−1.82, 9.84]	0.00	0.00	0.06 [−1.20, 11.39]
Intermediate	87 (6.4)			0.14* [0.75, 19.60]			0.11 [−0.70, 9.65]			0.09 [−1.66, 8.11]			0.11 [−0.96, 9.65]
Graduation	635 (46.7)			0.26* [0.05, 17.74]			0.20 [−1.18, 8.53]			0.10 [−2.76, 6.43]			0.20 [−1.06, 8.89]
Post-graduation	538 (39.5)			0.19 [−2.06, 15.65]			0.12 [−2.55, 7.19]			0.03 [−4.01, 5.22]			0.14 [−2.19, 7.78]
Doctorate	57 (4.2)			0.19 [−2.06, 15.65]			0.05 [−2.98, 7.74]			0.03 [−3.77, 6.39]			0.07 [−2.19, 8.79]
Post-doctorate	14 (1.0)			Reference			Reference			Reference			Reference
Mother's-educational attainment													
Under-matriculation	400 (29.4)			−0.05 [−14.47, 10.56]			−0.15 [−9.97, 3.79]			−0.17 [−9.88, 3.22]			−0.03 [−7.77, 6.31]
Matriculation	297 (21.8)	0.00	−0.00	−0.05 [−14.89, 10.22]	0.00	−0.00	−0.13 [−9.95, 3.85]	0.00	−0.00	−0.14 [−9.53, 3.61]	0.00	−0.00	−0.05 [−8.31, 5.81]
Intermediate	248 (18.2)			−0.01 [−13.40, 11.76]			−0.09 [−9.15, 4.68]			−0.13 [−9.60, 3.58]			−0.01 [−7.40, 6.75]
Graduation	306 (22.5)			−0.02 [− 13.53, 11.57]			−0.13 [−9.95, 3.84]			−0.14 [−9.57, 3.57]			−0.05 [−8.25, 5.86]
Post-graduation	103 (7.6)			−0.01 [−13.69, 11.95]			−0.07 [−9.53, 4.57]			−0.09 [−9.70, 3.73]			0.00 [−6.90. 7.51]
Doctorate	7 (0.5)			Reference			Reference			Reference			Reference

(*Continued*)

TABLE 3 (Continued)

		Impact of events			Depression			Anxiety			Stress		
Variables	***n* (%)**	**R^2**	**$^AR^2$**	**β [95% CI]**	**R^2**	**$^AR^2$**	**β (95% CI)**	**R^2**	**$^AR^2$**	**β (95% CI)**	**R^2**	**$^AR^2$**	**β (95% CI)**
Father's educational attainment													
Under matriculation	187 (13.7)			−0.00 [−10.45, 9.86]			0.02 [−4.96, 6.22]			−0.03 [−6.10, 5.54]			−0.03 [−6.06, 4.82]
Matriculation	231 (17.0)	0.00	0.00	−0.04 [−12.11, 8.10]	0.00	0.00	−0.01 [−5.97, 5.14]	0.00	0.00	−0.04 [−6.37, 4.22]	0.00	0.00	−0.09 [−7.96, 3.40]
Intermediate	224 (16.5)			−0.04 [−11.95, 8.27]			−0.03 [−6.33, 4.79]			−0.07 [−7.01, 3.58]			−0.10 [−8.27, 3.10]
Graduation	451 (33.1)			−0.10 [−13.89, 6.11]			−0.07 [−7.04, 3.95]			−0.13 [−7.70, 2.77]			−0.16 [−8.96, 2.27]
Post-graduation	216 (15.9)			−0.03 [−11.90, 8.34]			−0.01 [−6.02, 5.13]			−0.06[−6.73, 3.87]			−0.08 [−7.77, 3.61]
Doctorate	41 (3.0)			−0.06 [−17.36, 4.87]			−0.03 [−8.10, 4.13]			−0.05 [−8.54, 3.11]			−0.08 [−10.69, 1.81]
Post-doctorate	11 (0.8)			Reference			Reference			Reference			Reference
Profession													
Student	624 (45.8)	0.00	0.00	−0.01 [−3.30, 2.39]	0.00	0.00	−0.04 [−2.38, 0.74]	0.00	0.00	−0.02 [−1.91, 1.05]	0.00	0.00	−10* [−3.58, −0.38]
Working	569 (41.8)			−0.07 [−5.32, 0.42]			−0.10* [−3.57, −0.41]			−0.10*[−3.37, −0.36]			−0.13* [−4.20, −0.97]
None	168 (12.3)			Reference			Reference			Reference			Reference
Household size													
6 people or more	727 (53.4)			0.23 [−2.42, 18.47]			0.07 [−3.77, 2.51]			0.10 [−4.72, 1.25]			0.02 [−2.53, 3.89]
3 to 5 people	577 (42.4)	0.00	0.00	0.23 [−2.45, 18.38]	0.00	0.00	0.08 [−7.32, 4.19]			0.16 [−8.41, 2.53]			0.06 [−4.72, 7.06]
2 people	47 (3.5)			0.07 [−2.06, 9.33]			0.02 [−3.77, 2.51]			0.07 [−4.72, 1.25]			0.02 [−4.10, 7.66]
One person	10 (0.7)			Reference			Reference			Reference			Reference

*$p < 0.05$; CI, Confidence Intervals.

COVID-19 has brought about an intensive level of fear among the Pakistani population. Moreover, keeping in view the rising death toll worldwide and the impact of the lockdown on the population, it is imperative to assess mental health issues in society. Past research evidence has shown that many psychosocial and mental health issues are seen in individuals during outbreaks (Mak et al., 2010). Mental health experts believe that pandemics are not marked for being medical phenomena only; they have a considerable impact on humans and society at various levels, leading to disruptions (Warheit et al., 1996; Su et al., 2007). Research has identified panic, depression, stress, anxiety, and post-traumatic stress disorder resulting from pandemics (Xu et al., 2010; Okusaga et al., 2011). Moreover, sleep disturbances, lower levels of perceived health and other mental disorders (Ng et al., 2006). These mental health issues have been reported extensively in the case of COVID-19 as well (Liu et al., 2020; Qiu et al., 2020).

It was also found that those who were old and more educated were the more susceptible to have been exposed to a positive case of SARs and those concerned about their hygiene were likely to take more effective precautionary measures (Caballero-Anthony, 2005; Yeung and Fung, 2007). Concerning gender differences, Wu et al. (2005) reported that being female, having low financial independence, and old age was associated with a negative psychological impact of SARs and higher scores on depression, stress, and anxiety (Tan and Enderwick, 2006). Bonanno et al. (2008) had also identified that being female gender and old were risk factors toward poor mental health status (Wang et al., 2020).

Rodríguez-Rey et al. (2020a) analyzed the psychological impact and associated factors during the initial wave of the corona virus pandemic in Spain. The analysis of demographic factors including age, gender, education level, marital status, family income and province of residence were analyzed. Results showed that the psychological impact of corona virus pandemic decreased with age. In relevance to gender, females reported higher levels of psychological distress in comparison to males. In relation to education and socioeconomic status (assessment through family income), participants with a Ph.D. degree and those belonging to high and middle socioeconomic statuses showed lower psychological impact than groups with lower levels of educational attainment. Cortés-Álvarez et al. (2020) found that being a female, older age, low socioeconomic status and having lower levels of education was associated with adverse psychological effects (depression, stress, and anxiety). Shevlin et al. (2020) found that individuals with low income or experiencing loss of income, low educational attainment, older age, and living alone reported higher psychological trauma and adverse mental health effects due to the corona virus pandemic. Liu et al. (2020) found being female, having low educational attainment and living alone was associated with higher levels of post-traumatic stress, depression, and insomnia.

Presently, there is limited information available to assess the mental health and psychological impact of COVID-19 on the public in Pakistan. As this pandemic is known for being the first-ever major outbreak in Pakistan, no prior attempts have been made to investigate and assess the mental and physical health correlates of the psychological effects of COVID-19 in the general population in Pakistan. Consequently, there is a high level of uncertainty surrounding this pandemic in the country. Moreover, most of the past research evidence on viral outbreaks has focused on assessing the epidemiology of such diseases, modes of transmission, clinical characteristics and resulting manifestations, rates of transmission, precautionary measures and randomized control trials to determine the efficacy of vaccines.

Purpose and objectives

The present study examined the mental and physical health correlates of the psychological impact of COVID-19 in the general population during the first wave of COVID-19 in Pakistan. Epidemiological data on the psychological impact and mental health status resulting from COVID-19 in the general population is limited, and therefore this warrants the need of conducting a comprehensive analysis. Moreover, how best to respond to challenges during the outbreak is still unknown. Furthermore, the study provides insights into the psychological impact of the outbreak and the need for healthcare professionals to enforce measures focused on providing counseling and therapeutic interventions to promote the well-being and mental health of the communities during such challenging times. Another main aim of the study is to assess the general population's psychiatric morbidity and determine the risk factors associated with COVID-19.

Hypotheses

> (1) There would be a significant predictive association among socio-demographic variables, psychological impact and mental health status resulting from COVID-19.
> (2) Poor self-reported physical health would be significantly associated with adverse psychological impact and poor mental health status because of COVID-19.

The aforementioned relationships were hypothesized to assess the psychological impact of the pandemic and to determine the mental health of the public during the pandemic. It is pertinent to mention that there was an extensive uncertainty due to the magnitude of the pandemic at that time. Based on our understanding of the purpose of the study, most of the research focused on identification of the associations among the physical and psychological characteristics of the public and the potential epidemiology of suspected patients and the healthcare challenges. Furthermore, the researchers were unable to find any research articles or national community based sampling surveys assessing the psychological impact and physical correlates associated with the COVID-19 pandemic in the general population of Pakistan.

Materials and methods

Design

A cross-sectional survey design was used to assess the mental health status and psychological effects of COVID-19 via using an online questionnaire. Participants were recruited using a conveniently approached snowball sampling technique focused on the recruitment of the public living in Pakistan during the pandemic. Given the fact that no financial resources were available to the researchers and due to time sensitivity associated with the corona virus pandemic, we had preferred to use the snow ball sampling approach. It is also critical to note that the sampling strategy was not in accordance with a random selection of the sample. Participants were recruited through a strategy in which university students were first recruited through sharing the survey online. They were then asked to pass on the link to the survey to other participants. The link to the google forms survey questionnaire was shared through WhatsApp. The participants were also encouraged to share the link to the questionnaire via Facebook and Twitter. As the Pakistani Government had imposed a strict lockdown to prevent the spread of the corona virus and as the public was encouraged to minimize all forms of face to face interaction, potential participants had been invited to fill in the questionnaires electronically.

Participants

This strategy allowed for the recruitment of a total of 1,361 participants from all over Pakistan. This sampling strategy and recruitment method were used in the face of a countrywide lockdown and to eliminate the probability of face-to-face interaction. The online survey was first shared with university students and then across a number of professional as well as informal networks of friends and family. All potential participants were encouraged to share the questionnaires with others.

Inclusion criteria

All individuals above the age range of 18 years of age had been encouraged to participate in the study. As the corona virus pandemic had a wide spanning impact on the entire population of the country and due to the imposition of a countrywide lockdown, maximum attempts were made to include a diverse sample.

Exclusion criteria

All participants below the age range of 18 were excluded from the sample. As the data collection was being done online and since children are unable to provide informed consent, it was decided that no participants below the age range of 18 will be included. The responses which were returned by individuals below this age range were deliberately excluded from the study. The researchers had designed the statement of informed consent at the beginning of the survey questionnaire to inform all participants below the age range of 18 not to participate in this research.

Procedure

Potential respondents were asked to fill out the survey electronically. The survey platform used was "Google Forms," widely used for such research endeavors. The researchers had thoroughly assessed the ethical considerations and followed all the protocols. Participants were ensured about their anonymity and confidentiality; purpose of the research was explained to the participants, and they were given rights if they wanted to withdraw at any time of study. Informed consent was sought from all participants through a consent form attached at the start of the questionnaire. Before being administered the questionnaire, their consent was sought by including informed consent at the beginning of the online questionnaire. Expedited ethical approval was sought through discussion among the Senior Faculty Members of the Department of Psychology including Senior Clinical Psychologists, Govt. College University, Lahore, in which no serious ethical risks were identified. Moreover, due to ethical requirements about anonymity and confidentiality, the participants were asked not to report their name and other identifying information. Therefore, there was no issue regarding any breach of their personal information. None of the research participants had raised any concerns about the study and had actively participated in data collection. Data collection for the study took place over 3 days, i.e., from 29th March 2020 to 31st March 2020, following the declaration of WHO in which COVID-19 had been declared a global pandemic. During this time, many potential participants were contacted and as all researchers had engaged in sharing the questionnaire with their contacts, a sufficient sample size was achieved during this time. The researchers had also planned that data collection via the online survey questionnaire will continue until a sufficient sample size will not be achieved. Moreover, the time duration was crucial for data collection in order to ensure novelty of research findings. However, other phases of the research planned continue until the completion of the research.

The sample size was calculated with a 95% confidential interval in accordance with a total of 220,892,430 population for Pakistan as of 2020. A total of 1,361 participants had completed the measures, which amounted to a 3% margin of error (Suresh and Chandrashekara, 2012).

Measures

Previous surveys developed to assess the psychological effects and mental health status of individuals during the SARs outbreak were reviewed for the development of the survey questionnaire for the study (Rubin et al., 2010). The authors had also included questions pertaining to WHO Guidelines surrounding the current COVID-19 outbreak (World Health Organization, 2020). The questionnaire used was standardized and it was also confirmed that checking the alpha reliability used to assess the psychological impact and current mental health status of the participants. The psychological impact of the COVID-19 outbreaks, and current mental health status were assessed using the DASS-21 (Weiss, 2007) and Impact of Events Scale-Revised (Horowitz et al., 1979) both of which are standardized questionnaires. Moreover, the lockdown imposed in Pakistan and the guidelines from the government and healthcare agencies of the country were used to create additional questions related to the outbreak. As a result, a structured questionnaire was developed that covered several areas, including sociodemographic data. Most of the respondents were women (66.5)%, in the age range of 18–30 (77.9%), were single (69.7%), graduate (46.7%), and postgraduates (39.5%), students (45.8%), living with their families (93.8%) and in a household with six or more people (53.4%). 33.5% of the participants were males, a majority of whom were in the age range of 21–30 (75.2%), were single (67.8%), had at least graduate-level education (85.7%), were students (44.7%), and living with family (94%). In relation to the representation proportion of different cities of Pakistan, 45.4% of participants were from Lahore City, 6.8% from Karachi City, 4.2% from Sheikhupura City, 2.9% from Multan City, 2.4% from Gujranwala City, 2.2% from Sargodha and 2.4% from Rawalpindi and other regions. Thus, most of the participants sampled were from Punjab with lower representation from Sindh, Khyber Pakhtunkhwa and Baluchistan provinces. Other data included physical symptoms in the past 7 days (lockdown imposed on 23rd March 2020), diagnostic testing for COVID-19, protective measures, self-quarantine, precautionary measures taken at home and additional information deemed necessary to assess the demographic information surrounding the outbreak. The psychological impact of the COVID-19 outbreak was assessed through the usage of the Impact of Events Scale-Revised, and current mental health status was assessed DASS-21 item questionnaire.

Sociodemographic data were also collected on gender, age, marital status, years of schooling, parental educational attainment, profession, living arrangement, current residential location, testing for COVID-19 and household size. The self-reported physical health status of the participants in the past 7 days was determined through items designed to assess physical symptoms such as persistent fever, chills, headaches, breathing difficulty, dizziness, sore throat, persistent fever, and coughing and breathing difficulty. Knowledge about COVID-19 was assessed through data collection about precautionary measures taken at home, self-quarantine, and other protective measures.

Impact of Events Scale-Revised

Impact of Events Scale-Revised (IES-R) was used to assess the psychological impact of COVID-19. The IES-R is a self-administered questionnaire based on a five-point Likert scale developed by Weiss (2007). It is based on the original version of the Impact of Events Scale developed by Horowitz et al. (1979). It has been well-validated in the Pakistani population to document the psychological effects in earthquake recovery workers, emergency medical service personnel in the aftermath of terrorist suicide bombings and other public health crisis in Pakistan (Ehring et al., 2011; Razik et al., 2013; Kerai et al., 2017). The scale is designed to be used within 1 week of exposure to a public health crisis. The 22-item questionnaire comprises three subscales aimed at assessing mean avoidance, intrusion, and hyper-arousal (Asukai et al., 2002). It is primarily aimed at assessing the symptoms of PTSD and is not used as a diagnostic instrument (Motlagh, 2010). The respondents are required to score items from 0 to 3. The scoring range is from 0 to 88. On this test, the scores that exceed 24 are marked for being meaningful and clinically significant. The total IES-R score is divided into several domains. A score from 0 to 24 is considered normal, 24 to 32 is classified as mild (translates to a mild psychological impact). The score of 33 to 36 translates into a moderate psychological impact, and scores exceeding 37 indicate a severe psychological impact. The score range of 33 to 38 represents the cut-off for receiving a probable diagnosis of PTSD (Creamer et al., 2003). Moreover, the scores of 39 or higher are enough to result in a suppression of the immune system's functioning even after 10 years following an impact event (Kawamura et al., 2001). The total alpha reliability of the scale is from 0.91 to 0.94, which indicates good internal consistency of the instrument.

Depression, Anxiety and Stress Scales

Depression, Anxiety and Stress Scales (DASS-21) by Lovibond and Lovibond (1995) was used to assess participants' mental health status. It is a set of three self-report scales aimed at measuring the varying emotional states of depression, anxiety, and stress. Each of the scales comprises seven items and divided into Subscales containing similar content (Lovibond and Lovibond, 1995). The Depression Subscale is used for assessing dysphoria, self-depreciation, hopelessness, lack of interest/anhedonia and inertia. The Anxiety Subscale measures skeletal muscle effects, level of autonomic arousal, subjective experience of anxious affect and situational anxiety. The Stress

Subscale is used for the measurement of chronic non-specific arousal. It also provides insights about difficulty relaxing, agitation, nervous arousal, impatience, and over-reactivity. Scores on the three subscales are measured through summing scores for the relevant items. DASS-21 has good alpha reliability values of 0.81, 0.89, and 0.78 for its three subscales (Clara et al., 2001; Osman et al., 2012). The instrument has also been found to exhibit commendable psychometric properties (Coker et al., 2018).

Statistical analyses

Descriptive statistics were calculated and assessed keeping in view the sociodemographic characteristics, the nature, and types of physical symptoms along with variables such as contact history, knowledge about COVID-19, precautionary measures, and compliance with additional health guidelines. The percentages of responses had been analyzed in accordance with the total number of participants per response with specific emphasis on assessing the total number of responses given on each question. Furthermore, the scores attained on IES-R and DASS Subscales had been presented through descriptive statistics including the means and standard deviations. Several linear regressions were calculated to analyze the univariate associations and relationships among the sociodemographic variables, different physical symptoms, contact history, knowledge about the virus, compliance with precautionary guidelines and other related measures. The statistical tests used were two tailed in which the significance level was $p < 0.05$ as a standard convention. Statistical analyses were executed through SPSS 21.0.

Results

A total of 1,361 respondents had completed the online questionnaire. The participants who had completed the questionnaire were selected for the study. Overall, 849 respondents had submitted the questionnaire on 29th March 2020, 445 respondents submitted their responses on 30th March, and 61 participants submitted their responses on 31st March 2020.

Sociodemographic data and mental health

The results also showed that being male was significantly associated with lower scores on the Impact of Events Scale-Revised ($\beta = -0.10$, $p < 0.05$) but was not associated with DASS Subscale scores. In relevance to educational attainment, graduate-level education was significantly associated with the highest scores IES-R ($\beta = 0.14$, $p < 0.05$) followed by intermediate education ($\beta = 0.14$, $p < 0.05$). Concerning profession, working status was significantly associated with lower scores on DASS Depression Subscale ($\beta = -0.10$, $p < 0.05$), DASS Anxiety Subscale ($\beta = -0.10$, $p < 0.05$) and DASS Stress Subscale ($\beta = -0.13$, $p < 0.05$). Other socio-demographic variables, including age, marital status, parents' educational attainment and household size, were not significantly associated with scores on the Impact of Events Scale-Revised or the DASS Subscale scores.

