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# Bullying and cyberbullying: Their nature and impact on psychological wellbeing

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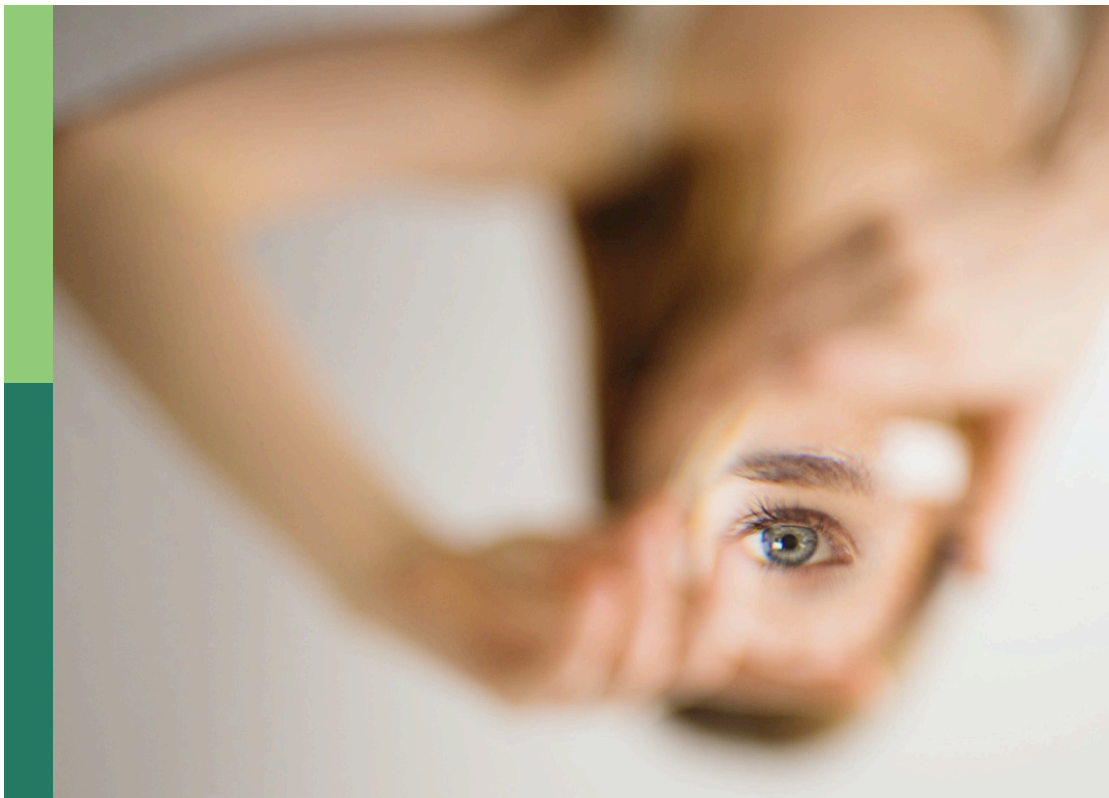

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# Bullying and cyberbullying: Their nature and impact on psychological wellbeing

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# Editorial: Bullying and cyberbullying: their nature and impact on psychological wellbeing

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**cyberbullying, mockery, violence, mental health, wellbeing**

Editorial on the Research Topic
Bullying and cyberbullying: their nature and impact on psychological wellbeing

## 1. Introduction

Bullying and cyberbullying are potent forms of violence repeatedly perpetrated by aggressors against victims. They are similar in many facets as both share the same psychological dynamics, comprise a dominion-submission model between the aggressors and the victims, and always present a spectator, even if virtual, to whom the bullies refer. Stereotypical ideas, violated rules, or any feature of a person or group can be the pretext for (cyber)bullying.

If bullying is a type of anti-social behavior that has been studied for decades, cyberbullying is a growing phenomenon. Due to the widespread use of new technologies and the internet, cyberbullying has become even more frequent, especially among young people, who are prone to mobile phone use (Lenhart, 2012; Görzig and Ólafsson, 2013; Shapka et al., 2018). In particular, the social isolation adopted to restrain the COVID-19 pandemic intensified certain elements related to digital sociability (e.g., hyperexposure, diluted public-private-intimate borders, self-spectacularisation) that created conditions exacerbating digital violence and cyberbullying (Hellsten et al., 2021; Martínez-Ferrer et al., 2021).

Cyberbullying victims with low self-esteem and loneliness suffer disorders such as depression, anxiety, suicide ideation, substance abuse, and poor engagement in prosocial behaviors, among others. The adverse impact on a person's wellbeing is significant (Schoeps et al., 2018), and parental attachment plays a crucial role as well (Canestrari et al., 2021). Evidence show that youth reporting low levels of satisfaction with family relationships, negative feelings about school, and lower acceptance levels by their peers were more likely to participate in bullying and cyberbullying (Martínez-Ferrer et al., 2019). This Research Topic aims to deepen one's awareness of the nature of bullying and cyberbullying, including the prevention tools and coping strategies implemented by the various individuals involved in the phenomenon (e.g., violence and aggression, exclusion and superiority, mockery). Psychology has attempted over time to give greater importance to the context according to holistic theories (e.g., social identity theory, social network analysis, correlates theory,

personal reputation theory) (Emler and Reicher, 1995), as suggested by Bronfenbrenner's social ecology model. Throughout this general approach, the Research Topic brought together current perspectives on bullying and cyberbullying at various developmental stages, their causes and consequences on different life domains, new evaluation methods in future studies, and training programmes that combat this negative dynamic from a multidisciplinary perspective.

## 2. Papers of the Research Topic

There are 10 manuscripts on this Research Topic. Given the prevalence of modern technologies, this topic is expectedly covered in many studies specifically focused on cyberbullying. Bochaver's opinion article and Shi and Wang's and León-Moreno et al.'s research papers highlighted school bullying, defined as a form of bullying perpetrated by (a) student(s) against (an)other student(s). Bochaver reflects on the complexity of the phenomenon, which, on one side, provokes negative outcomes, and on the other side, serves as a coping strategy for a community, given its realization of psychological needs such as establishing a social hierarchy, reducing emotional tension, and controlling members. Shi and Wang's study on 3,363 middle/high school students reveals a positive relationship between school victimization and Internet addiction, mediated by life satisfaction and loneliness. León-Moreno et al. highlighted the guilt and loneliness experienced in adolescent peer victimization. The study, carried out on a sample of students, shows that adolescents with greater propensity for guilt feel responsible for being victims of peer aggression and for feeling lonely.

Sorrentino et al. and Gao et al.'s studies explore risk factors of cyberbullying and cybervictimisation. In particular, Sorrentino et al. analyzed a sample of students in a year-long longitudinal study and found onset risk factors for cyberbullying (i.e., being male, being involved in school bullying, having low levels of awareness of online risks, and having high levels of affective empathy) for cybervictimisation (i.e., being male, being involved in school bullying and victimization, having high levels of affective empathy and moral disengagement). On the other hand, Gao et al. examined how family incivility, defined as problematic family interactions and parental neglect, impacts cyberbullying perpetration in a sample of university students. They found that family incivility is positively correlated with cyberbullying perpetration, which is influenced by negative emotions, particularly for highly neurotic students.

Moral disengagement in cyberbullying has been highlighted in research by Mateus Francisco et al. and Zhu et al.. Mateus Francisco et al. identified the relationship between moral disengagement and empathy in cyberbullying situations among adolescents. They developed and validated the Empathy Quotient in Virtual Contexts for Portuguese adolescents communicating online and the Process Moral Disengagement in Cyberbullying Inventory (PMDCI) to assess moral disengagement in online communication. Zhu et al. explored the use of aggressive humor as a tool for cyberbullying perpetration. The study, conducted on a sample of university students, revealed that moral disengagement mediates the relationship between cyberbullying perpetration and aggressive humor, which positively relates to moral disengagement, and that moral disengagement is positively related to cyberbullying perpetration.

Violence is the main category underpinning bullying and cyberbullying. Reyes-Martínez et al. studied several forms of violence. The study, which involved adult respondents, revealed that victims relying on cultural activities had higher levels of subjective wellbeing, suggesting that such activities help in coping and adapting to stressful and traumatic situations.

The articles summarized so far focus mainly on victimization, whereas Horink et al.'s research emphasizes *gluckachmerz*, i.e., a feeling of displeasure at others' success, as a potential psychological factor that may trigger aggressive and negative online messages and word of mouth. Finally, Hendry et al. have conducted interviews and focus groups with stakeholders having professional knowledge about cyberbullying to ascertain the principles on which basis cyberbullying prevention and intervention programs can be projected.

## Author contributions

AF: Conceptualization, Resources, Supervision, Writing—original draft. GM: Conceptualization, Resources, Supervision, Writing—original draft, Writing—review and editing. CC: Conceptualization, Project administration, Resources, Supervision, Writing—original draft, Writing—review and editing.

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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.

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# The influence of family incivility on cyberbullying perpetration: A moderated mediation model

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Previous research has extended the stress literature by exploring the relationship between family incivility and cyberbullying perpetration, yet relatively less attention has been paid to underlying psychological mechanisms between that relationship among university students. According to the Frustration-Aggression Theory, this study examined the relationships of family incivility, cyberbullying perpetration, negative emotions and neuroticism among Chinese university students. Data were collected from 814 university students (females, *N* = 423; Mage = 19.96 years, SD = 3.09). The results examined the mechanism through which family incivility was significantly related to cyberbullying perpetration through the mediation of negative emotions, suggesting a strong link of stressful life events to online aggression. In addition, high levels of neuroticism moderated the relationship between family incivility and cyberbullying perpetration, as well as that between family incivility and negative emotions. The study revealed the chronic and potential impact of family incivility, underlined the interaction between stressful life events and online aggression, and put forward the intervention strategies of cyberbullying among university students.

KEYWORDS

**family incivility, cyberbullying perpetration, negative emotions, neuroticism, the frustration-aggression theory**

## Introduction

Family interaction plays an important role in the development of individual social emotion and cognition (Bronfenbrenner, 1986). Recently, family incivility, a new form of negative family interactions, has attached widespread attention. Family incivility is low-intensity deviant interpersonal behaviors that undermine mutual respect in the family, such as excluding family members from social activities and doubting the judgment of family members (Lim and Tai, 2014; Bai et al., 2016). It is easily ignored since its intensity is low and its consequence is not as immediate as family abuse or violence (Cortina and Magley, 2009), for which the negative family interaction is

difficultly restrained and can repeatedly inflict the victims (Bai et al., 2020). Moreover, due to its ambiguity in purposes, the victims usually deem it as unintentional, tolerable, and acquiescent, leading to its long-term existence in our daily life (Sliter et al., 2011).

Previous studies examined the associations between family incivility and adults' work performance (Naeem et al., 2020; Ren et al., 2021). Less is known, however, about the influence of family incivility on students. A study from China (Bai et al., 2020) indicated that family incivility was positively associated with cyberbullying perpetration among Chinese middle school students. An empirical study found that family incivility had a negative effect on university students' work engagement in India (Gopalan et al., 2021). However, to our knowledge, no research has been conducted on the influence of family incivility on cyberbullying perpetration among university students. Cyberbullying perpetration is defined as willful and repeated harm of an individual or a group inflicted by computers, cell phones, and other electronic devices (Hinduja and Patchin, 2008; Campbell et al., 2013). This new-form aggression with anonymity, concealment, high dissemination, can result in a variety of negative consequences, for instance, anxiety, depression, and suicidal ideation (Patchin and Hinduja, 2011; Kowalski et al., 2012).

Recently, the booming of Internet and social media has intensified cyberbullying in China (Chu et al., 2021). Early in 2018, Li and his colleagues found that one in three Chinese adults has experienced cyberbullying and one in two Chinese minors has experienced cyberbullying (Li et al., 2018). However, university students as the major net-citizens are more likely involved in cyberbullying than middle school students. In addition, previous studies have shown that family interactions are significantly related to the development of university students' cognition and behaviors (Wright et al., 2020; Smith and D'Aniello, 2021). Negative family interactions are positively associated problem behaviors among university students (Fortesa and Ajete, 2014). Therefore, it is necessary to investigate how family incivility influences university students' cyberbullying perpetration, theoretically and empirically, to restrain the prevalence of cyberbullying from the perspective of the frustration-aggression theory.

This study has three-fold contributions. Firstly, although previous studies have been devoted to the influence of family incivility on adolescents' cyberbullying perpetration (Bai et al., 2020), it is unclear how family incivility might be related to cyberbullying perpetration among university students. To explore the negative effects of family incivility on university students, we establish a moderated mediation model based on the frustration-aggression theory, central to which is negative emotions, while neuroticism moderates the relationship between family incivility and negative emotions as well as that between family incivility and cyberbullying perpetration. Secondly, the empirical findings support the frustration-aggression theory by demonstrating the mechanism through which frustration, such as family incivility, is associated with aggressive behaviors, such as cyberbullying perpetration, and extend the existing theory by observing the interplay between online and offline behaviors. Thirdly, through the chronic and low-intensity negative family interaction, this paper throws new light on the mechanism and intervention of cyberbullying in universities.

## Investigating the relationship between family incivility and university students' cyberbullying perpetration

The frustration-aggression theory states that frustration can affect the inclination to act aggressively (Berkowitz, 1988). Individuals experiencing more frustration are more likely to perpetrate aggression in the future. However, the anticipation of punishment can influence their choices of the target, as they expect to escape from the repercussions of their aggression and keep themselves from being inflicted (Berkowitz, 1989). In face of parental authority, frustrated individuals may give up fighting back while tending to perpetrate some covert forms of aggression (Bai et al., 2020). The Internet provides a virtual and anonymous space for them to release their negative emotions (Pabian and Vandebosch, 2014), where they can better modify their representation of themselves (Valkenburg and Peter, 2011) and conceal their real identity, to reduce their possibility of being negatively evaluated or retaliatorily attacked by others (Bane et al., 2010). Family incivility as a frustration possibly results in less punitive aggressive acts as well, such as cyberbullying perpetration. Many studies have also suggested that negative family interactions were significantly related to cyberbullying perpetration (Low and Espelage, 2013; Barlett and Fennel, 2016; Lee and Kang, 2019; Romero-Abrio et al., 2019). Barlett and Fennel (2016) found that parental neglect was positively associated with individual cyberbullying perpetration. A cross-sectional study (Romero-Abrio et al., 2019) also found that problematic family interaction was directly associated with online aggressive acts among adolescents. A study of 423 Korean middle school students indicated that high levels of cyberbullying perpetration was significantly associated with low levels of parent-adolescent relationship quality and high levels of parental control (Lee and Kang, 2019). Longitudinal research also found that high level of parental monitoring could significantly predict increasing cyberbullying perpetration after one and a half years (Low and Espelage, 2013). Accordingly, the following hypothesis is proposed:

> **H1:** Family incivility will be positively correlated with cyberbullying perpetration among university students.

## Negative emotions as a mediator

Negative emotions are fundamentally a subjective experience of unpleasant or depressed mood in the past week, including various annoying emotional states, e.g., depression, anxiety, and fear (Watson et al., 1988), which may increase individuals' tendency to bullying or self-injury (Agnew, 1992). Thus, family incivility as a stressful life event may cause the person's cyberbullying perpetration and increase their intention to perpetrate cyberbullying through negative emotions as well. Empirical studies found that depression, anxiety, and stress were the most common mental illnesses among university students worldwide (Smith et al., 2017; Paudel et al., 2020). The frustration-aggression theory (Berkowitz, 1989) argues that individuals with stressful life events would first produce negative emotions, and then develop an instigation to aggression. Family incivility as a stressful life event can lead to negative emotions. Previous studies have found that family incivility significantly predicated individual emotional consumption (Hassan et al., 2019) and negative emotions (Sarwar et al., 2019). A cross-sectional study found that family incivility, as a subtle and chronic stressful life event among family members resulted in individual psychological distress (Lim and Tai, 2014). A study of 3030 Chinese high school students found that family neglect, rejection, and suspicion made individuals feel hopeless about the future (Bai et al., 2020). A longitudinal study indicated that family incivility lowered employees' job satisfaction by depleting their psychological resources and causing their stress (Maria et al., 2021).

In addition, Berkowitz (1983) emphasized the role of negative emotions in the frustration-aggression process, arguing that the negative emotions reflected the strength of frustration-produced instigation to aggression. Psychological discomfort or depression activates other negative memories and feelings, thereby promoting individual inclination to aggression (Berkowitz and Heimer, 1989). In other words, family incivility, that is, frustration, may lead to individual negative emotions, which in turn triggers or reinforces their aggressive tendencies, making them more likely to perpetrate aggression for alleviating or getting rid of the negative effects from chronic negative family interactions, such as neglect, contempt, rejection. A longitudinal study found a significant positive correlation between family incivility and bank employees' counterproductive work behaviors in Pakistan, with psychological distress mediating the direct relationship (Hameed et al., 2017). Another longitudinal study found that depression and anxiety predicted cyberbullying perpetration over time (Laura et al., 2020). A six-year longitudinal study indicated that negative mental factors positively predicted cyberbullying perpetration (You and Lim, 2016). Several studies have also confirmed a significant correlation between negative emotions and cyberbullying perpetration (Balta et al., 2020; Schodt et al., 2021). Accordingly, the following hypothesis is proposed:

> **H2:** Negative emotion will mediate the direct relationship between family incivility and cyberbullying perpetration among university students. Specifically, family incivility increases university students' negative emotions, leading to cyberbullying perpetration.

## Neuroticism as a moderator

Personality is a relatively stable individual trait, which has a long-term impact on individual behavioral style (Back et al., 2009). The Five-Factor Model of personality holds that personality has five basic dimensions: Extraversion, Agreeableness, Conscientiousness, Openness, and Neuroticism (Koivisto et al., 2021). Different personality traits have different influences on individual observation and interaction with environmental stressors (Bai et al., 2020). Neuroticism represents individual differences in the tendency to experience distress (Mccrae and Costa, 1987) and negative mental health outcomes (Anglim et al., 2020), because of which it is widely studied in stress research (Hill and Kemp-Wheeler, 1986; Mineka et al., 2020). Highly neurotic individuals frequently have high levels of anxiety, depression, anger, and guilt, as well as an aggravating somatization tendency of psychological problems, leading to individual cognitive and behavioral differences (Costa and Mccrae, 1992). Those with high levels of neuroticism are more likely to experience stressful and negative events in reality (Miceli et al., 2021).

Previous studies have considered personality as a moderator that influences the association between stressful life events and negative emotions. A cross-sectional study found highly neurotic individuals were more vulnerable to depression in face of stressful life events (Roberts and Kendler, 1999). A case study with 83 survey participants also indicated that individuals with high levels of neuroticism were more vulnerable to external environment, unstable in affection, and sensible to various stimuli, which made them more prone to depression and anxiety (Johan et al., 2002). A meta-analysis study under an organizing framework of the big-five model found that highly neurotic individuals tended to exhibit poor adjustment and were prone to negative emotional states, including nervousness, anxiety,

moodiness, and worry (Judge et al., 2002). A one-year longitudinal study demonstrated that highly neurotic individuals were more likely to embrace negative automatic thoughts while suffering some frustrations or failures, leading to their negative emotions (Amy et al., 2009). Another two-year longitudinal study indicated that highly neurotic individuals were more likely to have high levels of depressive symptoms because of stressful life events (Loey et al., 2014). As mentioned above, family incivility is a chronic, imperceptible but influential stressful life event. Therefore, neurotics at a high level appear more sensitive to negative family interactions, such as neglect, exclusion, and contempt by family members, and thereby produce more negative emotions. Accordingly, the following hypothesis is proposed:

> **H3:** Neuroticism will moderate the relationship between family incivility and negative emotions, so that the positive correlation between family incivility and negative emotions is stronger for highly neurotic university students, and vice versa.

Berkowitz (2003) argued that aggression was not always a consequence of frustration since the frustration-aggression process was related to more cognitive factors, e.g., personality, understanding of frustration, mentality in the face of frustration and ability to bear frustration. Personality played an indispensable part in the theoretical construct of frustration-aggression model (Berkowitz, 1989). Neuroticism, a typical personality can also affect individuals' cognitive processing, thereby influencing their aggressive acts (Olver and Mooradian, 2003). Individuals with a higher level of neuroticism were more prone to emotional orientation instead of problematical orientation in selecting coping strategies, making them harder to deal with stressors and consequently adopt negative coping strategies (Horner, 1996), e.g., cyberbullying perpetration. Taylor and Kluemper (2012) found that neurotics at a high level perceived more incivility in workplaces and behaved more aggressive during their work, while neurotics at a low level did not. A prior study found that neuroticism played a moderating role in the influence of stressful life events on aggression (Sun et al., 2016). Accordingly, the following hypothesis is proposed:

> **H4:** Neuroticism will moderate the relationship between family incivility and cyberbullying perpetration, so that the positive correlation between family incivility and cyberbullying perpetration is stronger for highly neurotic university students, and vice versa.

Taken together, the whole research model is presented in **Figure 1**.

# Materials and methods

## Participants and procedures

A total of 814 participants of this study were recruited from a university in Zhejiang Province, China. They are aged 17–26 years old [mean(M) ± standard deviation (SD) = 19.96 ± 3.090], with 391 (48%) being males and 423 (52%) being females. Among the participants, 403 (49.5%) were freshmen, 198 (24.3%) were sophomores, 92(11.3%) were juniors and 121(14.9%) were seniors. Average monthly household income ranges from less than 2000 yuan to more than 10000 yuan (10.3%, less than 2000 yuan; 23.3%, 2001–5,000 yuan; 34.8%, 5001–10000 yuan; 31.6%, more than 10000 yuan). Average daily smartphone usage time ranges from 1 h to more than 9 h (12.5%, 1–3 h; 46.1%, 3–6 h; 28.1%, 6–9 h; 13.3%, more than 9 h).

## Measures

### Family incivility

The family incivility scale was originated from the Workplace Incivility scale (Cortina et al., 2001) modified by Lim and Tai (2014). The scale measured incivility experienced from family members, comprising of six items (e.g., "Ignored or excluded you from social activities?"), which were rated by participants on a five-point scale (1 = not at all and 5 = most of the times). In the present study, the Cronbach's alph coefficient for the family incivility is 0.926.

### Negative emotions

The Chinese version of Depression Anxiety and Stress Scale 21 (DASS-21) (Gong et al., 2010) was used to measure the level of negative emotions in half a year and the initial version was developed by Lovibond and Lovibond (1995). The Dass-21 scale with 21 items includes three subscales (i.e., depression, anxiety, and stress with 7 items, respectively) rated on 4-point Likert scale ranging from 0 ("did not apply at all") to 3 (apply to me very much), with higher scores representing higher levels of negative emotions. Many studies have employed this scale to assess the frequency and severity of three negative emotional states (i.e., depression, anxiety, and stress) among university students (Ng et al., 2010; Aoyama et al., 2011; Chong et al., 2017), including Chinese university students (Xu et al., 2013; Yang et al., 2020), with documented evidence of reliability and validity (Antony et al., 1998; Holfeld and Baitz, 2020). In the present study, the Cronbach's alph coefficient for the Chinese DASS-21 is 0.954.

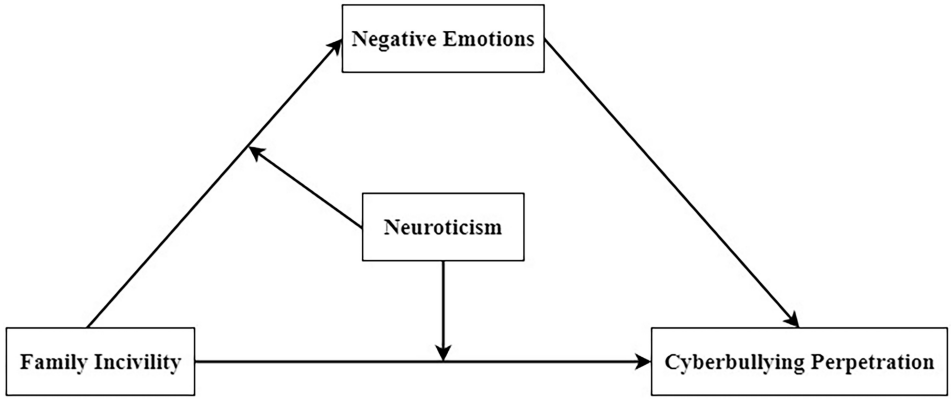


FIGURE 1
The moderate mediating model.

### Cyberbullying perpetration

The Chinese version of Cyberbullying Scale (CVCS) (Xu, 2015) was used in this research, which integrated the scales developed by Olweus (1993), Zhang and Wu (1999), as well as Cretin et al. (2011). CVCS is composed of 12 items (e.g., "Rumoring on the Internet") that measures the level of cyberbullying perpetration in direct and indirect ways. Participants responded on a 5 – point scale ranging from never (1) to always (5), with higher scores representing higher levels of cyberbullying perpetration. In the present study, the Cronbach's alph coefficient for the CVCS is 0.943.

### Neuroticism

The Chinese Big Five Personality Inventory Brief Version (CBF-PI-B) (Wang et al., 2011) was used in this research and initial version was developed by John et al. (1991). The CBF-PI-B is a 40-item scale consisting of 5 personality factors (i.e., Extroversion, Conscientiousness, Neuroticism, Openness, and Agreeableness) and it is rated on 6-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree), measuring personality traits as defined by the Five Factors Model (Costa and Mccrae, 1992). For the present study, we analyzed only data from the Neuroticism subscale with 8 items (e.g., "I am relatively stable from an emotional point of view"). We computed the total score by averaging participants' scores for each of the items of the scale, with higher scores representing higher levels of neuroticism. In the present study, the Cronbach's alph coefficient for the CBF-PI-B is 0.851.

### Covariates

The variables of participants' age, gender, average monthly household income, and average daily smartphone usage time were controlled for, as former studies showed that they might affect negative emotions and cyberbullying significantly (Deb and Walsh, 2012; Anat, 2014; Kim, 2015; Peng et al., 2021).

## Data analysis

Firstly, we calculated descriptive statistics and correlations matrix. To facilitate result interpretation and avoid the multicollinearity problem (Aiken and West, 1991), all the data were standardized except for the dependent variable. Secondly, we used PROCESS macro (Model 4) developed by Hayes (2013) to test the mediation effect of negative problems. Thirdly, we conducted PROCESS macro (Model 8) developed by Hayes (2013) to examine whether neuroticism moderated this mediation process. Additionally, to investigate the significance of indirect effects, we drew on the bootstrapping method (Hayes and Scharkow, 2013), which produces 95% bias-corrected confidence intervals from 5000 resamples of the data. The effects are significant when the confidence intervals exclude zero.

# Results

## Statistical description

As this study aimed at exploring whether negative emotions would mediate the association between family incivility and cyberbullying perpetration and whether this mediation effect would be moderated by neuroticism, the analysis included the following three steps.