Self-reported physical health and adverse mental health indicators

The physical health characteristics of the respondents have been presented in **Table 4**. The results also showed that having a persistent fever (>38°C) was significantly associated with higher scores on the DASS Anxiety Subscale ($\beta = 0.06$, $p < 0.05$), but no significant association was found for scores on the IES-R, the DASS Depression Subscale and the DASS Stress Subscale. The respondents who had chills were associated with higher scores on IES-R ($\beta = 0.11$, $p < 0.05$), DASS Depression Subscale ($\beta = 0.12$, $p < 0.05$), DASS Anxiety Subscale ($\beta = 0.13$, $p < 0.05$) and DASS Stress Subscale ($\beta = 0.13$, $p < 0.05$). Furthermore, having a headache was significantly associated with higher scores on the IES-R ($\beta = 0.14$, $p < 0.05$), the DASS Depression Subscale ($\beta = 0.14$, $p < 0.05$), DASS Anxiety Subscale ($\beta = 0.14$, $p < 0.05$) and DASS Stress Subscale ($\beta = 0.14$, $p < 0.05$). Breathing difficulty was significantly associated with higher scores on the IES-R ($\beta = 0.13$, $p < 0.05$), the DASS Depression Subscale ($\beta = 0.18$, $p < 0.05$), DASS Anxiety Subscale ($\beta = 0.25$, $p < 0.05$) and DASS Stress Subscale ($\beta = 0.19$, $p < 0.05$). Dizziness in respondents was also found to be significantly associated with higher scores on the IES-R ($\beta = 0.22$, $p < 0.05$), the DASS Depression Subscale ($\beta = 0.19$, $p < 0.05$), the DASS Anxiety Subscale ($\beta = 0.23$, $p < 0.05$) and DASS Stress Subscale ($\beta = 0.20$, $p < 0.05$). The symptoms of sore throat were significantly associated with higher scores on the IES-R ($\beta = 0.17$, $p < 0.05$), Depression Subscale ($\beta = 0.16$, $p < 0.05$), Anxiety Subscale ($\beta = 0.20$, $p < 0.05$), and Stress Subscale ($\beta = 0.18$, $p < 0.05$). Having a persistent cough, fever and breathing difficulty was significantly associated with higher scores on the IES-R ($\beta = 0.11$, $p < 0.05$), the DASS Depression Subscale ($\beta = 0.12$, $p < 0.05$), the DASS Anxiety Subscale ($\beta = 0.13$, $p < 0.05$) and Stress Subscale ($\beta = 0.12$, $p < 0.05$).

Predictive association among awareness about COVID-19, psychological impact and mental health status

Table 5 shows the associations between awareness about COVID-19 and scores on the IES-R, DASS Depression, Anxiety

TABLE 4 Regression of associations between self-reported physical health status and scores on Impact of Events Scale-Revised and the DASS-21 Depression, Anxiety and Stress Subscales ($N = 1361$).

		Impact of events			Depression			Anxiety			Stress		
Variables	***n* (%)**	R^2	$^{A}R^2$	**β [95% CI]**	R^2	$^{A}R^2$	**β (95% CI)**	R^2	$^{A}R^2$	**β (95% CI)**	R^2	$^{A}R^2$	**β (95% CI)**
Persistent fever (>38°C for at least 1 day)													
Yes	176 (12.9)	0.00	0.00	0.03 [−0.88, 4.41]	0.00	0.00	0.03 [−0.31, 1.14]	0.00	0.00	0.06* [0.18, 1.56]	0.00	0.00	0.02 [−0.38, 1.10]
No	1185 (87.1)			Reference			Reference			Reference			Reference
Chill													
Yes	156 (11.5)	0.01	0.01	0.11* [3.49, 9.03]	0.01	0.01	0.12* [1.98, 5.03]	0.01	0.01	0.13* [2.36, 5.26]	0.01	0.01	0.13* [2.37, 5.49]
No	1205 (88.5)			Reference			Reference			Reference			Reference
Headache													
Yes	326 (24)	0.02	0.01	0.14* [3.48, 7.60]	0.02	0.02	0.14* [2.01, 4.28]	0.02	0.02	0.14* [1.91, 4.07]	0.02	0.02	0.14* [2.08, 4.40]
No	1035 (76)			Reference			Reference			Reference			Reference
Cough													
Yes	241 (17.7)	0.02	0.02	0.16* [4.77, 9.37]	0.02	0.02	0.15* [2.54, 5.07]	0.02	0.02	0.17* [2.72, 5.12]	0.02	0.02	0.16* [2.70, 5.28]
No	1120 (82.3)			Reference			Reference			Reference			Reference
Breathing difficulty													
Yes	70 (5.1)	0.01	0.01	0.13* [6.40, 14.38]	0.03	0.03	0.18* [5.53, 9.88]	0.06	0.06	0.25* [7.91, 11.99]	0.03	0.03	0.19* [6.02, 10.46]
No	1291 (94.9)			Reference			Reference			Reference			Reference
Dizziness													
Yes	182 (13.4)	0.04	0.04	0.22* [8.37, 13.46]	0.03	0.03	0.19* [3.92, 6.74]	0.05	0.05	0.23* [4.57, 7.23]	0.04	0.04	0.20* [4.19, 7.07]
No	1179 (86.6)			Reference			Reference			Reference			Reference
Sore throat													
Yes	170 (12.5)	0.02	0.02	0.17* [5.93, 11.23]	0.02	0.02	16* [3.14, 6.06]	0.04	0.04	0.20* [4.05, 6.80]	0.03	0.03	0.18* [3.81, 6.78]
No	1191 (87.5)			Reference			Reference			Reference			Reference
Persistent fever, cough and breathing difficulty													
Yes	23 (1.7)	0.01	0.01	0.11* [8.60, 22.30]	0.01	0.01	0.12* [5.30, 12.83]	0.01	0.01	0.13* [5.80, 12.96]	0.01	0.01	0.12* [5.33, 13.03]
No	1338 (98.3)			Reference			Reference			Reference			Reference

*$p < 0.05$; CI, Confidence Intervals.

TABLE 5 Regression of associations between awareness about COVID-19 and scores on the Impact of Events Scale-Revised and the DASS-21 Depression, Anxiety and Stress Subscales ($N = 1361$).

Variables	n (%)	Impact of events			Depression			Anxiety			Stress		
		R^2	$^{A}R^2$	β [95% CI]	R^2	$^{A}R^2$	β (95% CI)	R^2	$^{A}R^2$	β (95% CI)	R^2	$^{A}R^2$	β (95% CI)
COVID 19 testing													
No test taken	1330 (97.7)	0.01	0.01	0.01 [−5.23, 7.42]	0.01	0.01	0.01 [−2.83, 4.13]	0.01	0.01	0.00 [−2.81, 3.82]	0.01	0.01	0.01 [−2.78, 4.43]
Yes, tested positive	04 (0.3)			0.11 [17.23, 52.19]			0.11 [9.14, 28.37]			0.11 [9.18, 27.48]			0.11 [10.06, 29.74]
Yes, tested negative	27 (2.0)			Reference			Reference			Reference			Reference
Enforcement of protective measures													
Yes	1275 (93.7)	0.00	0.00	0.06* [0.58, 7.87]	0.00	0.00	0.00 [−1.87, 2.14]	0.00	0.00	0.00 [−2.45, 1.37]	0.00	0.00	0.00 [−1.85, 2.26]
No	86 (6.9)			Reference			Reference			Reference			Reference
Currently in self-quarantine													
Yes	1082 (79.5)	0.00	0.00	0.08* [1.28, 5.67]	0.00	0.00	0.08* [0.81, 3.23]	0.00	0.00	0.05* [0.08, 2.38]	0.00	0.00	0.04 [−0.20, 2.27]
No	279 (20.5)			Reference			Reference			Reference			Reference

*$p < 0.05$; CI, Confidence Intervals.

and Stress subscales. The responses indicate that 1,330 (97.7%) of the respondents had not been tested for detection of COVID-19, 04 (0.3%) were tested and found positive, and 27 (2.0%) had been tested and were found negative. Among the respondents, 1275 (93.7%) had enforced protective measures at home, and 1,082 (79.5%) were in self-quarantine. Though a significant association was not found for COVID-19 testing (tested positive, tested negative or no test taken), but still it was found that only a small number of individuals had taken the test, i.e., 31 individuals out of 1,361 participants. Enforcement of protective measures at home was significantly associated with higher scores on the IES-R (β = 0.06, $p < 0.05$), but no significant associations were found on the other subscales of DASS. It was also found that being in self-quarantine was significantly associated with higher scores on the IES-R (β = 0.08, $p < 0.05$), the DASS Depression Subscale (β = 0.08, $p < 0.05$) and the DASS Anxiety Subscale (β = 0.05, $p < 0.05$), but with no significant associations for the DASS Stress Subscale.

Self-reported physical health and adverse mental health indicators

Table 6 shows the associations between demographic variables and self-reported physical health status with the IES-R Intrusion, Avoidance, and Hyperarousal Subscales. Results indicated that being male was significantly associated with lower scores on the IES-R Intrusion Subscale (β = −0.11, $p < 0.05$), the IES-R Avoidance Subscale (β = −0.08, $p < 0.05$) and the IES-R Hyperarousal Subscale (β = −0.10, $p < 0.05$). In terms of educational attainment, graduate respondents had the highest scores on the IES-R Intrusion Subscale (β = 0.22, $p < 0.05$) and the IES-R Avoidance Subscales (β = 0.31, $p < 0.05$). At the same time, no significant association was found in terms of the IES-R Hyperarousal Subscale. Enforcement of protective measures at home was significantly associated with higher scores on the IES-R Intrusion Subscale (β = 0.05, $p < 0.05$), the IES-R Avoidance Subscale (β = 0.05, $p < 0.05$) and the IES-R Hyperarousal Subscale (β = 0.06, $p < 0.05$). Results also showed that being currently in self-quarantine was significantly associated with higher scores on the IES-R Intrusion Subscale (β = 0.08, $p < 0.05$), the IES-R Avoidance Subscale (β = 0.08, $p < 0.05$) and the IES-R Hyperarousal Subscale (β = 0.06, $p < 0.05$).

Discussion

The present study aimed to assess the mental and physical health correlates of the psychological impact of COVID-19 on the mental health of the Pakistani population during the first wave. Results showed that participants who reported physical symptoms such as headache, chills, fever, breathing difficulty,

TABLE 6 Regression of associations between demographic variables and Impact of Events Scale-Revised Intrusion, Avoidance and Hyperarousal Subscales (*N* = 1361).

		Intrusion			**Avoidance**			**Hyper—arousal**		
Variables	***n* (%)**	R^2	$^{A}R^2$	**β [95% CI]**	R^2	$^{A}R^2$	**β (95% CI)**	R^2	$^{A}R^2$	**β (95% CI)**
Gender										
Male	456 (33.5)	0.01	0.01	−0.11* [−2.23, −0.79]	0.00	0.00	−0.08* [−1.93, −0.47]	0.01	0.01	−0.10* [−1.60, −0.51]
Female	905 (66.5)			Reference			Reference			Reference
Educat-attainment										
Under-matriculation	8 (0.6)	0.00	0.00	0.07 [0.59, 11.75]	0.00	0.00	0.07 [0.35, 11.61]	0.00	0.00	07 [0.52, 9.00]
Matriculation	22 (1.6)			0.05 [−1.37, 7.23]			0.10 [0.97, 9.65]			0.05 [−1.17, 5.35]
Intermediate	87 (6.4)			0.12* [−0.26, 6.99]			0.17* [0.89, 8.20]			0.11 [−0.48, 5.02]
Graduation	635 (46.7)			0.22* [−0.49, 6.31]			0.31* [0.72, 7.58]			0.18 [−0.75, 4.42]
Post-graduation	538 (39.5)			0.16 [−1.23, 5.53]			0.24 [−0.19, 6.67]			0.14 [−1.16, 4.01]
Doctorate	57 (4.2)			0.10 [−1.28, 7.23]			0.10 [−0.45, 7.11]			0.08 [−0.90, 4.80]
Post-doctorate	14 (1.0)			Reference			Reference			Reference
COVID-19 testing										
No test taken	1330 (97.7)	0.01	0.01	0.01 [−1.93, 2.94]	0.00	0.00	0.01 [−1.83, 3.10]	0.01	0.01	0.00 [−1.90, 1.79]
Yes, test positive	04 (0.3)			0.11 [6.84, 20.28]			0.09 [4.69, 18.29]			0.10 [4.55, 14.76]
Yes, tested negative	27 (2.0)			Reference			Reference			Reference
Enforcement of protective measures										
Yes	1275 (93.7)	0.00	0.00	0.05* [0.10, 2.91]	0.00	0.00	0.05* [0.01, 2.85]	0.00	0.00	0.06* [0.22, 2.35]
No	86 (6.9)			Reference			Reference			Reference
Currently in self-quarantine										
Yes	1082 (79.5)	0.00	0.00	0.08* [0.46, 2.15]	0.00	0.00	0.08* [0.54, 2.24]	0.00	0.00	0.06* [0.13, 1.41]
No	279 (20.5)			Reference			Reference			Reference

**p* < 0.05; CI, Confidence Intervals.

dizziness, sore throat, persistent fever, cough and breathing difficulty showed higher levels of stress, depression and anxiety. The literature documenting the psychological effects of the first wave of the corona virus pandemic has also shown that individuals who experienced physical health symptoms linked with the corona virus reported adverse mental health effects (Cascella et al., 2020).

It was also found that almost one-third of the population surveyed reported an adverse psychological impact assessed through the IES-R. At the same time, one-fourth of the population exhibited a poor mental health status assessed through the DASS-21. The existence of these moderate to severe level psychiatric morbidities warrant the need for immediate psychological interventions. Consequently, this indicates an overall significant psychological impact of COVID-19 on the general population in Pakistan. Based on these findings that the pandemic has led to numerous psychological repercussions in the country. These findings are consistent with studies that have identified a wide range of psychological costs directly associated with similar outbreaks. Xiang et al. (2020) reported that COVID-19 has parallels with the 2003 SARs outbreak during which many of those infected had reported extreme stress, depression, anxiety, a sense of isolation, fear, and stigma. Wu et al. (2005) had reported adverse psychological effects of SARs, a disease like COVID-19. It was found that depression, stress, and anxiety were commonly reported outcomes in the population. Other research evidence has also documented psychiatric morbidities in the population during and after outbreaks (Su et al., 2007; Lau et al., 2008; Mak et al., 2009).

The present study's findings have identified that most of the females reported a moderate to severe psychological impact of the pandemic. Specifically, being female was likely to be associated with higher scores on the IES-R Subscales, including Intrusion, Avoidance and Hyperarousal. These findings also show that females are more likely to experience memories of the event, COVID-19. Moreover, they are likely to engage in attempts to avoid reminders of the event. They are also more likely to show a heightened sense of uncontrolled alertness whenever they would be reminded about the event. It also shows that being male might be a protective factor to an adverse psychological impact and poor mental health status.

This finding is consistent with the research showing that females are more likely to respond adversely and report a higher prevalence of psychological problems during outbreaks and other natural disasters (Warheit et al., 1996; Mak et al., 2010; Ehring et al., 2011; Warsini et al., 2014). The literature has also shown that females are at a higher risk and show higher global prevalence rates of depression compared to their male counterparts (Karger, 2014; Albert, 2015). Due to this natural pattern of being more susceptible to depression, the present study results warrant immediate psychological support interventions for females.

The socio-demographic data also indicates that being a graduate (having 16 years of education) was also significantly associated with an adverse psychological impact and poor mental health status exhibited through higher scores on depression, stress, and anxiety. One possible explanation might be that the educated participants have more awareness about the devastating physical effects of the disease and the speed of transmission, due to which the higher scores were observed. Moreover, a higher level of social media exposure and more extensive information and awareness about COVID-19 might be responsible for the adverse psychological impact and poor mental health status. Cheng et al. (2005) that higher education is associated with avoidance symptoms and distress. Bauldry (2015) had studied the protective effect of education on mental health. The findings showed much variation to whether higher educational attainment protects against adverse psychological effects. However, most research evidence does suggest that individuals who have higher educational attainment have better mental health status and less prone to an adverse psychological impact of major life events (Hall et al., 2008; Mak et al., 2010).

Another important socio-demographic correlation identified was working status. The results show that individuals who were working exhibited lower scores on depression, stress, anxiety, and an overall lower psychological impact of COVID-19 than those who were currently studying or neither working and nor studying. This might point toward the economic side of COVID-19, with individuals who are working and consequently having more financial independence being more resilient toward the effects of this outbreak. The relevant literature on this area has also found that working status indicates individuals' economic well-being, which in turn enhances their preparedness and effective psychological responses during outbreaks (Cranford, 2020). However, evidence suggests that employed individuals report more severe economic and psychological effects during outbreaks, especially when they do not have a stable line of employment (Wen et al., 2005).

The present study also indicated a significant association among self-reported physical health, psychological impact, and current mental health status. It was found that having a persistent fever, chills, headache, cough, breathing difficulty, dizziness, and sore throat was positively associated with an adverse psychological impact of COVID 19 in addition to depression, stress, and anxiety. As individuals with physical symptoms most associated with COVID-19 exhibited higher levels of depression, stress, anxiety, and adverse psychological impact, it is imperative for mental health professionals and governmental authorities to provide immediate supportive interventions. Lack of psychological support and proper guidance about these symptoms and their overall self-reported physical health status can worsen their mental health functioning. In addition, the symptoms and psychological effects might exacerbate due to extensive social media coverage surrounding the possible symptoms of this outbreak. Cranford

(2020) had drawn upon the work from previous outbreaks (Ebola, H1NI) and other forms of collective trauma, such as terrorist attacks where a higher level of media coverage of such events had unintended consequences for those at high risk as well as for those at risk of contracting the disease. Thus, these results suggest that individuals in the general population who have physical symptoms are at a higher risk of experiencing or being diagnosed with psychiatric morbidities in comparison to the rest of the population, a finding that is consistent with the relevant literature (Tan and Cheong, 2003; Hall et al., 2008; Lin et al., 2010).

Consequently, they are more likely to experience a weakened immune system response due to the psychological effects such as fear of being diagnosed with COVID-19 (Reiche et al., 2004; Won and Kim, 2016; Robson et al., 2017). The global wave of fear surrounding this outbreak might also explain the current mental health status of those who reported physical symptoms associated with the pandemic.

It was also found that awareness about this pandemic was significantly associated with adverse psychological effects. Specifically, a significant positive association was reported between enforcement of protective measures at home and reporting higher event-specific distress as measured through IES-R. However, this distress can be explained as an outcome of taking a wide range of precautionary measures to protect themselves and their families from being infected (Park and Park, 2020). Another possible explanation of the psychological impact of COVID-19 on the general population and resulting protective measures taken by them can be their first-time exposure to a global pandemic in the country. Another reason can be a lack of understanding surrounding the efficacy of protective measures that individuals have implemented at their homes.

The present study also highlighted that self-quarantine was also associated with higher scores on depression, stress, anxiety, and event-specific distress. These psychological effects might be due to uncertainty surrounding the overall global health landscape, fear of diagnosis, paranoia surrounding the pandemic that has been socially constructed due to excessive media discourse and coverage, and other existing psychiatric issues in the general population. The literature on this area has highlighted that large scale quarantine measures imposed by governments during outbreaks lead to adverse psychosocial effects on the population (Dong and Bouey, 2020). Ornell et al. (2020) had reported that being in quarantine can lead to varying levels of depression, anxiety, panic attacks and even psychotic episodes and suicide in individuals quarantined because of a positive diagnosis of COVID-19 (Brooks et al., 2020).

The study, however, has some limitations. First, the researchers did not use a random sampling technique and had to resort to snowball sampling due to time constraints. In addition, self-reported psychological impact and mental health status might not offer a clear reflection of the actual diagnosis offered by mental health professionals. The study did not document those participants who had actual contact history with individuals diagnosed with COVID-19. The study could sample a minimal number of participants who were diagnosed with COVID-19. As COVID-19 is a natural disaster and can also be marked for being a complex event with a wide range and multi-level psychosocial outcomes, the ascertainment of a causal relationship cannot be done based on the evidence gathered in the present study. Apart from these limitations, our study provides valuable insights into the mental health status of the general population in Pakistan and its association with self-reported physical health and sociodemographic correlates.

It is critical to note that the COVID-19 pandemic is continuing to spread globally. The present research findings can guide the development of immediate psychological support strategies and interventions aimed at promoting the mental health and well-being of the global population. Moreover, as the pandemic is ongoing, it is imperative to promote the preparedness of healthcare systems around the globe and to enhance the readiness of the governmental authorities and healthcare professionals in Pakistan in case a widespread transmission occurs in the country.

Conclusion

The study showed that a significant amount of the population had a moderate to severe psychological impact during the first wave of the COVID-19 outbreak. It was also found that about one-fourth of the participants moderate to severe levels of depression, stress, and anxiety. Being female, being a graduate and having unstable employment is positively associated with moderate to adverse psychological impact and poor mental health status. Another important finding is that having self-reported physical symptoms (persistent fever, chills, headache, cough, breathing difficulty, and sore throat) were positively associated with higher scores on depression, stress, anxiety, and event-specific distress. The adverse psychological effects of being in self-quarantine were also documented in the study. We conclude with the recommendations for researchers, governmental entities, and public health professionals to provide immediate psychological support interventions to the general population, especially those reporting physical symptoms. As COVID-19 is the most significant public health crisis in Pakistan's history and most possibly the globe, the government and healthcare professionals should focus on receiving and providing strategic and effective communications focused on promoting the populations' physical and mental health functioning. It is also recommended that psychotherapies tailored specifically to treat psychological issues associated with COVID-19 need to be developed to promote individuals' mental health status. It needs to be understood that COVID-19 is a multi-level and complex natural disaster and event presenting one of the greatest global health crises in the modern world's history. This calls for the need for a global effort and research-based psychosocial and physiological health interventions to combat this pandemic. Also, when the COVID-19 pandemic is brought under control, psychological support mechanism and efforts will need to be focused on combating a probable mental health crisis that can be expected to emerge soon after the pandemic.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by the Institutional Bioethics Committee of the Government College University, Lahore. The patients/participants provided their written informed consent to participate in this study.

Author contributions

SK collected all the data and worked out the statistical data, while CL and SH are in the role of supervisory assistance. RI proofread and suggested revisions. MF guided in the analysis and results and discussion. FA suggested revisions from a technical point of view and provided the references. All authors contributed to the article and approved the submitted version.

Conflict of interest

Publisher's note

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Fear, depression, and well-being during COVID-19 in German and South African students: A cross-cultural comparison

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Various studies have shown a decrease in well-being and an increase in mental health problems during the COVID-19 pandemic; however, only a few studies have explored fear, depression, and well-being cross-culturally during this time. Accordingly, we present the results of a cross-cultural study that (1) compares these mental health scores for German and South African students, (2) compares the correlations among them, and (3) identifies COVID-19 fear, well-being, and depression predictors. German and South African societies differ from each other socio-culturally, politically, and economically. Their university systems also differ to a large extent. University students in both countries completed the Fear of COVID-19 Scale, the World Health Organization-Five Well-Being Index (WHO-5), and the Patient Health Questionnaire-9 (PHQ-9). Welch's *t*-test, correlation, and multiple regression analyses were performed. (1) German students were found to have statistically lower levels of COVID-19 fear and depression, but lower levels of general well-being than South African students. (2) In both samples, fear of COVID-19 was negatively correlated with well-being and positively associated with female gender and depression. (3) Additionally, female gender, depression, and lower well-being were identified as predictors of COVID-19 fear in both samples. The findings indicate that the fear of COVID-19 is associated with and varies according to gender, depression, and well-being across cultures, and that the difference in the intensity of fear between German and South African students may be partly explained by cultural and contextual differences. These findings can create a deeper understanding of the pandemic's impact on student communities and may be used by mental health practitioners and researchers to develop and apply culture-specific interventions.

KEYWORDS

COVID-19, fear, well-being, depression, South Africa, Germany, cross-culture

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Introduction

The COVID-19 pandemic has led to new ways of living, working, and studying, in a variety of social distancing and remote workplace scenarios. In a study in China with 746,217 participants, Ma et al. (2020) found indications of pronounced mental health problems in 45% of the respondents. In a North American study with 45,000 student participants, 35% of undergraduate students showed indications for major depression and 39% indicated generalized anxiety disorder (Chirikov et al., 2020).Comparable results were found in an extensive study in Germany (Holm-Hadulla et al., 2021). In light of this, the question concerning the influence of the COVID-19 pandemic on mental health is not only of global interest, but also of global character. Therefore, engaging with it calls for large-scale, global approaches.

Along these lines, we conducted a cross-cultural comparison between Germany and South Africa regarding fear, depression and well-being during the COVID-19 pandemic. Cross-cultural studies are of particular interest for understanding the changes in mental health during the COVID-19 pandemic. In a cross-cultural study between North America and Europe, increases in "anxiety, depression, headache and parafunctional oral behaviors" (Wieckiewicz et al., 2021, p. 1) were observed. In a comparison between the Middle East (Israel), Europe (Poland) and North America (Canada), Polish participants exhibited the greatest fear of infection, while Canadian participants worried more about their finances and relationships, as well as their physical and mental health, while Israeli participants were the least worried, generally speaking (Emodi-Perlman et al., 2021). A comparison between several Latin American and Caribbean Countries found an association between self-perceived level of concern regarding COVID-19 and gender, body-mass index and acquaintance with someone, who was infected with COVID-19 (Flores-Quispe et al., 2022). Despite their importance, cross-cultural studies are still rather rare. Therefore, they ought to be complemented by considering studies conducted within different cultural contexts: In Bangladesh, 28.5% of college and university students exhibited stress in general, 69.3% experienced event-specific stress, 33.3% suffered from anxiety and 46.9% were depressed during COVID-19 restrictions (Khan et al., 2020). Furthermore, fear of infection as well as socioeconomical and physical hardship were found to be positively associated with stress, anxiety, depression, and post-traumatic symptoms. In Spain, COVID-19 fear has shown to be associated with gender and anxiety in college student (Muyor-Rodríguez et al., 2021). A study conducted with college students from the Philippines found an association between information seeking behavior (particularly *via* Facebook), the local presence of COVID-19 cases and high levels of COVID-19 fear (Superio et al., 2021).

Our study contributes a novel perspective, since no investigation into fear, depression and well-being in Germany and South Africa has been advanced yet. However, we are also interested in identifying predictors for COVID-19 fear. A recurring pattern is that women score higher on COVID-19 fear. For instance, women under the age of 28,5, especially if they were single, less educated and lived in Europe, when compared to the USA (Wieckiewicz et al., 2021). In a study in Ecuador, female undergraduate students were the most vulnerable group regarding COVID-19 related fear, anxiety, stress and depression (Rodríguez-Hidalgo et al., 2020): According to Rodríguez-Hidalgo and colleagues' model, COVID-19 fear and stress predict anxiety, which predicts depression. There is also a direct connection between stress and depression, but only a mediated one between COVID-19 fear and depression *via* anxiety (Rodríguez-Hidalgo et al., 2020). COVID-19 fear, however, concerns not just depression, but to other mental health issues as well. For instance, the intensity of COVID-19 fear is positively correlated with the rate of possible obsessive–compulsive disorder (Ji et al., 2020) and continuing use of tabacco or alcohol (Nguyen et al., 2020). Besides gender, socioeconomical and political variables have been used to predict vulnerable groups. Gallup (2020) found that 42% of parents of students in educational contexts are extremely worried about the negative effects of COVID-19 on their children's well-being. A decrease in well-being and an increase in mental health problems were registered in medical and psychotherapeutic practices, counseling centers, and clinics in Germany (Holm-Hadulla et al., 2021). Moreover, increasing global racism (Ku, 2020) and inequality in general (Hess, 2020) are additional sources of stress for many individuals. The incidence of violence at home (Graham-Harrison et al., 2020) along with the experience of negative emotions such as shame (Vanderheiden and Mayer, 2021) have also increased, substantially interfering with individual well-being worldwide (Graves and Karabayeva, 2020). The COVID-19 impact on mental health and well-being has been reported as being substantial in previous studies (Li et al., 2021; Appleby et al., 2022). In a survey of five universities in Vietnam, older age, higher education, male gender, socioeconomical security and health literacy were identified as protective factors against COVID-19 fear (Nguyen et al., 2020).

This study focuses on students in Germany, as a highly industrialized country, and in South Africa as a developing country. The countries differ considerably in terms of their political and educational systems, socio-cultural implications, and economic standards, in addition to having disparate social norms, cultures and standards of living (Francesco and Gold, 2005). According to Hofstede et al. (2010), German culture tends to value adaptation to changing environments while South African cultural preferences are anchored in tradition. Further, optimism and indulgence are important in South African contexts, while pessimism is common in Germany (Hofstede et al., 2010). Various sources point out that culture influences the psychological well-being of individuals during COVID-19 (e.g., Sun et al., 2020; Kotera et al., 2020b, 2021b; Yap et al., 2021). These complex societal and cultural differences can become sources of stress affecting well-being (Rantanen et al., 2008). A study in 51 countries confirmed that the individual's recent experience of well-being during COVID-19 is strongly connected to emotional concepts such as love, calm, determination, and loneliness

(Sun et al., 2020). Central to feeling well during COVID-19 is the experience of control, connection, and calmness across cultures (Sun et al., 2020).

The German university students' context

The German university context has become increasingly multicultural during the past decades owing to immigration. Recent research has shown that in German students, the level of self-efficacy is relatively high in comparison to students who immigrated to Germany. German university students' worldviews are associated with conservative and traditional views (Barz and Lieberwein, 2018) and a relatively high individuality index for German students without immigrant background in their family (Minkov et al., 2017). For German students, family, the educational system and peers are extremely important in terms of their own achievement and academic self-efficacy (Schunk and Meence, 2006). Verbal and emotional support also play a major role in helping students to advance in their studies (Schunk and Mullen, 2012). Furthermore, the peer group and peer support play a significant role in helping students to function within the educational system and in their personality and identity development.

Cyrulnik (2020) points out that in Germany, the practice of quarantine has evoked strong psychological negative consequences, even more in individuals with a history of early life stress. Further, it was reported on the WHO-5 that after one and a half years of rigid social restrictions and lockdowns, 72% of students in Germany believed their well-being had been seriously impaired (Holm-Hadulla et al., 2021). This corresponds to the finding that 75.8% of the students at a German university (the majority of German universities are governmental), showed indications of at least one syndrome diagnosis according to the PHQ-9. A study by Voltmer et al. (2021) found that between 2019 and 2020 there were only moderate consequences for mental health and well-being in the total German student group. Another study, however, already reported substantial experience with mental health problems at a German university in 2017 and 2018 (Koschig et al., 2021). Werner et al. (2021) observed a small increase in depression scales in German students during COVID-19 and no significant anxiety changes between 2019 and 2020. Karing (2021) researched depression, anxiety and stress in German students and found that 35.9% of the students showed a moderate to severe level of depression, 27.7% reported moderate to severe symptoms of anxiety, and 25.1% perceived high stress. Being female and older were risk factors for increasing mental health issues (Karing, 2021).

Fear associated with COVID-19 has been identified as a key construct in the poor mental health of German students amid the pandemic. German students were fearful of infection and stigma affecting their future and exacerbating their poor mental health (Herchenröder et al., 2020; Pauli et al., 2020). Spatafora et al. (2022) emphasize that fear of COVID-19 in German university students needs to be considered seriously as it can have a significant impact on their well-being.

In comparison with previous German studies, it is obvious that mental health issues increased massively during the pandemic. A study by Holm-Hadulla et al. (2009) showed that 20–25% of university students suffer from severe mental symptoms. Comparable results were shown in studies of Berger et al. (2015) and Kress et al. (2015).

The South African university students' context

The South African higher educational context is characterized by extreme social inequalities, slow transformation processes and ongoing racism (Adonis and Silinda, 2021). Since the end of apartheid in 1994, the educational system has been increasingly challenged by a growing diversity and heterogeneity of the student population, new educational system applications, changed institutional ideologies and challenged educators (Meier and Hartell, 2009). A South African value study (Fatoki, 2014) presented findings that achievement, self-direction, benevolence, security, universalism and conformity to a certain degree are important values for South African students.

Recent studies highlight the impact of the blurred boundaries between digital and physical worlds caused by remote working, technologization, digitalization, rapid changes, and stress-related problems. These situations involve insecure future perspectives, inadequate working conditions, and poor treatment in organizations which creates increased fear and stress, especially for employees in rapidly changing workplaces (Mayer and Oosthuizen, 2021a). The stress levels in South Africa are generally high and often lead to ill health in the population (van der Colff et al., 2009; De Beer et al., 2016; Mayer and Oosthuizen, 2021b). In addition to major stress experienced by staff in the educational sector (Jacobs and de Wet, 2015; Vos and Kirstens, 2015), university students suffer from severe depressive and anxiety disorders in comparison to the general South African population (Herman et al., 2009). In particular, students from low-income families struggle in their studies, experiencing high levels of stress (Letseka and Maile, 2008). The South African Stress and Mental Health survey which took place in 2008 estimated the prevalence of major depressive disorder at 8.9% and that of anxiety-related disorders at 14.6% (Herman et al., 2009).

The South African public's general level of mental health declined during COVID-19 (Hedding et al., 2020; Zacher and Rudolph, 2020). About half of the South African population in a higher economic bracket met the diagnostic threshold of anxiety and depressive disorders: 46% and 47%, respectively, (De Man et al., 2022). One source of their mental distress was fear of getting infected with COVID-19. Another COVID-19 study reported that adults with childhood trauma were twice as likely to experience depression amid the pandemic (Kim et al., 2020). Moreover, 65% of children and young people in South Africa are reported to have experienced mental health issues (UNICEF, 2021). For young people in particular, the uncertain circumstances caused by COVID-19 have denied them hope and dignity, leading to anxiety and fear for the future (Heywood, 2021). Visser and Law-van Wyk (2021) found that students in South African universities reported psychological problems with high levels of anxiety (46%) and depression (35%) in coping with COVID-19, fearing losing control, being isolated and living a life on hold. These mental health difficulties affect their well-being during their studies (Visser and Law-van Wyk, 2021).

Aim of the study

In a globalized world, students' psychological problems and mental disorders afford reliable comparative data as a basis for internationally useful concepts of counseling (Holm-Hadulla et al., 2011; Holm-Hadulla and Koutsoukou-Argyraki, 2015; Koutsoukou-Argyraki et al., 2016). The concepts of fear, depression, and well-being need to be evaluated to provide students with support and increase mental health and well-being during and following the pandemic. Culture- and context-specific behavior can be understood and programmes to increase mental health and well-being can be developed only on the basis of empirical findings. Although previous studies compare Germany and South Africa in occupational populations (Kotera et al., 2021a), student comparisons have not been conducted in depth in the context of fear, depression, and well-being during COVID-19.

This study aimed to understand the fear of COVID-19 and the well-being of students in Germany and South Africa. First, the researchers compared the levels of COVID-19 fear, depression, and well-being between the two student samples (Aim 1). Second, the correlation among these variables between the two were compared (Aim 2). Finally, the researchers identified significant predictors of COVID-19 fear, well-being and depression in each sample (Aim 3).

In the following, fear, depression, and well-being research in the German and the South African student and university context are presented. Then, the research methodology is outlined and findings are presented and afterward discussed.

Materials and methods

This study employed a cross-sectional design (Schmidt and Kohlmann, 2008) recruiting two samples of German students and South African students. The World Health Organization-Five Well-Being Index (WHO-5) and the Patient Health Questionnaire (PHQ-9) were administered to students from Germany and South Africa. Furthermore, students provided narrative reports.

Participants

Notably, the German sample is the same as the one reported by Holm-Hadulla et al. (2021). Using a convenience sampling method, study invitations were sent to all students of Heidelberg University (27,162 students, 54.8% female, 45.2% male) *via* email with a link to participate in the study, which asked students to complete an online survey. The survey was conducted during a period in which the aforementioned social restrictions were in place, being available online from May 26th, 2021 up until June 11th, 2021 *via* the "LimeSurvey" platform. The response rate was 8.8% and, thus, the German sample consisted of 2,398 students (65.8% females [$n = 1{,}578$], 32.5% males [780], and 1.7 unanswered [40]; 27.6% age under 21 [662], 39.2% age 21–23 [941], 16.3% age 24–25 [392], 6.7% age 26–27 [161], and 10.1% age over 27 [242]). From these, 2,395 students (65.8% female [1578], 32.5% male [780], 1.7% [40] unanswered) completed the questionnaire and, consequently, were included in the analysis. South African students were recruited through emails and WhatsApp messages through lectures and professors as well as through the university research office. The South African sample consisted of 229 students (73.4% females [168], 25.3% males [58], and 1.3% unanswered [3]; 43.7% Age 1 [100], 32.8% Age 2 [75], 10.5% Age 3 [24], 4.8% Age 4 [11], and 8.3% Age 5 [19]). The recruitment period was 3 months in duration. Inclusion criteria included: being a student at the university at the time of the study. At least questionnaires of 200 students were required to fulfill the criteria. The sizes of both samples satisfied the required sample size calculated by power analysis (84: two tails, pH1(r) = 0.30, $\alpha = 0.05$, power = 0.80, pH0 = 0; Faul et al., 2009). In the German sample, 66.8% ($n = 1{,}603$) were undergraduate and 33.2% ($n = 795$) were postgraduate students, whereas 90.4% ($n = 207$) of the South African sample were undergraduate and 9.2% ($n = 21$) were postgraduate students. Both samples included more female students than in the general university student population for each country. Normally 49% of students in Germany were female (Statista, 2022), and 56% of South African students were female (Statistics South Africa, 2017).

Instruments

The original English language scales were used for the South African students, and the German language scales were used for the German students.

Students' fear of COVID-19 was assessed using the Fear of COVID-19 Scale (Ahorsu et al., 2020), comprising seven statements regarding worries and anxiety associated with COVID-19. For example, "It makes me uncomfortable to think about Corona" was responded to on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). The German version of this scale was created in another study. Both scales demonstrated high internal consistency (English $\alpha = 0.82$ [Ahorsu et al., 2020], German $\alpha = 0.93$ [Seitz et al., 2021]).

Depression was measured using the PHQ-9 (Kroenke et al., 2001) and the German version of the PHQ-9 (Reich et al., 2018), consisting of nine items regarding the diagnostic criteria for major depressive disorder. The scale made statements about the state of respondents' mental health during the past 2 weeks, such as "I have little interest or pleasure in doing things" using a four-point Likert scale (0 = Not at all to 3 = Nearly every day). Both scales demonstrated high internal consistency (English $\alpha = 0.86$ [Kroenke et al., 2001], German = 0.79–0.88 [Gräfe et al., 2004]).

The WHO-5 was used to evaluate levels of well-being. This five-item scale appraises students' subjective well-being with statements such as "I have been feeling cheerful and in good spirits" on a six-point Likert scale (0 = At no time to 5 = All of the time). WHO-5 demonstrated high internal consistency (English $\alpha = 0.86$ (Omani-Samani et al., 2019), German $\alpha = 0.88$ [Brähler et al., 2007]).

Ethical considerations

Ethical approval was granted, both by the Ethics Committee of the University Hospital and the Data Protection Officer of Heidelberg University in Heidelberg, Germany, for the German dataset and by the Ethics Committee of the University of Johannesburg in South Africa for the South African data set.

Statistical analysis

First, the data were screened for outliers and distribution. Measurement invariance tests were conducted to ensure that the comparisons could be made. Then, scores for fear of COVID-19, depression and well-being in the two student groups were compared (Aim 1). Because the sample sizes were substantially different and the assumption of homogeneity of variances was violated (Levene's test for equality of variances $p < 0.05$), Welch's t-tests were used. Next, correlation analyses were performed in each sample, to understand similarities and differences in correlations among these variables between the two student groups (Aim 2). Finally, multiple regression analyses were conducted to explore significant predictors for COVID-19 fear, well-being and depression in each sample (Aim 3). IBM SPSS version 27.0 was used to conduct all analyses.

Results

Comparing the levels of fear, depression, and well-being (Aim 1)

A Welch t-test was run to determine if there were differences in fear of COVID-19, depression and well-being between German and South African students (Aim 1; Table 1).

All three variables were significantly different between German and South African students ($p < 0.001$). South African students had a higher level of COVID-19 fear than German students (mean difference 6.46; 95% CI, 5.58–7.35; $t(252.50) = 14.41$; $p < 0.001$). The effect size was $d = 0.43$, indicating a medium effect size (Cohen, 1988).

South African students demonstrated a higher level of well-being than their German counterparts (mean difference 5.57; 95% CI, 1.99–9.15; $t(256.85) = 3.06$ $p = 0.002$). The effect size was $d = 0.13$, indicating a small effect size (Cohen, 1988).

German students showed a lower level of depression than South African students (mean difference 1.76; 95% CI, 0.77 to 2.75; $t(258.80) = 3.49$; $p = 0.002$). The effect size was $d = 0.36$, indicating a small to medium effect size (Cohen, 1988).

Comparing the relationships between fear, depression, and well-being (Aim 2)

Correlation analyses were conducted in each sample (Table 2). Point biserial correlations were used for gender (0 = female, 1 = male) and the level of studies (0 = undergraduate, 1 = postgraduate).

In the German sample, COVID-19 fear was negatively associated with well-being and positively associated with depression and female gender. Age and level of studies were not associated with COVID-19 fear. In the South African sample, COVID-19 fear was negatively associated with well-being and positively associated with depression and female gender. Level of studies and age were not associated with COVID-19 fear.