## Preliminary analyses

The means, standard deviations, and correlation coefficients for all variables of the current study are displayed in

TABLE 1 Descriptive statistics and correlations for all variables.

| | *M* | *SD* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Gender | 1.52 | 0.5 | 1 | | | | | | | | |
| 2 Age | 19.96 | 3.09 | −0.22** | 1 | | | | | | | |
| 3 AMHI | 2.88 | 0.97 | 0.10** | −0.09** | 1 | | | | | | |
| 4 ADSUT | 2.42 | 0.87 | 0.12** | 0.02 | 0.14** | 1 | | | | | |
| 5 Grade | 1.92 | 1.09 | −0.15 | 0.61** | −0.09** | −0.00 | 1 | | | | |
| 6 NE | 33.9 | 11.35 | −0.13** | 0.19** | −0.13** | 0.12** | 0.09* | 1 | | | |
| 7 CP | 15.53 | 6.47 | −0.17** | 0.07* | −0.06 | 0.10** | 0.09* | 0.57** | 1 | | |
| 8 FI | 9.67 | 4.61 | −0.07** | 0.02 | −0.10** | 0.10** | 0.06 | 0.51** | 0.55** | 1 | |
| 9 Neuroticism | 21.36 | 7.51 | 0.07* | −0.02 | −0.09** | 0.08* | 0.03 | 0.66** | 0.31** | 0.44** | 1 |

*N* = 814. AMHI, average monthly household income; ADSU, average daily smartphone usage time; NE, negative emotions; CP, cyberbullying perpetration; FI, family incivility.
*$p < 0.05$, **$p < 0.01$.

TABLE 2 Testing the mediation effect of negative emotions on cyberbullying perpetration (*N* = 814).

| Predictor (s) | Model 1: NE | | Model 2: CP | |
|---|---|---|---|---|
| | β | *t* | β | *t* |
| Gender | −1.39 | −2.02 | −1.53 | −4.59*** |
| Age | 0.61 | 5.51 | −0.06 | −1.14 |
| FI | 0.27 | 4.40*** | 0.18 | 7.98*** |
| NE | | | 0.2 | 11.40*** |
| $R^2$ | 0.27 | | 0.39 | |
| *F* | 97.60*** | | 128.1*** | |

*N* = 814. NE, negative emotions; CP, cyberbullying perpetration; FI, family incivility.
***$p < 0.001$.

TABLE 3 Testing the moderated mediation effect of neuroticism on cyberbullying perpetration.

| Predictor (s) | Model 1: NE | | Model 2: CP | |
|---|---|---|---|---|
| | β | *t* | β | *t* |
| Gender | −2.33 | −4.25 | −0.09 | −3.39*** |
| Age | 0.61 | 6.97 | −0.08 | −1.43 |
| FI | 0.4 | 5.65*** | 0.33 | 7.91*** |
| Neuroticism | 0.84 | 21.36*** | −0.09 | −3.28 |
| FI × Neuroticism | 0.04 | 5.61*** | 0.03 | 8.83*** |
| NE | | | 0.22 | 10.51*** |
| $R^2$ | 0.54 | | 0.46 | |
| *F* | 189.27*** | | 112.32*** | |

*N* = 814. NE, negative emotions; CP, cyberbullying perpetration; FI, family incivility.
***$p < 0.001$.

Table 1. The results indicated that the relationship between all variables were statistically significant, and family incivility was positively related to cyberbullying perpetration. Therefore, H1 received support.

## Testing for mediating effect of negative emotions

Table 2 showed that family incivility was positively related to negative emotions (β = 0.27, $p < 0.001$), and negative emotions was positively associated with cyberbullying perpetration (β = 0.20, $p < 0.001$). Finally, it was found that family incivility had an indirect effect on cyberbullying perpetration (β = 0.18). Bootstrapping results confirmed the significance of the indirect effect, with a 95% confident interval of [0.133, 0.327]. Therefore, H2 was supported.

## Testing for moderated mediation

The results for H3 and H4 are reported in Table 3. Results demonstrated that the interaction of family incivility with neuroticism significantly predicted negative emotions (β = 0.04, $p < 0.001$) and cyberbullying perpetration (β = 0.03, $p < 0.001$).

Next, we plotted simple slopes which predicted the relationship between family incivility and negative emotions as well as that between family incivility and cyberbullying perpetration, separately for high and low levels of neuroticism. As presented in Figure 2, the slope of the association between family incivility and negative emotions was relatively strong for participants with high levels of neuroticism ($\beta_{high\ Neuroticism} = 7.44$, $t = 9.84$, $p < 0.001$). When participants with low levels of neuroticism, the moderating association between family incivility and negative emotions was insignificant ($\beta_{low\ Neuroticism} = -7.44$, $t = 1.34$, $p = 0.18$). Additionally, as shown in Figure 3, the effect of family incivility on cyberbullying perpetration was stronger for participants with high levels of neuroticism ($\beta_{high\ Neuroticism} = 7.44$, $t = 0.04$, $p < 0.001$), whereas the moderating association between family incivility and cyberbullying perpetration was insignificant for participants with low levels of neuroticism ($\beta_{low\ Neuroticism} = -7.44$, $t = 0.06$, $p = 0.148$).

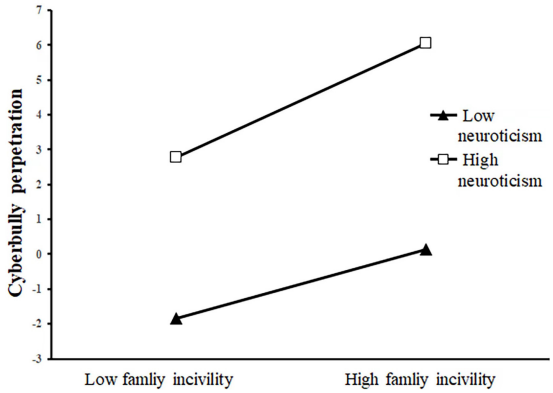


FIGURE 2
Interaction effect of family incivility and neuroticism on cyberbully perpetration. The black triangle represents low neuroticism and the white square represents high neuroticism.

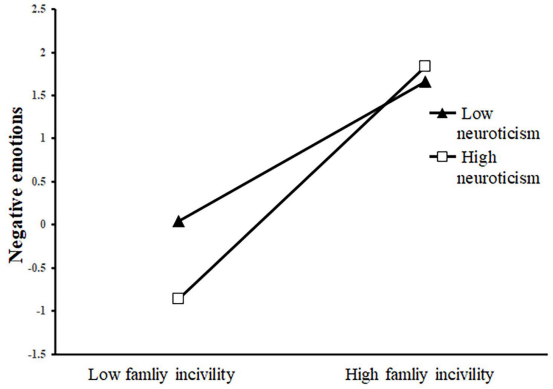


FIGURE 3
Interaction effect of family incivility and neuroticism on Negative emotions. The black triangle represents low neuroticism and the white square represents high neuroticism.

# Discussion

The current study aims at investigating how family incivility affects university students' cyberbullying perpetration, as well as the role of negative emotions and neuroticism in the above relationship, which enriches previous research on family incivility and extends the frustration-aggression theory. Specifically, the results indicated that family incivility was positively related to cyberbullying perpetration among university students through negative emotions. The effects of family incivility on negative emotions and cyberbullying perpetration were stronger for university students with high levels of neuroticism. However, low levels of neuroticism hardly moderated the relationship between family incivility and negative emotions, as well as that between family incivility and cyberbullying perpetration, which is consistent with previous studies demonstrating that low levels of neuroticism hardly affected individual mental health problems and problematic behaviors (Kuang et al., 2020; Wang et al., 2021). Contrary to highly neurotic individuals, those at a low level were always feeling more relaxed and imperturbable (Mccrae and Costa, 1987) and therefore had less negative emotional experience of stressful life events, such as family incivility.

## Theoretical contributions

Our study contributed to the current literature from four aspects. Firstly, although abundant research has been conducted in the field of family incivility, most of them were focused on the effect of family incivility in the family work context (Bai et al., 2016; Wright et al., 2020; Ren et al., 2021). Little attention has been paid to the relationship between family incivility and cyberbullying perpetration among university students in the family school context. In the present study, we put family incivility into the theoretical framework of the frustration-aggression theory, finding that chronic frustration (i.e., family incivility) also influenced university students' cyberbullying perpetration, supporting Hypothesis 1. That is consistent with the previous research, showing that stressful life events resulted in the person's cyberbullying perpetration (Yudes et al., 2021). Gurr (1970) found that the repeated and chronic frustration can cause the outbreak of aggression at both individual and social levels. Along with a constant source of frustration, the victims experiencing more family incivility are more likely to perpetrate cyberbullying. Besides, the social status of the target is a potential moderator (Cohen, 1955), and retaliation is more likely to happen and increase in an anonymous environment (Rule et al., 1978), where the imbalance of power is eliminated to large extent, so that anyone, even weak individuals or from lower social class, can attack others online (Barlett and Gentile, 2012). Our study provides a new perspective for exploring the effects of family incivility and the intervention of cyberbullying in universities.

Secondly, we examined the mediating role of negative emotions and found that negative emotions played a mediating role between family incivility and cyberbullying perpetration, supporting Hypothesis 2. Previous studies have demonstrated that stress, anxiety, and depression were the most frequent mental illnesses among university students (Paudel et al., 2020), which were positively related to cyberbullying perpetration (Schodt et al., 2021). A prior study claimed that negative emotions, such as stress and anxiety, can lead to individuals' impulsivity (Metcalfe and Mischel, 1999). The persons with high levels of impulsivity

are more inclined to cyberbullying perpetration (Kowalski et al., 2014). However, previous research has paid little attention to the stressor, that is, family incivility. As a matter of fact, external stimuli, that is, stressors, can only produce general arousal, while the way an individual interprets his internal perception influences his perception of stressful life events and aggression much more (Berkowitz, 1978). Family incivility as a stressor can cause real disturbance or pressure, creating individual negative emotions that is an instigation for the person to perpetrate cyberbullying. Many studies have explored the impacts of family incivility on individual negative emotions and aggressive acts (Maria and Devi, 2020). Family incivility (e.g., familial indifference, exclusion, or privacy inquiry) can make individuals feel more psychological distress (Lim and Tai, 2014) and emotional consumption (Hassan et al., 2019), then experiencing more negative emotions further. With more family incivility for a long duration, individuals may fail to release their negative emotions timely and effectively, thus causing their cyberbullying perpetration. Therefore, through examining the relationship between family incivility and negative emotions, it is plausible that university students experiencing more family incivility will develop more negative emotions and be more likely to carry out aggressive acts, such as cyberbullying perpetration. Our study stresses the significance of university students' mentality, associating their prior experiences with problem behaviors and offering a new angle to inspect the association between family interactions and aggressive acts online.

Thirdly, the results partially support the moderating role of neuroticism. Neuroticism reinforces the person's stress responses and the person with neuroticism is more vulnerable to stress (Suls, 2001). Neurotics are more likely to experience pain and negative emotions (Mccrae and Costa, 1987), which prepares them for perceiving threats (Schneider, 2004). In face of stressful life events, highly neurotic individuals are easily affected by negative cognition and feel a lack of strategic resources to stressors, and accordingly they may regard stressful life events as a threat more easily (Gallagher, 1990). A two-year longitudinal study showed that a threat appraisal to stressful life events resulted in the person's negative emotions, such as anxiety and depression, and aggressive behaviors (Taylor et al., 2013). As shown in the results, high levels of neuroticism strengthened the correlation between family incivility and negative emotions, as well as the correlation between family incivility and cyberbullying perpetration. Hypotheses 3 and 4 were partially supported. However, our findings are consistent with previous studies showing that university students with high levels of neuroticism are more susceptible to stressors, leading to negative emotions and cyberbullying perpetration, while those with low levels of neuroticism are less likely to have such problems (Miceli et al., 2021). Neuroticism influences the person's ability of emotional control. Individuals with different levels of neuroticism are different from selective attention, cognitive appraisals, and coping strategies (Mccrae and Costa, 1987). In face of stressful life events, highly neurotic individuals with poor emotional regulation ability are more sensitive to negative information and possibly experience a higher level of negative emotions, making their emotional interpretation problematic (Horner, 1996). In addition, individuals with high levels of neuroticism are more inclined to adopt negative cognitive appraisal, considering family incivility (i.e., the stressor) threatening (Schneider, 2004), eventually leading individuals to adopt negative coping strategies (e.g., cyberbullying perpetration), to alleviate their negative emotions. A recent biological experiment also showed that high neuroticism can increase individuals' reactivity of limbic system and decrease their tolerance to stressors or aversive stimuli, so that highly neurotic individuals are always disturbed by negative emotions and adopt negative coping strategies (Magal et al., 2021). Our study reflects individual differences among victims suffering from family incivility, and neuroticism plays an important role in this moderated mediation model.

Finally, this study enriches the applicability of the frustration-aggression theory among contemporary university students. It provides empirical support for this theory and explores the interactive interface between online and offline environments. The family incivility is a low-intensity and inconspicuous stressful life events (Lim and Tai, 2014). Therefore, it is always difficult to find that family incivility is an incentive to university students' negative emotions and cyberbullying perpetration. This study found that family incivility was positively associated cyberbullying perpetration directly or through the mediator of negative emotions, indicating that chronic negative experiences in real life can also cause online aggressive acts. This study provides a new perspective for the frustration-aggression theory in interpreting the influence of frustration strength on aggressive behavior. In addition, personality, as a relatively stable individual trait, can chronically affect individual cognition and behavioral style (Back et al., 2009). Combined with the Five – Factor Model of personality, this paper discusses the mechanism of neuroticism in the frustration-aggression theory, which also provides an empirical test for the mechanism of personality traits in stress research.

## Practical implications

This research also has some practical implications. As the findings of this study, there was a positive

correlation between family incivility, negative emotions, and cyberbullying perpetration, suggesting that parents should avoid negative family interactions,such as neglect, rejection and probing into privacy, and establish a respectful, harmonious and intimate family relationship to restrain individual negative emotions and cyberbullying perpetration.

Moreover, university students' mental health is closely related to their growing experience. The research reveals that the lasting influence of negative family interaction on university students is hardly weakened even if they have left their families away to live in a new environment. Therefore, psychological education should be united with students' families, which is beneficial to prevent university students' negative emotions from the source and intervene the vicious circle of cyberbullying in university efficiently.

Finally, the findings suggest that neuroticism plays an important role in how individuals interact with stressful life events. Highly neurotic individuals are more vulnerable to pressure events and prone to cyberbullying. Therefore, for university students with high levels of neuroticism, they should learn to manage their emotions and maintain emotional stability, to alleviate the negative emotions caused by family incivility.

## Limitations and future research

The current study still has several limitations. First, this study is a cross-sectional study rather than a longitudinal one, so that we can hardly evaluate the causal relationship between various variables. As reported by Acker and Pitchford (2014), family intimacy among university students was positively related to their peer intimacy and life satisfaction that are the two main factors for students' negative emotions and aggressive behaviors (Huang et al., 2021; Yokotani and Takano, 2021). In our study, nearly half of the participants were freshmen who may have a strong relationship with their family, for which most of them would be more affected by family incivility. However, precious studies found that the family influence on university students was dynamic in terms of their age and grade (Lopez, 1995). Therefore, further studies are needed to extend the relationship between family incivility and cyberbullying perpetration longitudinally.

Secondly, to preliminarily reflect the impact of family incivility on the mental health of Chinese university students, this study takes negative emotions (namely stress, anxiety, and depression) as an overall intermediary variable, but to some extent fails to reflect the stronger impact of family incivility on negative emotions among the three dimensions. However, anxiety and stress are phenomenologically different (Henry and Crawford, 2011). Future studies could be extended the mediating role of stress, anxiety, and depression prospectively, to gain full understanding on how these three psychologically distinct negative emotions play a role in the relationship between family incivility and cyberbullying perpetration.

Finally, to improve the theoretical construction and practical application of incivility in frustration-aggression model (Berkowitz, 2003), the influence of family incivility on daily aggressive behavior of university students can be further explored in the future. Meanwhile, some protective factors on the relationship of family incivility and bullying can be explored, such as peer support, individual positive traits, rumination (Naylor and Cowie, 1999; Muris et al., 2005).

# Conclusion

We investigated the correlations between family incivility and cyberbullying perpetration among Chinese university students and examined the mediated moderation model of negative emotions and neuroticism. Overall, family incivility was positively correlated with negative emotions and cyberbullying perpetration among university students. Negative emotion played a mediating role in the influence of family incivility on cyberbullying perpetration. Neuroticism can regulate the impact of family incivility on negative emotions and cyberbullying perpetration prospectively. High levels of neuroticism can increase the impact of family incivility on cyberbullying perpetration and on negative emotions, while low levels of neuroticism had no such effect on the relationships. This study provides an insight for exploring how family incivility affects university students' negative emotions and aggression. It also constructs a theoretical model for how family incivility affects the development of university students.

# 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 Ethics Committee of Faculty of Psychology, Ningbo University. Written informed consent to participate in this study was provided by the participants and the participants' legal guardian/next of kin. Written informed

consent was obtained from the individual(s), and minor(s)' legal guardian/next of kin, for the publication of any potentially identifiable images or data included in this article.

## Author contributions

JG, JX, and FL designed the work. JM and JW analyzed the data results. JX drafted the manuscript. JG, FL, and LW revised the manuscript. 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.

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# School bullying as destructive communal coping of the school community

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## Introduction

Psychological theories suggest different explanatory models of school bullying and prescribe its likelihood, relying on the spectrum of the factors, from the individual predictors to the environmental ones which contribute to the increase or decrease of school bullying. This paper substantiates the questions about reasons and course of bullying and suggests a new conceptualization from the perspective of school community dynamics. A view of school bullying as a form of stress response, namely, the destructive communal coping of the school community, is proposed. This approach explains students' and teachers' joining bullying despite the values conflict and constancy of bullying.

The origin of bullying in different theories is explained in different ways. According to the social-cognitive approach, bullying perpetration is a result of a child's social learning, an adoption of the behavior which receives rewards and is typical for the social environment (Swearer et al., 2014). Bullying also is explained as a way for a bully to increase his/her popularity, visibility or to get other resources among the peers (Salmivalli, 2014). Another explanation of bullying suggests that it is determined by a desperate need to belong and can be a way of coping with a fundamental fear of social exclusion (Underwood and Ehrenreich, 2014). The bystanders' behavior (verbal or nonverbal acceptance of bullying; Salmivalli, 2010; Houghton et al., 2012) and moral disengagement (Hymel and Bonanno, 2014) promotes bullying, but does not trigger it by itself. The most influential social-ecological approach considers bullying as a phenomenon located in an extensive and complicated social context, including peer groups, schools, families, neighborhoods, communities, and country (Hong and Espelage, 2012; Hymel and Espelage, 2018). It allows an analysis of the risk and protection factors in relation to bullying in the various systems in which a child is socialized, and describes how the individual characteristics of children interacting with environmental contexts and systems prevent or support bullying (Espelage, 2014; Yoon and Bauman, 2014; Bauman et al., 2021). The ecological approach to bullying is is very helpful in conceptualizing separate groups of factors and bullying outcomes, however, it does not explain the reasons for the occurrence of bullying in general.

As P. Horton notes, ≪The problem with viewing school bullying through a macro lens is that by doing so, the social, institutional and societal contexts within which it occurs are left out of the picture≫ (Horton, 2016, p. 211). Reconstruction of possible causes of bullying shows that it performs a number of functions: it is a way of reproducing familiar and rewarding behavior; it helps to protect one's sense of belonging to a group; it establishes a social hierarchy and may provide the bully with power, popularity, and access to resources. However, there are questions that these theories cannot answer and highlight their insufficiency:

1. What motivates school students and even teachers to actively or passively support bullying, if they know that this is inappropriate behavior?
2. Why does the occurrence of bullying have such stability?

## Bullying as destructive communal coping

Despite the numerous anti-bullying programs developed in the last decades, there are a number of challenges. The average decrease in the prevalence of bullying is 15-20% or less (Gaffney et al., 2021). The programs do not work as efficiently and universally as planned; the teachers do not implement the interventions, and the adolescents do not react as expected; bullying returns to schools despite the programs (Cunningham et al., 2016; Nocentini et al., 2019; Salmivalli et al., 2021). These issues indicate that bullying is needed for something, it is a widely used and familiar tool for solving hidden social problems in different environments.

This paper suggests considering school bullying as a destructive form of communal coping (Afifi et al., 2020) with stress in the school community, and shows why this approach is promising in terms of reducing the problem.

Bullying as a coping strategy consists of (1) identifying several students as threatening the quality of the educational process or students' wellbeing, and (2) the subsequent direct or indirect displacement of them by the community majority to the position of marginal, alien, or rejected by the main group. This strategy allows the community to solve several problems: to reduce emotional tension by choosing a safe object for expressing aggression and emotional discharge; to establish a social hierarchy instead of uncertainty; to rally the remaining members of the collective around an artificially created confrontation; the latter is perhaps the most important. However, bullying has a high social price, due to the many negative consequences that affect children who participate in bullying, and therefore this strategy cannot be regarded as constructive.

### Stress

External events (education reforms, changes in legislation, social processes like war or epidemics), and internal ones (normative, like exams, or non-normative, like a change of leadership) can have a serious destructive impact on the school, forcing special efforts to maintain community integrity. The school interacts with the problematic situations, the solution to which may only be possible in joint activity within the framework of a holistic system. According to the concept of communal coping, people should perceive stress as co-experienced (Afifi et al., 2006). School bullying is not typical communal coping, so the concept of "Our stress, our responsibility" in this case is distorted. Apparently, there is a substitution: the original stressor remains hidden, and is replaced in the view of community members by an "identified stressor" (the behavior of a particular child or group of children). The association between stress and bullying prevalence may be caught in the evidence that bullying escalates before exams, with a change of teacher (Roland, 1999; Farmer and Xie, 2007), or after the transition from primary to secondary school (Salmivalli et al., 2021). Referring to G. Walton, Horton writes, that bullying often reflects larger social and political battles, moral panics, and collective anxieties (Horton, 2016).

### Shared coping strategy, synergy

School bullying has a complex role structure, it involves the interrelated activity of many school community members. The main task of individual coping is to adapt a person to the situational requirements, maintaining wellbeing, and reducing the effect of stress (Lazarus and Folkman, 1984), thus the fairly new concept of communal coping describes collective efforts to cope with a stressful event together (Lyons et al., 1998). Mutual assistance, the exchange of resources, information and emotional support helps to cope with some events more effectively, creating a sense of belonging and solidarity and reducing the experience of loneliness (Afifi et al., 2006). The paradox of bullying is that the community response causes a split by alienating the victim, but the process taking place around this fully meets the criteria above. Responding to an implicit stressor, the school community splits into a dominant privileged group and rejected participants, and a powerful energy is hidden in this confrontation. It is often perceived as justified by everyone except the victims, and rationalized explanations of bullying often contain xenophobic (nationalistic, homophobic, ableist, etc.) attitudes. Common pro-bullying narratives often support the idea that there is a fundamental difference between a child who has become a victim and others, and that the victim is responsible for bullying. Step by step, more and more people are involved in the bullying process. They join the victim-blaming narrative and the justification of the collective aggression.

Collective moral disengagement happens: children and adults are actively involved in bullying or silently condone it, even if it is contrary to their values and is followed by shame and guilt. The group process seems to be more important in this case, than individual needs. The inefficiency of a zero-tolerance policy toward bullying, punishments, and bully exclusion (Boccanfuso and Kuhfeld, 2011; Bradshaw, 2013) confirms the communal character of bullying and its adaptive function.

## The destructiveness of bullying

Every coping strategy has certain benefits and costs (Lyons et al., 1998; Kuo, 2013). School bullying allows the most participants to join and to cope with stress emotionally in the short term, but it does not transform the underlying problem situation. There is a lot of evidence, that the victims, as well as the aggressors and the bystanders, face a number of serious negative consequences of bullying for their mental and physical health (e.g., anxiety and depressive symptoms, psychosomatic disorders, substance abuse, and self-harm), and social adjustment (e.g., problems with the close relationships, academic achievements, engagement in education, and stable employment), up to suicide (e.g., Copeland et al., 2013; Arseneault, 2018; Dhami et al., 2019). For the teachers, bullying may be a stressor which increase their burnout and exhaustion (Yoon and Bauman, 2014; Cunningham et al., 2016). All this points to the destructiveness of such a coping strategy in the long term.

## Recovery of the school community

Three clusters of school community recovery factors may be distinguished. First, *individual* factors (self-confidence, spirituality, maturity, positive attitudes of the community members, social and emotional learning): they make individuals more resilient, and their behavior becomes more prosocial (Divecha and Brackett, 2020). Second, *intra-school* factors (school climate, consistency of members' actions, cohesion and flexibility, openness in demanding and receiving support, collective narratives, posttraumatic growth; Chamlee-Wright and Storr, 2011; Wlodarczyk et al., 2016). As numerous bullying prevention programs and studies of their effectiveness show, bullying at school is reduced in terms of improving the quality and psychological safety of the environment as a whole and developing a systematic response to bullying situations from the school community (Divecha and Brackett, 2020; Dorio et al., 2020; Eldridge and Jenkins, 2020). Third, *extra-school* (economic and social resources, cooperation with other social institutions, community-based collaboration actions), by analogy with community recovery after natural disasters (Kusago, 2019).

# Discussion

Here are the answers to the research questions, based on the conception of school bullying as a form of destructive communal stress coping.

1. School students join bullying despite knowing that bullying is inappropriate behavior, because this is their contribution to the struggle with stress, uncertainty and emotional tension, and this goal becomes more important than their moral beliefs and attitudes.When teachers avoid discussing bullying, ignore children's victimization, or highlight favorite students, they also contribute to the collective struggle with stress, by joining bullying and receiving immediate behavioral support from the children.
2. The occurrence of bullying is stable because it has a number of social functions not explained only by the bully's individual level of aggression, and it reflects the more wide contexts. If the community lives with consistent stress and bullying matches its needs, bullying will return again and again despite any interventions which are implemented.

The proposed approach of considering bullying as a form of coping with stress by the whole school community opens up new opportunities for the development of anti-bullying interventions. They should begin with the acknowledgment of bullying as a community problem, and then include a number of transformations within the school and the involvement of a number of extra-school resources aimed at helping to reduce stress, restore community integrity and construct a new collective narrative. This approach seems to be a very complex and costly process, but it assumes the use of a "wide-angle lens" instead of a "macro lens" toward bullying, in the terms of Horton (2016), and gives hope to cope with the challenges faced by even the most effective anti-bullying programs (Salmivalli et al., 2021), due to a new framework that considers bullying not as an independent phenomenon, but as a consequence of a certain dynamics of the school community under stress.