Predictors of COVID-19 fear (Aim 3)

Multiple regression analyses were conducted to identify significant predictors of COVID-19 fear, well-being and depression. First, gender was entered to statistically adjust for its predictive effects (Table 2). Second, specified predictors of interest were entered accordingly. Adjusted coefficients of determination (Adj. R^2) were reported. Multicollinearity was not a concern (Variance inflation factor < 10).

In both cohorts, female gender and well-being were predictors of COVID-19 fear; however, depression was a predictor among Germans, but not among South Africans. Gender was the strongest predictor of fear of COVID-19 in both cohorts (Table 3).

In both samples, female gender, fear of COVID-19 and depression were predictors of well-being; however, depression was the strongest predictor in both cohorts (Table 4).

Only well-being significantly predicts depression in both cohorts; however, female gender and fear of COVID-19 are predictors of depression among Germans, but among south Africans (Table 5).

TABLE 1 Comparing the levels of the fear of COVID-19, depression and well-being between German and South African students.

	German			South African			*t*-Value	CI 95%	*Cohen's d*
	N	M	SD	N	M	SD			
Fear of COVID-19 [range: 5–35]	2,395	14.50	5.01	228	20.96	6.60	14.41***	5.58–7.35	0.43
Well-being (WHO-5) [range: 0–100]	2,358	37.56	21.27	229	43.13	26.71	3.06**	1.99–9.15	0.13
Depression (PHQ-9) [range: 3–27]	2,139	11.61	6.08	226	13.37	7.33	3.49**	0.77–2.75	0.36

Abbreviations: N, sample size; M, mean; SD, standard deviation; CI, confidence interval.
$**p < 0.01$; $***p < 0.001$.

TABLE 2 Comparing the relationships between the fear of COVID-19, depression and well-being for German and South African students.

		German students					
		Age	Gender [0 = F; 1 = M]	Level of Studies [0 = UG; 1 = PG]	Fear of COVID-19 [range: 5–35]	Well-being (WHO-5) [range: 0–100]	Depression (PHQ-9) [range: 3–27]
South African students	Age	–	0.03	0.85**	0.03	0.04*	−0.05*
	Gender [0 = F; 1 = M]	0.08	–	0.03	−0.25**	0.06**	−0.11**
	Level of Studies [0 = UG; 1 = PG]	0.25**	0.01	–	0.02	0.03	−0.01
	Fear of COVID-19 [range: 5–35]	0.03	−0.23**	0.05	–	−0.20**	0.25**
	Well-being (WHO-5) [range: 0–100]	0.11	0.24**	0.06	−0.25**	–	−0.77**
	Depression (PHQ-9) [range: 3–27]	−0.07	−0.21**	−0.04	0.17*	−0.77**	–

Abbreviations: F, female; M, male; UG, undergraduate; PG, postgraduate. The values below the diagonal report correlations for the South African sample, while those above the diagonal report correlations in German sample.
$*p < 0.05$; $**p < 0.01$.

TABLE 3 Multiple regression predicting the fear of COVID-19 in German and South African students.

	Dependent variable: fear of COVID-19							
	German students				South African students			
	B	SE_B	β	Value of *p*	*B*	SE_B	β	Value of *p*
Step 1								
Gender [0 = F, 1 = M]	−2.41	0.20	−0.24	<0.001	−3.29	0.93	−0.23	0.001
Adjusted R^2	0.06				0.05			
Step 2								
Gender	−2.17	0.21	−0.22	<0.001	−2.55	0.95	−0.18	0.008
Well-being (WHO-5) [range: 0–100]	−0.02	0.01	−0.09	0.005	−0.05	0.03	−0.21	0.037
Depression (PHQ-9) [range: 3–27]	0.13	0.03	0.16	<0.001	−0.02	0.09	−0.02	0.820
Adjusted R^2	0.11				0.08			

Abbreviations: B, unstandardized coefficient; SE, standard error; β, standardized coefficient; F, female; M, male.

Discussion

The present study compared the levels of COVID-19 fear, well-being, and depression in German and South African university students using the Fear of COVID-19 Scale, the WHO-5, and the PHQ-9. The analysis revealed German students had statistically lower levels of COVID-19 fear and of depression and lower levels of general well-being than South African students. In both samples, COVID-19 fear was negatively correlated with well-being and positively associated with female gender and depression. In both samples, female gender, depression and lower well-being were identified as predictors of COVID-19 fear. The findings indicate that the fear of COVID-19 is associated with gender and varies according to depression and well-being across cultures and that the difference in the intensity of fear between German and South African students may be partly explained by cultural and contextual differences. In the following paragraphs, the findings are discussed in the light of the literature review.

> *German students have statistically lower levels of COVID-19 fear and depression, but lower levels of general well-being than South African students.*

The fear levels in the South African sample might be higher than in the German sample because South African students usually have to cope with extremely high stress levels caused by inequality (Hess, 2020), racism (Ku, 2020), economic pressure and poverty (Van Breda, 2018). Further, many of the South African adults and students come from very vulnerable and often poverty-stricken backgrounds (Department of Statistics, 2021), in which mostly female-headed households feel the experience of poverty (Department of Statistics, 2021). Because the first 2 years of the pandemic required the use of new technologies and remote work facilities, it may be assumed that South African students felt fearful, especially during the first year of COVID-19, since they often had to leave campus residences to return to home environments which were ill-equipped to handle the advanced

TABLE 4 Multiple regression predicting well-being in German and South African students.

	Dependent variable: well-being (WHO-5) [range: 0–100]							
	German students				**South African students**			
	B	**SE_B**	**β**	**Value of *p***	***B***	**SE_B**	**β**	**Value of *p***
Step 1								
Gender [0 = F, 1 = M]	−2.87	0.88	−0.07	0.001	14.98	3.74	0.26	<0.001
Adjusted R^2	<0.01				0.06			
Step 2								
Gender	−1.68	0.63	−0.04	0.008	5.69	2.55	0.10	0.027
Fear of COVID-19 [range: 5–35]	−0.18	0.06	−0.04	0.005	−0.37	0.18	−0.09	0.037
Depression (PHQ-9) [range: 3–27]	−2.62	0.05	−0.75	<0.001	−2.60	0.16	−0.72	<0.001
Adjusted R^2	0.57				0.59			

Abbreviations: *B*, unstandardized coefficient; SE, standard error; β, standardized coefficient; F, female; M, male.

TABLE 5 Multiple regression predicting depression in German and South African students.

	Dependent variable: depression (PHQ-9) [range: 3–27]							
	German students				**South African students**			
	B	**SE_B**	**β**	**Value of *p***	***B***	**SE_B**	**β**	**Value of *p***
Step 1								
Gender [0 = F, 1 = M]	−1.38	0.26	−0.11	<0.001	−3.39	1.04	−0.21	0.001
Adjusted R^2	0.01				0.04			
Step 2								
Gender	−0.67	0.18	−0.05	<0.001	−0.11	0.74	−0.01	0.883
Fear of COVID-19 [range: 5–35]	0.09	0.02	−0.07	<0.001	−0.01	0.05	−0.01	0.820
Well-being (WHO-5) [range: 0–100]	−0.21	<0.01	0.74	<0.001	−0.21	0.01	−0.76	<0.001
Adjusted R^2	0.58				0.57			

Abbreviations: *B*, unstandardized coefficient; SE, standard error; β, standardized coefficient; F, female; M, male.

technologies required for remote work (Vanderheiden and Mayer, 2021).

Additionally, it can be assumed that culture and context affects the level of fear experienced by students. German culture values the ability to adapt to changing environments, while South African cultural preferences are often anchored in tradition (Hofstede et al., 2010). It can be assumed that German students may have been able to adapt more easily and less fearfully to the new situation – not only because of their cultural background, but also because their living conditions generally seem to be more stable than the living conditions of South African students (Francesco and Gold, 2005; Snelgar et al., 2017).

Recent research (De Man et al., 2022) has also shown that South Africans are extremely anxious about possibly becoming infected with COVID-19. This fear may be stronger for South African than German students because many South Africans are likely to be aware that the health care systems and their personal and family circumstances might not allow for a successful COVID-19 treatment.

Since 65% of children and young people in South Africa experience mental health issues (UNICEF, 2021), it is unsurprising that the study at hand shows high fear levels and decreased well-being levels in South Africa, as supported by Heywood (2021) findings. The present study also corroborates the findings of Visser and Law-van Wyk (2021), and Makhubela and Mashegoane's (2021) study which shows poor coping skills in students and high mental ill-health scores.

Furthermore, data were collected when excess mortality rates in South Africa reached a peak of over 16,000 per week (Sguazzin, 2022). Although the total number of deaths from COVID-19 has been determined to be approximately 110,000 in February 2022, the unofficial numbers are thought to be much higher (Sguazzin, 2022), with an excess of at least 300,000 COVID-19-related deaths in addition to the official numbers (Cowan, 2022). Official numbers of infection rates in South Africa during the 2 years of COVID-19 were the highest in Gauteng (NICD, 2022), the province in which the participating university is located. Research further shows that the excess mortality rate in South Africa was extreme (160%) in comparison to Western countries such as the UK and the US at around 50% (Heywood, 2021). This was probably based on different factors such as the very low vaccination rates, the overwhelmed health care system, the low rate of access to health care in selected groups of the South African population, and the high incidence of other diseases such as HIV, cardio-diseases, obesity and diabetes (Heywood, 2021; Sguazzin, 2022). In this context, it is not surprising that South African students are more fearful of COVID-19 than German students. Although the official numbers of deaths in Germany are similar to the official South African numbers (in February 2022 about 122,000 deaths in total in Germany), the excess death rate is very low in Germany in comparison to an average of 2000 excess deaths per week in South Africa in 2021.

The very high death rates in South Africa have terrified the population. This is likely to be one important reason why South African levels of fear are higher than German fear levels. Death during COVID-19 has become a very prevalent experience and seems to be much closer to South Africans than to Germans. This is especially the case when considering that the German population is around 83.2 million (DStatis, 2022), while South Africa counts only 60.4 million inhabitants (World Population Review, 2022). The high death rate, especially in the Gauteng province, has most probably caused extreme anxiety, also in students, since death has affected all populations groups and reduced the life expectancy at birth in South Africa in 2021 by 3.1 years for males and 3.8 years for females (Stats SA, 2021).

Further, in South Africa, there is no comparable social security system and hardly any social support within the society. Therefore, during COVID-19, the economic and financial impact during the lockdown periods were devastating for the families (Adebiyi et al., 2021) which might have led to higher levels of fear.

Research has shown that Germans during COVID-19 have placed high levels of trust in the government and federal decisions. This suggests a lower level of fear, because Germans have felt protected through governmental and political decisions (Riedl, 2020). In South Africa, however, the population has demonstrated declining levels of trust in the government during COVID-19. Research shows that South Africans were more likely to trust international organizations and doctors than their own politicians in good governance and decision-making (Wasserman and Madrid-Morales, 2021). This loss of trust in South Africans might also have contributed to higher levels of fear, while German students believed that the German government was effectively managing the disease (Riedl, 2020), and consequently experienced lower levels of anxiety. German students also may have felt more connected through digital devices and remote work, as described in Sun et al. (2020).

It is possible that digital communication might have compensated for the less dense social structure in Germany. In the South African context during COVID-19, many students returned to their family homes (Adebiyi et al., 2021) where they experienced family support and strong family ties and connections. Family units are also normally larger in South African families than in German families: the South African average household size is 3.3 individuals per household (ArcGIS, 2021), while in Germany it is 2.2 individuals per household on average and 38% are single households (Growth from Knowledge (GfK), 2017).

A South African value study by Fatoki (2014) reported that South African students value achievement, self-direction, benevolence, security, universalism, and conformity to a certain degree. These values may have helped South African students to stay focused on achievements and their personal self-direction during COVID-19 – although their learning environments changed and their family homes often did not cater for ideal learning conditions (Adebiyi et al., 2021). Student benevolence shown in supporting others during the times of crisis may have assisted in elevating their well-being. This hypothesis is supported by recent research which has shown that benevolence is negatively related to stress, mental ill-health and emotional exhaustion (Andersson et al., 2021).

Further, from a cultural point of view, South Africans usually demonstrate high levels of optimism, whereas the German population is often pessimistic (Kalberg, 1987). Recent studies show that pessimism has increased, particularly in younger generations in Germany recently (Schultheis, 2018). South Africans who are affected by continuing survival challenges still display high levels of optimism, which might have helped them during COVID-19 to have higher well-being than German students. Also, during COVID-19, South Africans were found to demonstrate more optimism than the global average by 14% (Lindique, 2021). This general optimistic attitude in 18- to 40-year-old South Africans may have kept students from having as low well-being as German students. Furthermore, South African students saw cooperation and knowledge exchange as key to overcoming the global challenges during the pandemic (Lindique, 2021). This solution orientation may have influenced their improved general well-being in comparison to that of German students.

> *In both samples, COVID-19 fear was negatively correlated with well-being and positively associated with female gender and depression.*

Previous studies have pointed out that many individuals who experience high levels of fear are then unable to think healthily and logically and experience a decrease in well-being (Özmen et al., 2021). Therefore, COVID-19 fear might have also been negatively correlated with general well-being, as shown in this study in both samples. The study further supports previous studies which show that COVID-19 has a strong detrimental effect on mental health and well-being (Li et al., 2021; Appleby et al., 2022). This is the case in both the German and the South African samples and seems to be related to a rapid change in lifestyle, restrictions, social distancing, studying remotely, and associated changes as experienced globally during COVID-19 (Gallup, 2021; Tortorella et al., 2021). In addition, the students may have been exposed to high levels of violence at home (Graham-Harrison et al., 2020; McKinsey and Company, 2020). Such experiences could have influenced both samples and caused a decrease in general well-being.

COVID-19 fear was positively associated with female gender. This is not surprising, since research has shown that women, in particular, were hit by the COVID-19 pandemic on a global level in terms of employment losses, financial losses, gender-based violence, increased gender inequality, and vulnerability. "Increased childcare burdens, attitudinal bias, a slower recovery, or reduced public and private spending on services such as education or childcare make women leave the labor market permanently" (McKinsey and Company, 2020). The UN Deputy Executive Director Anita Bhatia (Lim, 2021) has emphasized that much of what women have fought for "could be lost in one year of Covid-19" since women (as nurses and health care workers) are more exposed than men to COVID-19, with a higher impact of disrupted access to health care, increased domestic violence, a strong push of women into poverty and a decreased global GDP which mainly affects women.

> *In both samples, female gender, lower well-being and depression were identified as predictors of COVID-19 fear.*

The findings indicate that fear of COVID-19 is associated with gender, depression and general well-being across cultures. This suggests that women are predictably more fearful of COVID-19 than men, possibly because of their more vulnerable status in both German and South African societies. Furthermore, individuals with depression and a low sense of general well-being are also more vulnerable; their elevated levels of depression and reduced levels of well-being therefore predict COVID-19 fear. German and South African students might not have as many coping resources or support from their cultural groups or societies as men, and are therefore predictably more fearful than men and then anyone with a higher general well-being.

Conclusion and recommendations

This study shows that German and South African students are being affected by fear, depression, and a reduced sense of well-being during COVID-19. However, the study also demonstrates how differences in the students' fear, depression, and well-being are anchored in their different cultural, social, economic, political, and social contexts. In both countries, however, female students and students experiencing depression and a decreased general well-being are more vulnerable to COVID-19 fear.

Based on the findings, it is recommended that future research focuses on measures that could be taken to support students who are dealing with COVID-19 fear, depression, and lowered general well-being levels most effectively and culturally adapted. Accordingly, research could further explore the specific cultural factors and contexts which foster resilience and coping to support students in dealing with the short-term, medium-term and long-term effects of COVID-19.

Finally, on a practical note, counseling and therapy concepts and program can be developed based on these findings which directly address the impact of COVID-19 on students. The universities in Germany and South Africa can use these data to inform academics as well as administrative and support staff about the main psychological and emotional challenges of students during COVID-19. This could lead to the development of strategic professional program and services to support students in overcoming fears and depression and boosting their general sense of well-being. Female and vulnerable students with previously decreased well-being need to be specifically addressed in such program to prevent them from experiencing elevated levels of fear and depression.

Limitations

As in every study, ours comes with certain limitations. First, although Welch's *t*-tests were used to adjust the size difference, more equal samples should be used. Second, because self-report measures were used, response biases may also have been present (Kotera et al., 2020a). Third, as it was a cross-sectional study, causality of these variables was not evaluated.

Furthermore, recruitment was done at one university in each country; therefore, institutional bias may have been present. Especially in light of our convenience sampling method, it is possible that students who were particularly affected by the pandemic-situation responded more frequently to our study. This is in line with our finding that female students are more vulnerable to COVID-19 fear, which can help to explain why our study's sample contained more female than male students. Nonetheless, this is also the case for comparable studies, for instance, from the USA (Chirikov et al., 2020) or China (Ma et al., 2020).

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethical statement

The studies involving human participants were reviewed and approved by Ethics Committee of the Medical Faculty of Heidelberg University. The patients/participants provided their written informed consent to participate in this study. The University of Johannesburg provided ethical consent for the South African study and the South African participants provided written informed consent.

Author contributions

RH-H conceptualized the study and initiated it at the University of Heidelberg in 2021 where the study was pioneered together with SH. RH-H and his team at the University of Heidelberg collected the data set in Germany. C-HM collected the data at the University of Johannesburg. C-HM wrote up the introduction, the theoretical background and the discussion section. YK wrote up the research methodology and findings section and conducted the statistical analysis. RH-H, YK and HW contributed to the introduction and theoretical background. HW and TK contributed to revising the manuscripts. HW oversaw the revision process and substantially revised the introduction. TK substantially revised the methods and results sections. All authors had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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Adjustment in third culture kids: A systematic review of literature

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Third Culture Kids (TCKs) are children of expatriates who live in a culture other than their country of nationality or their parent's country of nationality for a significant part of their childhood. Past research has indicated that adjustment is a key factor in the success of global mobility. However, current research in the area of TCK adjustment is lacking. This systematic review aims to present and summarize all available published scientific data on the adjustment of internationally mobile children and adolescents who relocate with their families. We aim to understand factors related to TCK adjustment, highlight lacking research areas, and define areas of interest for future research. The eligibility criteria for inclusion in the review were: traditional TCKs; aged 7–17 years; measures taken during the relocation; outcome variables of wellbeing, psychological adjustment or social adjustment, or socio-cultural adjustment or adjustment. An initial search across eight databases in December 2021 yielded 9,433 studies, which were included in COVIDENCE and reviewed independently by two researchers at each phase. We finally included 14 studies in this study, 10 of which presented quantitative data. Extracted quantitative and qualitative studies were abstracted, and the main findings are presented using a consistent grid of codes: an initial computerized lexical scan (Leximancer) of all included papers generated a preliminary list of topics and their frequencies. We refined these initial topics using the most prominent theories around the topics of TCK, adjustment, and the extracted theories from selected papers and created a codebook. Then we abstracted the quantitative data from the selected studies and organized the statistically significant findings according to the codes. Lastly, we abstracted and synthesized the findings from qualitative studies. Efforts were made to present the available data within a reading grid, which enhances the understanding of mechanisms specific to the sample population and also makes it apparent where more research is needed. Specifically, findings suggest a need for a more inclusive multi-trajectory adjustment model and a better definition of the ecological sample. The coding system for the extraction and analysis in this systematic review may be a guide for researchers planning future studies on TCK adjustment.

Systematic review registration: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42020151071, identifier: CRD42020151071.

KEYWORDS

TCK, child, adolescent, adjustment, systematic review, factors

Introduction

In 2021, there were an estimated 87 million expatriates worldwide (Finaccord, 2018). As approximately half of all expatriates relocate with a partner or child (Caligiuri and Bonache, 2016), understanding the challenges of global mobility for expatriates and their families is paramount to supporting this population.

Children of expatriates or Third Culture Kids (TCKs) are defined as children "accompanying one's parent(s) into a country that is different from at least one parent's passport country(ies) due to a parent's choice of work or advanced training" (Pollock et al., 2010, p. 44). TCK refers to the fact that these individuals grow up being influenced by three cultures: the heritage culture(s), the host-country culture(s), and the culture of expatriates and other TCKs. Although elements from each culture are assimilated into the TCK's life and identity, these individuals often have a greater sense of belonging with other TCKs and the international community rather than with the host or heritage culture (Pollock et al., 2010). TCKs, such as children of military, foreign service, corporate and missionary families, are distinctly different from other populations such as immigrants, refugees, and international adoptees (Pollock et al., 2010). Although these groups share the common experience of moving internationally, the transient nature of their stay and high-mobility patterns distinguish TCKs from other similar groups.

Extensive literature has highlighted the importance of positive adjustment during global mobility for expatriates and their families (e.g., Shaffer et al., 1999; Andreason, 2008; Takeuchi, 2010; Sterle et al., 2018). Expatriate adjustment is a complex process of change in various domains in response to a new environment and culture (Haslberger et al., 2014). Adjustment has been measured through constructs such as wellbeing, levels of satisfaction with self and the environment, psychological and emotional comfort, and the degree of fit and effectiveness between the person and their environment (Dawis and Lofquist, 1984; Taft, 1988; Black and Stephens, 1989; Haslberger and Brewster, 2009). While past adjustment theories (e.g., Berry, 1990, 1997; Searle and Ward, 1990) set the stage for research and provide a framework for understanding this concept, they do not encapsulate the full complexities of expatriate adjustment. The more recent 3-D Model of Adjustment (Haslberger et al., 2014) offers a more holistic view of adjustment by proposing an interplay between internal and external dimensions, several domains, and time. In the existing literature, expatriate adjustment is often measured in terms of psychological and socio-cultural adjustment. Psychological adjustment can be measured through indicators of wellbeing and mental health, such as internalizing (i.e., depression and anxiety) or externalizing symptoms (behavior problems), stress, and self-esteem (Pollard and Lee, 2003). Socio-cultural adjustment can be competence and mastery of behaviors, emotions and cognitions fitting to the host culture (Haslberger, 2005).

Despite the extensive literature focused on expatriate, spouse, and family adjustment, the study of adjustment in TCKs is still a relatively neglected area. In recent years, comprehensive reviews have been conducted on the concept of family systems in expatriate adjustment, transition programs, and identity development, as well as adult and college student TCK research (Sterle et al., 2018; Miller et al., 2020; Tan et al., 2021). While these are undoubtedly essential data, there still exists a gap in the literature for a review specifically focused on adjustment in TCKs. Additionally, many TCK adjustment studies were conducted through retrospective studies of childhood experiences (e.g., Decuyper et al., 2019) or by respondents other than the TCK themselves (Izumi and Gullón-Rivera, 2018). And although retrospective studies offer valuable insights into TCK adjustment, they also carry threats to internal and external validity (Tofthagen, 2012).

The current paper aims to fill this gap by providing a comprehensive systematic review synthesizing the available empirical evidence on adjustment in TCKs and focuses exclusively on findings during their relocation. To expand on current reviews, external indicators such as family functioning, stress, structure, social support, and demographic and mobility variables (such as age, gender, length and duration of expatriation, number of moves, home country, and host country) which predict adjustment were also included. We aim to understand factors related to TCK adjustment, highlight lacking research areas, and define areas of interest for future research.

Methods

Retrieval procedures

This review aimed to capture all available English-language peer-reviewed journal articles on the adjustment of school-aged TCKs aged 5 to 18 years during their international stay. We included all published articles from the beginning of time until December 2021 across nine electronic databases: APA Psychinfo, PSYNDEXplus Literature, and Audiovisual Media, ERIC, MEDLINE, web of science, Scopus, SocINDEX, and sociological abstracts (Supplementary Datasheet 1).

Inclusion/exclusion criteria

The following eligibility criteria were set according to the PICO guidelines:

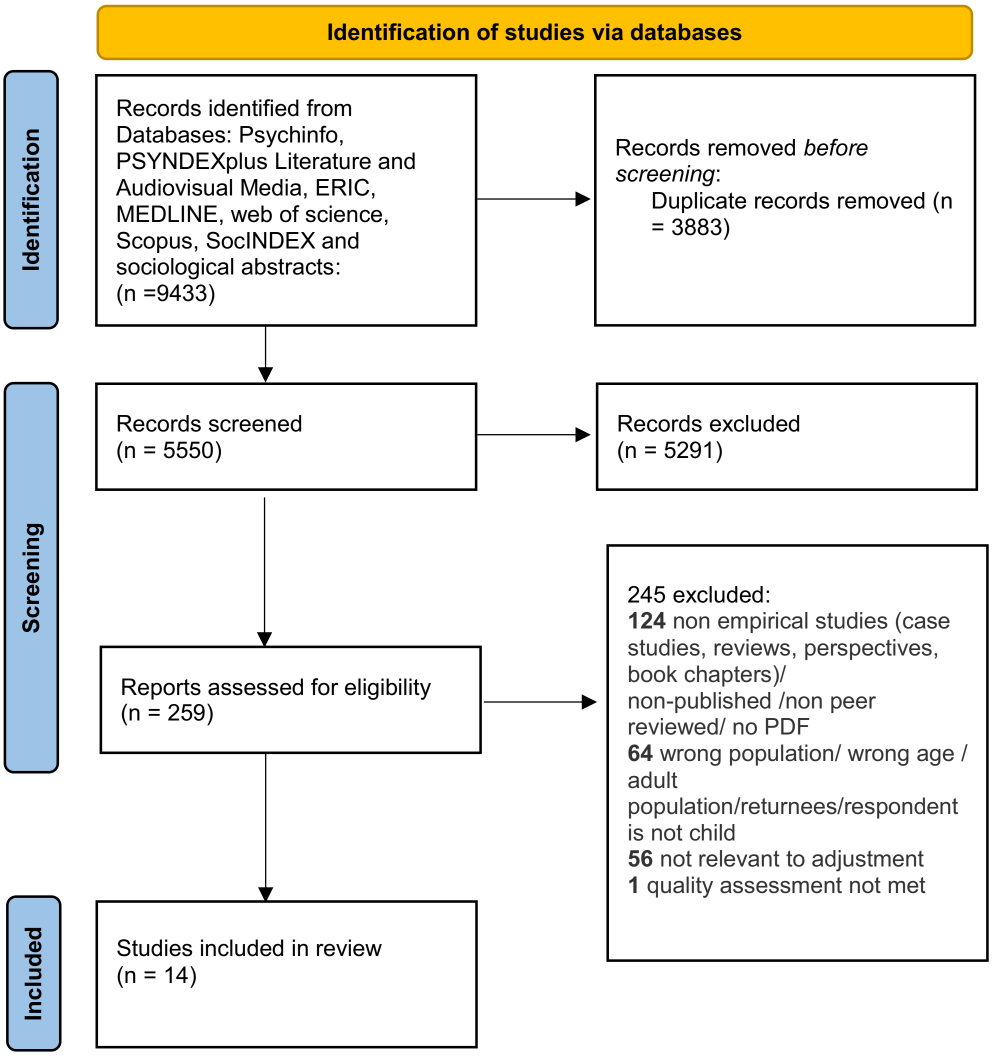

FIGURE 1
PRISMA 2020 flow diagram for new systematic reviews which included searches of databases and registers only. From Page et al. (2021). For more information, visit: http://www.prisma-statement.org/.

- Population: expatriate, third culture, cross-cultural, international, family relocation, sojourner, military, missionary, oil industry, oil patch, diplomat/Age sample: Kid, child, adolescent, youth, teen, family, student.
- Intervention: international relocation, measures are taken during the relocation.
- Comparison: some studies may use comparison groups (non-international/local). Both quantitative and qualitative studies were considered for inclusion.
- Outcome: wellbeing, adjustment, psychological adjustment, social adjustment, or adaptation.

The following conditions were set for inclusion:

- Participants aged between 5 and 17 years,
- Child/adolescent is the respondent,
- Child/adolescent has relocated internationally with their parent(s)/family,
- Measures have been taken during the international relocation,
- Expatriation is linked to parent/caregiver's employment,
- Adjustment is the primary outcome (including behavioral, affective, cognitive, academic, and socio-cultural determinants (Haslberger et al., 2014),
- Peer-reviewed published scientific articles.

We decided to focus on school-aged children as they are likely to interact within host communities, have developed language, friendships, and social references before the international move, and are therefore expected to be more affected by the stress from the relocation than younger children. We excluded late adolescents (19–21 years), tertiary students, and young adults as this population is likely to have moved away from their parents' homes to study and may need to adjust to circumstances other than the international move. We excluded papers that studied other expatriate populations (such as international students at the tertiary level, education migrants, high school exchange students, first and second-generation immigrants and migrants, child and adolescent adoptees, military deployment of a parent without family, and non-international relocation) as these populations have specific characteristics which may not entirely compare with traditional TCKs. Studies, where the respondent was not the child themself (teachers, parents, or retrospective studies from adult TCK) were excluded to limit the methodological biases which result from indirect measures. Other studies were excluded when the condition was not an international relocation (i.e., repatriation and returnees or domestic relocation). We excluded studies focusing on different themes than predictors and adjustment outcomes, such as testing the effect of specific programs. We also excluded non-empirical studies, for example, case reports, gray literature, reviews, unpublished work, theses, and commentaries. Studies were also excluded where the TCK data analysis was not separated from non-TCK groups.

Screening and quality assessment

The online review management and screening tool Covidence was used to screen studies. Covidence is a web-based collaboration software platform that streamlines the production of systematic and other literature reviews (Covidence, 2021). The screening and selection of the papers based on title, abstract, full text, and quality control and extraction phases were conducted independently by 3 study team members (E.J., M.R. and Y.P.O.) and research assistants. For each paper, the quality of studies to extract was established independently by two study team members (E.J. and M.R. or E.J. and Y.P.O.) using Joanna Briggs Institute's critical appraisal tools (Critical-Appraisal-Tools, 2022). The 8-item checklist for analytical cross-sectional studies and the 10-item checklist for qualitative research was used[1]. Due to the small number of eligible studies, inclusion of each paper was based on consensus. Results from the process can be seen in the PRISMA chart presented in Figure 1 (Moher et al., 2009).

Data abstraction and analysis

First, we defined a codebook that could be used to abstract findings in both quantitative and qualitative papers, and a content analysis of both quantitative and qualitative studies was conducted using Leximancer[2] content analysis and concept mapping software. This automated analysis method offers an unbiased and objective data analysis (Smith and Humphreys, 2006; Angus et al., 2013). The software systematically extracts concepts from uploaded full-text studies and assembles the concepts into clusters according to their prominence and connectedness (Supplementary Image 1). Leximancer's yield was refined according to the researcher's knowledge of the selected studies. Next, we compared the clusters with the extracted theoretical references (Table 1) and deducted codes from these two abstractions. Last, the deducted codes were applied to Leximancer's ranked concept list (Table 2), allowing for details to be added to the codebook. This preliminary content analysis offers an overview of the higher-level themes and clusters of concepts explored in the selected research papers. The codebook was used as a grid to organize quantitative and qualitative study findings.

Subsequently, all 14 extracted studies were abstracted in Tables 3, 4 to the recommended strategy described in the Matrix Method (Garrard, 2020). Table 3 presents predictors of adjustment, extracted and organized into three categories using the predefined codes: psychological, academic, socio-cultural, family, and environmental. Then, following the Matrix Method, results from 10 quantitative (including one mixed methods) studies were abstracted to reveal significant findings. Only results reported as significant and with given correlation coefficients and *p*-values from each study were extracted (Table 4). Then, the four qualitative studies (including one mixed methods) were abstracted using a thematic synthesis approach, allowing recurring themes to be abstracted from qualitative data using thematic headings (Thomas and Harden, 2008).

Thematic and conceptual extraction

Theoretical frameworks and references were extracted from the included studies and organized into categories, as shown in Table 1. Concurrently, researchers extracted clusters from the Leximancer content analysis: the concept map (Supplementary Image 1) shows four clusters of themes where family, stress, and coping (labeled "psychological"); school and culture (labeled "'socio-cultural"); and engagement (labeled "environment") stand out. The links within these clusters show the most frequently associated themes, allowing the authors to label each cluster accurately. We used the clusters and extracted theoretical references to deduct the following codes: environmental, family, socio-cultural and psychological. Table 2 shows the ranked concept list from Leximancer, where the above codes have been applied to each concept, allowing researchers to refine the labels. The final codebook is presented below.

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[1] https://jbi.global/critical-appraisal-tools

[2] https://www.leximancer.com

TABLE 1 Theories stated in extracted papers.

Theoretical framework	Study number # (ID)
Third culture:	#1 (Gerner et al., 1992), #2 (Ittel and Sisler, 2012), #5 (Morales, 2017), #7 (Lam and Selmer, 2004),
Useem (2001) and Pollock et al. (2010)	#11 (Langinier and Gaspoz, 2015), #13 (Mclachlan, 2007), #14 (Weeks et al., 2010)
Socio cultural adjustment	#2 (Ittel and Sisler, 2012), #3 (McKeering et al., 2021), #6 (Pittman and Bowen, 1994),
Sociocultural adjustment: Searle and Ward (1990),	#9 (Van Oudenhoven et al., 2007)
Ward and Kennedy (1999)	
Acculturation	#1 (Gerner et al., 1992), #3 (McKeering et al., 2021), #9 (Van Oudenhoven et al., 2007)
Berry (1990), Berry et al. (2006)	
Intercultural sensitivity	#5 (Morales, 2017), #7 (Lam and Selmer, 2004), #8 (Straffon, 2003), #9 (Van Oudenhoven et al., 2007)
Bennett's Developmental Model of	#11 (Langinier and Gaspoz, 2015), #14 (Weeks et al., 2010)
Intercultural Sensitivity (DMIS) (Bennett, 1986, 1993)	
Hofstede (1980, 2003)	
Identity as a sociocultural construct: Hofstede (1980, 2003),	
Valsinier (2007), place identity: Proshansky et al. (1983),	
Twigger-Ross and Uzzell (1996), Kemph (1969)	#6 (Pittman and Bowen, 1994), #11 (Langinier and Gaspoz, 2015), #12 (Lijadi and Van Schalkwyk, 2017)
Family stress and family systems	#9 (Van Oudenhoven et al., 2007), #13 (Mclachlan, 2007)
e.g., the double ABC- X model, Patterson and McCubbin (1987)	
Attachment	#9 (Van Oudenhoven et al., 2007), #14 (Weeks et al., 2010)
Bowlby (1977)	
Wellbeing, stress and coping	#3 (McKeering et al., 2021), #10 (Vercruysse and Chandler, 1992), #12 (Lijadi and Van Schalkwyk, 2017)
Lazarus and Opton (1966), Lazarus and Folkman (1984), Moos (1984)	
Culture shock and learned helplessness	#4 (Miyamoto and Kuhlman, 2001), #13 (Mclachlan, 2007)
Reinicke (1986), Oberg (1960), Toffler (1970)	
Adult TCK models	#14 (Weeks et al., 2010)
Black (1988), Shaffer and Harrison (2001) spouse	
adjustment model	

Predictors:

- Demographic and environmental factors: age, gender, nationality, mobility, and parent work.
- Family factors: family support, family functioning, and parental stress.
- Psychological factors: cognitive, personality, attachment, emotion, behavior, social skills, and identity.
- Socio-cultural factors, friendships, home, and culture, including intercultural sensitivity, acculturation, language, and school.

Outcomes:

- Psychological adjustment includes wellbeing, stress, and coping.
- Socio-cultural adjustment includes culture shock and acculturative stress.
- Third culture identity includes place identity and specific traits.

A thematic synthesis of the qualitative studies was undertaken following three stages (Thomas and Harden, 2008): (1) line-by-line coding of study findings and direct quotations using the predefined codebook, (2) abstracting the themes and findings from the qualitative studies, then (3) grouping coded findings to generate analytical themes across studies. All interviews addressed child and adolescent TCKs; one study included images as an addition to the interviews, and one included parents in separate interviews. Results from family interviews were only considered when it was clear that the child respondent originated a comment or idea.

TABLE 2 Coded Leximancer ranked concept list.

Concept	Count/relevance %	Designated code
Family	434/100	Family
School	420/97	Academic/Sociocultural
Culture	393/91	Sociocultural
Relationship	375/86	Sociocultural
Adjustment	331/76	Adjustment
Intercultural	259/60	Sociocultural
Social	218/50	Sociocultural
Education	200/46	Family/Sociocultural
Parents	158/36	Family/Environment
Home	149/34	Family/Sociocultural
Stress	140/32	Psychological
Development	133/31	Psychological
Coping	132/30	Psychological
Engagement	132/30	Academic/Psychological
Work	131/30	Environment
Emotional	94/22	Psychological
Avoidance	86/20	Psychological
Identity	85/20	Psychological
Attachment	85/20	Psychological
Resilience	81/19	Psychological
Friends	78/18	Psychological/Sociocultural
Host	74/17	Sociocultural
Community	71/16	Sociocultural
Future	51/12	Sociocultural/Psychological

Results

Preliminary analysis of studies

Table 5 presents studies ordered by continents, 5 year-periods, and journal types. The studies are evenly distributed over the past two decades and have been conducted primarily in Asia and Europe, whereas three were conducted across different continents. Studies were published in 13 psychology, development, education, society, intercultural, and human resources journals. Nine studies were quantitative, one used a mixed-methods design, and four were qualitative.

Factors of adjustment in quantitative studies

The 10 extracted quantitative studies' findings were abstracted and presented in Table 4 (Garrard, 2020). Significant results in each study are labeled according to the study number in Table 3 and the predefined codebook. Non-significant and null findings, correlations, and statistical weights can be found in Supplementary Datasheet 2. All 10 studies utilized surveys, out of which three were designed by the researchers (Pittman and Bowen, 1994; Miyamoto and Kuhlman, 2001; Straffon, 2003). One study used a mixed-methods approach. Comparison groups with local (non-international children/adolescents) were used in 4 out of the 10 studies (Gerner et al., 1992; Pittman and Bowen, 1994; Lam and Selmer, 2004; Morales, 2017).

Demographic variables

Ages ranged from 7 to 19 years, and samples included male and female participants of similar proportions. Sample sizes ranged from 39 to 272 in the TCK groups. Two studies found age to influence adjustment: notably, older adolescents were more likely to struggle with adjustment, and older teenagers used a more elaborate (approach vs. avoidance) coping strategy (Vercruysse and Chandler, 1992; McKeering et al., 2021) ($n = 217$). Gender was found to influence adjustment in two studies, with male students being less engaged at school and female TCK using a more elaborate (approach vs. avoidance) coping strategy (Vercruysse and Chandler, 1992; McKeering et al., 2021) ($n = 217$). Length of stay in the current setting positively predicted adjustment outcomes in 2 studies (Straffon, 2003; McKeering et al., 2021) ($n = 692$).

Family variables

The family was investigated in two studies, with TCK reportedly feeling closer to their families and family cohesion positively influencing adjustment (Lam and Selmer, 2004) ($n = 62$), (Van Oudenhoven et al., 2007) ($n = 166$).

Psychological variables

For personality traits, TCK were more open-minded, respectful, and flexible toward other cultures compared to their local counterparts (Gerner et al., 1992) ($n = 147$); (Lam and Selmer, 2004) ($n = 62$). Factors that improve adjustment outcomes are emotional stability (Van Oudenhoven et al., 2007) ($n = 104$) and self-efficacy (Ittel and Sisler, 2012) ($n = 46$). Factors that hinder adjustment outcomes are ambivalent attachment style (Van Oudenhoven et al., 2007) ($n = 104$) and repatriation anxiety (Miyamoto and Kuhlman, 2001) ($n = 240$).

Sociocultural variables

The perceived quality of social relationships with teachers, local friends (Ittel and Sisler, 2012) ($n = 46$), and those left behind (Miyamoto and Kuhlman, 2001) ($n = 240$) predict better adjustment. TCK were more interested in learning languages (Lam and Selmer, 2004) ($n = 62$), traveling (Gerner et al., 1992; Lam and Selmer, 2004) ($n = 334$), seeking a future

TABLE 3 Descriptives and prominent findings in extracted studies.