# Author contributions

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

# Conflict of interest

The author declares 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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# Aggressive humor style and cyberbullying perpetration: Normative tolerance and moral disengagement perspective

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The literature has acknowledged the correlation between aggressive humor style and cyberbullying perpetration; however, little is known about how this occurs. In this study, we sought to gain an understanding of how and when someone with an aggressive humor style may develop into a perpetrator of cyberbullying. We propose that whether an individual's aggressive humor style results in cyberbullying perpetration depends on online social norms of tolerance for aggressive humor. When online normative tolerance for aggressive humor is high, individuals' aggressive humor style is positively correlated with their moral disengagement, which, in turn, increases their intention to commit cyberbullying. When online normative tolerance for aggressive humor is low, the effect of individuals' aggressive humor style on their moral disengagement is attenuated, which, in turn, weakens the relationship between aggressive humor style and cyberbullying perpetration. A total of 305 Chinese university students were recruited to participate in the experiment, and we found support for this hypothesis across the experiment. Several theoretical and practical implications are discussed.

KEYWORDS

**aggressive humor style, cyberbullying perpetration, moral disengagement, online normative norms, tolerance for aggressive humor**

## Introduction

Globally, cyberbullying is a major youth issue that involves intentionally inflicting harm or discomfort on another person through the use of the Internet, including social media (Lowry et al., 2016; Wang X. et al., 2019; Bai et al., 2020), which is becoming increasingly prevalent among adolescents. According to Vogels (2021), the majority of teenagers in 2021 who have experienced cyberbullying often suffer from depression and other mental problems. Therefore, to combat cyberbullying more effectively, it is vital to understand what motivates young people to bully others online (Varjas et al., 2010; Law et al., 2012; Steer et al., 2020). As noted in recent studies, aggressive humor might be a critical factor in the perpetration of cyberbullying (Wong and McBride, 2018; Steer et al., 2020; Maftei et al., 2022). In most studies, however, a relationship between aggressive humor and cyberbullying

perpetration has been acknowledged or inferred in passing, but little empirical evidence has been provided to support this assertion. For example, Steer et al. (2020) found that humor-motivated cyber-banter or cyber-teasing may be associated with the perpetration of cyberbullying, with no further explanation, measurement, or modeling. Interestingly, Sari (2016) also suggested a link between an aggressive humor style and cyberbullying perpetration; however, it is less clear how and when perpetrators' aggressive humor style has a significant effect on their cyberbullying perpetration. Thus, understanding the effect of aggressive humor on cyberbullying perpetration is especially pressing. Therefore, we sought to explore how and when perpetrators' aggressive humor style might result in cyberbullying perpetration, as well as to extend previous investigations by exploring the mediating effect of perpetrators' moral disengagement and the moderating effect of online normative tolerance for aggressive humor.

## Humor in online social interactions

A sense of humor often plays an important role in young people's online social interactions (Burkley, 2022; Liao et al., 2022). Broadly defined, a sense of humor is a trait-like individual attribute characterized by behavior, attitude, or ability that facilitates amusement during social interactions (Martin, 2001). Humor is often used on social media as a means of promoting social cohesion (Yam et al., 2018). For example, Jones et al. (2021) argued that the use of humor in response to friends' online postings is an effective method for maintaining positive relationships. However, not all forms of humor are positive. In fact, humoristic expressions can be used for a variety of social purposes—sometimes opposite ones. They may be used to strengthen relational bonds or to defuse awkwardness, but they may also serve to demonstrate superiority over others (Martin and Ford, 2018). Accordingly, Martin et al. (2003) attempted to better predict the behavior behind humor by dividing it into four subtypes: affiliative, self-enhancing, aggressive, and self-defeating. Affiliative humor promotes interpersonal bonds and reduces interpersonal tensions through benign and well-meant humor; in a manner similar to coping humor, self-enhancing humor involves maintaining a humorous outlook in the face of stress and adversity; self-defeating humor involves humiliating or making fun of oneself to gain the approval of others and avoid criticism from others; and aggressive humor is characterized by hostile, cynical, or sarcastic jokes, comments, teasing, or banter intended to denote superiority over others (boosting the self). Martin et al. (2003) also suggested that adaptive humor styles are often associated with positive outcomes [i.e., happiness (Ford et al., 2014) and social competence (Yip and Martin, 2006; Semrud-Clikeman and Glass, 2010)], while maladaptive humor styles are usually related to negative consequences [i.e., aggression (Baron and Ball, 1974; Ryan and Kanjorski, 1998) and deviance (Yam et al., 2018)].

## Aggressive humor and cyberbullying perpetration

Considering the close alignment between aggression humor and specific characteristics of cyberbullying perpetration, we decided to focus on the aggressive humor style of cyberbullying perpetrators. In previous studies, the relationship between aggressive humor and cyberbullying perpetration has been mentioned in passing, but no empirical evidence has been provided regarding how and when such a relationship exists. For example, Klein and Kuiper (2006) briefly described how people use aggressive humor on others to humiliate them, reduce their popularity, and gain superiority over them. Sari (2016) proved without theoretical modeling that adolescents use aggressive humor to provoke anger and humiliate their peers. Although it is widely accepted that there is a correlation between aggressive humor and cyberbullying perpetration, it is less clear how and when perpetrators' aggressive humor style affects their cyberbullying behavior. Steer et al. (2020) called for future studies to pay closer attention to perpetrators' moral disengagement mechanisms (i.e., something funny rather than harmful) when explaining the association between aggressive humor and cyberbullying, which is generally shaped by actions such as using technology to create funny photos of victims, creating websites with derogatory statements, or sending "funny" messages, e-mails, photos, or videos to victims and groups. Therefore, in response to Steer et al.'s (2020) call, we investigated how and when someone with an aggressive humor style would become a perpetrator of cyberbullying.

## Moral disengagement as a mediator

Moral disengagement theory describes psychological maneuvers as a means of selectively disengaging an individual's self-regulation mechanisms so that adverse behaviors can be performed without psychological repercussions (Bandura et al., 1996; Bandura, 2002; Chan et al., 2022). Bandura (2002) argued that ethics and morality are important to individuals. The act of engaging in activities in accordance with moral standards brings satisfaction and a sense of self-worth, while the act of engaging in activities that are contrary results in psychological discomfort, cognitive dissonance, and self-shaming. Although this is true, morality regulation does not always provide a permanent internal control system that is subject to change due to factors outside its control, including individual and contextual factors. For example, a person who has an aggressive humor style might gain an appreciation for committing cyberbullying perpetration through observation of others' acquiescence to, and even agreement with, their aggressive jokes and become aggressive online with their weaker peers as a result (Sari, 2016). In addition, individuals who have an aggressive humor style can change their beliefs regarding cyberbullying perpetration and develop high moral disengagement that allows them to justify, rationalize, or neutralize their online aggression (Steer et al., 2020). In other

words, individuals' humor style may affect their level of moral disengagement and, in turn, influence their intention to commit cyberbullying. In line with this theoretical lens, a growing number of studies have established that moral disengagement mediates the association between individual factors (e.g., emotion-related personality and humor style) and cyberbullying perpetration (Ciucci and Baroncelli, 2014; Maftei and Măirean, 2023). To our knowledge, no study has examined the mediating role of moral disengagement in the effect of aggressive humor and cyberbullying perpetration, although, based on previous work, we expect there to be one. In the following section, we discuss two reasons why moral disengagement is an appropriate mediator.

First, individuals who use aggressive humor are more likely to develop an extreme sense of moral disengagement. According to moral disengagement theory, moral disengagement is a result of the growing interaction between their internal factors, such as experience and habit, and their external factors, such as social context (Bandura et al., 1996; Bandura, 2002). In other words, individuals' moral disengagement can be shaped by their previous experience and language habits as a malleable cognitive orientation (Zhao et al., 2019). Many empirical studies support this argument, showing that young people's moral disengagement is influenced by various factors, including their own language habits, previous experiences, emotions-related personality traits, and humor styles (Ciucci and Baroncelli, 2014; Paciello et al., 2021; Maftei et al., 2022; Maftei and Măirean, 2023). For example, individuals with a high level of aggressive humor in their language communication habits might increase their likelihood of activating a moral disengagement process for online sexist memes (Paciello et al., 2021). Thus, we assume that individuals with an aggressive humor style score higher on the moral disengagement scale.

Second, many cross-sectional studies have confirmed that those with a high level of moral disengagement are more likely to engage in cyberbullying, demonstrating that moral disengagement is positively related to cyberbullying, even after adjusting for third variables (Bussey et al., 2015; Allison and Bussey, 2017; Meter and Bauman, 2018; Orue and Calvete, 2019). There is also evidence from three longitudinal studies indicating that moral disengagement plays a significant role in predicting individuals' cyberbullying perpetration (Marin-Lopez et al., 2020; Zhang et al., 2021; Yang et al., 2022). For example, Yang et al. (2022) indicated that there is a longitudinal relationship between moral disengagement and cyberbullying perpetration regarding peer pressure. It is important to note the positive associations between moral disengagement and cyberbullying perpetration in meta-analyses (Gini et al., 2014; Kowalski et al., 2014; Chen et al., 2017). In light of previous studies, we propose the following hypotheses:

> *H1a*: Individuals' aggressive humor style is positively related to their moral disengagement.
>
> *H1b*: Moral disengagement is positively related to cyberbullying perpetration.
>
> *H1c*: Individuals' moral disengagement mediates the relationship between aggressive humor and cyberbullying perpetration.

## Moderation effects of normative tolerance for aggressive humor

It is possible to observe a style of humor that is aggressive along with social norms that tolerate the use of aggressive humor (Ford et al., 2001). Social norms of tolerance for aggressive humor may have a significant impact on how aggressive humor affects their justification and intention to engage in cyberbullying. An independent study demonstrated that the social norm of tolerating sexist humor is significantly associated with aggression in external behavior (Ford et al., 2001). That study focused on a specific type of aggressive humor, namely, sexist humor, which limits its validity as a generalization. Although previous research has shown that normative tolerance for aggressive humor predicts individuals' behavior related to aggression activities (Ford et al., 2001; Allison et al., 2019; Paciello et al., 2021; Maftei and Măirean, 2023), to date, no study has examined whether normative tolerance for aggressive humor is significantly related to cyberbullying perpetration and rationalization and justification of aggressive and abusive behavior. In addition, it remains unclear whether normative tolerance for aggressive humor can significantly exacerbate the detrimental effects of aggressive humor on moral disengagement and cyberbullying.

According to moral disengagement theory, individuals' moral cognition and behavior are a function of the interaction of individual and context factors (Bandura et al., 1996; Bandura, 2002). Personal and social influences play a joint role in shaping individuals' moral judgments and actions (Wang X. et al., 2019). It has been suggested, for example, that aggression associated with sexism results from exposure to sexist humor and social norms, such as the normative tolerance for sexist humor (Ford et al., 2001). Therefore, we hypothesized that the interaction between individuals with an aggressive humor style and online normative tolerance for such humor would significantly affect their moral disengagement and involvement in cyberbullying. In particular, a high degree of tolerance for aggressive humor online is associated with an increase in individuals with aggressive humor style changing their beliefs regarding cyberbullying perpetration, evaluating aggressive behavior as morally acceptable, and making them develop moral disengagement that permits them to justify their abusive behavior. Therefore, if online social norms of tolerance for aggressive humor are high, individuals with aggressive humor may be more likely to perpetrate cyberbullying. One study roughly supported our assumption by indicating that sexist humor may impact male participants' self-directed negative affect and behavior in response to sexual abuse (Paciello et al., 2021). Building on previous work, we propose the following hypothesis:

> *H2*: The indirect effect of individual's aggressive humor style on cyberbullying perpetration, via moral disengagement, is moderated by online normative tolerance for aggressive

> humor such that the indirect effect is stronger when online normative tolerance is high, but weakens when online normative tolerance is low.

## The present study

Our objective was to propose a more comprehensive understanding of the mechanism underlying the relationship between aggressive humor and cyberbullying perpetration according to moral disengagement theory. Specifically, we investigated moral disengagement as a mediator and online normative tolerance for aggressive humor as a moderator of such a relationship. As shown in Figure 1, we proposed a moderated mediation model to answer two questions: How does an aggressive humor style lead individuals to commit cyberbullying perpetration? Why?

# Materials and methods

## Participants

Three hundred and five participants were recruited from different universities in China, of which 55.74% were male and 44.26% were female. The age of the participants ranged from 16 to 25. Their average age was 20.81, with an average of 2.58 h per day spent on social media. Approximately 20 min were spent by each subject completing the entire experiment.

## Procedure and experimental design

We employed a factorial design and manipulated aggressive humor style (presence or absence). At the beginning of this study, participants were informed that the purpose of our study was to investigate the link between aggressive humor style and cyberbullying perpetration. Then, the participants were provided with a scenario followed by aggressive humor manipulation. The scenario was adapted from Kuiper et al. (2010). Participants were randomly assigned to one of two experimental conditions. In both conditions, participants were asked to read the following statements:

Imagine that you are having a snack in the cafeteria of your university with a friend from your class. It is about once every week that you meet this friend outside of class and spend some time discussing various personal matters. You announce to your casual friend today that the person you have been dating for the past year is seriously considering ending the relationship.

To manipulate aggressive humor style, we provide an example of aggressive humor for participants and also instructed them to imagine such scenario involving aggressive humor. Participants in the aggressive humor condition were asked to read the following statements:

When you share your dating relationship problems with your casual friend, he or she responds by making sarcastic and critical remarks about you. It is normal for a casual friend to make humorous comments that ridicule your performance and abilities. Using this type of putdown humor shows that your casual friend often expresses humor without considering its potential impact on other individuals.

To manipulate the control condition, we asked participants to read the following statements:

Your casual friend responds with humorous comments when you describe your dating relationship problems, but his or her humor is not sarcastic and critical. Using such gentle humor conveys the idea that your casual friend often expresses humor while considering its potential impact on others.

Following previous studies (Mayer et al., 2012; Barlow et al., 2018; Qin et al., 2020), participants completed a filler task that appeared unrelated (describing their hobby or favorite color). The manipulation check is then conducted using the aggressive humor scale (Martin et al., 2003; Kuiper et al., 2010; Yam et al., 2018; Evans et al., 2019). We matched each scenario with a manipulation question to avoid priming the subjects (Choi et al., 2018). Data from those who failed the manipulation check were excluded from the analysis if the manipulation check failed (Oppenheimer et al., 2009). After that, participants completed measures of cyberbullying perpetration intention, moral disengagement, and reported demographic information. The final data set consisted of 305 participants who answered one scenario each. Among these participants, 152

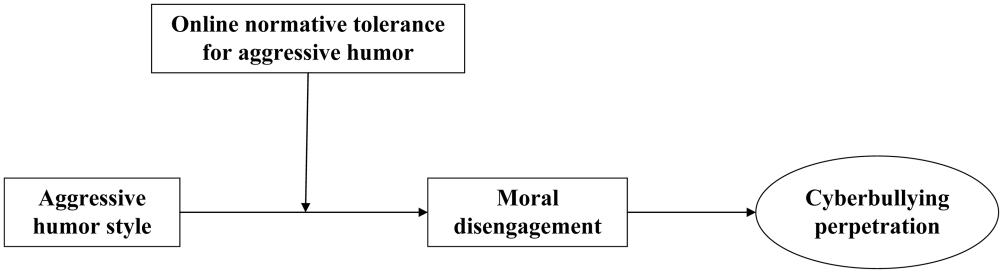


FIGURE 1
The proposed research model.

participants participated in the aggressive humor condition, whereas 153 participants participated in the control condition.

## Measures

### Normative tolerance for aggressive humor

We measured normative tolerance for aggressive humor on a seven-point scale adapted from Ford et al.'s (2001). We made several adjustments to reflect the state nature of this construct, and asked participants to rate the extent to which they thought others would tolerate such humor of this type in the scenario described. A sample item is "Given the scenario just described, please indicate how critical others would be of those remarks (the main character) were highly correlated." The Cronbach's alpha coefficient for this construct in our sample was 0.839.

### Moral disengagement

We measured moral disengagement using 16-item scale adapted from Bandura et al. (1996). This scale has been widely used to capture individuals' moral disengagement in cyberbullying episodes (e.g., Chan et al., 2022; Yang et al., 2022). A sample item is "Online comments with aggressive jokes is just a way of joking." The participants rated all items on a seven-point scale. The Cronbach's alpha coefficient for this construct in our sample was 0.951.

### Cyberbullying perpetration

We measured cyberbullying perpetration using nine-item Cyberbullying Scale adapted from Wright et al. (2015). Several studies have demonstrated the validity and reliability of this scale in the context of Chinese adolescents (Wang et al., 2016; Wang G.-F. et al., 2019). A sample item is "how often would the main character in the scenario say nasty things to someone or called them names using texts or online messages." A seven-point scale was used to rate all items. The Cronbach's alpha coefficient for this construct in our sample was 0.908.

### Manipulation check for aggressive humor

The participants were asked to rate the aggressive humor style of the main character using a nine-item scale developed by Martin et al. (2003), Kuiper et al. (2010), Yam et al. (2018), and Evans et al. (2019). A seven-point scale was used to rate all items. Participants in the aggressive humor condition reported a significantly higher score (M = 4.29) than those in the control condition [M = 2.28, $t(303) = -24.16$, $p < 0.001$]. As a result, aggressive humor is manipulated.

## Data analysis

Four steps were involved in the data analysis. First, we carried out the analysis of correlations to examine Hypothesis1a,1b. Second, we examined the mediation effect proposed in Hypothesis 1c by SPSS PROCESS macro [model 4; Hayes, 2012]. Third, to examine the moderation effect proposed by Hypothesis 2, the PROCESS marco (Model 7) developed by Hayes (2012) was adopted. Finally, the bootstrapping method (Hayes, 2012) was also employed for the analysis of indirect effects.

# Results

## Descriptive analysis

Table 1 summarizes descriptive statistics and correlations. There is a significantly positive correlation between aggressive humor style and moral disengagement (r = 0.69, $p < 0.01$). In addition, there was a significant upward correlation between moral disengagement and cyberbullying perpetration (r = 0.74, $p < 0.01$). Besides, aggressive humor style was positively correlated with cyberbullying perpetration (r = 0.59, $p < 0.01$). Additionally, online normative tolerance was positively correlated with both moral disengagement (r = 0.45, p < 0.01) and cyberbullying perpetration (r = 0.41, $p < 0.01$).

## Testing for mediation effect

As presented in Table 2, there was a significant correlation between aggressive humor style and moral disengagement (β = 1.64, $p < 0.001$, see Model 1 of Table 2). A significant correlation of moral disengagement and cyberbullying

TABLE 1 Descriptive statistics and correlations.

| | M | SD | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 1. Gender | 0.44 | 0.50 | 1 | | | | | |
| 2. Age | 20.81 | 0.92 | −0.12* | 1 | | | | |
| 3. Aggressive humor style | 3.77 | 1.07 | 0.02 | 0.04 | 1 | | | |
| 4. Cyberbullying perpetration | 3.05 | 1.11 | −0.06 | 0.13* | 0.59** | 1 | | |
| 5. Moral disengagement | 3.40 | 1.21 | −0.09 | 0.13* | 0.69** | 0.74** | 1 | |
| 6. Online normative tolerance | 3.43 | 1.23 | 0.03 | −0.00 | 0.57** | 0.41** | 0.45** | 1 |

$N = 305$. For gender, 1 = male, 0 = female.
*$p < 0.05$; **$p < 0.01$.

perpetration was also present (β = 0.57, $p < 0.001$, see Model 2 of Table 2). Thus, Hypothesis 1a and 1b were supported. Besides, Bootstrapping results showed an indirect effect, such that aggressive humor style increased cyberbullying perpetration intentions through moral disengagement (b = 0.93, 95% CI [0.69, 1.17]). Thus, moral disengagement mediated the effect of aggressive humor style on cyberbullying perpetration (see Figure 2), supporting Hypothesis 1c.

## Testing for moderated mediation effect

In Table 3, the interaction between aggressive humor style and online normative tolerance significantly predicted moral disengagement [β = 0.29, $p < 0.001$, see Model 1 of Table 3, $R^2 = 0.60$, $F(1, 301) = 90.24$]. It was also found that the indirect effect of aggressive humor on cyberbullying perpetration *via* moral disengagement varied significantly according to the moderator (online normative tolerance for aggressive humor), with an index of moderated mediation of 0.16, 95% CI [0.0659, 0.2631]. When online normative tolerance was low (high), there was a significant indirect effect of individuals' aggressive humor style on their cyberbullying intention, such that aggressive humor style increased the likelihood of intentions to commit cyberbullying through increased moral disengagement (b = 0.61; 95% CI [0.4101, 0.8484], b = 1.02; 95% CI [0.7558, 1.2989], respectively). In order to better understand the results, we employed a figure which illustrates the combined effects of aggressive humor and online normative tolerance on moral disengagement (Figure 3). Our study examined indirect effects at high and low levels of the moderator (1 SD above and below) by constructing confidence intervals (Edwards and Lambert, 2007; Qin et al., 2020). Figure 3 showed a stronger positive relationship between aggressive humor style and moral disengagement when online normative tolerance was high ($b_{high} = 1.80$, t = 15.25, $p < 0.001$) compared to when it was low ($b_{low} = 1.08$, t = 7.79, $p < 0.001$). Thus, we concluded that the indirect effect of individuals' aggressive humor style on cyberbullying perpetration, *via* moral disengagement, is moderated by online normative tolerance for aggressive humor such that the indirect effect is stronger when online normative tolerance is high, but weakens when online normative tolerance is low, supporting Hypothesis 2.

TABLE 2 Regression results.

| Predictors | Model 1 | | Model 2 | |
|---|---|---|---|---|
| | Moral disengagement | | Cyberbullying perpetration | |
| | B | t | β | t |
| Gender | 0.01 | 0.10 | −0.06 | −0.73 |
| Age | −0.04 | −0.66 | −0.06 | −1.25 |
| Aggressive humor style | 1.64*** | 16.06 | 0.42*** | 3.62 |
| Moral disengagement | | | 0.57*** | 11.82 |
| $R^2$ | 0.46*** | | 0.57*** | |
| F | 86.87 | | 98.42 | |

$N = 305$.
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

## Discussion

We proposed a moderated mediation model to explore how and when individuals with an aggressive humor style could become perpetrators of cyberbullying. In particular, we investigated whether online normative tolerance for aggressive humor moderates an indirect connection between aggressive humor style and cyberbullying perpetration *via* moral disengagement. We found compelling evidence that the impact of aggressive humor style on cyberbullying perpetration can be explained in part by moral disengagement. This indirect relationship was further moderated by online normative tolerance for aggressive humor. When there is high online normative tolerance for aggressive humor, those with an aggressive humor style are more likely to adopt a moral disengagement approach to perpetrate cyberbullying, while this

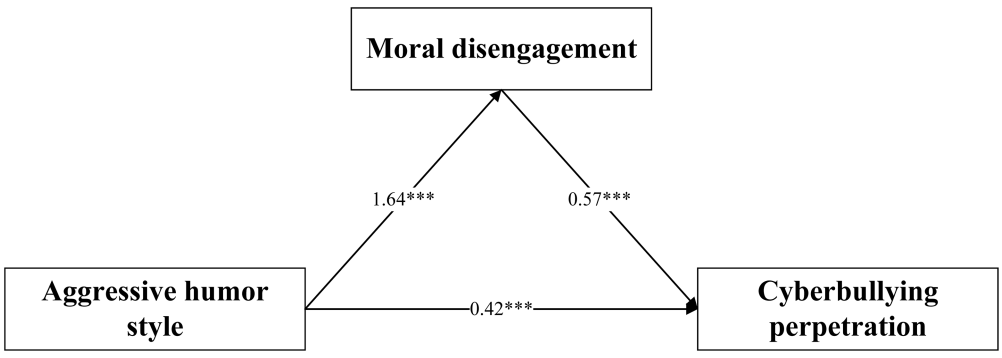


FIGURE 2
Testing for mediation effect. ***Significant at the 0.001 level; Unstandardized betas are reported.

TABLE 3 Regression results.

| Predictors | Model 1 | | Model 2 | |
|---|---|---|---|---|
| | Moral disengagement | | Cyberbullying perpetration | |
| | β | t | β | t |
| Gender | −0.01 | −0.14 | −0.06 | −0.73 |
| Age | −0.01 | −0.24 | −0.06 | −1.24 |
| Aggressive humor style | 0.51 | 1.90 | 0.42*** | 3.61 |
| Online normative tolerance | 0.22*** | 4.45 | | |
| Aggressive humor style * Online normative tolerance | 0.29*** | 3.92 | | |
| Moral disengagement | | | 0.57*** | 11.82 |
| $R^2$ | 0.60*** | | 0.57*** | |
| F | 90.24 | | 98.42 | |

$N = 305$.
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

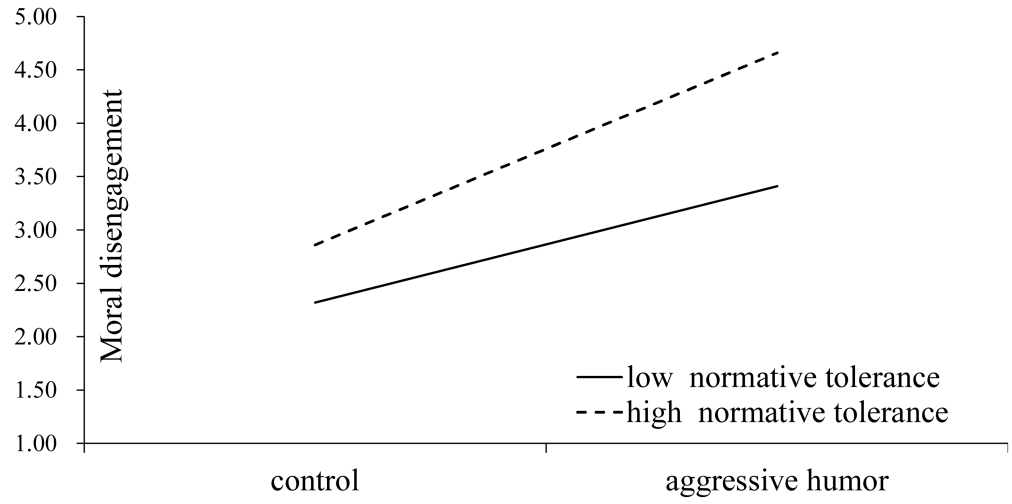


FIGURE 3
Joint effect of aggressive humor and online normative tolerance on moral disengagement.

effect may be attenuated in the case of low online normative tolerance for aggressive humor. This phenomenon can be explained in several different ways. First, based on moral disengagement theory, social norms of tolerance are believed to contribute to individuals rationalizing or justifying their adverse behavior without experiencing psychological repercussions (Kong and Yuan, 2018; Paciello et al., 2020). No matter what type of aggressive humor they display, individuals with a high perception of online normative social norms of tolerance for aggressive humor exhibit a much stronger belief that cyberbullying should be permitted than those with a low perception of online normative tolerance for aggressive humor. It is possible that because individuals who perceive a low level of normative tolerance for aggressive humor online are more likely to realize that it is inappropriate to engage in cyberbullying, the impact of an aggressive humor style may be limited (Pabian et al., 2016; Maftei and Măirean, 2023) A high level of online normative tolerance for aggressive humor, however, is more likely to result in the belief that moderate deviance or aggression is automatically permitted (Piccoli et al., 2020; Wachs et al., 2021). Second, individuals who perceive a high level of normative tolerance for aggressive humor are more likely to believe that aggressive behavior is acceptable. In contrast, individuals who perceive low levels of normative tolerance for aggressive humor are more likely to believe that aggressive behavior is not permitted, forming a striking contrast between these two groups (Harper, 2019; Mishna et al., 2020). As a result, individuals who perceive a high level of normative tolerance for aggressive humor may be more susceptible to the influence of aggressive humor styles.