No.	Study ID	Country in which the study conducted	General theme/ background theory	Study design	Sample description	Age range	Mean age	Predictors (independent variables): factors in adjustment	Data analysis	Outcomes (dependent variables): measures of adjustment	Notes
1	Gerner et al. (1992)	Egypt, Thailand, United States	Acculturation (Berry, 1990). characteristics of IM (internationally mobile) vs. non IM adolescents and characteristics of US IM adolescents vs. non US IM adolescents	Cross sectional quantitative, comparison groups of internationally mobile (IM) adolescents in Egypt and Thailand and non IM adolescents in USA/comparisons in between USA IM's and non USA IM's	Secondary school U.S. Internationally Mobile Adolescents (IM, $n = 489$ of which 125 from USA) international school in Thailand (ISB); and 365 (of which 147 from USA) international school in Egypt (CAC).) vs. U.S. Adolescents in the United States (Non-IM, $n = 222$) The internationally mobile sample: 34% from the United States, 26% from Asian countries, 17 % from European countries, 15 % from Middle Eastern countries, and 8 % from other nations:	Secondary school students	NS	Comparisons in between internationally mobile (IM) samples of Adolescents in international schools in Egypt and Thailand and a non-mobile samples of USA adolescents in a local school in the USA/comparisons in between US IM adolescents and non US IM adolescents in Thailand and Egypt	MANOVA, univariate F tests	The Internationally Mobile or Third-Culture Adolescent Questionnaire: Seven subscales: Family Relationship (10 items), Peer Relationship (8 items), Cultural Acceptance (6 items), Travel Orientation (7 items), Language Acceptance (5 items), Future Orientation (11 Items), and Stereotyping (10 items). + 13 items of biographical data.	
2	Ittel and Sisler (2012)	Germany	Factors of sociocultural adjustment in adolescent TCK	Cross sectional quantitative	Students from international schools in Berlin, Germany. Twenty-four nationalities	12–19 years	NS	Locus of Control Scale for Children (NS-LCOS) Sociocultural	Chi-Squared test	Adaptation Scale (SCAS)	

(Continued)

TABLE 3 (Continued)

No.	Study ID	Country in which the study conducted	General theme/ background theory	Study design	Sample description	Age range	Mean age	Predictors (independent variables): factors in adjustment	Data analysis	Outcomes (dependent variables): measures of adjustment	Notes
				with an average of 2.7 relocations.			Adaptation Scale (SCAS) Parent-Adolescent Communication Scale (PACS) Revised UCLA Loneliness Scale (R-UCLA) Multidimensional Scale of Perceived Social Support (MSPSS)		Socio Adaptation Scale (SCAS)		
3	McKeering et al. (2021)	Singapore	Psychological and socio cultural adjustment Searle and Ward, 1990; Berry, 1997; Ward and Kennedy, 1999; Ward and Rana-Deuba, 1999 and the PERMA framework (Seligman MEP, 2011)	Cross sectional quantitative	Students from years six to eight at an international school in Singapore (K-12) of 24 different nationalities, United Kingdom (40.4%), Australia (18%), China (6.2%), India (5.6%), and America and Japan (3.9% each), with 26 students (14.6%) identifying as having dual nationality.	10–14 years		Age, gender, time in country, time at school, number of moves. adjustment is measured through wellbeing, school engagement and resilience.	Descriptive and Correlational analyses ANOVA	Wellbeing, resilience and school engagement as measures of adjustment: The EPOCH Measure of Adolescent Wellbeing scale: engagement, Perseverance, Optimism, happiness The School Engagement Measure, MacArthur (SEM): behavioral, emotional and cognitive engagement The Brief Resilience Scale (BRS)	

(Continued)

TABLE 3 (Continued)

No.	Study ID	Country in which the study conducted	General theme/ background theory	Study design	Sample description	Age range	Mean age	Predictors (independent variables): factors in adjustment	Data analysis	Outcomes (dependent variables): measures of adjustment	Notes
4	Miyamoto and Kuhlman (2001)	United States	Predictors of culture shock, grades in school and anxiety over returning to Japan	Cross sectional quantitative	240 Japanese students living in the USA, 4th grade through 11th grade (8 different grade levels)	NS	NS	92 item scale self designed by researchers, 19 subscales: students' relationship with American friends, Japanese friends and teachers at both their American school and their Japanese school; students' relationship and communication with their parents; students' English and Japanese language skills; students' parents' English skills; dominant languages used for different activities; and level of culture shock and level of concern over returning to Japan.	Regression analysis	Level of culture shock and grades in American school were abstracted as relevant for analysis.	
5	Morales (2017)	China	Intercultural competence (Hofstede, 1980; Bennett, 1986) cultural patterns	Cross sectional study quantitative	TCK's from 48 different countries, 43 Koreans and 96 non Korean, in American-based, Middle States Accreditation (MSA) accredited school located in China	13–19 years	NS	Gender and nationality (Korean and non-Korean)	Descriptive statistics T-tests	ICSI The Intercultural Sensitivity Inventory (ICSI) (Bhawuk and Brislin, 1992) in English	

(Continued)

TABLE 3 (Continued)

No.	Study ID	Country in which the study conducted	General theme/ background theory	Study design	Sample description	Age range	Mean age	Predictors (independent variables): factors in adjustment	Data analysis	Outcomes (dependent variables): measures of adjustment	Notes
6	Pittman and Bowen (1994)	Multiple	Adolescent adjustment/ personal/ psychological, to the external environment, in relationships with parents	Cross sectional study quantitative	882 out of a larger survey addressing $n = 458$ in USA, $n= 215$ in Germany, $n = 209$ in the Pacific. One thousand one hundred and seventy adolescents from Air Force settlements around the world.	12–18 years	14.7 years	Adjustment factors: external: satisfaction with life in the air force, satisfaction with life in the current base location, whether the air force is a good fit for raising children; adjustment in relationships with parents; mobility factors (recency of relocation), location of move (within USA or overseas), residence (in or off the air base). Stressful situation was measured through "dissatisfaction with the rate of moving, dissatisfaction with treatment by locals, difficulty making new friends and difficulty leaving old friends.	Simultaneous multiple regression analysis/ bivariate correlations	Personal/ psychological adjustment: boredom, loneliness, fear and life satisfaction	Only the significance of relocation overseas vs. within USA was abstracted as separate analysis for international vs. non international relocation was not undertaken

(Continued)

TABLE 3 (Continued)

No.	Study ID	Country in which the study conducted	General theme/ background theory	Study design	Sample description	Age range	Mean age	Predictors (independent variables): factors in adjustment	Data analysis	Outcomes (dependent variables): measures of adjustment	Notes
								Resource factors: family support, friendship support. background factors: father's military rank, sex, race, age and family structure.			
7	Lam and Selmer (2004)	Britain and Hong Kong	Perceptions of "being international" (Useem, 2001)	Cross sectional quantitative	3 samples: British expatriate adolescents living in Hong Kong (BE), local HK adolescents living in HK (LHK) and local British Adolescents living in Britain (BB)	NS	BE 14.11 LHK 17.42 BB 14.66	Perceptions of being international: 32-item instrument designed by Hayden and Thompson (2000). International mobility preferences and consequences: 34-item instrument developed by Gerner et al. (1992).	Descriptive statistics, correlations, MANCOVA, ANCOVA, multiple range tests (*post-hoc* analysis)	Intergroup comparisons	
8	Straffon (2003)	South East Asia	Intercultural sensitivity (Bennett, 1986, 1993; Bhawuk and Brislin, 1992)	Cross sectional mixed methods	336 international school students from 43 different home countries	13–19 years	NS	Time spent in an international school	Descriptive statistics, Pearson correlations (time and developmental stages)	IDI: Intercultural development inventory: 60 item self assessment, sub categories of ethnocentric stages: denial, defense, minimization/ethnorelative stages: Acceptance, adaptation and integration.	

(Continued)

TABLE 3 (Continued)

No.	Study ID	Country in which the study conducted	General theme/ background theory	Study design	Sample description	Age range	Mean age	Predictors (independent variables): factors in adjustment	Data analysis	Outcomes (dependent variables): measures of adjustment	Notes
9	Van Oudenhoven et al., 2007	37 different countries, although the majority resided in the Netherlands (13.5%), Singapore (13.5%), and France (12.5%)	Intercultural adjustment (Searle and Ward, 1990)	Cross sectional quantitative	104 expatriate children from 21 different home countries, living in 37 different countries, since 6 months to 15 years and who had moved countries between one and four times.	8–18years	(Mean/13.2, SD/2.41)	Family Characteristics. The scales for family adaptability, cohesion, and communication drawn from the Family Inventories developed by Olson et al. (1986): Family adaptability, Family cohesion, Family communication/ Expatriate Work Characteristics. Expatriate work satisfaction seven-item scale derived from Ali et al. (2003), Support from the Company before and during the expatriation period derived from Ali et al. (2003)/Personality. The MPQ (van der Zee and van Oudenhoven, 2000) measures	Multiple regression analysis/ hierarchical analysis	Intercultural adjustment: COOP WONCA function cards (Nelson et al., 1990) to measure Psychological adjustment (quality of life) of expatriate children. Sociocultural adjustment, self made 8 item scale derived from Black's (1988) and De Leon and McPartlin (1995) with indicators of adjustment and satisfaction	

(Continued)

TABLE 3 (Continued)

No.	Study ID	Country in which the study conducted	General theme/ background theory	Study design	Sample description	Age range	Mean age	Predictors (independent variables): factors in adjustment	Data analysis	Outcomes (dependent variables): measures of adjustment	Notes
								Cultural Empathy, Open-mindedness, Social Initiative, Emotional Stability, and Flexibility/Attachment Styles. Attachment (Van Oudenhoven and Hofstra) measures Ambivalent, secure and dismissive avoidant attachment styles.			
10	Vercruysse and Chandler (1992)	Belgium	Coping strategies	Cross sectional quantitative	39 US adolescents and their parents living in Belgium since <12 moths and attending various international schools	12–18 years	15.63	Background Information Data Sheet (sex, age, previous history of moves) Children Self-Concept Scale (PHCSCS, Piers and Harris, 1984), parent rated Stress Response Scale (Chandler and Shermis, 1990) measures the impact of stress on behavioral adjustment.	Means and standard deviations, Inferential statistics Ttest Point biserial and Pearson product-moment correlations	Coping responses inventory-Youth form (CRI-Y, Moos, 1990)	

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TABLE 3 (Continued)

No.	Study ID	Country in which the study conducted	General theme/ background theory	Study design	Sample description	Age range	Mean age	Predictors (independent variables): factors in adjustment	Data analysis	Outcomes (dependent variables): measures of adjustment	Notes
11	Langinier and Gaspoz (2015)	Luxembourg	Identity (socio-cultural perspective) (Valsinier, 2007; Bruner, 2015)	Qualitative research	1) 5 teenagers 2) 10 expatriates	16–17	NS	Comprehensive approach: Interviews, informal discussions	A multilevel analysis based on intersectionality shows macro- and meso-level influences on the construction of nomadic identities	The authors differentiate three types of expression of nomadic identities based on distance from a culture, self perception and group identification/ cosmopolitan identity, transnational identity and anchor identity	
12	Lijadi and Van Schalkwyk (2017)	Macau and Hong-Kong	Place identity construction	CLET collage making/ qualitative interview	International school students	7–16 years	NS	CLET	CLET analysis	Themes: 1. Family, family rituals, and familiarity 2. My origin vs. countries where I have lived 3. Wishing for the ideal home 4. Expanding my network 5. Acquisitions and losses 6. Change as the only constant	
13	Mclachlan (2007)	UK	Family transience	Qualitative research	Students of a private international School in southern England and their parents. Forty-five families were involved	3 sub groups: 7–9 years, 10–12,	NS	20–40 min interviews with child participants, separately from their parents	Grounded theory or constant comparative method	Themes: guilty parents and grieving children; strengthening and restructuring;	

(Continued)

TABLE 3 (Continued)

No.	Study ID	Country in which the study conducted	General theme/ background theory	Study design	Sample description	Age range	Mean age	Predictors (independent variables): factors in adjustment	Data analysis	Outcomes (dependent variables): measures of adjustment	Notes
										managing independence and cohesiveness; and parenting IM children	
14	Weeks et al. (2010). The adjustment of expatriate teenagers. *Personnel Review*.	Shanghai China	Teen adjustment (Shaffer and Harrison, 2001) compared to the model of expatriate spouse adjustment	Qualitative research	18 students at a private international school in Shanghai, China. Came to China for parents' employment, 14 out of 18 are from the USA.	14–19 years	NS	In-depth interviews	Coding of answers into 46 codes from 6 conceptual categories:	Themes: Individual factors: open-mindedness, freedom and academic success/Interpersonal relationship factors: friends, family and repatriation training/environmental factors: cultural differences and living all (adjustment)	

TABLE 4 Abstracted findings from quantitative studies.

Category	Sub category	Factors of adjustment	Number of participants involved in finding (total participants in analysis)	Study # (study ID)	Gender	Direction of association: P, positive; N, negative	Orientation of outcome: P psychological adjustment; S, sociocultural adjustment; F, family adjustment, TCK, third culture; A, academic	Meaning of finding
Demographic	Age	Age	178	#3 (McKeering et al., 2021)	MF	P	P	Younger children (10 years) are generally more happy and optimistic than 12–14 year old's (bigger risk for older TCK)/no difference for resilience
		Age	39	#10 (Vercruysse and Chandler, 1992)	MF	P	P	Older teenagers are more likely to use an approach coping strategy
	Gender	Gender	178	#3 (McKeering et al., 2021)	F	P	SC	Risk factor for student engagement: being male/no difference in for resilience or wellbeing
		Gender	39	#10 (Vercruysse and Chandler, 1992)	F	p	P	Females are more likely to use an approach coping strategy
	Nationality	Nationality non-US IM's vs. US IM's	272 (792)	#1 (Gerner et al., 1992)	MF	P	SC	IM adolescents from other countries rated themselves closer to their families, more interested in travel, more accepting of learning languages, and more inclined toward international careers than did US IM adolescents. Reversely, US IM adolescents rated more favorably on the stereotype scale than IM adolescents from other countries
	Mobility	Time at school	178	#3 (McKeering et al., 2021)	MF	p	P	Longer length of stay at school positively impacts wellbeing and resilience
		Time at international school	336	#8 (Straffon, 2003)	MF	P	SC	The longer students spend at an international school, the lower their scores in the denial and defense stages of intercultural sensitivity.

(Continued)

TABLE 4 (Continued)

Category	Sub category	Factors of adjustment	Number of participants involved in finding (total participants in analysis)	Study # (study ID)	Gender	Direction of association: P, positive; N, negative	Orientation of outcome: P psychological adjustment; S, sociocultural adjustment; F, family adjustment, TCK, third culture; A, academic	Meaning of finding
		Time in country	178	#3 (McKeering et al., 2021)	MF	p	P	Recent relocation to a new country affects student's ability to thrive (lower resilience/no effect on wellbeing)
Family factors	Family demographics	Number of younger siblings	240	#4 (Miyamoto and Kuhlman, 2001)	MF	P	SC	Fewer younger siblings is associated with better grades in American school
		Number of older siblings	240	#4 (Miyamoto and Kuhlman, 2001)	MF	p	SC	More older siblings is associated with higher levels of culture shock
	Family functioning	Family orientation	62	#7 (Lam and Selmer, 2004)	MF	p	F	Expatriate adolescents are closer to their family than their local counterparts in Hong Kong and GB
		Family cohesion	104	#9 (Van Oudenhoven et al., 2007)	MF	p	P+SC	Significant raw correlations with sociocultural adjustment and quality of life/family cohesion significantly predicts both quality of life and sociocultural adjustment in expatriate children
Environmental factors	Expatriate work	Expatriate parent work satisfaction	104	#9 (Van Oudenhoven et al., 2007)	MF	P	P + SC	Expatriate work satisfaction significantly predicts both quality of life and sociocultural adjustment in expatriate children
Psychological	Cognitive	Flexibility	62	#7 (Lam and Selmer, 2004)	MF	p	P	Expatriate adolescents are more flexible than their local counterparts in Hong Kong and GB
		Self efficacy	46	#2 (Ittel and Sisler, 2012)	MF	P	SC	TCKs who indicated high levels of general self-efficacy were significantly more likely to report fewer difficulties in socio-cultural adaptation

(Continued)

TABLE 4 (Continued)

Category	Sub category	Factors of adjustment	Number of participants involved in finding (total participants in analysis)	Study # (study ID)	Gender	Direction of association: P, positive; N, negative	Orientation of outcome: P psychological adjustment; S, sociocultural adjustment; F, family adjustment, TCK, third culture; A, academic	Meaning of finding
		Stereotyping	147 (494)	#1 (Gerner et al., 1992)	MF	P	SC	US adolescents in an international school in Egypt were significantly more accepting of other cultures (lower level of stereotypical judgement than their peers living in the US and in the International school in Thailand. This single effect is specific to expatriate adolescents living in Egypt.
	Personality	Open-mindedness toward other cultures	62	#7 (Lam and Selmer, 2004)	MF	p	P	Expatriate adolescents are more open minded toward other cultures than their local counterparts in Hong Kong and GB
	Attachment	Ambivalent attachment style	104	#9 (Van Oudenhoven et al., 2007)	MF	N	P	Ambivalent attachment style significantly hinders both quality of life and sociocultural adjustment in expatriate children/moderation effect ambivalent attachment style interacted significantly with expatriate work satisfaction in its influence on quality of life
	Emotional	Emotional stability	104	#9 (Van Oudenhoven et al., 2007)	MF	P	P + SC	Emotional stability significantly predicts both quality of life and sociocultural adjustment in expatriate children/interaction effect (moderation) with expatriate work, family cohesion and family communication on sociocultural adjustment and quality of life

(Continued)

TABLE 4 (Continued)

Category	Sub category	Factors of adjustment	Number of participants involved in finding (total participants in analysis)	Study # (study ID)	Gender	Direction of association: P, positive; N, negative	Orientation of outcome: P psychological adjustment; S, sociocultural adjustment; F, family adjustment, TCK, third culture; A, academic	Meaning of finding
		Repatriation anxiety (here about returning to japan)	240	#4 (Miyamoto and Kuhlman, 2001)	MF	P	SC	Less anxiety about returning to japan predicts better grades in the American school.
	Social	Respect and tolerance of others	63	#7 (Lam and Selmer, 2004)	MF	p	P + TCK	Expatriate adolescents have more respect and tolerance of others than their local counterparts in Hong Kong and GB
	Identity	Own cultural identity	62	#7 (Lam and Selmer, 2004)	MF	p	TCK	Expatriate adolescents have their own cultural identity which differs significantly from that of their local counterparts in Hong Kong and GB
Sociocultural factors	Relationships	Perceived relationships with teachers (from international location)	240	#4 (Miyamoto and Kuhlman, 2001)	MF	P	SC	Better perceived relationships with American school teachers predicts less culture shock
		Perceived peer relationships	46	#2 (Ittel and Sisler, 2012)	MF	N	SC	This negative relationship speaks for a buffering potential of close friendships on socio cultural adaptation
		Perceived relationship with local friends	240	#4 (Miyamoto and Kuhlman, 2001)	MF	P	SC	Better perceived relationships with American friends predicts less culture shock
		Usage of internet to connect with friends/family from around the world	46	#2 (Ittel and Sisler, 2012)	MF	P	SC	TCKs who frequently utilize the world-wide web and make use of internet communities of other children and adolescents with similar multiple

(Continued)

TABLE 4 (Continued)

Category	Sub category	Factors of adjustment	Number of participants involved in finding (total participants in analysis)	Study # (study ID)	Gender	Direction of association: P, positive; N, negative	Orientation of outcome: P psychological adjustment; S, sociocultural adjustment; F, family adjustment, TCK, third culture; A, academic	Meaning of finding
								migration backgrounds to connect and maintain contacts are less likely to have difficulties in the adaptation process
	Culture	Cultural acceptance	272 (494)	#1 (Gerner et al., 1992)	MF	P	SC + TCK	US adolescents in international schools in Thailand and Egypt are significantly more culturally accepting than their peers living in the US. This effect is due to the International mobility factor rather than location because it affects both internationally mobile groups.
	International mobility	International career preference	62	#7 (Lam and Selmer, 2004)	MF	p	TCK	Expatriate adolescents will prefer an international career above their local counterparts in Hong Kong and GB
		International travel preference	62	#7 (Lam and Selmer, 2004)	MF	p	TCK	Expatriate adolescents will prefer to travel above their local counterparts in Hong Kong and GB
		Travel orientation	272 (494)	#1 (Gerner et al., 1992)	MF	P	TCK	US adolescents in international schools in Thailand and Egypt are significantly more keen on traveling than their peers living in the US. This effect is due to the International mobility factor rather than location because it affects both internationally mobile groups.

(Continued)

TABLE 4 (Continued)

Category	Sub category	Factors of adjustment	Number of participants involved in finding (total participants in analysis)	Study # (study ID)	Gender	Direction of association: P, positive; N, negative	Orientation of outcome: P psychological adjustment; S, sociocultural adjustment; F, family adjustment, TCK, third culture; A, academic	Meaning of finding
		Settling down preference	62	#7 (Lam and Selmer, 2004)	MF	n	TCK	Expatriate adolescents are less keen on settling down in one place than their local counterparts in Hong Kong and GB
		Future orientation (international)	272 (494)	#1 (Gerner et al., 1992)	MF	P	TCK	US adolescents in international schools in Thailand and Egypt are significantly more orientated toward living and working abroad in the future than their peers living in the US. This effect is due to the International mobility factor rather than location because it affects both internationally mobile groups.
	Language	Language proficiency level self reported (English by Japanese students)	240	#4 (Miyamoto and Kuhlman, 2001)	MF	P	SC	Better perceived proficiency in English positively predicts better grades in American school
		Foreign language interest	62	#7 (Lam and Selmer, 2004)	MF	p	SC + TCK	Expatriate adolescents have more interest in learning foreign languages than their local counterparts in Hong Kong and GB
		Level of motivation for maintaining Japanese language skills	240	#4 (Miyamoto and Kuhlman, 2001)	MF	p	SC	Higher levels of motivation for maintaining home language (Japanese) reduces culture shock
		Language acceptance	272 (494)	#1 (Gerner et al., 1992)	MF	P	SC + TCK	US adolescents in international schools in Thailand and Egypt are significantly more interested in other languages than their peers living in the US. This effect is due to the International mobility factor rather than location because it affects both internationally mobile groups.