## Theoretical contributions

This study makes several theoretical contributions to the extant literature on cyberbullying. First, this work contributes to

cyberbullying literature by providing a richer understanding through the lens of moral disengagement of how and when an individual with an aggressive humor style would develop into a perpetrator of cyberbullying. Previous literature has mainly focused on examining the correlation between the aggressive humor style and cyberbullying perpetration (Sari, 2016; Qodir et al., 2019; Maftei and Măirean, 2023), and surprisingly few have explored whether individuals' moral disengagement mechanisms are responsible for this indirect effect. Taking the moral disengagement viewpoint into consideration, it remains to be determined how and when someone with an aggressive humor style can influence their moral disengagement mechanism and ultimately, trigger their intention to commit cyberbullying. In light of moral disengagement theory (Bandura et al., 1996; Lo Cricchio et al., 2021; Chan et al., 2022), we provide one of the first, if not the first, insights into the causal mechanism underlying the relationship between aggressive humor style and cyberbullying perpetration, which contributes to understanding how and when an aggressive humor style would have an impact on adolescents' cyberbullying perpetration.

Second, this paper contributes to cyberbullying literature by revealing a boundary condition on the effect of aggressive style on cyberbullying perpetration. In particular, we explored online normative tolerance for aggressive humor as the key boundary condition to achieve a more comprehensive understanding of the impact of aggressive humor on cyberbullying perpetration. As the literature on the relationship between aggressive humor and cyberbullying perpetration is still in its infancy (Dynel, 2021; Maftei and Măirean, 2023), it is vital to understand when the aggressive humor style has a significantly positive effect on cyberbullying and when such an effect is attenuated, so that we gain a better understanding of the boundary conditions that determine the impact of aggressive humor style. In this work, we revealed that an aggressive humor style contributes significantly to cyberbullying perpetration when individuals perceive online normative tolerance for such humor to be high. However, such positive influences would be diminished if individuals perceived online normative tolerance for such humor to be low. Therefore, these findings provide us with a deeper understanding of how aggressive humor impacts cyberbullying, showing that it is not static, but could be attenuated if online normative tolerance for such humor is low.

## Practical contributions

This work makes several practical contributions. First, the findings underscore the crucial role of aggressive humor in cyberbullying, prompting platform owners to pay more attention to users' online interactions involving this type of humor. To prevent cyberbullying perpetration and improve the overall online climate, platform owners could employ machine learning techniques to detect users' online posts involving aggressive humor, classify the posts into benign or potentially malicious categories, and set up automatic alerts in the latter category. Furthermore, platform owners could organize educational and training programs on topics that include what is appropriate humor for online interaction and what kinds of humor may hurt others, which helps distinguish between good and bad humor and mitigates the potential negative consequences of aggressive humor.

Second, aggressive humor is associated with moral disengagement, whereas moral disengagement contributes to cyberbullying. The concept of moral disengagement implies that cyberbullying perpetrators escape moral evaluation without experiencing cognitive dissonance by justifying their online posts as mere jokes (Barlett et al., 2021; Falla et al., 2021; Maftei et al., 2022). Teachers and parents should pay closer attention to children who have aggressive humor styles to prevent the emergence of this moral disengagement mechanism. They could educate these children on how to use polite jokes and provide examples showing how aggressive jokes may result in harm to others. It may also be beneficial for teachers to employ cyberbullying intervention programs that consider the elements of aggressive humor and moral disengagement when conducting cyberbullying intervention strategies.

Third, it has been suggested that a high level of online normative tolerance for aggressive humor may strengthen the impact of aggressive humor on cyberbullying perpetration, which is a reminder that platform owners should take steps to guide online social norms. There are some ways to guide online social norms of tolerance for aggressive humor (Abrams and Scheutz, 2022). For example, it would be helpful if platform owners played a film to educate users to use humor wisely and promote a positive ethos in the online community (Nabila et al., 2021; Rinaldi, 2021). Similarly, campaigns or educational lectures can be designed to guide online social norms of tolerance for aggressive humor so that individuals with aggressive humor will not be able to rationalize their cyberbullying behavior (Polanin et al., 2021; Lan et al., 2022).

## Limitations and future research

This study is one of the first—if not the first—to empirically examine how aggressive humor contributes to cyberbullying. Although the study provides a starting point, there are several limitations that future research should address. First, this work was designed to test a sample that is representative of the general situation of Chinese Middle school individuals. However, the sample might not perfectly represent adolescents worldwide. Hopefully, the findings of this study will be demonstrated more adequately in the future with samples from all around the world.

Second, we encourage future researchers to explore the impact of different humor styles, such as self-enhancing humor or self-defeating humor, on cyberbullying perpetration. We examined only the role of aggressive humor in cyberbullying perpetration because cyberbullying is perpetrated in a socially maladaptive (i.e., aggressive) style as opposed to a socially adaptive (i.e., affiliative)

style, and the majority of cyberbullying events occur in an aggressive manner compatible with an aggressive humor style (Cuadrado-Gordillo and Fernández-Antelo, 2019; Steer et al., 2020). However, it is important to examine the role of other humor styles in cyberbullying perpetration, as an individual may have more than one style of humor (Schermer et al., 2017; Heintz and Ruch, 2019).

Finally, we recommend that future cyberbullying researchers take a temporal perspective into account when examining the role of aggressive humor style in cyberbullying perpetration. It is possible that some people with aggressive humor become aware of the negative outcomes of their humor style and change accordingly over time (Tsai et al., 2021). One likely outcome is that bystanders might find words involving aggressive humor offensive and support the target, so individuals with aggressive humor might vary their expressions of humor toward different people based on online normative tolerance for such humor (Mulvey et al., 2016; Thomas et al., 2020; Katz et al., 2022). Due to the complexity of these effects, we recommend that future researchers employ longitudinal studies as the best way to capture these effects.

## Conclusion

Overall, this study contributes to the cyberbullying literature by investigating how and when aggressive humor may lead to cyberbullying. Moreover, a mediating mechanism with moral disengagement as a key component was described. Furthermore, this study identified a boundary condition by showing how online normative tolerance for aggressive humor moderates the relationship between aggressive humor and moral disengagement, and an indirect relationship between aggressive humor and cyberbullying perpetration *via* moral disengagement. To conclude, the theoretical model developed in this paper provides empirical support for further research into how individuals with aggressive humor can perpetrate cyberbullying.

## 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 Tongji University. The Ethics Committee waived the requirement of written informed consent for participation.

## Author contributions

HZ and YO designed the research. HZ collected the data and wrote the manuscript. YO and ZZ proofread 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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# Exploring the influence of cultural participation on the subjective well-being of victims in Mexico

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**Introduction:** Considering the increasing incidence of crime in Mexico, it is necessary to understand the strategies that individuals utilize in response to victimization and the effects of this on their subjective well-being.

**Methods:** A generalized structural equation modeling (GSEM) analysis with data from the 2012 Self-reported Well-Being Survey (BIARE, *n*=10,654); dependent variables: subjective well-being (i.e., cognitive well-being and affective balance); independent variables: self-reported victimization (i.e., by domestic violence, community violence, and structural violence) and cultural participation (i.e., cultural attendance, engagement, and consumption).

**Results:** Results show an overall positive and statistical influence of the cultural participation activities on the subjective well-being of victims of community and structural violence (but not of domestic violence), because, for those who reported higher levels of cultural participation, the probability of better subjective well-being were higher.

**Conclusions:** Victims potentially coped and adapted to stressful and traumatic situations (i.e., experiences of victimization) via cultural participation activities. However, there are distinctive effects according to different forms of violence, which may be accounted for in formulating public policies related to victims. This has implications for scholars, policymakers, and practitioners in improving the general quality of life of victims and the general population.

KEYWORDS

**subjective well-being, cultural participation, victimization, victims, Mexico**

## 1. Introduction

The rise of victims in Mexico is an issue of concern. In 2018, Mexico ranked 17th in the homicide rate per one hundred thousand inhabitants, and the 2nd position in absolute scores, at the global level (Muggah and Aguirre, 2018). According to the 2021 Mexican National Survey of Victimization and Perception on Public Security, from 2012 to 2021, the proportion of households that had at least one victim of crime among the family's members has been 28.4% in average (i.e., a third part of the Mexican households) with the tendency to increase (INEGI, 2021). This propensity has been consistently observed in

other sources (see e.g., Corporación Latinobarómetro, n.d.; INEGI, 2019; INEGI, n.d.-a; SESNSP, 2020a).[1]

In Mexico, research of violence and victimization has focused on types of crime, geography of crime, and the characteristics of victims (Cortez, 2015), along with the intersections with gender, poverty, and youth (Maldonado Macedo, 2020; Sanchez and Zhang, 2020; Yates and Leutert, 2020). One potential critical direction in the research of the well-being of Mexicans is the influence of victimization on individuals' subjective well-being. This research line is relevant because crime and violence in Mexico has been escalating during the last decade (Schedler, 2016; IEP, 2018a,b), along with the number of victims (see e.g., INEGI, 2018; SESNSP, 2020b). It means, to public policy, the need to address the role of victimization on subjective well-being as a central social issue.

Well-being is an important concept in peoples' life (Organization for Economic Co-operation and Development (OECD), 2011) and a central idea for policymakers in the allocation of public resources (Galloway et al., 2006). However, well-being is still a very challenging concept to define because of its complexity (Galloway et al., 2006; OECD, 2017), which includes a multitude of components (OECD, 2017). To overpass this limitation, several works make use of the subjective well-being dimension –i.e., individuals' subjective responses to objective conditions (Helliwell and Putnam, 2004), as a discernible component of well-being (OECD, 2013; Blessi et al., 2016; Daykin et al., 2018). Subjective well-being is a helpful concept because of its comparability, validity, and reliability (OECD, 2013). In addition, personal security, violence, and perception of crime have been referred to as potential contributors of subjective well-being (OECD, 2011; Millan and Mancini, 2014; González-König, 2016).

Following literature, in this paper, subjective well-being is composed by two dimensions: cognitive well-being (CWB) and affective well-being (AWB; Angner, 2010; Jovanovic, 2011). The cognitive well-being dimension includes an evaluation of one's life (or life satisfaction) and happiness (Martinez-Martinez et al., 2018), whereas, the affective balance dimension is observed through positive (e.g., joy and pride) and negative emotions (e.g., pain and worry; Diener and Suh, 1997; Stiglitz et al., 2009; Angner, 2010; Tay et al., 2011).

Concerning victimization –the experience to have been the victim of crime (Dammert and Luneke, 2003; Schedler, 2016), it can be categorized into two broad groups according to (a) the source or type of violence that has elicited the stressful event (i.e., the objective component) or (b) how the event has affected the victim (i.e., the subjective aspect; Echeburúa and Corral, 2007). In this paper, victimization experiences are accounted by the objective component, which includes victimization by domestic violence, community violence, and structural violence. Domestic violence refers to the "intimate partner violence along with family violence" (Barocas et al., 2016), which comprises physical, sexual, and emotional abuse at home (American Academy of Pediatrics, 2020). Victimization by community violence indicates events of "interpersonal violence committed by individuals who are not intimately related to the victim," such as sexual assault, burglary, muggings, gunshots, and the presence of gangs, and drugs (American Academy of Pediatrics, 2020). Whereas, structural violence is result of unequal economic, political, and social systems, along with ideological or organizational factors that impede the satisfaction of the basic needs of individuals and groups (Jiménez, 2018). For instance, institutionalized adultism, ageism, classism, elitism, ethnocentrism, nationalism, speciesism, racism, and sexism are considered structural violence (Galtung, 1969, cited by Schloerb, 2018).

Victimization has been related, at individual level, to negative influences on personal behavior (Amerio and Roccato, 2007; Averdijk, 2011; Doering and Baier, 2016), life satisfaction (Hanslmaier et al., 2016), general well-being (Di Tella et al., 2008; Hanslmaier, 2013), and physical and mental health (Graham and Chaparro, 2011; Muratori and Zubieta, 2013). At social level, it has been associated to the disruption of family and community life (OECD, 2011; Muratori and Zubieta, 2013), loss of social capital, and detriment of the confidence on government institutions (Di Tella et al., 2008; Graham and Chaparro, 2011). Besides, victimization brings economic costs to individuals, private companies, and governments (INEGI, 2018; IEP, 2019).

Despite these severe consequences, evidence in literature reveals an inaccurate knowledge about victimization experiences and their impact on subjective well-being. There is also an absence of solutions or mechanisms to resolve or attend the effects of victimization on well-being. Therefore, considering the incidence and prevalence of victims in Mexico, it would be of prime concern to delve into the specific effects that victimization brings on victims of crime (Dammert and Luneke, 2003; Diener, 2006). In addition, it would be necessary to understand the strategies and adaptations that persons utilize in response to crime victimization (Green et al., 2010; Moncada, 2020) toward a reintegration to everyday life and, consequently, a restoration of their quality of life and well-being.

1 In this research, crime implies violations of law. It usually encompasses the incidence of several types of deviant actions, such as those against life and bodily integrity, personal liberty, liberty and sexual security, heritage, the family, society, and other legal assets (see, e.g., SESNSP, 2020a). Some of these behaviors could be violent, or, cause physical or psychological harm. In international sources, violence is usually only addressed by the number of homicides per one hundred thousand inhabitants because it allows for comparability (see, e.g., OECD, 2011). Besides, victimization refers to an experience of crime and violence, and therefore is accounted as a subjective and personal perspective. It means measures of victimizations usually relies on self-reported perceptions of crime and violent experiences (OECD, 2011). Despite self-reported victimization questions have a high subjective component, they cover the "black number" of crime, i.e., those episodes that are not officially reported. Both, crime and violence produce victims; therefore, the number of victims is interrelated to these phenomena.

Individuals employ several strategies to struggle against the negative effects of violence and crime. Healing through personal empowerment, community healing and empowerment, promoting development, use of culture and spirituality, and democracy building have been argued to counteract the stress and trauma associated with victimization (Van Soest and Prigoff, 1997). Cultural participation[2] –i.e. participation in cultural and artistic activities– has been described as potential strategy or behavior to cope with the effects of victimization on well-being (Van Soest and Prigoff, 1997; Glover, 1999; Tedeschi, 1999; Pifalo, 2009; Al-Natour, 2013; Marín and Bagan, 2014). Cultural and artistic activities have been regularly assumed to cause positive effects on well-being (Belfiore and Bennett, 2008; Reyes-Martínez et al., 2021), thus, they have been used in public policies and social interventions (Belfiore and Bennett, 2008; Daykin et al., 2018) to alleviate several social problems, such as delinquency and exclusion. To most researchers, cultural participation has a positive impact on quality of life and general well-being (Nenonen et al., 2014; Mundet et al., 2017), subjective well-being (Perkins and Williamon, 2014; Blessi et al., 2016); and health (Daykin et al., 2018). It has also been related to economic benefits (FICAAC, 2005; OECD, 2006; AECID, 2009; UNESCO, 2014) and the building and strengthening of community (Goulding, 2013; Johanson et al., 2014).

Despite all these promising benefits, the evidence in place with regards to how cultural participation works for victims is not well defined yet. Whether cultural participation could play a role between victimization and subjective well-being, or it could be useful as a strategy to minimize the adverse effects of victimization, needs to be investigated. A deeper knowledge regarding this issue will yield in several important implications at scholarship, public policy, and practice level. First, the study of the relationship between cultural participation and the subjective well-being of victims will help to conceptualize into the solutions victims utilize toward a better well-being (Green et al., 2010; Moncada, 2020) and the specific effects that victimization brings on victims (Ley, 2019). To policymakers, results from this research will provide more empirical evidence to include cultural participation in the discussion of the solutions of the effects of victimization, as well as the reinforcement of policies related to public security. Similarly, to practitioners (e.g., social workers), findings from this research will support arguments to incorporate cultural and artistic activities in interventions and programs as tools for social transformation, community building, and democracy promotion.

Bearing that in mind, the purpose of this manuscript is to explore the influence of cultural participation on the subjective well-being of victims, in Mexico. Hopefully, a better comprehension of the problem will allow the reintegration of victims into everyday life and, consequently, a restoration of their subjective well-being.

Therefore, the study advances the next general research question:

(1) What is the influence of cultural participation on the subjective well-being of victims in Mexico?

Besides, the specific research questions are:

(1a) What are the effects of cultural participation on the subjective well-being of the general population?

(1b) What is the influence of self-perceived victimization on the subjective well-being of victims?

(1c) What is the influence of self-perceived victimization on the cultural participation of victims?

## 2. Literature review

### 2.1. Victimization and its impact on subjective well-being and cultural participation

To some scholars, there is a shortage of studies addressing the victimization effects on life satisfaction, affective balance, or happiness (i.e., subjective well-being components; Martínez-Ferrer et al., 2016). This lack of research is particularly acute in developing countries (Cordeiro et al., 2020).

Nevertheless, at the global level, there are some representative analyses that provide us with an outline of the phenomenon. For instance, to some researchers, victimization has a negative impact on all the satisfaction-measures[3] of subjective well-being (Cordeiro et al., 2020), psychological well-being (Di Tella et al., 2008; Hanslmaier, 2013), and life satisfaction (Graham and Chaparro, 2011; Hanslmaier, 2013; Hanslmaier et al., 2016; Martínez-Ferrer et al., 2016); or a negative correlation with positive emotions and

2 Cultural participation refers to how people and groups engage and relate to arts and cultural activities (Schuster, 2007). It includes activities related to cultural and natural heritage, artistic presentations and celebrations, visual arts and crafts, books and press, audiovisual and interactive media, and design and creative services (UNESCO, 2014). In this paper, cultural participation is composed of four general types of practices: attendance, engagement, consumption, and information. Cultural attendance refers to a live attendance of cultural and artistic activities (e.g., going to a concert) (McCarthy and Jinnett, 2001; UNESCO, 2009). Cultural engagement indicates a more active participation than attendance, and even the practice of one artistic activity (e.g., attend a dance workshop) (McCarthy and Jinnett, 2001; NEA, 2009; UNESCO, 2009). Cultural consumption indicates economic transactions and participation through mass media, such as watching TV or attending movies (McCarthy and Jinnett, 2001; NEA, 2009; ESSnet-CULTURE, 2012). And cultural information suggests the searching, communication, diffusion, and repetition of information of cultural and artistic activities through media (McCarthy and Jinnett, 2001; ESSnet-CULTURE, 2012).

3 Satisfaction with life as a whole, satisfaction with neighborhood/area, satisfaction with standard of living, and satisfaction with safety and security.

positive correlation with negative emotions (Di Tella et al., 2008). These relationships are modulated by several factors such as adaptation to crime, belonging to a vulnerable group (i.e., according to age or gender), or country's criminal rate (Graham and Chaparro, 2011); place of residence (Cruz, 1999); type or expression of the experience (e.g., more violent or more direct; Cruz, 1999; Graham and Chaparro, 2011); or income (Di Tella et al., 2008). A less supported position in the literature suggests the absence of an association between both concepts. To a few investigators, due to the lack of statistically significant evidence, victimization does not play a relevant role on individuals' well-being (Muratori and Zubieta, 2013) or happiness (Ciocchini et al., 2010).

Despite all the evidenced consequences on subjective well-being, several authors support alternative and less-explored theses about the effects of victimization. It means victimization can bring additional outcomes on victims, such as the eliciting of positive emotions (e.g., to develop a new meaning of life), or a potential increment in pro-social behaviors. For instance, to some scholars, crime victimization can increase political participation (Blattman, 2009; Bateson, 2012; Dorff, 2017; Oosterhoff et al., 2018; Page, 2018), civic engagement (Dorff, 2017), social capital (Gilligan et al., 2011), altruistic behavior (Voors et al., 2012), and community leadership (Blattman, 2009). To Sullivan et al. (2010) victimization is also related to other positive social reactions, such as the seeking of services or resources to deal with victimization, as well as the capacity of receiving emotional support (p. 640). In addition, a few researchers suggest that victimization potentially increment the probability of participation in cultural and artistic activities (Jauk, 2013; Reyes-Martínez et al., 2020).

Indeed, in the therapeutic field, scholars have observed how victims rely on the use of arts-related activities to build recovery strategies and release of unacceptable feelings and traumatic events (Glover, 1999; Shuman et al., 2020); identify complex emotions and future risk, develop coping skills (Pifalo, 2009); enhance self-esteem, cope with reality, and reconnect with cultural identity (Al-Natour, 2013); rebuild community and repair safety and trust (Van Soest and Prigoff, 1997).

Besides, cultural participation activities have been used in public policies and social interventions to alleviate several social problems, such as delinquency and exclusion (see e.g., Gobierno del Estado de Guerrero, 2015; SEGOB, 2015), or in the research and understanding of human rights (Adams, 2018).

In spite of the increasing body of literature in the field, these unorthodox theses reveals the need for researching more specific victimization effects and outcomes (Dammert and Luneke, 2003; Ley, 2019) as well as more effective coping strategies (Green et al., 2010).

## 2.2. The role of cultural participation on the subjective well-being of victims

Despite the incidence and prevalence of victimization around the globe, evidence in the extant literature reveals: (a) an inaccurate knowledge about victimization experiences and their impact on subjective well-being, (b) the absence of solutions or mechanisms to resolve or attend the effects of victimization on subjective well-being, and (c) the incomprehension of the role of cultural and artistic activities toward the restoration of the subjective well-being of victims. However, some advances in the field may shed light on the matter (see e.g., Dammert and Luneke, 2003; Green et al., 2010; Ley, 2019; Moncada, 2020; Reyes-Martínez et al., 2020).

For instance, even though victimization is not an absolute determinant of a behavioral change (Averdijk, 2011), some scholars have indicated how conscious or unconscious modifications in routine and behaviors in crime victims can lead toward an improvement or restitution of subjective well-being. For instance, victims rely on the adoption and use of several strategies and actions to deal with the aftermath of traumatic or stressful events (Averdijk, 2011). Some victims change habits or ways of moving, employ self-protective behaviors (e.g., carrying a weapon or any item that can match this use), or follow safety rules, such as avoiding high crime areas or being aware of their surroundings at all times (Frieze et al., 2020).

Cultural participation, as the literature suggests, may be one of the behaviors and strategies victims employ to restitute their subjective well-being. Studies on well-being and cultural participation has emphasized the capacity of cultural and art-related activities to prompt deep and personal emotional reactions (Glover, 1999; Marín and Bagan, 2014) or the development of the communication skills (Mikhaylovsky et al., 2019). Indeed, reparation of victims through artistic processes has been increasingly recognized over the years as alternative restitution methods (Gaitán and Segura, 2017).

To some scholars, in contexts of violence and social crisis, cultural and artistic activities may help victims to overcome depressive symptoms and panic attacks (Bustamante, 2017), process emotions, reconstruct self-stem, promote resilience and empowerment (Moreno, 2016), restore individual and collective identity (Castro, 2016; Moreno, 2016; Bustamante, 2017), reestablish integrity of the individual and the group (Castro, 2016); metabolize conflicts and hopelessness (Petit, 2009), generate positive emotions (Bustamante, 2017), promote creativity and imagination of new realities (Castro, 2016), and foster aesthetic searches (Bustamante, 2017; Reyes-Martínez and Andrade-Guzmán, 2021).

According to Cely-Ávila (2019, p. 33), to victims, it is central to employ embodied and expressive ways of coping and repairing such as artistic resources (e.g., dance, drawing, painting, sculpture, weaving), which allow the reestablishment of emotional ties with one's own body. For example, in narrative writing, victims relate to the loss and duel in alternative ways, conferring on it new symbolic values through psychological, physical, emotional, relational, and spiritual processes (Bustamante, 2017, p. 98). To Shuman et al. (2020), creative and artistic activities, such as art, play, drama, creative writing, and music are tools to build and cope with the trauma narrative. In interventions oriented to cases of child sexual

abuse, arts had been evidenced to reduce trauma-related symptoms, address and promote pro-social behaviors (Shuman et al., 2020). This increase in social behaviors helps to fortify collective identities (Bustamante, 2017). Also in interventions, cultural and artistic activities provides victims strategies of coping to elicit emotions and actions, induce processes of peace, as well as psychological, social, and political empowerment of individuals and communities (Castro, 2016, p. 4).

In other words, cultural participation raises social awareness, and therefore, the consolidation of political, critical, self-critical, and participatory citizens (Castro, 2016, p. 4). It means the effects of participation in arts and culture are not only at the individual level, but also in the building of a more well-being-oriented society.

# 3. Theoretical framework

## 3.1. Theories

This manuscript draws mostly upon the set of coping theories to explore how cultural participation may have an effect on the subjective well-being of victims. In addition, in order to examine the separate relationships between victimization, subjective well-being, and cultural participation, the study looks upon the activity theory, the psychological adaptation approach, and the social contract theory.

In the coping theories, after victimization (i.e., stressful experiences), individuals embrace activities and strategies that are used to restore or recover their well-being and quality of life. Strategies are understood as psychosocial adaptations that individuals implement to manage external and internal demands and where they invest personal resources (Green et al., 2010). Coping strategies help to overpass traumatic experiences from victimization events (Jayawickreme and Blackie, 2014) with the purpose to achieve a better well-being (Green et al., 2010). To several scholars, in contexts of violence and social crisis, cultural and artistic activities may help victims to process emotions, reconstruct identity and self-stem, and promote resilience and empowerment (Moreno, 2016); or in other words, they benefit as mechanisms toward the metabolization of conflicts and hopelessness (Petit, 2009).

The activity theory (Lemon et al., 1972; Nimrod and Adoni, 2006; Rodriguez et al., 2008) is used to account the relationship between cultural participation and subjective well-being. It proposes that individuals who participate in activities are likely to report higher rates of well-being, subjective well-being, or life satisfaction. According to this perspective, physical, intellectual, cultural, and artistic activities are positively associated with subjective well-being.