(Continued)

TABLE 4 (Continued)

Category	Sub category	Factors of adjustment	Number of participants involved in finding (total participants in analysis)	Study # (study ID)	Gender	Direction of association: P, positive; N, negative	Orientation of outcome: P psychological adjustment; S, sociocultural adjustment; F, family adjustment, TCK, third culture; A, academic	Meaning of finding
	Academic factors	Grades in Japanese supplementary school	240	#4 (Miyamoto and Kuhlman, 2001)	MF	P	SC + A	Better grades in Japanese supplementary school significantly predict grades in American school
		Perceived ease of completing homework	240	#4 (Miyamoto and Kuhlman, 2001)	MF	p	SC + A	Better perceived ease with completing homework from school in international location significantly decreases culture shock

abroad (Lam and Selmer, 2004) ($n = 62$) than their local peers. These findings are supported by measuring a distinct cultural identity (Lam and Selmer, 2004) ($n = 62$). Local language proficiency is shown to play a role in enhancing adjustment (Miyamoto and Kuhlman, 2001) ($n = 240$), whereas maintaining interest in "home language" reduces culture shock. TCK were generally more interested in language acquisition than their local counterparts (Gerner et al., 1992) ($n = 272$).

Orientation of outcomes

Psychological adjustment was explored through 12 findings, socio-cultural outcomes were explored through 22 findings, and the third culture was examined in 10 findings. In three cases, the same variable influenced socio-cultural and psychological adjustment. In one case, a psychological adjustment outcome was associated with a third culture trait. Three socio-cultural adjustment outcomes were associated with third culture traits.

Factors of adjustment in qualitative studies

Environmental factors

Context

Stability is an important protective factor to support adjustment when the context changes and can be found in immediate family rituals and maintained connections with extended family and friends (Mclachlan, 2007; Lijadi and Van Schalkwyk, 2017).

Time

Time spent abroad and in contact with diverse communities enhances an ethno-relative worldview and supports better acceptance of other cultures (Straffon, 2003).

Repatriation/high mobility

Fears of repatriation or frequent moves and lack of permanence may increase stress and hinder adjustment (Weeks et al., 2010).

Family factors

Child interviewees report increased family closeness through meetings, discussions, and meals, to supplement the lack of an extended family or other extensions (Mclachlan, 2007). Family closeness is a sensitive topic, bearing possibilities to support each other and the risk of a closeness that might raise tensions and limit autonomy. Being involved in the family's decision to move (communication) generally contributes to the child/teen's agreeableness with the move (Mclachlan, 2007). Family relationships contribute to a sense of safety, providing comfort and continuity (belonging and direction) during the initial adjustment phase and helping to reduce stress from situations when they arise. Family members and the rituals of family life and the objects associated with them provide a sense of continuity, replacing the physical concept of home. Connectedness with extended family and grandparents contributes to a sense of home and stability (Lijadi and Van Schalkwyk, 2017).

Psychological factors

Personality

Child personality is raised as a determining factor, and agreeableness toward the move creates an opportunity to embrace change (Mclachlan, 2007). Open-mindedness is critical for making friends and adopting a worldview, including in international schools where students have diverse cultures and origins (Weeks et al., 2010).

Emotion

Grief from loss and longing can be related to places, memories, objects, perceived changes in family roles and responsibilities, or even a lost psychological state (Lijadi and Van Schalkwyk, 2017).

TCKs describe mixed emotions of excitement, disappointment, and anticipation as they repeatedly adjust to change.

Identity

Adolescence is a susceptible age for a move. Integrating the multiplicity of values of the various systems to which TCKs are exposed, as well as their differences in being multi-lingual, multicultural, and aware of the diversity of the world, creates an extra challenge in the identity formation process (Langinier and Gaspoz, 2015; Lijadi and Van Schalkwyk, 2017). Identification with a particular place, culture, and community call for a specific model to be defined for TCKs, which differs from identity construction and identification in non-TCKs (Langinier and Gaspoz, 2015; Lijadi and Van Schalkwyk, 2017). "TCK identity" becomes an entity within which TCKs are more inclined toward each other. Langinier and Gaspoz (2015) develop the idea of three expressions of identity (cosmopolitan, transnational, and anchor) dependent on identifications to national or international communities and where TCKs experience and social background influence the development of one or the other identity (Langinier and Gaspoz, 2015).

Socio-cultural factors

Friendships

Loss of friends in international settings is a commonly raised issue; TCKs must grieve friends from home and face the departures of friends and teachers in international schools (Weeks et al., 2010; Lijadi and Van Schalkwyk, 2017). TCKs report casual friendships rather than close ones, which could be their way of dealing with repeated loss or a bias in

TABLE 5 Study characteristics.

Studies per continents

	Europe	US	Asia	Cross-continent
				#1: US/Asia/Africa #6: Europe/US/Pacific #7: Europe/Asia
Study # (ID)	#2 (Ittel and Sisler, 2012), #9 (Van Oudenhoven et al., 2007), #10 (Vercruysse and Chandler, 1992), #11 (Langinier and Gaspoz, 2015), #13 (Mclachlan, 2007)	#4 (Miyamoto and Kuhlman, 2001)	#3 (McKeering et al., 2021), #5 (Morales, 2017), #8 (Straffon, 2003), #14 (Weeks et al., 2010), #12 (Lijadi and Van Schalkwyk, 2017)	#1 (Gerner et al., 1992), #6 (Pittman and Bowen, 1994), #7 (Lam and Selmer, 2004)
n	5	1	5	3
%	36%	7%	36%	21%

Studies per 5 y-periods since 1992

Year	1992–1997	1998–2003	2004–2009	2010–2015	2016–2021
Study number	#1 (Gerner et al., 1992), #6 (Pittman and Bowen, 1994), #10 (Vercruysse and Chandler, 1992)	#4 (Miyamoto and Kuhlman, 2001), #8 (Straffon, 2003)	#7 (Lam and Selmer, 2004), #9 (Van Oudenhoven et al., 2007), #13 (Mclachlan, 2007)	#2 (Ittel and Sisler, 2012), #11 (Langinier and Gaspoz, 2015), #14 (Weeks et al., 2010)	#3 (McKeering et al., 2021), #5 (Morales, 2017), #12 (Lijadi and Van Schalkwyk, 2017)
n	3	2	3	3	3
%	21.43%	14.28%	21.43%	21.43%	21.43%

Journals

Psychology		Development			Education			Intercultural		Human resources		
Journal of School Psychology	Anxiety, Stress, & Coping	Journal of Childhood and Adolescence Research	Journal of Adolescence	Youth & Society	Journal of Research in International Education	Journal of International Education Research	Geoforum	International journal of intercultural relations	International Journal of Intercultural Relations	Equality, Diversity and Inclusion: An International Journal	Career Development International	Personnel Review
#1 (Gerner et al., 1992)	#9 (Van Oudenhoven et al., 2007)	#2 (Ittel and Sisler, 2012)	#10 (Vercruysse and Chandler, 1992)	#6 (Pittman and Bowen, 1994)	#3 (McKeering et al., 2021), #13 (Mclachlan, 2007)	#5 (Morales, 2017)	#12 (Lijadi and Van Schalkwyk, 2017)	#8 (Straffon, 2003)	#4 (Miyamoto and Kuhlman, 2001)	#11 (Langinier and Gaspoz, 2015)	#7 (Lam and Selmer, 2004)	#14 (Weeks et al., 2010)

reporting and hiding underlying grief difficulties (Mclachlan, 2007). Difficulties entering already formed friend groups or communicating with peers can be a significant deterrent for adjustment and integration, whereas identifying and making friends they can identify with is raised by teens as the most important factor of overall adjustment (Weeks et al., 2010).

Home

Children maintain a bond with their passport country(ies) and the different places they have lived, which provides a sense of attachment. Positive feelings and memories during times spent in these places contribute to the sense of connectedness to a place (Lijadi and Van Schalkwyk, 2017). A challenge in adjustment arises when there is too big a gap between an idealized place and life challenges in that place.

Culture

Learning about a new culture can mean more freedom for adolescents, exploration, and easier access to drugs and alcohol in the host culture. These are mentioned as either contributing to autonomy and identity construction or creating a riskier environment and hindering the adjustment process (Weeks et al., 2010). Teenagers in international schools may feel at home in their host country without assimilating or integrating into their host country's culture. Friendships and the school environment majorly contribute to the sense of homeliness. Teenagers socializing within their international communities may preserve a surface-level interaction and understanding of their host culture (Weeks et al., 2010). Housing and comfort are positively related to adjustment and feeling at home.

Language

TCKs in international schools do not consider language a primary factor in their adjustment. Host language fluency is placed behind friendships and family relationships, as they are not dependent on the host culture to make friends or integrate. However, language acquisition has the potential to enhance the TCK's familiarity with their surroundings (Weeks et al., 2010). Home country language fluency is often maintained as a thread to home or to facilitate potential repatriation (Lijadi and Van Schalkwyk, 2017).

Discussion

This systematic review is the first to synthesize the available data on factors that influence adjustment in child and adolescent TCKs during their international experiences. It also offers the reader an organized overview of empirical evidence on factors influencing TCK adjustment. Only 14 studies met our eligibility criteria despite screening across eight electronic databases. This yield speaks for the limited empirical evidence on child and adolescent TCK adjustment. Findings from this systematic review point toward gaps in the knowledge about the particular needs and traits that define child and adolescent TCK.

Factors in TCK adjustment

Both quantitative and qualitative studies find specific variables contributing to TCK functioning and adjustment. Categories of factors that are shown to influence adjustment in TCK include demographics (age, gender, time/mobility, cultural background), family (demographics, functioning, support, and cohesion), environmental (expatriate work), psychological (cognitive and personality traits, attachment style, emotion, empathy, identity) and socio-cultural (relationships, friends, in particular, culture, language, school, and international mobility factors). Each factor contributes to or hinders psychological and socio-cultural adjustment or contributes to forming a specific third culture. Although studies have measured various factors and pinpointed the effects of these factors on TCK adjustment, there is a lack of cohesion between variables and outcomes. Only peer relationships on the outcome of socio-cultural adjustment and travel preference on the outcome of a third culture were tested twice. The interest in languages on the outcome of socio-cultural adjustment was tested only three times. This is in contrast to adult expatriate research showing that language plays a key role in adjustment (for example Selmer, 2006). This could be due to the limited number of studies in our review. However, it is also possible that the selected studies explore expatriate children in international schools who are not as exposed to the host culture and language as their adult counterparts, as the medium of teaching is often English. Clearly, more research on the role of language in TCK adjustment is needed.

In general, more research is needed to assert these findings, which remain scarce in number and sample size. Moreover, future models may include mediation and moderation factors. The coding categories deducted for this systematic review may continue to be used as a guide for future studies.

Demographics and environmental factors

This systematic review shows that demographic and mobility factors have been considered across four studies in total. Only one study compared two international locations but found mobility overrides the actual location (Gerner et al., 1992). Another single study compared TCK with local peers. Efforts must be made to refine sample characteristics using demographic variables (Aderi et al., 2013). Samples of various age categories and family structures will further define the contribution of these demographic variables. More research is needed where comparison groups could help understand the influence of cultures and nationalities on adjustment.

Family factors

Qualitative studies have expanded upon the family factors involved in adjustment, including cohesion, parenting, and family rituals. Only two studies measured family characteristics, parent relationships, and family demographic variables in quantitative designs (Pittman and Bowen, 1994; Van Oudenhoven et al., 2007). More quantitative studies, including measures of family functioning, family cohesion, parenting, and family demographics, will assert these findings, as suggested by Sterle et al. (2018).

Psychological factors

Psychological factors are particularly under-investigated, although shown to largely contribute to wellbeing and adjustment (Arslan, 2019). Potential mediation and moderation effects, particularly the interaction between third culture and psychosocial adjustment, as well as family functioning and psychosocial adjustment, need to be investigated (Zeng et al., 2022).

Toward a broader model of adjustment

Future research may refine our understanding of TCK adjustment by devising and testing more inclusive models and multiple trajectories in adjustment (Haslberger et al., 2014; Hirai et al., 2015; Mesidor and Sly, 2016). The classification proposed in this review includes categories of environmental, family, psychological and socio-cultural factors as a general frame for understanding the interactions between factors and outcomes of TCK adjustment and may serve as a guide for future studies and the foundation for a model of TCK adjustment.

Defining and measuring adjustment

Extracted studies are scattered across the areas of psychology, development, education, human resources, and intercultural sciences. There is also diversity in the scope of theoretical references used to frame the research. Psychological adjustment may be linked to attachment theory, coping, identity, social identity, place identity concepts, and notions of stress and wellbeing. Socio-cultural adjustment may refer to Berry's acculturation theory, Bennett's intercultural sensitivity model, or notions of culture shock (Berry, 1980; Berry et al., 2006; Bennett and Hammer, 2017).

In some cases, adult adjustment models are used as models of child adjustment. Two studies also referenced family models (family stress and family functioning) (Pittman and Bowen, 1994; Van Oudenhoven et al., 2007). Theories used to frame research on TCK primarily target a specific model and explore either family, culture, identity, or psychological traits. The diverse theories and research found in this systematic review suggest that distinctive models may not reflect the entire process of TCK adjustment. More likely, adjustment at a point in time but also over time and identity outcomes are interconnected with psychological, socio-cultural, and environmental factors. As proposed for adult expatriates, a model reflecting these interrelations is needed for TCK (Haslberger et al., 2014).

Defining the TCK sample

The theoretical complexity continues with diverse samples falling under the generic understanding of the meaning of TCK: a reflection of this diversity can be read through the multiple terms (e.g., military, internationally mobile, TCK, expatriate) used across studies to refer to the particular population. Half of the studies in this review referred to Pollok and Van Reken's or Useem's definition of TCK (Useem and Useem, 1967; Pollock et al., 2010). The lack of cohesion in the definition of the sample itself is an insight into the diversity of the specific experiences associated with particular reasons underlying the international relocation. Another fundamental challenge for researching this population lies in the diverse nationalities of origin and relocation, age groups, duration of stay, types of schools, and family structures contributing to the variation in adjustment. One example of sampling difficulty can be found in comparing the following studies: the case of exploring culture shock in Japanese students adjusting to the U.S. and the other studying intercultural adjustment in TCK from 21 different home countries living in 37 different host countries (Miyamoto and Kuhlman, 2001; Van Oudenhoven et al., 2007). As the populations are so diverse, each study may only apply to a particular cultural sample and may not be generalizable to other TCK groups. To conclude, we suggest that the ecological complexity reflected in this systematic review may be better approached through the lens of complex systems, which can account for individual, contextual and cultural interactions (Brown and Goetz, 1987; Schwartz et al., 2010).

Study designs and measures

Studies included in this review have used a variety of measures, some designed for the study by the researchers, some based on pre-existing scales, and some using validated scales with normative information for a general population. Normative studies using validated scales could help create a standard for TCK, which would contribute to a better understanding of the outcomes of future quantitative studies. Reproducing studies using a particular scale would help assert the findings from an ecological standpoint and increase the consistency of results. Lastly, no study used a longitudinal design despite the specific sensitivity of time measured (as a predictor of mobility) in two of the presented studies (Fisher and Shaw, 1994; Straffon, 2003; Pritchard et al., 2007; McKeering et al., 2021). Future cohort studies, particularly those using a longitudinal design, as has been done with adult and college student expatriate samples, would reinforce findings from the cross-sectional studies available this far (Fisher and Shaw, 1994; Pritchard et al., 2007).

Limitations

Although this study has the merit of synthesizing available data on a clearly defined ecological sample, it has several limitations. First, the restrictive criteria for inclusion meant that only a small number of papers were included and studies with multiple informants, such as parents and teachers, were excluded. Other unpublished or pilot studies may contribute to TCK adjustment but were not included in this study to ensure the strong validity of our findings. Further, the abstracted results from quantitative studies were not included in a meta-analysis due to the heterogeneity of predictors and outcomes and the variety of analyses used and reported.

Conclusions

This review highlights the complexity of defining the TCK sample, the diversity of internal and external factors contributing to TCK adjustment, and the formation of a "third culture." Because of this, the network of selected studies stands out as heterogeneous and difficult to analyze. To better assess the needs and characteristics of TCK, efforts can be made to improve the ecological validity of study samples and to consider adjustment within an inclusive multi-faceted model or through the lens of complex adaptive systems (Arrow et al., 2000; Nettle et al., 2013; Haslberger et al., 2014; Theodore and Bracken, 2020). More research is needed on TCKs at the time of the relocation, and over time and more effort can be made to improve the methodological quality of measures.

Data availability statement

The original contributions presented in the study are included in the article/Supplementary material, further inquiries can be directed to the corresponding author/s.

Author contributions

EJ conceived the structure of the manuscript. EJ, MR, and YO reviewed the papers. EJ and MR drafted the manuscript. All authors edited the manuscript and read and approved the final manuscript.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2022.939044/full#supplementary-material

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Poor sleep quality and erectile dysfunction in students from a Peruvian University: A cross-sectional study

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Objective: We aimed to evaluate the association between sleep quality and erectile dysfunction in young university students.

Methods: A cross-sectional survey was conducted in men aged 18–30 years from Universidad Ricardo Palma, Lima, Peru. The survey comprised the International Index of Erectile Function, Pittsburgh Sleep Quality Index, Berlin questionnaire, and questions related to sociodemographic data. Prevalence ratios were estimated with generalized linear models.

Results: Of 381 participants, the median age was 23 years. Half of the students (50.9%) had poor sleep quality, of which 72.7% had mild erectile dysfunction and 20.6% mild to moderate dysfunction. Prevalence of erectile dysfunction was significantly higher in students with poor sleep quality than in students with good sleep quality (aPR = 6.48; 95% CI: 4.58–9.17) after adjusting for age, academic year, nutritional status, and sleep apnea. In a subsequent exploratory analysis, sleep apnea was associated with a higher prevalence of erectile dysfunction (aPR = 1.19; 95% CI: 1.01–1.39), while overweight (aPR = 0.85; 95% CI: 0.76–0.95) and obesity (aPR = 0.65; 95% CI: 0.52–0.82) were associated with a lower prevalence of this condition.

Conclusion: Poor sleep quality was independently associated with erectile dysfunction in young university students. This finding suggests that male students are at risk for sexual problems due to possible academic demands and relationship issues.

KEYWORDS

erectile dysfunction, sleep disorders, International Index of Erectile Function, Pittsburgh Sleep Quality Index, Berlin questionnaire

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Introduction

Erectile dysfunction (ED) is a common problem among men that affects the quality of life of themselves and their partners. Two important cohort studies helped to understand the frequency of ED. The Massachusetts Male Aging Study reported an overall prevalence of ED of 52% (1), while the European Male Aging Study showed that 30% of men experienced ED. A more recent international study reported a prevalence between 37.2 and 48.6% (2). In Latin America, ED was found in 53.4% of men older than 40 years (3). Despite the growing literature on ED, the incidence of ED is often underestimated, and the epidemiology of this condition is commonly neglected among young men.

ED among young men is considered to be mainly triggered by psychological burden (4). Academic life is an important stage in young's life, and this can lead to high levels of distress, affecting their quality of life and academic performance. Some studies have shown that mental disorders affect health dimensions such as physical, social, and environmental. However, few studies have explored how mental disorders can affect the sexual function (5).

Sleep quality is an essential aspect of physical and mental health (6). It promotes well-being and prevents different conditions from depression to cardiovascular disorders (7).

Poor sleep quality can affect multiple and relevant processes. On the physical aspects, it may cause diabetes, obesity, cardiovascular diseases, and even mortality (8). On the psychological aspects, it may lead to attention deficit, cognitive disability, and depression (9, 10). Therefore, sleep quality is an important aspect in health.

The relationship between sleep quality and ED has been described in an increasing number of studies. It has been shown that ED can be caused by several sleep disorders, such as sleep obstructive apnea, insomnia, and nocturia (6). It has also been reported that men with any comorbidity had 1.79-fold the risk of ED compared with healthy men, but the risk was up to 3.34-fold with the inclusion of sleep disorders (11). Poor sleep quality may alter testosterone and oxygen levels, with localized endothelial dysfunction (12). However, most studies have focused on middle-aged and older adults. Among the few reports in young men, one showed that 47% of medical students with sleep disorders experienced ED (13). As sleep is an important aspect in young's lives, there is a need to better understand the influence of sleep disturbance on ED.