The connection between victimization and subjective well-being may be addressed by the psychological adaptation theories. Within this framework, the process of adaptation of victims converges, both, on positive and negative effects on victims' well-being (Hanslmaier et al., 2016; Janssen et al., 2020). It means individuals can adapt themselves easier to some situations than others (Wilson and Gilbert, 2008), which mostly depends on the type and severity of the lived experience (Janssen et al., 2020).

The association between cultural participation and victimization may be informed by the social contract theory. In specific, the approach has been employed to address political behavior and beliefs toward the government in victims of crime (Oosterhoff et al., 2018) and disenfranchised populations (Wray-Lake et al., 2018). However, it could also be accounted to inform pro-social behaviors observed in victims, such as an increment in the participation in cultural and artistic activities (Reyes-Martínez et al., 2020). This last proposition suggests that the social contract theory may be potentially useful to study the relationship between cultural participation and victimization.

## 3.2. Conceptual model

Consistent with the literature review and the theoretical perspectives, it is possible to propose a theoretical model to answer the research questions in the study. Figure 1 depicts the different relationships between victimization, cultural participation, and subjective well-being and the proposed theoretical approaches to inform them.

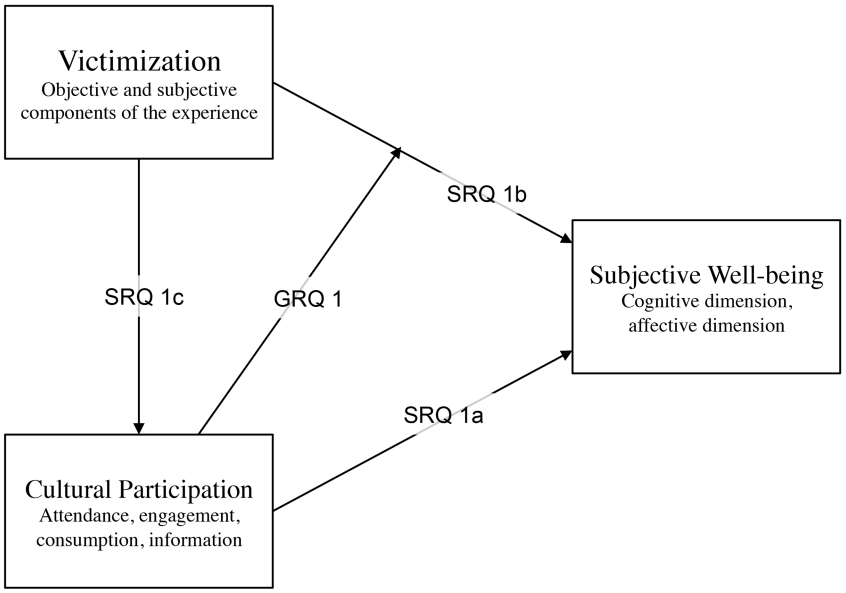
For instance, the main research question, namely, the role of cultural participation and its influence on the subjective well-being of victims is represented in the model as a moderator and mediator of the relationship between victimization and subjective well-being.

The other relationships (and research questions) are also illustrated in the model. The association between cultural participation and subjective well-being is depicted as an influencer of subjective well-being; meanwhile, the relationship between victimization and subjective well-being is represented as an influencer (victimization) and outcome (subjective well-being) link. Finally, in the conceptual model, victimization is represented as a potential contributor of cultural participation.

# 4. Hypotheses

Based on the literature review and theoretical framework, we proposed the following four hypotheses:

- H1: Cultural participation will positively influence the subjective well-being of victims, so that at higher levels of cultural participation, the probability of subjective well-being will be higher.
- H1a: Cultural participation enhances the probability of subjective well-being on general population.
- H1b: Self-perceived victimization reduces the probability of subjective well-being among victims.
- H1c: Self-perceived victimization enhances the probability of cultural participation among victims.




| Research Questions | | Theory |
|---|---|---|
| GRQ 1 | What is the influence of Cultural Participation on the Subjective Well-Being of Victims of crime in Mexico? | Coping theories |
| SRQ 1a | What are the effects of cultural participation on subjective well-being among the general population? | The activity theory |
| SRQ 1b | What is the influence of self-perceived victimization on subjective well-being among victims of crime? | Psychological Adaptation Theories |
| SRQ 1c | What is the influence of self-perceived victimization on cultural participation among victims of crime? | The social contract theory |

FIGURE 1
Conceptual model. GRQ1, General Research Question; SRQ1a, Specific Research Question 1a; SRQ1b, Specific Research Question 1b; SRQ1c, Specific Research Question 1c. Proposed theoretical model between victimization, cultural participation, and subjective well-being. Each arrow corresponds with one of the research questions and the theories exposed in the previous subsection.

# 5. Materials and methods

## 5.1. Study design, dataset, and sampling

This study is a secondary data analysis using the 2012 Self-reported Well-Being Survey ($N = 10{,}654$; BIARE for *Módulo de Bienestar Autorreportado*, in Spanish). BIARE aims to know how Mexicans experience their quality of life, their current lives, and future perspectives, under their background and environment (INEGI, n.d.-b). It is based on the report of the Commission on the Measurement of Economic Performance and Social Progress (Commission Stiglitz-Sen-Fitoussi; INEGI, n.d.-b). Its design and validation follows recommendations and guidelines by the OECD (see e.g., OECD, 2011) and the European Social Survey.

The 2012 BIARE dataset is representative at the national level for the population between 18 and 70 years old, without territorial disaggregation. The sampling procedure was probabilistic, stratified, two-stage, and by clusters. Each questionnaire was associated with each of the households in the sample of ENGASTO for the first quarter of 2012 (i.e., from January to March 2012). Participants were chosen within members of the selected house using a random method –i.e., the person whose birthday was closer when the survey was conducted in the house. The modality (auto-fill) had a 17% non-response rate; however, 10,654 questionnaires were recovered (INEGI, n.d.-b) and reported in the final dataset. According to the INEGI, all data were weighted regarding the non-response rate.

Most respondents in the survey are female (56.0%). The average age of participants is 39.51 years (standard deviation = 13.85, minimum age = 18 years old, maximum = 70 years old). With regards to educational attainment, 16.6% of the sample indicated no formal schooling, or they completed primary school (19.3%), secondary school (27.4%), high school (18.2%), bachelor (17.1%), and postgraduate

education (1.5%). In economic aspects, respondents' total household income has a mean of 12,090.98 pesos (standard deviation = 16373.80, minimum = 0, maximum = 327586.50).

Regarding missing data, although the dataset does not report any (INEGI, n.d.-b), recoding produced less than 0.05% of lost data. The statistical analysis in this study dealt with missing values using the listwise deletion technique.

Finally, it is important to observe that 2012 BIARE was selected because it is the only dataset in the country that incorporates the variables of interest (see next subsections). More recent versions of the survey do not include indicators related to cultural participation.

## 5.2. Measures

### 5.2.1. Dependent variables

The main outcome in the research is the self-reported subjective well-being construct. It refers to the responses that individuals provide about objective conditions (Helliwell and Putnam, 2004), and implies people's evaluations of their life as a whole or in several domains, as well as people's actual feelings (Stiglitz et al., 2009). Subjective well-being has been usually measured by four indicators associated with the dimensions of cognitive well-being and affective well-being. The cognitive well-being dimension comprises an evaluation of one's life (or life satisfaction) and happiness. Meanwhile, the affective balance dimension incorporates an assessment of positive (e.g., joy and pride) and negative affects (e.g., pain and worry).

Bearing that in mind, subjective well-being was measured using four interval variables: (1) self-reported life satisfaction (i.e., the cognitive perspective of personal biography), (2) positive emotions (i.e., pleasant affects), (3) negative emotions (i.e., unpleasant affects), and (4) happiness (i.e., how the individual feels in his/her life as a whole, from an emotional perspective; INEGI, n.d.-b). These indicators range from 0 to 10, where 0 is the lower value and 10, the higher.

In the analysis, and considering theoretical and empirical evidence, life satisfaction, happiness, positive emotions, and negative emotions were used in the exploratory and confirmatory factorial analyses to test their role on the cognitive and affective well-being dimensions or factors (see Factorial Analysis Section, p. 12). After that, these dimensions were employed in the GSEM analysis.

### 5.2.2. Independent variables

This study uses two independent constructs: cultural participation and self-perceived victimization. Cultural participation has been organized according to several practices that incorporate different habits, degrees of involvement, use of time, and expenditure. These criteria have led to several four general types of practices: attendance, engagement, consumption, and information (McCarthy and Jinnett, 2001; NEA, 2009; UNESCO, 2009; ESSnet-CULTURE, 2012). These activities range from more passive to more active practices, as well as economic transactions and the use of mass media (see Introduction section for more details concerning these categories).

In this study, cultural participation was observed through ten dichotomous items organized into three indexes. In the attendance index were included (a) attending concerts, (b) attending movies and theater, and (c) attending museums and galleries. The engagement index incorporated (d) participating in art classes, (e) participating in craft classes, and (f) singing or playing a musical instrument. The consumption index encompassed (g) reading books, (h) reading articles, (i) reading newspapers, and (j) watching educational TV. Selected items are measures of propensity where the respondent indicated whether attended the cultural or artistic activity during the last week or not (0 = no, 1 = yes). According to scholars, measures of propensity do not show qualitative difference between individuals who participate more frequently in cultural and artistic activities and others who participate less frequently (see e.g., Buraimo et al., 2011).

Attendance, engagement, and consumption indexes were built following next steps: 1) items were selected according to availability in the dataset, content validity, unidimensionality, and empirical evidence; 2) each item was weighted equally; and 3) items were aggregated into a single measure (Babbie, 2012). After that, indexes were dichotomized. In the research of cultural participation, the use of dichotomous measurements (and logistic regression models) has been suggested to provide more intuitive results along with better estimates and more reliable assessment of the relationships with other variables.

According to findings in the literature review, each item was included in the exploratory and confirmatory factorial analyses to test their association to the attendance, engagement, and consumption indexes and in the composition of a latent variable. Considering several technical and theoretical criteria (see Factorial Analysis section, p. 12), in the GSEM analysis, indexes were employed to represent the cultural participation construct.

Regarding victimization, it is measured through the self-perceived victimization response (see e.g., OECD, 2011) –i.e., the subjective perception to experiences of crime. Self-perceived victimization has been observed through indicators associated with the objective (i.e., victimization by domestic violence, community violence, school violence, structural violence, cultural violence) and subjective (i.e., direct, indirect, and contextual victimization) components of stressful experiences. In the 2012 BIARE dataset, all available items are based on the categorization by objective components. Thus the self-perceived victimization construct was evaluated using the a) domestic violence, b) community violence, and c) structural violence dimensions. Eighteen dichotomous items integrate these composite variables. Selected indicators specify whether the respondent suffered aggressions and threats at home during last year (0 = no, 1 = yes), experienced aggressions or threats out of home during last year (0 = no, 1 = yes), or suffered mistreatment ever in his or her life (0 = no, 1 = yes) due to structural conditions or not.

Indexes for self-perceived victimization were built following the same steps as those in the cultural participation construct: (1) items were selected according to the availability in the dataset, content validity, unidimensionality, and empirical evidence; (2) each item was weighted equally; and (3) items were aggregated into a single measure (Babbie, 2012). After, resulting indexes were recoded into dichotomous indicators to specify whether or not individuals suffered the reported form of victimization during the last twelve months or ever in his or her life (0 = no, 1 = yes). In criminology, dichotomous measurements have been used to simplify interpretation of results (Farrington and Loeber, 2000). Besides, "the dichotomization of explanatory variables facilitates a 'risk factor' approach" useful in the comprehension and prediction of victimization outcomes (Farrington and Loeber, 2000, p. 102).

Regarding the use of these indicators, each individual item was included in the exploratory and confirmatory factorial analyses to test their association with the domestic violence, community violence, and structural violence dimensions. In the GSEM analysis, considering several technical and theoretical issues (see Factorial Analysis section, p. 12), indexes were employed to represent the self-perceived victimization construct.

## 5.3. Statistical analysis

Data were analyzed using univariate analysis, exploratory factorial analysis (EFA), confirmatory factorial analysis (CFA), and Generalized Structural Equation Modeling (GSEM), as well as mediation and moderation testes. All analyses were performed in Stata 15.1.

Based on the research questions, hypotheses, and conceptual model, the main analysis (i.e., the GSEM approach) explores four relationships: (a) the influence of cultural participation on the relationship between self-perceived victimization and subjective well-being, (b) the relationship between cultural participation and subjective well-being, (c) the influence of self-perceived victimization on subjective well-being, and (d) the association between self-perceived victimization and cultural participation. These relationships are depicted in an analytical model, in Figure 2.

### 5.3.1. Univariate analysis

Univariate analyses were employed to describe sociodemographic traits of the sample, know the distribution of the variables in the context within the population of reference, and test assumptions of normal distribution (where it applied). Concerning dichotomous variables, relative and absolute frequencies were calculated; while for interval variables, frequencies, mean, standard deviation, variance, skewedness, and kurtosis were also conducted.

### 5.3.2. Factorial analysis

In general, exploratory factorial analysis (EFA) and Confirmatory factorial analysis (CFA) were employed to model the factors and indexes used in the GSEM analysis.

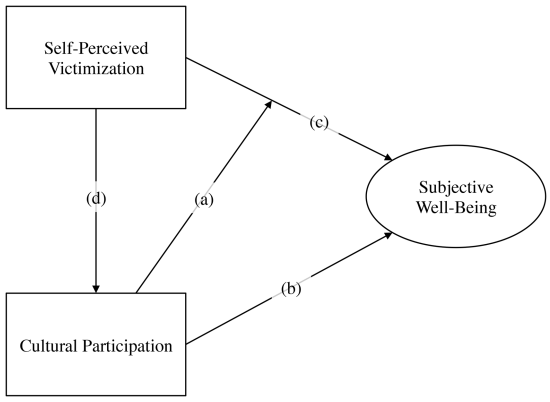



FIGURE 2
Analytic model. Proposed analytic model among the main constructs: (a) depicts a moderator path or interaction effect [a=b*c]; (b–d) represent direct paths; and (d)*(b) indicates a mediator path or indirect influence of self-perceived victimization on subjective well-being.

Regarding the subjective well-being construct, EFA and CFA were performed as a step toward the GSEM test. The use of both techniques was to explore and confirm, respectively, the measurement model suggested by the literature and theory.

In the case of cultural participation and self-perceived victimization variables, both techniques were utilized to define and confirm the structure of the composite indexes. The final decision of using indexes was based on the following criteria: (a) the lack of empirical-based measurement models on the concepts of cultural participation and self-perceived victimization; (b) the need to understand the disaggregated performance of the dimensions of these constructs; and (c), given the exploratory nature of the research, it was preferred the use of a GSEM based on a precision approach, as an alternative to an accuracy approach. In accuracy approaches, those that rely on the use of latent variables, researchers emphasize on the strength of the relations between variables. In comparison, precision approaches, where are preferred the use of observable variables, are used to confirm relationships (see e.g., Ledgerwood and Shrout, 2011).

### 5.3.3. Generalized structural equation modeling

The Generalized Structural Equation Modeling (GSEM) permits to employ generalized linear models (GLM), such as logistic regression, probit regression, and ordered logistic regression, among others. These features are particularly useful, considering the statistical model in this research combines both dichotomous and interval variables. This type of models can be depicted as in Eq. (1):

$$\eta_i = \beta_0 + \beta_1 \chi_{1i} + \cdots + \beta_1 \chi_{pi} \quad (1)$$

and two functions, Eq. (2) a link function that describes how the mean, $\mathrm{E}(Y_i) = \mu_i$, depends on the linear predictor

$$g(\mu_i) = \eta_i \tag{2}$$

and Eq. (3), a variance function that describes how the variance, var.($Y_i$) depends on the mean

$$\text{var}(Y_i) = \varphi V(\mu) \tag{3}$$

where the dispersion parameter $\varphi$ is a constant (Turner, 2008, p. 15). In the current research, link functions were logit (for binomial variables) and identity (for interval variables).

Besides, the measurement model is composed by life satisfaction, happiness, positive emotion, and negative emotion variables that are associated with the cognitive well-being and affective balance latent variables (both, as dimensions of subjective well-being). These latent constructs were also the main outcomes in the structural model, which in turn includes the indexes of cultural participation and self-perceived victimization. Figure 3 depicts the final statistical GSEM model.

Lastly, the GSEM analysis relies on nonadaptive Gauss–Hermite quadrature technique, with 7 integration (quadrature) points. In addition, considering GSEM does not allow for some post-estimation tests (in comparison to SEM), calculations were not performed.

### 5.3.4. Moderation and mediation effects

Interactions tests are performed to evaluate the moderation effect of cultural participation construct on the relationship between self-perceived victimization and subjective well-being. In the research, Hypothesis 1 describes a potential moderation effect of cultural participation, where self-perceived victimization ($X$) effects subjective well-being ($Y$), but victimization ($X$) changes in relation to variations on cultural participation ($Z$). This association can be represented as indicated in Eq. (4):

$$Y = b_0 + b_1X + b_2Z + b_3XZ + e \tag{4}$$

where

$b$ = Changes in slope by the variable

$Y$ = Dependent variable

$X$ = Independent variable

$Z$ = Moderator variable

$XZ$ = Product term between $X$ and $Z$

e = error

In this equation $XZ$ represents the interaction effect between self-perceived victimization and cultural participation. The coefficient $b_3$ indicates the change in the slope of the regression of

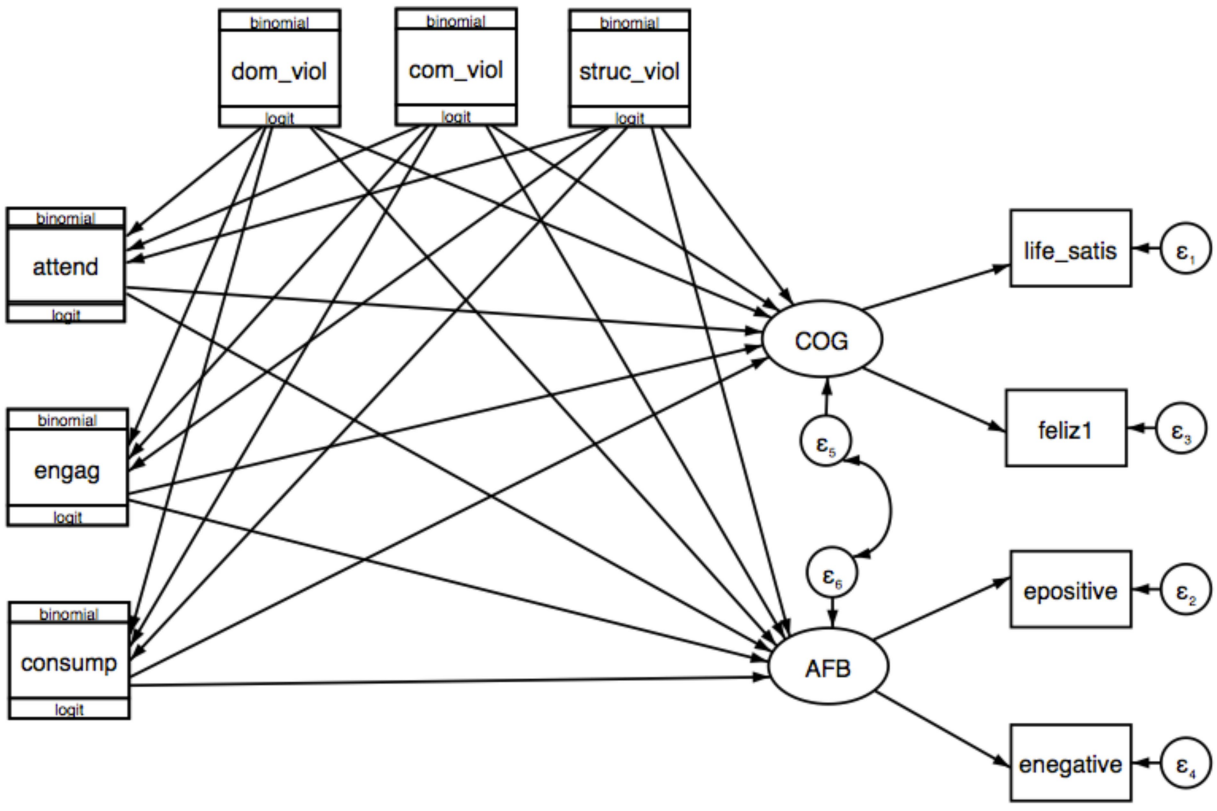



FIGURE 3
Statistical model. atten, Attendance; engag, Engagement; consump, Consumption; dom_viol, Domestic violence; com_viol, Community violence; struc_viol, Structural violence; life_satis, Life satisfaction; feliz, Happiness; epositive, Positive emotions; enegative, Negative emotions; COG, Cognitive well-being; AFB, Affective balance. This diagram does not include moderation (or interaction terms) paths.

self-perceived victimization –> subjective well-being, when cultural participation changes by one unit (Lyytinen and Gaskin, n.d.).

Alternatively, Hypothesis 1 was interpreted as a mediation relationship, where self-perceived victimization may have an indirect effect on subjective well-being *via* cultural participation. In this situation, cultural participation operates as an intervening variable. To test whether a mediation effect exists or not, a four-step approach was employed (see Table A1, in Appendix A; Baron and Kenny, 1986). In addition, to calculate indirect effects of the predictor (i.e., self-perceived victimization) a Sobel's test was conducted. After mediation was determined, next step implied calculating the indirect effects of mediation using the Sobel's test (Eq. 5), which can be represented as follows:

$$b_{\text{indirect}} = (b_2)(b) \tag{5}$$

where

$b_{\text{indirect}}$ = Indirect effect of the predictor (i.e., self-perceived victimization).

$b_2$ = Partial regression coefficient for cultural participation (M) predicting subjective well-being (Y).

$b$ = Simple regression coefficient for self-perceived victimization (X) predicting cultural participation (M) (Newsom, n.d.).

Finally, the total effects of self-perceived victimization indicators were also calculated as follows, in Eq. (6):

$$b_{\text{total}} = c + ab \tag{6}$$

where

$b_{\text{total}}$ = Total effect of the predictor (i.e., each self-perceived victimization index).

$a$ = Regression coefficient for self-perceived victimization ($X$) predicting cultural participation ($M$).

$b$ = Regression coefficient for cultural participation (M) predicting subjective well-being (Y).

$ab$ = Product of a and b (the indirect effect).

$c$ = Regression coefficient for self-perceived victimization ($X$) predicting subjective well-being ($Y$) (or the direct effect) (Baron and Kenny, 1986).

# 6. Findings

## 6.1. Univariate analysis results

The descriptive statistics of subjective well-being, self-perceived victimization, and cultural participation variables are summarized in Appendix A, Tables A2, A3, and A4, respectively.

## 6.2. Factorial analysis results

Table 1 summarizes CFA for the subjective well-being items[4]. All standardized factor loadings were statistically significant ($p < 0.001$). As expected, life satisfaction, happiness, and positive emotions reported positive scores, whereas negative emotions reported a negative one. Table 1 also displays results for the measurement error variances. In the proposed model, standardized measurement error variance ranged from 0.18 to 0.88. Regarding covariance, latent variables show significant and positive standardized values (0.76). These scores indicate that both factors are highly and positively correlated, which is coherent with literature and theoretical foundations of the subjective well-being construct.

Table 2 displays several model-fit criteria. For instance, chi-square tests were statistically significant ($p < 0.001$). The model also presented adequate levels for RMSEA and SRMR (see e.g., Schumacker and Lomax, 2016). Table 2 also shows R-square values. In the proposed model, the r-square values ranged from 11 to 81%, and the overall variance explained by the model is 91%.

Finally, Table 3 depicts the alpha reliability scores for each dimension of subjective well-being, as well as the total score for the whole set of items (0.6774).

In the case of self-perceived victimization and cultural participation, EFA and CFA were also run. However, considering several criteria, indexes were used instead of latent variables (see Factorial Analysis subsection, p. 15), so, results for these tests are omitted here.

## 6.3. GSEM results

Table 4 presents the GSEM results for the statistical model. Concerning the measurement model, regression analysis showed statistically significant associations with the cognitive well-being and affective balance latent variables. Indeed, life satisfaction and happiness showed a positive relationship with cognitive well-being ($p < 0.001$), whereas positive emotions and negative emotions indicated a positive and negative relationship, respectively, with affective balance ($p < 0.001$). Furthermore, the covariance between cognitive well-being and affective balance is significant and positive ($p < 0.001$) which confirms an association between both latent variables.

In the structural model, several relations were estimated. Regarding the cognitive well-being construct, all self-perceived victimization variables (domestic violence, community violence, and structural violence) showed statistically significant and negative associations with it ($p < 0.001$). In comparison, the cultural participation variables (attendance, engagement, and

4 Considering we are employing the CFA solution for the measurement model, EFA results are omitted.

TABLE 1 CFA estimates, subjective well-being variables.

| Measurement | Coeff.[a] | Std. Err. | *z* | \|*p*\|>*z* |
|---|---|---|---|---|
| Positive emotions | | | | |
| Affective balance | 0.9005*** | 0.0157 | 57.22 | 0.000 |
| Constant | 3.6887*** | 0.0271 | 136.30 | 0.000 |
| Negative emotions | | | | |
| Affective balance | −0.3447*** | 0.0104 | −33.06 | 0.000 |
| Constant | 1.2574*** | 0.0130 | 96.99 | 0.000 |
| Happiness | | | | |
| Cognitive well-being | 0.7050*** | 0.0074 | 95.42 | 0.000 |
| Constant | 4.7887*** | 0.0342 | 140.00 | 0.000 |
| Life satisfaction | | | | |
| Cognitive well-being | 0.7655*** | 0.0072 | 105.68 | 0.000 |
| Constant | 4.2605*** | 0.0308 | 138.54 | 0.000 |
| var(e.positive emotions) | 0.1891*** | 0.0283 | – | 0.000 |
| var(e.negative emotions) | 0.8812*** | 0.0072 | – | 0.000 |
| var(e.happiness) | 0.5029*** | 0.0104 | – | 0.000 |
| var(e.life satisfaction) | 0.4141*** | 0.0111 | – | 0.000 |
| var(affective balance) | 1 | – | – | – |
| var(cognitive well-being) | 1 | – | – | – |
| cov(affective balance, cognitive well-being) | 0.7616*** | 0.0148 | 51.33 | 0.000 |
| *N* | 10,654 | | | |
| ll | −86872.01 | | | |
| *p* | 0.000 | | | |
| chi2 (1) | 23.48 | | | |
| aic | 173770.02 | | | |
| bic | 173864.58 | | | |

a, Standardized coefficient. ***$p < 0.001$. –, Not available. Author's elaboration.

consumption) indicated a significant but positive relationship with cognitive well-being, at different significance levels ($p < 0.001$ and $p < 0.01$). Regarding the affective balance construct, all self-perceived victimization variables specified significant and negative associations with the latent variable ($p < 0.001$). In the case of cultural participation variables, only attendance and consumption showed significant and positive relationships with affective balance ($p < 0.001$). Engagement did not report a significant association with affective balance.