Therefore, we aimed to evaluate the association between poor sleep quality and ED in young university students. We stated three research questions: (1) What is the prevalence of ED in university students? (2) By which extent does the prevalence of ED vary according to the students' characteristics? (3) Does the presence of poor sleep quality influence on the development of ED? For the purpose of this study, three hypotheses were stated: (1) The prevalence of ED is high in the study group; (2) There are some common characteristics among young students that influence the development of ED, such as early academic years, obesity, sleep apnea, and poor sleep quality; and (3) poor sleep quality is independently associated with the development of ED.

Materials and methods

Study design, population, and sample

A cross-sectional survey was conducted in students aged 18–30 years at the Ricardo Palma University (URP) during the 2018 academic year. The URP is a private university located in Lima, Peru. It provides undergraduate education at eight faculties, of which four were included for data collection: medicine, architecture, modern linguistics, and engineering.

Inclusion criteria were students who agreed to participate in the study and completed all the variables of interest. Exclusion criteria were students reporting any neurological disorder, anatomical alteration of the penis, and no frequent sexual activity in the last 6 months.

Based on a 99% confidence interval, a statistical power of 90 and an expected prevalence rate of 1.5, a sample size of 368 students was calculated. A non-probability sampling method was applied through face-to-face interviews with students on campus.

Measures

Erectile dysfunction was measured with the International Index of Erectile Function (IIEF-5) scale. The IIEF-5 scale was designed by Rosen et al. (14) and has five questions assessing erectile function, orgasmic function, sexual appetite, sexual satisfaction, and general satisfaction. The instrument has been validated in a sample of 75 Peruvian patients aged from 18 to 60 years at a referral hospital in Lima, Peru, showing content, criteria, discriminatory, and divergent validity, and presenting good internal consistency (Cronbach's alpha >0.8 in the five domains) (15). Scores range from 5 to 25 and classify ED into five categories: severe ED (5–7 points), moderate ED (8–11 points), mild to moderate ED (12–16 points), mild ED (17–21 points), and no ED (22–25 points) (16). For regression analysis, we dichotomized the variable into presence and absence of ED. The internal consistency for this study was good (Cronbach's $\alpha = 0.89$).

Sleep quality was measured with the Pittsburgh Sleep Quality Index (PSQI). The original scale was designed by Buysse et al. (17) and has nineteen questions grouped in seven components (subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction), which evaluates sleep quality in the last 4 weeks. The Peruvian version of the PSQI has been validated performing an exploratory factor analysis in a random sample of 4,445 adults over 18 years old from the Estudio Epidemiológico de Lima Metropolitana y Callao, conducted by the Instituto Nacional de Salud Mental in 2012 (18). This version showed an internal consistency of 0.56. Sleep quality was dichotomized into two categories: poor sleep quality (defined as a global PSQI score of 6 or more) and good sleep quality (defined as a global PSQI score of 0 to 5). The internal consistency for this study was acceptable (Cronbach's $\alpha = 0.76$).

Obstructive sleep apnea was measured with the Berlin questionnaire. The instrument was proposed in 1996 during the Conference on Sleep in Primary Care in Berlin, Germany (19) and has ten questions assessing three categories: snoring, drowsiness, and risk factors. The Berlin questionnaire has been validated (content, criterion, and construct) using a sample of 212 Colombian university students and patients over 18 years old (similar characteristics to the Peruvian population), showing an internal consistency of 0.73 (20). A category was positive if at least two responses indicated a high risk for obstructive sleep apnea. The condition was considered to be present with two or three of the instrument categories were positive. The internal consistency for this study was acceptable (Cronbach's $\alpha = 0.74$).

Additional sociodemographic data were age (continuous), academic year, and nutritional status (classified as "normal", "overweight", and "obesity", based on self-reported weight and height).

Statistical analysis

Descriptive data were presented as number (%) for categorical variables and median (min-max values) for non-normally distributed continuous variables. Bivariate differences in the prevalence of ED across covariates were calculated with the chi-square test (for categorical exposures) and Kruskal-Wallis test (for non-normally distributed continuous variables).

For multivariate analysis, prevalence ratios (PR) with 95% confidence intervals (CI) were estimated using generalized linear models with Poisson family distribution, log link function, and robust variance. Using this approach allows (1) to determine the difference between the exposed and unexposed groups for developing ED, (2) to avoid overestimation of the association estimate, and (3) to establish a practical value (PR) that clearly informs policy makers for the formulation of prevention programs. The use of Poisson regression is also convenient because the assumptions are simple compared to linear regression (only the linearity of $\log(\lambda)$ vs. X and independence of observations were required). The inclusion of confounding variables for adjusting the regression model was based on epidemiological criteria considering previous literature (21–23) (see Supplementary Figure S1 for the proposed directed acyclic graph). Variance inflation factors (VIF) were also obtained in the regression models to evaluate potential multicollinearity.

Alternative analyses were presented using different scales of measurement for the exposure and outcome. First, we performed a multinomial logistic regression analysis to test the adjusted association between the PSQI score and mild ED versus no ED and mild-to-moderate ED versus no ED. The highest levels of severity were not analyzed because no participant had advanced stages of ED. The multinomial regression coefficient from the model was exponentiated and presented as PR and 95% CI. Interpretation of PR is based originally on the calculation of relative risk ratios, defined as the ratio of the probability of an outcome in the exposed group to the probability of an outcome in the unexposed group (24). Second, to assess the association between sleep quality and erectile dysfunction as continuous variables (using the original scores of PSQI and IIEF-5), locally weighted regression analysis was performed.

A p-value <0.05 was considered statistically significant. Analyses were performed in Stata 15.0.

Ethical considerations

This study was performed in line with the principles of the Declaration of Helsinki. Ethical approval was obtained from the Ethics Committee of the Universidad Ricardo Palma (Lima, Peru). Written informed consent was signed by participants before inclusion in the study. Confidentiality was maintained by using anonymous surveys.

Results

Of 381 participants, the median age was 23 years (min-max values: 18–29), 32% belonged to the second academic year, 12.3% had obesity, and 13.1% had obstructive sleep apnea. Poor sleep quality was reported by 50.9% of the respondents. Over half of them (54.6%) experienced some degree of ED, 43.3% corresponding to mild ED and 11.3% to mild to moderate ED (Table 1).

TABLE 1 Characteristics of participants ($n = 381$).

Characteristics	*n* (%)
Age (years)*	23 (18–29)
Academic year	
First	66 (17.3)
Second	122 (32.0)
Third	72 (18.9)
Fourth	121 (31.8)
Nutritional status	
Normal	187 (49.1)
Overweight	147 (38.6)
Obesity	47 (12.3)
Sleep Apnea	
No	331 (86.9)
Yes	50 (13.1)
Sleep Quality	
Good	187 (49.1)
Poor	194 (50.9)
Erectile dysfunction	
No	173 (45.4)
Mild	165 (43.3)
Mild to moderate	43 (11.3)

*Median (min-max value).

Participants with poor sleep quality had 59.9% higher prevalence of mild ED (72.7 vs. 12.8%, $p < 0.001$) than those with good sleep quality, and 19% higher prevalence of mild to moderate ED than those with good sleep quality (20.6 vs. 1.6%, $p < 0.001$). Also, those in the first academic year had 5.1% higher prevalence of mild ED than those in the fourth year (53 vs. 47.9%, $p = 0.084$), and 2.5% higher prevalence of mild to moderate ED than those in the fourth academic year (9.1 vs. 6.6%, $p = 0.084$). Participants with obesity had 15.2% lower prevalence of mild ED than those with normal BMI (31.9 vs. 47.1%, $p = 0.234$), and 9% higher prevalence of mild to moderate ED than those with normal BMI (19.2 vs. 10.2%, $p = 0.234$). Participants with obstructive sleep apnea had 5.4% higher prevalence of mild to moderate ED than those without obstructive sleep apnea (48 vs. 42.6%, $p = 0.002$), and 14.6% higher prevalence of mild to moderate ED than those without obstructive sleep apnea (24 vs. 9.4%, $p = 0.002$) (Table 2).

In the simple regression model (Table 3), poor sleep quality was significantly associated with a higher prevalence of ED (PR=6.46; 95% CI: 4.55–9.18). After adjusting for age, academic year, nutritional status, and obstructive sleep apnea, this association remained constant (aPR = 6.48; 95% CI: 4.58–9.17). A graphical representation of the multivariate analysis is shown in Figure 1.

Results from the multinomial logistic regression analysis (Supplementary Table S1) showed that the PR of having mild ED over not having ED was 3.04 per unit increase in PSQI global score, and

TABLE 2 Factors associated with erectile dysfunction in bivariate analysis.

Variables	Erectile dysfunction			p^{**}
	No ($n = 173$)	Mild ($n = 165$)	Mild to moderate ($n = 43$)	
	n (%)	n (%)		
Age (years)*†	23 (18 - 29)	23 (18 - 29)	23 (21 - 29)	0.186
Academic year				0.084
First	25 (37.9)	35 (53.0)	6 (9.1)	
Second	55 (45.1)	47 (38.5)	20 (16.4)	
Third	38 (52.8)	25 (34.7)	9 (12.5)	
Fourth	55 (45.5)	58 (47.9)	8 (6.6)	
Nutritional status				0.234
Normal	80 (42.8)	88 (47.1)	19 (10.2)	
Overweight	70 (47.6)	62 (42.2)	15 (10.2)	
Obesity	23 (48.9)	15 (31.9)	9 (19.2)	
Sleep apnea				0.002
No	159 (48.0)	141 (42.6)	31 (9.4)	
Yes	14 (28.0)	24 (48.0)	12 (24.0)	
Sleep Quality				<0.001
Good	160 (85.6)	24 (12.8)	3 (1.6)	
Poor	13 (6.7)	141 (72.7)	40 (20.6)	

*Median (min-max value).
†P-value calculated with the Kruskal-Wallis's test.
**P-values calculated with the chi-square test.

the PR of having mild-to-moderate ED over not having ED was 4.61 per unit increase in PSQI global score. In addition, locally weighted regression analysis showed a negative relationship between PSQI and IIEF-5 scores (Supplementary Figure S2).

Discussion

Main findings

The prevalence of ED was present in over half of the participants and mild ED was the most common form of severity. This study also evidenced that poor sleep quality was independently associated with a higher prevalence of ED.

Plausibility of findings

The results support the hypothesis that a considerable number of young university students suffer from ED. This is in line with previous literature stating that ED is an important but underreported feature among students (25). The most feasible explanation is the presence of stressors triggering psychological ED (e.g., somatization, interpersonal sensitivity, and depression) (26), which is relevant in this life stage due to academic exigence and potential uncertainty in life.

In addition, the study supports the hypothesis that poor sleep quality affects erectile function. It has been reported that insomnia or insufficient sleep can shorten testosterone levels (27, 28). Since sleep duration is commonly affected during university stage, this phenomenon may contribute considerably to the reduction of testosterone levels and therefore the sexual capacity in male students.

It is possible that sleep quality mediates the effect of psychological status on ED. Mental disorders may also confound the association between poor sleep quality and ED (29). Since we did not measure potential psychogenic factors for ED (e.g., distress, anxiety, depression), the association identified in this study could be overestimated.

Comparison with previous studies

The prevalence of ED found in this study is higher than that reported in the literature. A study in Peru showed a lower estimate among medical students (28% with mild symptoms) (13). Another multinational study reported an ED prevalence of 8% among men aged 20–29 years (30). In Brazil, a population-based survey identified ED in 7% of men aged 20–29 years (31), and another study in this country showed a frequency of 35% (32). In Israel, mild ED was present in 22% of military members aged under 40 years (33). Methodological differences could mainly explain these variations, but also the age group, type of activity, and cultural aspects. Despite of this, there is a trend showing that sexual dysfunction arises as a common problem among young men (30). Therefore, preventive measures should be established among university students in order to cope with emotional problems during this stage (29, 34–36).

This study showed that 93.3% of students with poor sleep quality experienced some form of ED. Furthermore, poor sleep quality increased significantly the prevalence of ED (over 600%). These findings add to previous estimates of sleep problems in men with ED. For example, a cohort study in Taiwan showed that 60% of men with ED (aged 20–39 years) suffered from sleep apnea and 43% from sleep disorders (37). Other studies have demonstrated that poor sleep quality is a risk factor for ED in young adults (38–40). In a Taiwanese study, the incidence of erectile dysfunction was three times higher in men with sleep disorders than in men without this condition (11). In the Peruvian context, a study in medical students showed a significant association between poor sleep quality and ED, although confounding variables were not included in the analysis (13).

This study found in the exploratory analysis that sleep apnea was associated with a 19% higher prevalence of ED. There are many studies supporting the association between sleep apnea and ED (11, 38, 39, 41, 42). For example, it was shown that the risk of ED was ten times higher in men with sleep apnea than in men without this condition (37). In addition, a meta-analysis reported a 55% lower risk of ED in men without obstructive sleep apnea (43). However, this association was shown to occur only in men over 65 years of age, a finding attributed to the mediation of age-related oxygen desaturation (44).

Although the most common cause of sleep apnea in young people is excess weight (6), an independent association between sleep apnea and ED was found after controlling for nutritional status. This result may be explained by the presence of a psychological factor impairing

TABLE 3 Association between sleep quality and erectile dysfunction in simple and multiple regression analysis.

Characteristics	Simple Regression			Multiple Regression **		
	PR	95% CI	*p**	PR	95% CI	*p**
Age (years)	1.01	0.98–1.05	0.412	1.00	0.97–1.02	0.745
Academic year						
First	Ref.			Ref.		
Second	0.88	0.69–1.13	0.330	1.04	0.91–1.20	0.559
Third	0.76	0.56–1.04	0.082	0.85	0.72–1.02	0.073
Fourth	0.88	0.68–1.13	0.306	0.96	0.83–1.12	0.629
Nutritional status						
Normal	Ref.			Ref.		
Overweight	0.92	0.75–1.12	0.382	0.85	0.76–0.95	0.005
Obesity	0.89	0.66–1.21	0.467	0.65	0.52–0.82	<0.001
Sleep apnea						
No	Ref.			Ref.		
Yes	1.39	1.13–1.70	0.002	1.19	1.01–1.39	0.036
Sleep quality						
Good	Ref.			Ref.		
Poor	6.46	4.55–9.18	<0.001	6.48	4.58–9.17	<0.001

*P-values calculated with generalized linear models with Poisson family, log link function, and robust variance.

**Adjusted for age, academic year, nutritional status, and sleep apnea.

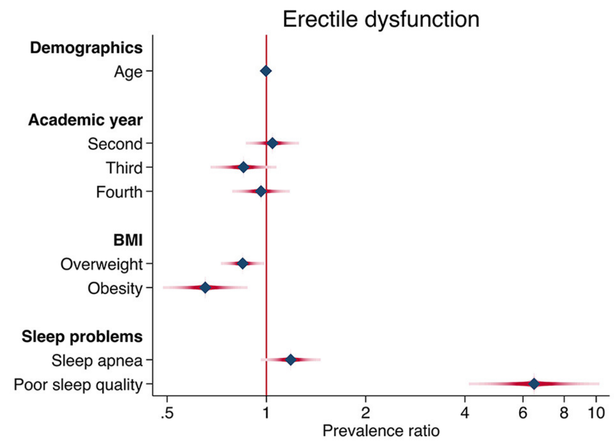

FIGURE 1
Forest plot of the factors associated with erectile dysfunction. Prevalence ratios are represented by blue diamond symbols and confidence intervals by red horizontal lines.

the normal breathing pattern during sleep (6). However, the effect of hypoxemia on erectile dysfunction has been extensively described (6, 44), suggesting that sleep apnea contributes independently to the presence of erectile dysfunction.

This study also showed that impaired nutritional status was associated with a lower prevalence of ED (15% lower for overweight and 35% lower for obesity). This is contrary to what is commonly expected since weight gain could affect endothelial function through altered metabolic activity and serum testosterone, considered to be the main mechanisms of ED (12). Although some reports have identified an increased risk of ED in patients with obesity, others did not find any significant association (12, 32, 45). The result found in this study may be caused by statistical confusion of unmeasured psychological factors, such as depression and anxiety. Another reason may be that students did not face overweight or obesity as chronic conditions, and that have not yet affected their erectile function. A third reason could be that the number of participants from the groups of obesity and overweight were too small to significantly differentiate the prevalence of ED.

Limitations and strengths

The study had several limitations. First, its cross-sectional design did not allow to infer causality because variables were measured at the same time. Second, the study collected self-reported data, introducing information bias that could have modified the association estimate. This is particularly important for self-reported weight and height since Peruvian and international studies has shown that calculation of BMI from this type of measure may be altered by sex and aging (46, 47). Third, the sampling method was non-probabilistic, potentially leading to an inaccurate prevalence of ED. Therefore, the results should be interpreted with caution due to limited internal/external validity and reliability. Despite these limitations, the results are supported by validated instruments and acceptable sample size. Furthermore, the study addressed a neglected topic in young university students, which may reinforce the importance of sleep hygiene and encourage the design of more robust research.

Recommendations for future research

ED can cause anxiety in young men due to lower perception of masculinity and sexuality. The development of psychological disorders may also reinforce the severity of erectile dysfunction due to altered sexual arousal (48). These assumptions are supported by several population-based studies (29, 34–37, 49). However, only 58% of patients with erectile dysfunction seek medical care (30), and one out of four patients is under 40 years of age (25). Therefore, it is essential to establish preventive and intervention programs in mental health to reduce the risk of ED in young people. For this purpose, a more robust design and a representative sample of Peruvian students should be included in future studies. Also, psychological status should be measured and included in the analysis as a potential confounding variable.

Proposed support structures for universities

Student welfare and academic achievement are essential objectives for universities. To help reduce the risk of developing erectile dysfunction, universities should create screening programs that assess the psychological state of male students, recognizing that there are certain personality types that might increase this risk (50). Since sleep problems are part of emotional disorders (10), it would be useful to have ongoing psychological assessment to identify which stressful periods trigger this condition (e.g., exam periods). It would also be important to investigate the quality of relationships with other students, peers, teachers, and family. Consideration should be given to promoting sleep hygiene and avoiding excessive study hours and overnight stays. In addition, medical check-ups should be carried out to evaluate the sexual health of students, in which erectile dysfunction can be recognized early and treated if necessary. Since the literature is still scarce on ED among young male students, universities should promote research on this topic and identify the prevalence and possible risk factors for ED.

Conclusion

Poor sleep quality was independently associated with ED. This finding suggests that male students are at risk for sexual problems due to possible academic demands and relationship issues. This result was also supported by the high prevalence of mild and mild to moderate ED found in this group of students. Future research should address common student characteristics that may increase the risk of sleep problems. In this way, better preventive programs could be established in universities.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by Ethics Committee of the Universidad Ricardo Palma (Lima, Peru). The patients/participants provided their written informed consent to participate in this study.

Author contributions

PG-V: conception and design of the work, acquisition, analysis, and interpretation of data, drafted the work and revised it critically, and approved the version to be published. MV-G: analysis and interpretation of data, revised the work critically, and approved the version to be published. CP and VV-P: interpretation of data, drafted the work and revised it critically, and approved the version to be published. JG-U: design of the work, analysis and interpretation of data, revised the work critically, and approved the version to be published. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpubh.2023.932718/full#supplementary-material

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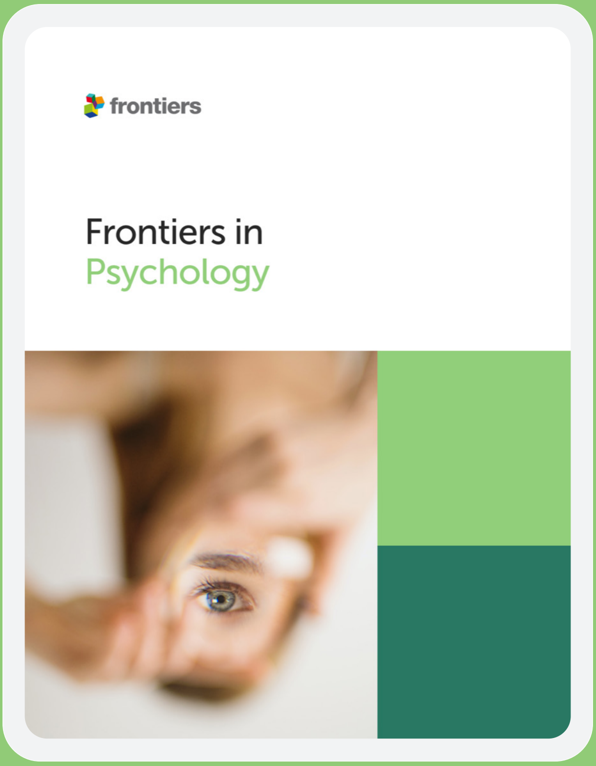

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