Table 4 also reports the link between self-perceived victimization and cultural participation variables. Domestic violence estimates indicated non-significant relationships with the cultural participation variables. Contrary, community violence showed statistically significant and positive associations with attendance, engagement, and consumption ($p < 0.001$). Similarly, structural violence presented significant and positive relations with cultural attendance and engagement ($p < 0.001$), and cultural consumption ($p < 0.05$).

Figure 4 presents the final statistical model with the estimates for the measurement and structural model.

## 6.4. Moderation and mediation results

Table 4 also depicts results of the moderation effects of the cultural participation variables on the relationships between self-perceived victimization indicators and subjective well-being dimensions (i.e., cognitive well-being and affective balance).

Concerning effects on cognitive well-being, only the following interaction terms presented statistically significant and positive estimates: (a) engagement influencing on domestic violence path ($p < 0.05$); (b) consumption on the community violence path ($p < 0.001$); and (c) attendance on the structural violence path ($p < 0.001$). Similarly, in the case of affective balance, from nine hypothesized associations, only four of them were significant: (a) attendance moderating domestic violence path ($p < 0.01$); (b) engagement on domestic violence ($p < 0.05$); consumption on community violence ($p < 0.001$); and attendance on structural violence ($p < 0.001$). Of these, the first reported a negative direction, while the other three, a positive one.

Regarding mediation effects, we performed the four-step approach suggested by Baron and Kenny (1986) (see Table A1, in

Appendix A), which was followed by the Sobel's test (see Table 5). As observed, all indirect effects of domestic violence *via* the cultural participation indicators were not significant. Contrary, most coefficients from the influence of community violence and structural violence were statistically significant and positive, at different significance levels ($p < 0.05$, $p < 0.01$, $p < 0.001$). One exception came from the influence of self-perceived victimization variables on affective balance *via* engagement that was also not significant.

In addition, Table 5 shows the total indirect effects of self-perceived victimization variables on the subjective well-being dimensions. As observed, except for domestic violence, results suggest that community and structural violence had an indirect effect on cognitive well-being and affective balance, *via* the cultural participation indexes. All these total indirect effects were statistically significant and positive ($p < 0.001$).

Along with indirect effects, it was also relevant to calculate the total effect of the self-perceived victimization variables on the subjective well-being dimensions. Table 6 shows the total effect (i.e., the sum of direct and indirect effects) for domestic violence, community violence, and structural violence.

As noted in Table 6, all coefficients were statistically significant and negative ($p < 0.001$). Besides, it is possible to observe that domestic violence, despite it had a significant direct influence on cognitive well-being and affective balance, it did not report significant indirect influence.

In community violence and structural violence, direct effects on cognitive well-being and affective balance were greater than total effects, suggesting a positive influence of the cultural participation variables as mediators in the relationship. In other words, the presence of cultural participation lessened the negative effects of the victimization experiences on subjective well-being.

TABLE 2 CFA post-estimates, subjective well-being variables.

| Criteria | Values |
|---|---|
| Fit statistics | |
| Chi-Square | 9102.04 |
| p > chi2 | 0.000 |
| Degrees of freedom | 6 |
| RMSEA | 0.05 |
| Akaike information criterion (AIC) | 173770.02 |
| Bayesian information criterion (BIC) | 173864.58 |
| Comparative Fit Index (CFI) | 0.99 |
| Tucker-Lewis index (TLI) | 0.98 |
| Standardized RMR (SRMR) | 0.01 |
| Coefficient of Determination (CD) | 0.91 |
| R2 | |
| Life satisfaction | 0.58 |
| Happiness | 0.49 |
| Positive emotions | 0.81 |
| Negative emotions | 0.11 |
| Overall | 0.91 |

Author's elaboration.

# 7. Discussions, conclusions, and limitations

## 7.1. Discussions

### 7.1.1. The role of cultural participation

As previous research suggests, participation in cultural and artistic activities may lessen the negative effects of experiences of victimization on the subjective well-being of individuals, in comparison to those who do not participate (see e.g., Shuman et al., 2020). Statistical findings along with the proposed theoretical framework support the idea that victims tend to rely on several strategies to manage stressful and traumatic events (see e.g., Averdijk, 2011). These strategies point to culture and arts-related activities as components of cognitive and emotional mechanisms toward the restoration of the personal subjective well-being.

Experiences of victimization elicit a vast array of emotions that eventually lead to an increase in pro-social behaviors and other forms of individual and collective participation, such as those based on cultural and artistic activities (see e.g., Bateson, 2012; Dorff, 2017; Oosterhoff et al., 2018; Nussio, 2019). However, the potential influence of self-perceived victimization on cultural participation (see e.g., Reyes-Martínez et al., 2020) and the influence of some types of cultural participation on the effects of victimization have been scarcely supported (see e.g., Bustamante,

TABLE 3 Alpha reliability, subjective well-being variables and dimensions.

| Dimension | Variables | Scale reliability coefficient | Average interitem covariance |
|---|---|---|---|
| Cognitive well-being | Life satisfaction | 0.6997 | 1.7851 |
| | Happiness | | |
| Affective balance | Positive emotions | 0.4662 | 1.7128 |
| | Negative emotions | | |
| Total | All variables | 0.6774 | 1.5410 |

Author's elaboration.

10.3389/fpsyg.2022.1082216

TABLE 4 GSEM analysis results.

| Variables | Coef. [a] | OR | Std. Err. | *z* | *p*>\|*z*\| | [95% Conf. Interval] | |
|---|---|---|---|---|---|---|---|
| Cognitive well-being | | | | | | | |
| Domestic violence | −1.2467*** | 0.2875*** | 0.1684 | −7.40 | 0.000 | −1.5767 | −0.9166 |
| Community violence | −0.9381*** | 0.3914*** | 0.1053 | −8.91 | 0.000 | −1.1444 | −0.7317 |
| Structural violence | −0.9351*** | 0.3926*** | 0.0901 | −10.38 | 0.000 | −1.1117 | −0.7584 |
| Attendance | 0.1264** | 1.1347** | 0.0411 | 3.07 | 0.002 | 0.0458 | 0.2070 |
| Engagement | 0.1248** | 1.1329** | 0.0468 | 2.67 | 0.008 | 0.0331 | 0.2165 |
| Consumption | 0.2794*** | 1.3223*** | 0.0393 | 7.11 | 0.000 | 0.2024 | 0.3564 |
| c.attendance # c.domestic_viol | −0.2422 | 0.7849 | 0.1716 | −1.41 | 0.158 | −0.5786 | 0.0942 |
| c.engagement # c.domestic_viol | 0.3844* | 1.4688* | 0.1777 | 2.16 | 0.031 | 0.0361 | 0.7328 |
| c.consumption # c.domestic_viol | 0.0882 | 1.0922 | 0.1807 | 0.49 | 0.625 | −0.2660 | 0.4424 |
| c.attendance # c.community_viol | −0.0831 | 0.9202 | 0.1003 | −0.83 | 0.407 | −0.2796 | 0.1134 |
| c.engagement # c.community_viol | 0.1487 | 1.1603 | 0.1118 | 1.33 | 0.184 | −0.0705 | 0.3678 |
| c.consumption # c.community_viol | 0.6557*** | 1.9265*** | 0.1185 | 5.53 | 0.000 | 0.4234 | 0.8880 |
| c.attendance # c.structural_viol | 0.6775*** | 1.9689*** | 0.0956 | 7.09 | 0.000 | 0.4901 | 0.8648 |
| c.engagement # c.structural_viol | 0.0701 | 1.0726 | 0.1042 | 0.67 | 0.501 | −0.1342 | 0.2743 |
| c.consumption # c.structural_viol | −0.0826 | 0.9207 | 0.1034 | −0.80 | 0.424 | −0.2852 | 0.1200 |
| Affective balance | | | | | | | |
| Domestic violence | −0.9908*** | 0.3713*** | 0.2349 | −4.22 | 0.000 | −1.4511 | −0.5305 |
| Community violence | −1.0999*** | 0.3329*** | 0.1159 | −9.49 | 0.000 | −1.3271 | −0.8727 |
| Structural violence | −1.3438*** | 0.2609*** | 0.0799 | −16.82 | 0.000 | −1.5004 | −1.1872 |
| Attendance | 0.1508*** | 1.1628*** | 0.0325 | 4.64 | 0.000 | 0.0871 | 0.2146 |
| Engagement | 0.0576 | 1.0592 | 0.0368 | 1.56 | 0.118 | −0.0146 | 0.1297 |
| Consumption | 0.1328*** | 1.1420*** | 0.0371 | 3.58 | 0.000 | 0.0602 | 0.2055 |
| c.attendance # c.domestic_viol | −0.4869** | 0.6145** | 0.1543 | −3.15 | 0.002 | −0.7894 | −0.1844 |
| c.engagement # c.domestic_viol | 0.3971* | 1.4875* | 0.1708 | 2.33 | 0.020 | 0.0624 | 0.7318 |
| c.consumption # c.domestic_viol | −0.3007 | 0.7403 | 0.2222 | −1.35 | 0.176 | −0.7361 | 0.1348 |
| c.attendance # c.community_viol | 0.0228 | 1.0231 | 0.0972 | 0.23 | 0.814 | −0.1677 | 0.2133 |
| c.engagement # c.community_viol | 0.1744 | 1.1905 | 0.0986 | 1.77 | 0.077 | −0.0190 | 0.3677 |
| c.consumption # c.community_viol | 0.8148*** | 2.2587*** | 0.1289 | 6.32 | 0.000 | 0.5621 | 1.0674 |
| c.attendance # c.structural_viol | 1.2247*** | 3.4030*** | 0.0921 | 13.30 | 0.000 | 1.0442 | 1.4051 |
| c.engagement # c.structural_viol | −0.0809 | 0.9223 | 0.0873 | −0.93 | 0.354 | −0.2519 | 0.0901 |
| c.consumption # c.structural_viol | −0.0274 | 0.973 | 0.0910 | −0.30 | 0.764 | −0.2058 | 0.1511 |
| Attendance | | | | | | | |
| Domestic violence | −0.1941 | 0.8235 | 0.1129 | −1.72 | 0.085 | −0.4154 | 0.0271 |
| Community violence | 0.3831*** | 1.4668*** | 0.0657 | 5.83 | 0.000 | 0.2543 | 0.5118 |
| Structural violence | 0.4109*** | 1.5082*** | 0.0627 | 6.55 | 0.000 | 0.2880 | 0.5339 |
| Constant | −1.3996*** | – | 0.0277 | −50.55 | 0.000 | −1.4539 | −1.3453 |
| Engagement | | | | | | | |
| Domestic violence | 0.1492 | 1.1609 | 0.1179 | 1.26 | 0.206 | −0.0820 | 0.3803 |
| Community violence | 0.2853*** | 1.3302*** | 0.0749 | 3.81 | 0.000 | 0.1385 | 0.4322 |
| Structural violence | 0.3907*** | 1.4780*** | 0.0707 | 5.53 | 0.000 | 0.2521 | 0.5292 |
| Constant | −1.8356*** | – | 0.0319 | −57.47 | 0.000 | −1.8982 | −1.7730 |

*(Continued)*

TABLE 4 (Continued)

| Variables | Coef. [a] | OR | Std. Err. | z | p>\|z\| | [95% Conf. Interval] | |
|---|---|---|---|---|---|---|---|
| Consumption | | | | | | | |
| Domestic violence | −0.1659 | 0.8471 | 0.1080 | −1.54 | 0.124 | −0.3775 | 0.0457 |
| Community violence | 0.3169*** | 1.3729*** | 0.0753 | 4.21 | 0.000 | 0.1693 | 0.4645 |
| Structural violence | 0.1683* | 1.1833* | 0.0694 | 2.42 | 0.015 | 0.0322 | 0.3044 |
| Constant | 1.1831*** | – | 0.0263 | 45.06 | 0.000 | 1.1316 | 1.2345 |
| Life satisfaction | | | | | | | |
| Cognitive well-being | 1 | – | – | – | – | – | – |
| Constant | 8.0755*** | – | 0.0353 | 228.82 | 0.000 | 8.0064 | 8.1447 |
| Happiness | | | | | | | |
| Cognitive well-being | 0.8712*** | 2.3898*** | 0.015 | 58.18 | 0.000 | 0.8418 | 0.9005 |
| Constant | 8.3978*** | – | 0.0313 | 268.48 | 0.000 | 8.3365 | 8.4591 |
| Positive emotions | | | | | | | |
| Affective balance | 1 | – | – | – | – | – | – |
| Constant | 8.0878*** | . | 0.0357 | 226.74 | 0.000 | 8.0179 | 8.1577 |
| Negative emotions | | | | | | | |
| Affective Balance | −0.4051*** | 0.6669*** | 0.0121 | −33.46 | 0.000 | −0.4288 | −0.3814 |
| Constant | 3.1619*** | – | 0.0280 | 112.86 | 0.000 | 3.1069 | 3.2168 |
| var(e.Cognitive well-being) | 1.7505*** | 5.7576*** | 0.0451 | 38.79 | 0.000 | 1.6621 | 1.8390 |
| var(e.Affective Balance) | 4.0359*** | 56.5950*** | 0.0380 | 106.32 | 0.000 | 3.9615 | 4.1103 |
| var(e.life satisfaction) | 1.6174*** | 5.0401*** | 0.0343 | 47.13 | 0.000 | 1.5502 | 1.6847 |
| var(e.happiness) | 1.5768*** | 4.8392*** | 0.0301 | 52.40 | 0.000 | 1.5178 | 1.6357 |
| var(e.positive emotions) | 0.2902*** | 1.3367*** | 0.0097 | 29.96 | 0.000 | 0.2712 | 0.3092 |
| var(e.negative emotions) | 6.0742*** | 434.4947*** | 0.0841 | 72.22 | 0.000 | 5.9093 | 6.2390 |
| Cov(e.CWB, e.AWB) | 1.9627*** | 7.1185*** | 0.0311 | 63.11 | 0.000 | 1.9017 | 2.0237 |
| *N* | 10,573 | | | | | | |
| ll | −101375.60 | | | | | | |
| df | 55 | | | | | | |
| aic | 202861.30 | | | | | | |
| bic | 203260.90 | | | | | | |

a, Unstandardized coefficient. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$. –, Not available.

2017; Gaitán and Segura, 2017). So, it could open to new directions and research lines in the understanding of victimization episodes, as well as in the solutions of the negative effects of these experiences.

Results here suggest that all dimensions of cultural participation (i.e., attendance, engagement, and consumption) may moderate on the effects of specific types of violence toward distinctive subjective well-being dimensions. Although most statistical associations reported a positive direction, a negative effect –i.e., the interaction between attendance and domestic violence toward affective balance– also emerged in these findings. Both positions are coherent with previous research. According to some scholars, cultural participation may bring mixed effects on subjective well-being when differentiated dimensions are analyzed (see e.g., Daykin et al., 2008, 2018). It means, cultural and artistic activities can positively and negatively contribute on general well-being (Hampshire and Matthijsse, 2010). Only to a few researchers, some cultural activities may lead to negative outcomes (e.g., sadness or psychological stress) on subjective well-being (Dockery, 2011; Biddle and Crawford, 2017). Besides, findings insinuate cultural attendance activities (i.e., a more passive form of participation) may worsen the impact of domestic violence on the affective balance dimension of some individuals. Conceivably, this may occur because these victims confront with traumatic or disturbing narratives, employ arts as mediums to canalize painful experiences (Dockery, 2011; Biddle and Crawford, 2017), or use maladaptive coping processes (Zhang and Noels, 2013).

In addition to exerting an influence as a moderator of victimization, some cultural participation activities may play the role of mediators in the relationship between some expressions of

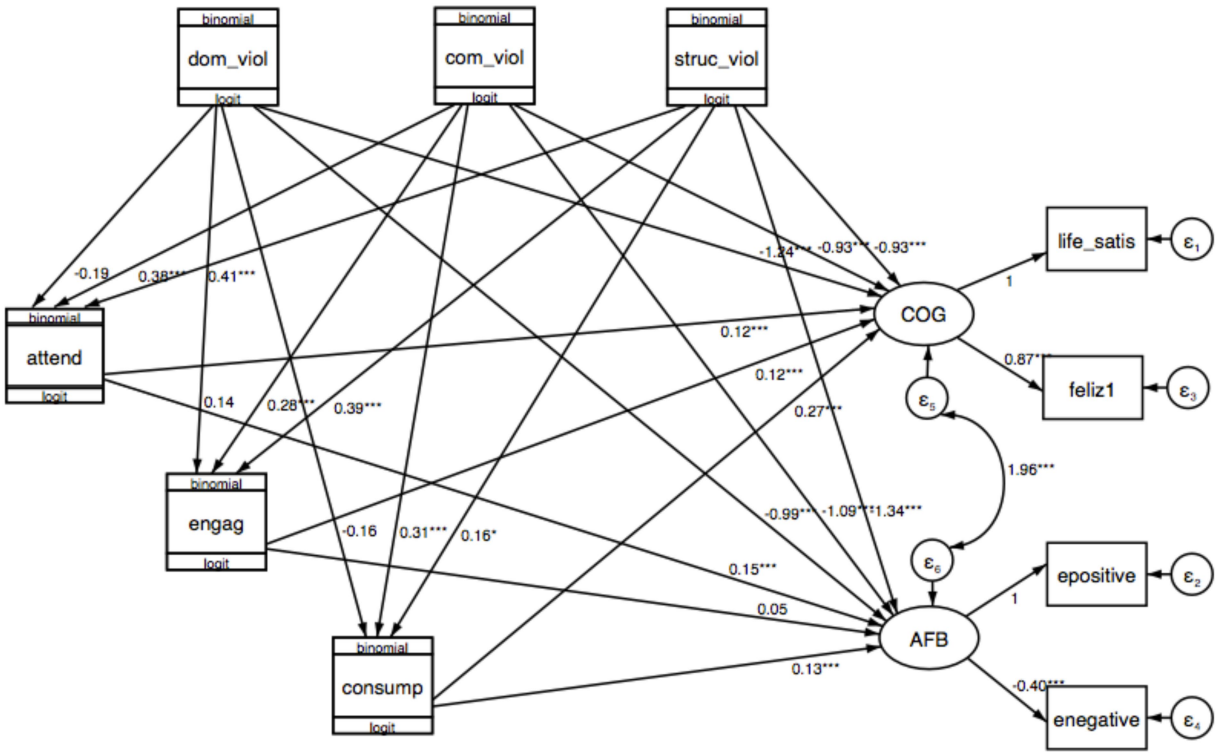



FIGURE 4
Final statistical model, unstandardized coefficients[a]. a, Interaction terms are not included; atten, Attendance; engag, Engagement; consump, Consumption; dom_viol, Domestic violence; com_viol, Community violence; struc_viol, Structural violence; life_satis, Life satisfaction; feliz, Happiness; epositive, Positive emotions; enegative, Negative emotions; COG, Cognitive well-being; AFB, Affective balance. *$p$<0.05, **$p$<0.01, ***$p$<0.001.

self-perceived victimization and cognitive well-being and affective balance.

Unlike current research in the field, results indicate distinctive outcomes in the role of the cultural participation as mediator of the relationship between self-perceived victimization and subjective well-being dimensions. In literature, victimization has been evidenced to have a negative influence on subjective well-being (Cordeiro et al., 2020), life satisfaction (Hanslmaier et al., 2016; Martínez-Ferrer et al., 2016), and positive emotions (Di Tella et al., 2008). However, it has also been identified that effects from victimization could be shaped by the type of experience (Cruz, 1999; Graham and Chaparro, 2011) and belonging to vulnerable groups (e.g., according to age, gender or race; see e.g., Echeburúa and Corral, 2007; Frieze et al., 2020). It means it is possible that victimization events could lead to unique outcomes depending on other moderating factors, such as the participation in cultural and artistic activities.

For instance, despite the extensive research concerning intimate violence, the underlying mechanisms that motivate domestic violence and behaviors of victims has been scarcely investigated, and thus, they are not fully understood (Shackelford and Hansen (eds.) 2014). To some scholars, domestic violence victims rely more on formal or informal support networks or self-help groups to get support (Miracco et al., 2010). In the same way as with the moderation effect, in mediation, victims of domestic violence may employ maladaptive strategies such as avoidance, consent, and isolation (Molina and Moreno, 2015) that may lead to the null use of alternative coping tools, such as the artistic and cultural activities.

Besides, results from the total effect of the self-perceived victimization variables on the subjective well-being dimensions support the idea that cultural attendance, engagement, and consumption may lessen the deleterious effects of community and structural violence on cognitive well-being and affective balance, which is not the situation of domestic violence. Thus, it is not possible to state that the benefits of cultural participation activities apply in all situations or experiences of victimization.

Concerning the theoretical framework, as preceding researches suggest, propositions and concepts in the set of coping theories are coherent with the proposed theoretical model. Coping theories can be helpful informing the positive influence of cultural participation on the subjective well-being of those individuals who has experienced community and structural violence. In conceptual terms, cultural participation can be accounted as a coping strategy that mediates and moderates the relationship between self-perceived victimization and subjective well-being.

Previous research suggests why there are dissimilarities between several forms of victimization and cultural activities. In

TABLE 5 Mediation test results, indirect effects of self-perceived victimization variables on subjective well-being dimensions, *via* cultural participation variables.

| Variables | Coef. [a] | OR | Std. Err. | *z* | *p*>\|*z*\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|---|
| Domestic violence | | | | | | | |
| *via* Attendance to Cognitive well-being | −0.0245 | 0.9757 | 0.0164 | −1.50 | 0.133 | −0.0566 | 0.0075 |
| *via* Engagement to Cognitive well-being | 0.0186 | 1.0187 | 0.0163 | 1.14 | 0.253 | −0.0133 | 0.0505 |
| *via* Consumption to Cognitive well-being | −0.0464 | 0.9547 | 0.0309 | −1.50 | 0.133 | −0.1068 | 0.0141 |
| *via* Attendance to Affective balance | −0.0293 | 0.9711 | 0.0182 | −1.61 | 0.107 | −0.0649 | 0.0063 |
| *via* Engagement to Affective balance | 0.0086 | 1.0086 | 0.0087 | 0.98 | 0.325 | −0.0085 | 0.0257 |
| *via* Consumption to Affective balance | −0.0220 | 0.9782 | 0.0156 | −1.41 | 0.158 | −0.0526 | 0.0085 |
| Total indirect effect on Cog. well-being | −0.0523 | 0.9490 | 0.0387 | −1.35 | 0.177 | −0.1281 | 0.0236 |
| Total indirect effect on Affective balance | −0.0427 | 0.9581 | 0.0256 | −1.67 | 0.095 | −0.0929 | 0.0074 |
| Total indirect effect of Domestic violence | −0.0950 | 0.9093 | 0.0617 | −1.54 | 0.123 | −0.2159 | 0.0258 |
| Community violence | | | | | | | |
| *via* Attendance to Cognitive well-being | 0.0484** | 1.0496 | 0.0178 | 2.72 | 0.007 | 0.0135 | 0.0833 |
| *via* Engagement to Cognitive well-being | 0.0356* | 1.0362 | 0.0163 | 2.18 | 0.029 | 0.0037 | 0.0676 |
| *via* Consumption to Cognitive well-being | 0.0885*** | 1.0925 | 0.0244 | 3.62 | 0.000 | 0.0406 | 0.1365 |
| *via* Attendance to Affective balance | 0.0578*** | 1.0594 | 0.0159 | 3.63 | 0.000 | 0.0266 | 0.0890 |
| *via* Engagement to Affective balance | 0.0164 | 1.0165 | 0.0113 | 1.45 | 0.148 | −0.0058 | 0.0387 |
| *via* Consumption to Affective balance | 0.0421** | 1.0429 | 0.0154 | 2.73 | 0.006 | 0.0119 | 0.0723 |
| Total indirect effect on Cog. well-being | 0.1726*** | 1.1883 | 0.0317 | 5.44 | 0.000 | 0.1104 | 0.2347 |
| Total indirect effect on Affective balance | 0.1163*** | 1.1233 | 0.0226 | 5.15 | 0.000 | 0.0720 | 0.1606 |
| Total indirect effect of Comm. violence | 0.2889*** | 1.3349 | 0.0494 | 5.85 | 0.000 | 0.1921 | 0.3856 |
| Structural violence | | | | | | | |
| *via* Attendance to Cognitive well-being | 0.0519** | 1.0533 | 0.0187 | 2.78 | 0.005 | 0.0154 | 0.0885 |
| *via* Engagement to Cognitive well-being | 0.0488* | 1.0499 | 0.0203 | 2.40 | 0.016 | 0.0090 | 0.0885 |
| *via* Consumption to Cognitive well-being | 0.0470* | 1.0481 | 0.0205 | 2.29 | 0.022 | 0.0068 | 0.0872 |
| *via* Attendance to Affective balance | 0.0620*** | 1.0639 | 0.0164 | 3.78 | 0.000 | 0.0299 | 0.0941 |
| *via* Engagement to Affective balance | 0.0225 | 1.0227 | 0.0149 | 1.51 | 0.132 | −0.0068 | 0.0518 |
| *via* Consumption to Affective balance | 0.0224* | 1.0226 | 0.0111 | 2.01 | 0.045 | 0.0005 | 0.0442 |
| Total indirect effect on Cog. well-being | 0.1477*** | 1.1591 | 0.0318 | 4.65 | 0.000 | 0.0854 | 0.2100 |
| Total indirect effect on Affective balance | 0.1068*** | 1.1127 | 0.0227 | 4.71 | 0.000 | 0.0624 | 0.1513 |
| Total indirect effect of Structural violence | 0.2545*** | 1.2898 | 0.0488 | 5.21 | 0.000 | 0.1588 | 0.3502 |

a, Unstandardized coefficient. Author's elaboration. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

the coping theories, individuals employ solutions according to how they appraise events and the availability of personal and social resources (Zimmer-Gembeck and Skinner, 2016). This argument could explain the reasons some individuals undertook different strategies and experienced different effects (Frieze et al., 2020).

### 7.1.2. Other relationships

As previous research suggests, cultural participation is positively associated with subjective well-being (see e.g., Daykin, 2020). In specific, in the case of Mexicans, attendance, engagement, and consumption can be considered potential contributors of cognitive well-being; whereas, only attendance and consumption can be related to affective balance. These results are coherent with the most central position in the literature. To most scholars, cultural participation has been evidenced to produce a positive impact on subjective well-being (Toepoel, 2011; Blessi et al., 2016; Mundet et al., 2017; Daykin et al., 2018).

A suitable explanation for these outcomes lies in the activity theory. According to it, individuals who participate in activities are likely to report higher rates of psychological well-being, subjective well-being, or life satisfaction (Joung and Miller, 2007). It occurs because, faced with new situations and contexts, individuals adjust and change its roles and behaviors. These modified routines help to preserve an integral self-concept, leading to well-being and life satisfaction (Joung and Miller, 2007).

TABLE 6 Mediation test results, total effects of self-perceived victimization variables on subjective well-being dimensions.

| Variables | Direct effect[a] | Indirect effect[a] | Total effect (Indirect+Direct effect) | | | | |
|---|---|---|---|---|---|---|---|
| | | | Coef.[a] | OR | Std. Err. | *z* | *p*>\|*z*\| |
| Domestic violence | | | | | | | |
| Total on Cognitive well-being | −1.2467*** | −0.0523 | −1.2990*** | 0.2728 | 0.1721 | −7.55 | 0.000 |
| Total on Affective balance | −0.9908*** | −0.0427 | −1.0335*** | 0.3557 | 0.2357 | −4.38 | 0.000 |
| Total of Domestic violence | −2.2375*** | −0.0950 | −2.3325*** | 0.0970 | 0.3724 | −6.26 | 0.000 |
| Community violence | | | | | | | |
| Total on Cognitive well-being | −0.9381*** | 0.1726*** | −0.7655*** | 0.4651 | 0.1125 | −6.80 | 0.000 |
| Total on Affective balance | −1.0999*** | 0.1163*** | −0.9836*** | 0.3740 | 0.0879 | −13.97 | 0.000 |
| Total of Community violence | −2.0380*** | 0.2889*** | −1.9930*** | 0.1362 | 0.1472 | −13.54 | 0.000 |
| Structural violence | | | | | | | |
| Total on Cognitive well-being | −0.9351*** | 0.1477*** | −0.7873*** | 0.4550 | 0.0976 | −8.07 | 0.000 |
| Total on Affective balance | −1.3438*** | 0.1068*** | −1.2370*** | 0.2902 | 0.0864 | −14.32 | 0.000 |
| Total of Structural violence | −2.2789*** | 0.2545*** | −2.0243*** | 0.1320 | 0.1546 | −13.10 | 0.000 |

a, Unstandardized coefficient. Author's elaboration. *$p<0.05$, **$p<0.01$, ***$p<0.001$. Not available.

Regarding the association between self-perceived victimization and subjective well-being, similar to previous studies, analysis showed a significant and negative relationship between domestic violence, community violence, and structural violence, and cognitive well-being and affective balance. It suggests that self-perceived victimization diminishes the probability of better subjective well-being.

To scholars, victimization has been evidenced to bring negative impacts on several satisfaction domains, life-satisfaction, subjective well-being, and positive emotions (Di Tella et al., 2008; Graham and Chaparro, 2011; Hanslmaier et al., 2016; Cordeiro et al., 2020), as well as positive effects on negative emotions (Di Tella et al., 2008). The psychological adaptation theories are a helpful set of approaches to inform this relationship. Under this perspective, adaptation is the capacity of adjustment and acceptance as well as the process of recuperation after a setback (Heyink, 2016).

According to scholars, individuals can adapt (or not) in an easy way to some circumstances than to others (Wilson and Gilbert, 2008). But this mostly depends on the type of victimization (see e.g., Cruz, 1999; Graham and Chaparro, 2011; Janssen et al., 2020). Thus, a poor or incomplete adaptive process from the victimization experiences may occur because of several moderators not observed, such as the social context, time from the experience, previous level of well-being, individual's expectations, mental health situation, or personality (Heyink, 2016).

In regards to the relationship between self-perceived victimization and cultural participation, in a similar way as the few preceding research, results reveal a positive relationship between community violence and structural violence and cultural attendance, engagement, and consumption. Contrary, domestic violence did not show a statistical association with cultural participation. In other words, those who have reported experiences of victimization had a higher probability of participating in cultural and artistic activities.

To some researchers, victimization can also bring to individuals a potential increment in pro-social behaviors, such as political participation, civic engagement (Blattman, 2009; Gilligan et al., 2011; Bateson, 2012; Voors et al., 2012; Dorff, 2017; Oosterhoff et al., 2018; Page, 2018), and even, participation in cultural and artistic activities (Jauk, 2013; Reyes-Martínez et al., 2020). A potential explanation for these behaviors may lie on the social contract theory, which has been helpful explaining political behaviors and other pro-social conducts of victims of crime (Oosterhoff et al., 2018) and disenfranchised populations (Wray-Lake et al., 2018). Under this perspective, it can be suggested that community violence and structural violence (experiences outside the home) could lead to changes in the behaviors of those who reported themselves as victims (see e.g., Oosterhoff et al., 2018; Armesto, 2019). In those individuals, anger or fear could conduct to attend, engage, or consume more cultural or artistic activities, as part of conscious or unconscious strategies to restore their well-being. In the case of domestic violence, a more intimate form of victimization experience, findings could not support their influence into a higher occurrence of cultural participation. This situation suggests a distinctive nature of this type of violence with a potential different treatment or solution, beyond arts and cultural activities.

## 7.2. Conclusion

This manuscript aims to explore the relationship and potential influence of cultural participation on the subjective well-being of those individuals that have experienced victimization, in the context of Mexico. It was guided by interest in understanding

alternative solutions for the restoration of the well-being of victims.

In this research, it was possible to answer the main research question (Research Question 1) and support the central hypothesized relationship (Hypothesis 1). It means, it was identified an overall positive influence of the cultural participation activities on the subjective well-being of victims, because, for those who reported higher levels of cultural participation, the probability of a better subjective well-being were higher.

In the case of Research Question 1a and Hypothesis 1a, results partially support them, because not all categories of cultural and artistic activities (e.g., engagement) reported a relationship with subjective well-being dimensions. Contrary, regarding Research Question 1b, scores support them because it was possible to observe that self-perceived victimization lessened the probability of a higher subjective well-being. Concerning Research Question 1c and Hypothesis 1c, findings partially support them due to the lack of association between cultural participation and some specific forms of victimization (e.g., domestic violence). Bearing all this in mind, it is possible to conclude that all these relationships reinforce the idea that individuals potentially coped and adapted to stressful and traumatic situations *via* the cultural participation activities.

In addition, results show most of the expected effects. Namely, most cultural participation variables displayed the proposed effects on the subjective well-being of victims. In other words, they are consistent with most references in the literature. However, considering several aspects of the proposed theoretical model have not been explored before, some unexpected findings arose from this study: a) the null indirect effect of domestic violence *via* cultural attendance, engagement, and consumption to both cognitive well-being and affective balance; and b) the lack of a mediation effect of cultural engagement to affective balance. These findings are not so surprising because, according to theory, subjective well-being, cultural participation, and victimization can be moderated by other factors that were not assessed here. As observed, these moderating factors could explain our distinctive outcomes.

Regarding repercussions, findings may lead to important implications to the design of public policies and interventions and practice, as well as the development of theory and research. In the case of public policy, the evidence here will provide support of the role of cultural and artistic activities as mechanisms of individual and social restoration, in specific, of those who have been victims. It means the need to guarantee the accessibility of cultural services to every population group. In addition, knowledge of the mechanisms that help victims to restore their well-being will be useful to generate programs and interventions related to the attention of victims. As noted, different types of victimization produce distinctive outcomes for individuals, which emphasizes that differentiated treatment is required in every case. To practitioners in the field (e.g., psychologists, social workers, cultural managers) results will fill the gap in the role of cultural and artistic activities as contributors to well-being, physical and mental health, and quality of life. Besides, findings will be helpful in the development of sound theoretical models and methodologies in the field of Victimology. Finally, in terms of research, future investigations will need to take into account the separate and distinctive effects of every type of victimization, under their own circumstances, and the outcomes on the different subjective well-being dimensions. Indeed, the effects of victimization on individuals cannot be considered as monolithic constructs. Researchers must include all these observations toward more effective and accurate solutions to victims and experiences of victimization in Mexico.

### 7.3. Limitations

Some limitations of the research need to be taken into account for the interpretation, discussions, and conclusions of the findings presented here.

A major limitation of this research is the cross-sectional nature of the survey, which does not allow establishing causal relationship between the variables. In addition, since this is a secondary data analysis, other categories of cultural participation (e.g., community celebrations, heritage, traditions, or use of language) or victimization (e.g., secondary or contextual victimization) are not available.

Despite these limitations, this paper reveals an important gap in the attention of victims and the role of cultural and artistic activities in the restoration of well-being.

## 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 Boston College's Institutional Review Board approval for analysis of secondary data, under protocol number 20.255.01e.

## Author contributions

JR-M: study conception, design, data analysis, interpretation of results, and draft manuscript. OM-M, ML, and MP-L study conception and critical revision for content. All authors reviewed the results and approved the final version of the manuscript.

## 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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## Supplementary material

The Supplementary material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2022.1082216/full#supplementary-material

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# School victimization and Internet addiction among Chinese adolescents: The mediating roles of life satisfaction and loneliness

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The present study investigated the possibility of life satisfaction and loneliness mediating the link between school victimization and Internet addiction. A total of 3,363 middle/high school students (45% males; $M_{age}$=15.67 years old, $SD$=1.58) completed a series of self-report questionnaires, which included school victimization, life satisfaction, loneliness, and Internet addiction. The findings demonstrated a positive relationship between school victimization and Internet addiction. In addition, life satisfaction and loneliness mediated the link between school victimization and Internet addiction. Overall, these findings contribute to a better understanding of the association between school victimization and Internet addiction. They also extended the GST, providing suggestions for preventing and managing adolescents' Internet addiction.

KEYWORDS

**school victimization, life satisfaction, loneliness, Internet addiction, adolescents**

## Introduction

School victimization is a long-standing and thorny issue. Studies from different countries have described the prevalence of victimization (Wolke et al., 2001; Delfabbro et al., 2010; Sánchez-Queija et al., 2017). A cross-national survey of students from 40 nations also found that 12.6% reported they were school bullying victims (Craig et al., 2009). According to Chinese national research, 10.89% of adolescents were victims (Luo et al., 2022). These findings demonstrate that school victimization is a global problem that has proved challenging to deal with during the previous three decades.

School victimization has a wide range of detrimental developmental consequences. Victims reported high levels of anxiety and depression (Stapinski et al., 2015), loneliness (Carney et al., 2020), poor psychological adjustment (You and Bellmore, 2012), lower levels of happiness and life satisfaction (Estévez et al., 2009; Aunampai et al., 2022), lower levels of self-esteem (Overbeek et al., 2010), and even suicidal risks (Xiao et al., 2022). Mainly, victims frequently exhibit other problematic behaviors, which attract greater attention from instructors or parents and cause them to ignore the causes of these issues. This attention

bias will fail to change the victim's problematic habits and increase the likelihood of victimization again due to misunderstanding.

The Internet provides victims with solace by giving them anonymity and a sense of detachment from reality. However, it may also lead to addiction and harm their health (Hossin et al., 2022). The general strain theory (Agnew, 2001) states that school victimization will lead to victims having a negative opinion of themselves, their peers, and the school, then negative emotions, and eventually cause the development of delinquent behaviors, such as dedicating their time to the Internet. Some studies supported the link between school victimization and Internet addiction (Guo et al., 2020), but further research is required to determine the exact process.

## School victimization

Olweus (1996) defined school victimization as "a student is being bullied or victimized when he or she is exposed, repeatedly and over time, to negative actions on the part of one or more other students." Although the precise definition of school victimization is still debatable, researchers have agreed on some traits (Goldsmida and Howie, 2014): (1) repetition (Baldry and Farrington, 2004); (2) victimization distress; (3) intention to harm (Anderson and Bushman, 2002); (4) power inequity (Salmivalli and Nieminen, 2002). In addition to physical victimization, school victimization also includes verbal and psychological violence, such as humiliation, isolation, rumor, and name-calling, which most frequently occur in schools and are always ignored (Zhang et al., 2019).

Based on the definition, it is reasonable to infer that victims are always frightened to seek help and suffer from various issues, which has been validated in earlier work (Kaltiala-Heino et al., 2000; Luk et al., 2010). However, the specific effect on victims varies. Some victims experience internalizing symptoms (e.g., sadness, anxiety, and loneliness; Reijntjes et al., 2010), while others act out and have externalizing issues. For example, they may attack people or engage in something to vent their feelings or relieve pain (Reijntjes et al., 2011; Richard et al., 2020).

## School victimization and Internet addiction

The Internet is a crucial part of our civilization in this age of information and technology. Excessive Internet use, on the other hand, can lead to Internet addiction, which can be hazardous to one's physical or mental health (Tsai and Lin, 2003). Internet addiction is also a severe problem among adolescents (Chi et al., 2020). Thus, researchers conducted studies and intervention programs to reduce adolescents' Internet addiction. They discovered that some family and school factors might cause adolescents' Internet addiction (Wang et al., 2017), such as impaired family functioning (Shi et al., 2017), negative parenting styles (Li et al., 2018), poorer teacher-student relationships (Jia et al., 2017), and negative peer relationships.

Agnew's general strain theory (GST) was first proposed to explain delinquency, which was also used to explain adolescents' Internet addiction. It suggests that adolescents are obliged to stay in specific situations (for example, family and school) and strain due to the blocking of pain-avoidance behavior (Agnew, 1985, 2001). When exposed to strain, adolescents strive to avoid painful or aversive events that may lead to illegal escape efforts or anger-based misbehavior, such as excessive drug use or problematic Internet use. A recent study extended GST to Internet addiction and revealed that academic stress might enhance the chance of adolescents getting Internet addiction (Jun and Choi, 2015). School victimization is also a type of strain, so GST may be used to describe the effect of school victimization on Internet addiction. Thus, GST may be the theoretical basis to explain the association between school victimization and Internet addiction.

Some studies also supported the direct and positive link between school victimization and Internet addiction (Guo et al., 2020). A longitudinal study indicated that cyberbullying victimization among Spanish adolescents at T1 positively predicted problematic Internet use at T2 (Gámez-Guadix et al., 2013). Recently, Zhai et al. (2019) investigated adolescent students in China and confirmed that victimization experience influenced the development of problematic Internet use. Based on theoretical and empirical evidence, we assume that school bullying frustrates and imprisons the victims. The Internet is offered as a method to manage negative emotions and escape from unpleasant reality, resulting in an addiction to the Internet. Thus, we hypothesize that school victimization will be associated with Internet addiction positively (H1).

## The mediating role of loneliness

GST indicated that strain did not lead to delinquency directly. It would elicit negative emotions first, then cause misbehavior, such as problematic Internet use. Loneliness is a common negative emotion that victims frequently experience. It results from being cut off from social networks and being perceived as unpopular among peers (Newman et al., 2005). Some researchers pointed out that school victimization caused loneliness, whereas other scholars stated that bullies are more likely to target unpopular and isolated peers. However, studies confirmed the significant positive association between school victimization and loneliness (Pengpida and Peltzerb, 2019). Kochenderfer-Ladd and Wardrop (2001) conducted a four-year longitudinal study with 388 students and identified that victims were initially depressed but might still have friends. However, as time passes, both avoidance by peers and adversity that few people help would remind them that peers might not like them. Hence, victims gradually developed a sense of loneliness. Other studies have found that victims experienced more loneliness than non-victims (Li et al., 2019).

Loneliness is also a strong predictor of Internet addiction (Yao and Zhong, 2014). Western studies have shown a positive association between Internet use and loneliness, in which people with higher levels of loneliness will have excessive Internet use (Esen et al., 2013). Zhang et al. (2018) conducted a longitudinal analysis in China and discovered that loneliness significantly impacted Internet addiction. Taken together, school victimization, combined with loneliness, may increase the likelihood of becoming an Internet addict. Therefore, we hypothesize that loneliness may mediate the association between school victimization and Internet addiction (H2).

## The mediating role of life satisfaction

Life satisfaction is defined as a person consciously evaluating one's life aspects (Pavot and Diener, 1993). There are numerous dimensions of life satisfaction, but school, self, and friend satisfaction are more prominent for adolescent students.

School is a situation where adolescents spend the majority of their time. School victimization will undoubtedly impact their school experience and lead to alienation from friends. Varela et al. (2016) used a sample of 802 students to demonstrate that adolescents exposed to school victimization had lower school satisfaction. Furthermore, Kerr et al. (2011) demonstrated that friend satisfaction and self satisfaction are negatively associated with school victimization. According to Kaltiala-Heino et al. (2000), victims will fail to receive support from social networks, which may cause isolation from peers and thus reduce life satisfaction. Another possibility is that school victimization causes adverse mental disorders, which decreases perceived life satisfaction (Yang et al., 2021).

In addition, Internet use is considered a form of self-medication (e.g., it can reduce one's negative moods; Senol-Durak and Durak, 2010). A higher level of life satisfaction represents individuals' positive emotional responses (Sung-Mook and Giannakopoulos, 1994). As a result, life satisfaction precedes Internet addiction (Longstreet and Brooks, 2017). Kabasakal (2015) verified that lower life satisfaction increased the likelihood of problematic Internet use. Based on the findings thus far, we hypothesize that life satisfaction may mediate the relationship between school victimization and Internet addiction (H3).

## The relationship between life satisfaction and loneliness

Previous studies have confirmed the negative correlations between life satisfaction and loneliness (Şahin, 2013). Since cognition and emotion are inseparable, thus the present study not only considers the mediating roles of life satisfaction and loneliness, respectively but also aims to examine the chain mediation effect between the two variables.

The cognitive theory of emotions asserts that cognitive evaluation influences emotion (Lazarus, 1991). Heinrich and Gullone (2006) also supposed that loneliness is an emotionally unpleasant experience with a cognitive component. First, qualitative or subjective appraisals of social relationships will affect loneliness (Asher and Paquette, 2003). Belongingness is an essential need for humans, so loneliness may result from having a weaker sense of belonging. Life satisfaction is a subjective assessment of one's quality of life, such as being unsatisfied with oneself, peers, and school will lead to poorer interpersonal relationships and cause a high level of loneliness. Second, according to attribution theory, the irrational cognitive style and attribution style (usually uncontrollable, internal, and stable attribution) may result in loneliness when faced with the discrepancy between expectation and reality (Vanhalst et al., 2015). People with low life satisfaction are more likely to experience this gap, which puts them at a high risk of loneliness.

Previous research also presumed that different situations would affect individuals' behavior through cognitive-affective units (such as encodings, expectancies, beliefs, affects, and goals; Mischel and Shoda, 1995; Yu and Yang, 2003). Life satisfaction is the subjective cognition about self, others, and surrounding environments, which was a negative predictor of loneliness (Nazzal et al., 2019), students who had trouble getting social support would feel dissatisfied with their lives, resulting in loneliness. If people hold positive beliefs about themselves and others, they will not experience excessive negative emotions. Negative emotions such as feelings of loneliness only arise when victims develop a cognitive bias and believe that he or she is unable to receive social support. Thus, we expect that school victimization affects Internet addiction through life satisfaction first and then through loneliness second (H4).

## The present study

In summary, the present study examines the mediating roles of life satisfaction and loneliness between school victimization and Internet addiction among Chinese adolescents. It has a few theoretical and practical implications, will complement the GST and provides some suggestions for future intervention studies on school bullying and Internet addiction. Based on the above discussions, we form the following four hypotheses:

> *H1*: School victimization will correlate with Internet addiction positively.
>
> *H2*: School victimization will associate with Internet addiction through loneliness.
>
> *H3*: School victimization will associate with Internet addiction through life satisfaction.

*H4*: School victimization will associate with Internet addiction through the chain mediator of life satisfaction to loneliness.

# Materials and methods

## Participants and procedures

In this study, we used stratified cluster sampling to recruit participants. Participants were middle and high school students from a broader project focusing on the relationship between family environment and students' mental health. In total, 3,363 adolescents (1,534 boys and 1,797 girls, 32 participants did not report their gender) participated in this study. They were recruited from 8 middle/high schools (110 classes), covering three urban and three rural districts of Beijing. The age range was 10.75–19.33 years old ($M = 15.67$; $SD = 1.58$). Participants were from 4 grades, including grade 7 ($N = 605$, $M_{age} = 13.59$ years, $SD = 0.47$), grade 8 ($N = 607$, $M_{age} = 14.53$ years, $SD = 0.48$), grade 10 ($N = 1{,}033$, $M_{age} = 16.56$ years, $SD = 0.45$), grade 11 ($N = 825$, $M_{age} = 17.53$ years, $SD = 0.49$), other 293 participants did not report their grade. Because of imminent graduation, this survey did not include students from grade 9 and grade 12. Among them, 22% of adolescents' parents received education at secondary school or below, 37.5% received high school or vocational education, 30.9% have a college degree, and 9.6% have a master's degree or above. Each student in the classroom completed self-reporting questionnaires after obtaining informed consent. It took approximately 20 min for a class to complete the set.

## Measures

### School victimization

We used the Chinese version of the Olweus Bully/Victim Questionnaire (Dong and Lin, 2011) to measure school victimization. Thus, only the victimization subscale was used, which consists of seven items (e.g., being hit, kicked, pushed, or knocked intentionally by others). Participants were asked to report how frequently this behavior occurred over the past semester on a five-point scale ("0" = it has not happened to me, "1" = one time, "2" = two times, "3" = three or four times, "4" = five or more times). We used the total score of this subscale, and the higher score represents a higher level of school victimization. In the present study, Cronbach's α for the subscale was 0.92.

### Life satisfaction

We used a modified Chinese version of the Multidimensional Students' Life Satisfaction Scale (MSLSS; Huebner, 1994; Tian and Liu, 2005) to assess life satisfaction. The MSLSS contains 25 items (e.g., "My family gets along well together") that assess five important life domains of students (family, friends, school, living environment, and self), and each domain contains five items. This study examined the influence of school on adolescents' Internet addiction, so we only contain three dimensions here (friends, school, and self). Participants rated each item on a 4-point Likert scale, ranging from 1 (totally disagree) to 4 (totally agree). We calculated the average score on each dimension and the total score, and the higher scores indicated higher satisfaction levels. Data from the present study showed good consistency for each dimension (for friends, $\alpha = 0.89$; school, $\alpha = 0.87$; self, $\alpha = 0.85$).

### Loneliness

Asher's Child Loneliness Scale was used to measure each individual's evaluation of his or her loneliness (Asher et al., 1984). The scale contains 20 items assessing four dimensions. Participants rated each item on a 4-point Likert scale ranging from very strongly disagree (1) to very strongly agree (4). The scale was translated into Chinese and tested by a previous study (Li et al., 2014; e.g., "It is easy for me to make new friends at school"). We calculated the average score on each dimension and the total score, with higher scores indicating higher levels of loneliness. The data exhibited good consistency (feeling of loneliness, $\alpha = 0.90$; feeling of social adequacy versus inadequacy, $\alpha = 0.90$; subjective estimation of peer status, $\alpha = 0.82$; judgments about whether important relationship provisions are being met, $\alpha = 0.82$; whole scale, $\alpha = 0.94$).

### Internet addiction

We used the Chinese version of the Internet Addiction Diagnostic Questionnaire (IADQ; Young, 1996; Wang et al., 2011) to measure adolescents' Internet addictive behavior. It contains 10 items, and participants answered either "yes" (recorded as 1) or "no" (recorded as 0) to each item. The final score for Internet addictive behavior was computed by summing up one person's points on all the items. A higher total score indicates a stronger tendency to conduct Internet addictive behavior. The Cronbach's α in this study was 0.79.

### Data analyses

SPSS 26.0 was utilized to conduct the correlations of all the key variables. Then, we employed the two-step procedure to analyze the mediation effects. First, we tested the measurement model to assess whether each latent variable was represented by its indicators. If the measurement model was accepted, then next, tested the structural equation model by using the MLR estimator of Mplus 8, which provided the standard errors and chi-square statistics for data with non-normal outcomes. Since the data were clustered within classrooms, the standard errors of parameter estimates and the chi-square test of model fit were computed using Mplus 8, taking the non-independence of observation into account. In addition, in Mplus maximum likelihood estimation, missing data due to attrition were allowed, but missing values were not imputed; instead, the method used all available information to estimate the model using full information maximum likelihood. Meanwhile, the item parcels

were created for school victimization and Internet addiction to control inflated measurement errors by balancing the loadings and the average score of items used. Lastly, we used the model's indirect command in Mplus 8 to test if the mediation effects were significant.

# Results

## Common method variance

We used Harman's single-factor test to assess the common method variance. All items in this study were loaded into an exploratory factor analysis examining the unrotated factor solution using principal-component factor analysis with varimax rotation. Twelve components with initial eigenvalues greater than 1.0 were found *via* unrotated, principal-component factor analysis, and no dominating factor was found. The first factor accounted for 24.69% of the variances. This result demonstrated that there was only a small common method variance which can be ignored in this study.

## Measurement model

The measurement model consists of 4 latent constructs (school victimization, life satisfaction, loneliness, Internet addiction) and 13 observed variables. An initial test of the measurement model revealed a very satisfactory fit to the data: $\chi^2/df = 13.43$, $p < 0.001$; $RMSEA = 0.06$; $SRMR = 0.05$; $CFI = 0.94$; and $TLI = 0.92$. All the factor loadings of the indicators of the latent variables were reliable ($p < 0.001$), signifying that all the latent factors were well represented by their respective indicators. Means, standard deviations, and correlations for all measures can be seen in Table 1.

## Structural model

Then, we conducted a structural model to explore the chain mediation effects of life satisfaction and loneliness. The model fitted our data well ($\chi^2/df = 11.73$, $p < 0.001$; $RMSEA = 0.06$; $SRMR = 0.05$; $CFI = 0.93$; and $TLI = 0.91$). The path from school victimization to Internet addiction was still significant ($\beta = 0.10$, $p < 0.01$), meaning that the link between two variables was only partially mediated by life satisfaction and loneliness. The significance of the mediating effects of life satisfaction and loneliness was tested in Mplus 8, which found that three mediation effect paths were significant in our study (Table 2). As in Figure 1, life satisfaction and loneliness mediated the relationship between school victimization and Internet addiction. Furthermore, the chained mediating path: school victimization → life satisfaction → loneliness → Internet addiction was also significant.

TABLE 1 Descriptive statistics and inter-correlations of the variables.

| Variables | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1. School victimization | 1 | | | |
| 2. Life satisfaction | −0.17*** | 1 | | |
| 3. Loneliness | 0.21*** | −0.61*** | 1 | |
| 4. Internet addiction | 0.12*** | −0.22*** | 0.22*** | 1 |
| *M (SD)* | 2.03 (0.97) | 3.21 (0.49) | 1.97 (0.72) | 0.27 (0.25) |

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

TABLE 2 Standardized indirect effect for the model.

| Model pathways | Estimated | *p* |
|---|---|---|
| School victimization → life satisfaction → loneliness → Internet addiction | 0.03 | <0.001 |
| School victimization → life satisfaction → Internet addiction | 0.03 | <0.001 |
| School victimization → loneliness → Internet addiction | 0.02 | 0.04 |

# Discussion

This study examined the association between school victimization and Internet addiction with the mediating effects of life satisfaction and loneliness among Chinese adolescents. The findings obtained from the present research were consistent with the literature findings, and our hypotheses were verified.

Results demonstrated a significant association between school victimization and Internet addiction. Adolescents with school victimization experience were more likely to have an Internet addiction. This finding was in agreement with other studies (Jia et al., 2018; Li et al., 2019). Depending upon the GST (Agnew, 1985), school is a fixed circumstance for adolescents. Experiencing victimization there can enhance unpleasant feelings and lead to tension for corrective action. When adolescents are victims at school, they may turn to the cyber world to reduce harm (Hsieh et al., 2016). The Internet is a haven for these adolescents to escape pressure from the real world. Additionally, they can also receive positive feedback from online friends. However, excessive use of the Internet may lead to Internet addiction.

The current study also tested the association among life satisfaction (including three dimensions: friend, school, and self), loneliness, and Internet addiction among adolescents. The results are shown in Table 1. Internet addiction was negatively correlated with life satisfaction and positively correlated with loneliness, implying that adolescents will score higher on Internet addiction if they possess lower levels of life satisfaction or feel lonelier. Prior studies support these correlational results (Çelik and Odacı, 2013; Akhter et al., 2020; Savolainen et al., 2020). Okur and Özekes (2020) confirmed that life satisfaction affected problematic Internet use negatively. Lonely individuals

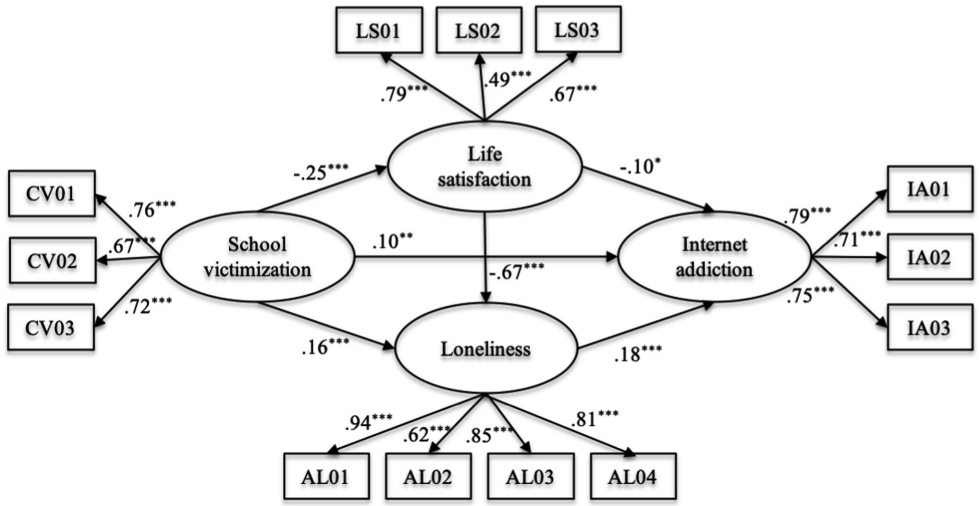


FIGURE 1
The structural model with gender and grade under control ($N$=3,363). Note, the factor loadings were standardized. CV01-CV03, three parcels of victimization; LS01-LS03, satisfaction with friends, school, and self; AL1-AL4, four dimensions of loneliness; IA1-IA3, three parcels of Internet addiction. Form ***$p$<0.001, *$p$<0.05.

enjoy the online world because it allows them to relax when communicating with others online (Nowland et al., 2017). Thus, in some cases, loneliness results in Internet addiction if individuals obsessively indulge in the Internet and refuse offline interactions.

More importantly, the mediating effects of life satisfaction between school victimization and Internet addiction were demonstrated. Lower levels of life satisfaction would be observed in adolescents who have suffered from victimization as opposed to those who have not been bullied (Lázaro-Visa et al., 2019; Yang et al., 2021). Life satisfaction is cognition and evaluation of one's life. Adolescents would have negative cognition and evaluation of themselves and others due to their victimization experience. To improve this matter, they are likely to expand their life to the Internet, even indulge in it, and thus get more satisfaction.

The model results also revealed that school victimization indirectly affected Internet addiction *via* loneliness. Adolescents who have been bullied are more likely to feel lonely than those without the experience of victimization (Newman et al., 2005; Estévez et al., 2009). Victims may feel isolated, uncared or no one understands them. Some victims may alienate their friends or classmates because they did not offer assistance or emotional support when victims were bullied. The Internet provided an alternative platform for victims to receive social support and emotional comfort. Moreover, the virtuality of the Internet can make victims avoid dealing with painful issues. Combined with the results, school victimization results in a decrease in life satisfaction and an increase in loneliness. Victims may turn to the online world, even engaging in Internet addiction behavior, which can not only escape real-world suffering but also compensate for the lack of life satisfaction and reduce loneliness.

Furthermore, the mechanism between life satisfaction and loneliness was established. Consistent with Lazarus' cognitive theory of emotions, their loneliness level rises when adolescents are dissatisfied with their lives. The following factors contribute to a high level of loneliness: (1) dissatisfactory, low-quality, and meaningless social relationships, and individual needs cannot be satisfied; (2) irrational and false thinking; (3) deficit of social support. Given this, the chained mediating path exists. Adolescents experiencing school victimization had lower life satisfaction, felt more lonely, and finally contributed to Internet addiction. Adolescence is a critical and vulnerable period of psychological development during which adolescents' developmental needs change, and their negative motivational and behavioral characteristics may increase. School is an important place for learning, entertainment, and social activity, which significantly impacts adolescents' performance and behavior. School victimization is a negative change for adolescents, reflecting an imbalance between victims and their adverse environment. Victims' intrinsic motivation and interest in school will dwindle in this situation, and withdrawal behavior will occur. In other words, an environment with school victimization fails to meet their psychological needs and brings out the negative cognitions and emotions of adolescence, eventually leading to problem behavior. Consistent with our hypotheses, the present study reveals that school victimization will decrease victims' life satisfaction (including three dimensions: friend, school, and self) and increase their sense of loneliness. Then, Internet addiction emerges naturally. According to GST, school victimization is an environmental impediment for adolescents. It will destroy their trust in themselves and others, and this negative subjective cognition will evoke negative emotions, such as loneliness. Then, they will adopt retreating behavior, like plunging into the online world, to avoid this feeling of helplessness and negativity.

This study hypothesizes that school victimization affects Internet addiction through 4 pathways: (1) direct effect, (2) effect through loneliness, (3) effect through life satisfaction, (4) effect through life satisfaction first, and then through loneliness second. The study highlights the crucial roles of life satisfaction and loneliness in the link between school victimization and Internet addiction. It will broaden the theoretical understanding of GST. On a practical level, it can draw our attention to Internet addiction among individuals who experienced school victimization.

### Limitations

Of course, the present work has some limitations. First, only Beijing-based adolescent participants were used to conclude. Future studies should investigate whether our conclusions can be generalized to other developmental stages, geographical locations, and cultural contexts. Second, cross-sectional data cannot make causal inferences. Thus, future research should employ longitudinal or experimental approaches. Finally, this study focused on school bullying in the real world. However, cyberbullying is on the rise and may impact adolescent Internet addiction. More studies should be done to determine whether cyber victimization can produce the same results.

### Implications for practice, application, and theory

Despite these limitations, the current study has important theoretical and practical implications. Both school victimization and Internet addiction are severe and widespread adolescent issues, intervention often pays attention to one of the two aspects. Therefore, the exploration of the association and psychological mechanism between these two variables in the present study will provide some suggestions about adolescent development. First, GST highlights the emotional and behavioral responses to environmental strain. However, the present adds the consideration of the cognitive factor (life satisfaction) between environmental stress (school victimization) and emotional and behavioral response (loneliness and Internet addiction), which will broaden the understanding of GST. Second, as an environmental factor, school victimization strongly predicts Internet addiction. Therefore, improving school order and discipline is essential to change the tense atmosphere. Third, it is challenging for parents and teachers to identify whether adolescents are victims of school bullying. However, this study provides both cognitive (life satisfaction) and emotional indicators (loneliness) to help them identify and take intervene. Lastly, life satisfaction and loneliness mediate the link between school victimization and Internet addiction, suggesting possible remedies. Companies from friends, family, and teachers may help alleviate some adverse impacts of school victimization on Internet addiction. School activities and counseling services can help increase students' life satisfaction, which may decrease the risk of being Internet addicts.

## Conclusion

The present study indicated that school victimization, life dissatisfaction, and loneliness are risk factors for developing Internet addiction. Additionally, life satisfaction and loneliness partially mediated the link between school victimization and Internet addiction. Adolescents who suffer from school victimization score lower on life satisfaction, experience more loneliness, and are more prone to be addicted to the Internet. This finding expands the current literature about Internet addiction. It also reminds us how to intervene in bullied adolescents and prevent possible adverse consequences.

## Data availability statement

The raw data supporting the conclusions of this manuscript will be made available by the authors, without undue reservation, to any qualified researcher.

## Ethics statement

The studies involving human participants were reviewed and approved by Ethics Committee of the Faculty of Psychology, Beijing Normal University. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

## Author contributions

XS contributed by conceptualizing the study, analyzing data, collecting data, cleaning data, and writing some portions of the manuscript. RW contributed by writing the manuscript. 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.

The reviewers SJ and ZY declared a shared affiliation with the author XS to the handling editor at the time of the study.

## Publisher's note



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# Onset risk factors for youth involvement in cyberbullying and cybervictimization: A longitudinal study

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**Introduction:** Cyberbullying and cybervictimization are spread worldwide, and due to COVID-19, an increasing number of children and adolescents have been impacted. Since the beginning of the twenty-first century, research has investigated and highlighted the key risk factors for cyberbullying and cybervictimization, and numerous anti-cyberbullying prevention and intervention programs have been developed and assessed for their efficacy. Despite this, no studies have specifically focused on the individual, relational, and contextual risk factors associated with the onset of youth involvement in cyberbullying and cybervictimization.

**Methods:** To address this lacuna, 333 Italian students aged 10–16 years (M = 12.16, SD = 1.35) were involved in a year-long longitudinal study and filled in the anonymous online actuarial Tabby Improved Checklist two times with a 6-month interval. Onset risk factors for cyberbullying and cybervictimization have been separately analyzed by excluding all students involved in cyberbullying from the original sample or in the cybervictimization baseline (T1).

**Results:** The results showed that being male, being involved in school bullying, having low levels of awareness of online risk, and having high levels of affective empathy were all significant onset risk factors for cyberbullying. Similarly, being male, being involved in school bullying and victimization, having high levels of affective empathy, and moral disengagement were onset risk factors for cybervictimization.

**Conclusion:** Given the negative psychological and behavioral consequences of cyberbullying and cybervictimization, this article includes discussions on practical and policy implications for future research, stressing the need to develop, implement, and evaluate the effectiveness of primary prevention programs addressing and managing onset risk factors for cyberbullying and cybervictimization.

KEYWORDS

**cybervictimization, cyberbullying, risk factors, onset, aggressive behaviors**

## Introduction

Cyberbullying could be defined as "an aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend him or herself" (Smith et al., 2008, p. 376). Within a short time, it has become a socially worrying phenomenon, spreading rapidly and in tandem with the adoption of new technologies and smartphones among young people and teenagers. Technological innovation expanded school bullying into cyberspace (Lee et al., 2018). The involvement of youngsters and children in cyberbullying and cybervictimization has become a matter of global attention and concern, with cybervictimization rates increasing from 13.9 to 57.5% and

cyberbullying up from 6.0 to 46.3%, indicating, as underlined by Zhu et al. (2021), a significant increase of prevalence rates of such behaviors among youth in the last 5-year period.

In Europe, the EU KIDS 2020 report highlighted that cybervictimization prevalence rates ranged between 7.0 and 40.0%, with Slovakian adolescents reporting a lower involvement in cybervictimization. On average, cybervictimization prevalence across Europe is 20.0%, with Poland youngsters reporting the highest experience of cybervictimization at 40.0%.

Similar results were found concerning cyberbullying involvement, with prevalence rates across European countries ranging between 10.0 and 20.0%, with the highest involvement in cyberbullying reported by Polish adolescents (38.0%) (Smahel et al., 2020).

The involvement of youth and children in cyberbullying and cybervictimization increased during the COVID-19 pandemic due to the lockdown and the increased time spent at home using electronic devices. Lobe et al. (2021) analyzed the changes in cyberbullying trends by comparing the pre-pandemic period with the pandemic period, surveying 1,028 Italian students aged between 10 and 18 years. The results showed that youth involvement in cyberbullying and cybervictimization during the pandemic increased by 49.0 and 50.0%, respectively. Furthermore, results showed that 28.0 and 41.0% of participants reported being involved at least once in cybervictimization and cyberbullying, respectively. Similar results were found by other studies and researchers, confirming the role of the pandemic in increasing the risk of involvement in cyberbullying and cybervictimization among youth (Mkhize and Gopal, 2021; Shin and Choi, 2021; Utemissova et al., 2021; Trompeter et al., 2022). Worldwide, the increasing involvement of children and adolescents in such aggressive and deviant behaviors as perpetrators and victims stresses the importance of prevention and intervention strategies, as cyberbullying should be considered a public health problem. Several studies have highlighted the numerous long-term negative consequences associated with involvement in cyberbullying and cybervictimization (Camerini et al., 2020).

Psychological and mental problems such as depression, anxiety, and low levels of self-esteem (Kowalski et al., 2014; Eyuboglu et al., 2021) and life satisfaction (Kowalski et al., 2014), psychosocial difficulties, and self-injurious behaviors (Eyuboglu et al., 2021) are among the most reported psychological and mental outcomes associated with youth involvement in cyberbullying. Moreover, as underlined by the results of a recent systematic review by John et al. (2018), students involved in cyberbullying are at a greater risk of suicidal ideation and attempts of suicide than students who are not involved. Significantly, substance abuse such as alcohol, tobacco, and cannabis smoking was among the main behavioral negative consequences associated with youth involved as cyberbullies (Kowalski et al., 2014; Yoon et al., 2019; Eyuboglu et al., 2021; Pichel et al., 2022).

The Cambridge Study in Delinquent Development (CSDD) showed that being involved in school bullying at the age of 14 predicted violent convictions between ages 15 and 20, low job status at the age of 18, drug use at the age of 27–32, and an unsuccessful life at age 48 (Farrington and Ttofi, 2011). But as far as we know, to date, there are no studies that have assessed the longitudinal impact of involvement in cyberbullying behaviors despite such behaviors being strongly associated with attitudes favorable to the transgression of social norms (Romero-Abrio et al., 2019) and a greater risk of dating deviant and violent peers (Kim et al., 2017).

Cybervictims, on the other hand, have similarly reported several self-rated poor mental health (Sampasa-Kanyinga et al., 2020) and psychological symptoms (Yang et al., 2021); examples of negative psychological consequences include depression (Eyuboglu et al., 2021; Hu et al., 2021; Tran et al., 2021), post-traumatic stress symptoms (Baldry et al., 2019), anxiety, and psychosocial difficulties (Eyuboglu et al., 2021). John et al. (2018), in their systematic review of 33 studies, reported that cybervictims are, respectively, 2.35, 2.15, and 2.57 times more at risk when compared with non-cybervictims of self-injurious behaviors, suicidal ideation, and attempts of suicide. More recent studies also reported similar results (Sampasa-Kanyinga et al., 2020; Eyuboglu et al., 2021; Yang et al., 2021; Buelga et al., 2022). Substance abuse (such as alcohol, tobacco, and cannabis smoking) (McCuddy and Esbensen, 2017; Graham and Wood, 2019; Sampasa-Kanyinga et al., 2020; Pichel et al., 2022), sex with multiple partners (Graham and Wood, 2019), low school achievements (Guo, 2016), and delinquency (Nasaescu et al., 2020) are among the major behavioral negative consequences associated with the experience of cybervictimization.

Due to the increasing trend in cyberbullying and cybervictimization and considering the several negative psychological and behavioral consequences associated with it, recent research is exploring the possible influence of multiple individual, relational, and contextual risk factors associated with cyberbullying and cybervictimization (Hellsten et al., 2021).

Concerning the role of gender, most studies found that being male to be an individual risk factor for cyberbullying (Baldry et al., 2015; Guo, 2016; Barlett et al., 2021; Giordano et al., 2021), while few other studies highlighted that girls were more involved in cyberbullying than boys (Kowalski and Limber, 2007; Li, 2007; Vandebosch and Van Cleemput, 2009; Låftman et al., 2013), and being female was found to be a significant risk factor for cybervictimization (Pettalia et al., 2013; Morin et al., 2018; Alhajji et al., 2019; Kim et al., 2019; Smith et al., 2019; Aizenkot and Kashy-Rosenbaum, 2021; Eyuboglu et al., 2021). While Connell et al. (2014) found that girls were more involved than boys in cyberbullying and cybervictimization; other studies found that boys showed greater involvement in cyberbullying and cybervictimization than girls (Huang et al., 2019; Rao et al., 2019). However, few studies found no significant gender difference in both cyberbullying and cybervictimization (Park et al., 2014; Chang et al., 2015a; Sanmartín Feijóo et al., 2021), and few others did not find gender differences in cybervictimization (Sorrentino et al., 2019).

Several studies highlighted that high levels of moral disengagement were a significant individual risk factor for youth involved in cyberbullying (Bauman, 2010; Pozzoli et al., 2012; Guo, 2016; Yang et al., 2018; Bartolo et al., 2019; Wang et al., 2019), while other studies found that involvement in both cyberbullying and cybervictimization was associated with high levels of moral disengagement (Pornari and Wood, 2010; Kowalski et al., 2014; Chen et al., 2017; Parlangeli et al., 2020) with cybervictims reporting higher levels of hostile attributional bias and cyberbullying scoring higher in moral justification (Pornari and Wood, 2010).

A few studies that investigated the role of the incorrect use of the internet, low levels of awareness of risky online behaviors, and online security procedures among youth involved in cyberbullying and cybervictimization found a significant correlation resulting in

increasing the risk of children and youth being involved both as cyberbullies and cybervictims (Fanti et al., 2012; Chang et al., 2015a; Camerini et al., 2020; Craig et al., 2020).

Regarding empathy as an individual risk factor for cyberbullying and cybervictimization, contrasting results emerged. The majority of studies found a positive association between low levels of empathy and involvement in cyberbullying (Steffgen et al., 2011; Topcu and Erdur-Baker, 2012; Casas et al., 2013; Kowalski et al., 2014; Baldry et al., 2015; Zych et al., 2019b; Sorrentino et al., 2021). In particular, some studies highlighted that both low levels of affective and cognitive empathy were significant risk factors for children and adolescents' involvement in cyberbullying (Ang and Goh, 2010; Del Rey et al., 2016; Zych et al., 2019b). On the contrary, few other studies did not find any significant association between both affective and cognitive empathy and cyberbullying (Graf et al., 2019).

Few studies examined the relationship between levels of empathy and cybervictimization; some of them found no significant associations (Steffgen and König, 2009; Kowalski et al., 2014), while other studies found low empathy to be a significant risk factor for cybervictimization among youth (Schultze-Krumbholz and Scheithauer, 2009). A recent systematic review and meta-analysis of 25 studies (Zych et al., 2019b) found no significant association between levels of empathy and cybervictimization, but when affective and cognitive empathy were considered separately, cybervictims scored higher compared to non-cybervictims on affective empathy while no significant association was found between cognitive empathy and cybervictimization.

One of the primary triggers for cyberbullying and cybervictimization is involvement in school bullying (Ansary, 2020; Estévez et al., 2020; Vismara et al., 2022). Studies investigating the relationship between adolescents' role in school bullying and victimization and cyberbullying and cybervictimization lead to contradicting observations, with the majority of them hypothesizing a substantial overlap and role continuity between the two types of peer aggression (Raskauskas and Stoltz, 2007; Del Rey et al., 2012; Fanti et al., 2012; Hemphill et al., 2012, 2015; Low and Espelage, 2013; Sticca et al., 2013; Hemphill and Heerde, 2014; Kowalski et al., 2014, 2019; Baldry et al., 2015; Waasdorp and Bradshaw, 2015; Athanasiades et al., 2016; Festl, 2016; Guo, 2016; Chen et al., 2017; Lazuras et al., 2017; Wolke et al., 2017; Jiménez, 2019; Leemis et al., 2019; Wang et al., 2019; Cosma et al., 2020; Khong et al., 2020; Oriol et al., 2021; Pichel et al., 2021; Rodríguez-Álvarez et al., 2021; Chudal et al., 2022). On the contrary, other studies found that school victims were more likely to be involved in cyberbullying (Ybarra and Mitchell, 2004; Kowalski et al., 2012; Cuadrado-Gordillo and Fernández-Antelo, 2014, 2019; Baldry et al., 2016; You and Lim, 2016; Lazuras et al., 2017).

Despite several individual risk factors, studies also underlined the importance of crucial parental, peer, and contextual protective factors for the involvement of youth in cyberbullying and cybervictimization (Zych et al., 2019a).

Regarding parental protective factors, contrasting results have emerged on parents' involvement in giving clear rules and monitoring their children's online life (López-Castro and Priegue, 2019; Zhu et al., 2021), with the majority of them emphasizing the protective role of such parental mediation strategy in preventing cyberbullying and cybervictimization (Hemphill and Heerde, 2014; Kowalski et al., 2014; Chang et al., 2015b; Khurana et al., 2015; Hong et al., 2016; Doty et al., 2018; Zych et al., 2019a). Few studies investigated the role of parental support in preventing and reducing both cyberbullying and cybervictimization (López-Castro and Priegue, 2019; Zych et al., 2019a; Camerini et al., 2020) as underlined in a recent study involving 774 Turkish students carried out by Ates et al. (2018) which found that parental support was a significant protective factor both for the involvement in cyberbullying and cybervictimization. Other studies found a different pattern between cyberbullies and cybervictims, highlighting that high levels of parental support served as protective factors only for cybervictims (Doty et al., 2017; Canestrari et al., 2021; Arató et al., 2022).

A recent meta-analysis by Zych et al. (2019a) showed that feeling supported by peers could be a protective factor against involvement in cyberbullying and cybervictimization. Similar results were also reported by Ates et al. (2018) and Arató et al. (2022), while according to Guo et al. (2021), high levels of peer support at school was a protective factor only for cybervictimization.

At the contextual level, several studies focused on the role that perceived school climate could have in affecting or being associated with both cyberbullying and cybervictimization, with the majority of the existing research indicating that a perception of a positive and safe school climate was associated with a decreased risk of being involved both as cyberbullies and cybervictims (Guo, 2016; Zych et al., 2019a; Camerini et al., 2020; Zhu et al., 2021).

Despite several studies investigating the risk and protective factors for cyberbullying and cybervictimization, the majority were cross-sectional, with only 76 studies adopting a longitudinal design (Camerini et al., 2020).

As underlined by Polanin et al. (2021) in their systematic review and meta-analysis of 50 studies concerning the effectiveness of cyberbullying preventive programs in reducing cyberbullying and cybervictimization, none of them included the concept of antisocial onset in preventing youth involvement in cyberbullying and cybervictimization. These results emphasize the need to investigate and include onset risk factors for involvement in cyberbullying and cybervictimization to develop and implement preventive anti-cyberbullying programs and evaluate their effectiveness in reducing cyberbullying and cybervictimization over time (Lan et al., 2022).

To analyze the onset of cyberbullying and cybervictimization behaviors, we adopted the same theoretical framework as Baldry et al. (2015). Combining the ecological system theory (Bronfenbrenner, 1977, 1979) and the threat assessment approach (Fein et al., 1995; Borum et al., 1999), allows the identification of significant risk factors for cyberbullying and cybervictimization by collocating them in their respective ecological system, and investigating how they operate and interact with each other, influencing the onset of cyberbullying and cybervictimization behaviors.

Bearing this in mind, the present study aims to investigate how individual, parental, peer, and school risk factors affect the onset of youth involvement in cyberbullying and cybervictimization by conducting a short-term longitudinal study.

In line with the international literature, we expected that significant risk factors for the onset of cyberbullying were being male, having low levels of awareness of online risky behaviors and both cognitive and affective empathy, high levels of moral disengagement, being a school bully, feeling not supported by parents and monitored about their online activities, perceiving low levels of support by peers, and a negative school climate.

Concerning risk factors for cybervictimization, we expected that cybervictims were more likely to be female, with low levels of awareness of online risky behaviors, high levels of both cognitive and affective empathy, low levels of moral disengagement, being victims of school bullying, feeling not supported by parents and monitored about their online activities, perceiving low levels of support by peers, and a negative school climate.

# Materials and methods

## Participants

The initial sample consisted of 455 students randomly recruited from five schools participating in a short-term longitudinal study.

Eventually, 333 students were included in the analyses as they had taken part and completed phases T1 and T2 (73% of the initial sample), and their questionnaire could be correctly matched. Attrition analysis with the dropped-out samples showed significant differences with regard to school victimization, $F_{(1,453)} = 14.809$, $p < 0.001$ (the drop-out sample $M = 1.25$, $SD = 2.85$; the final sample $M = 2.63$, $SD = 3.57$) and perceived parental support, $F_{(1,452)} = 5.05$, $p = 0.025$ (the drop-out sample $M = 6.46$, $SD = 3.32$; the final sample $M = 7.44$, $SD = 4.36$). No significant differences were found concerning involvement in school bullying, levels of moral disengagement, cognitive and affective empathy, awareness of online risks, perceived peer support, parental online monitoring strategies, and school climate. The dropping out of 122 students was due to mistakes in filling in the matching ID code that students had to create to guarantee their anonymity or absence on the day of data collection.

Of all students, 47.7% were male and 52.3% female, and aged between 10 and 16 years old ($M = 12.27$, $SD = 1.42$).

Regarding the use of cyber communication, 94.5% of all students reported at least one profile on a social network. Of those with a profile, 4.4% personally knew only a few of their online contacts, and 63.5% of students, on average, spent 1–4 h a day online. Concerning students' experiences of cyberbullying and cybervictimization at T1, 11.0% reported cyberbullying others at least once in the past 6 months, and 36.0% have been cybervictimized at least once in the past 6 months.

## Measures

The online Tabby Improved Checklist was developed by analyzing the results of a review of the international literature on risk factors for youngsters' involvement in cyberbullying and cybervictimization and how these risk factors operate and interact at different levels according to the ecological theoretical framework. For the short-term predictive ability of the risk, the previous instrument (Baldry et al., 2018; Sorrentino et al., 2018) was used for the present study.

The Tabby Improved Checklist consists of 12 scales and 130 items, measuring ontogenetic, microsystem, and community-level risk factors. For the purpose of the present paper, the following scales and items were analyzed.

Participants' involvement in cyberbullying and cybervictimization was measured by adopting the taxonomy by Willard (2007): flaming, denigration, impersonation, outing, and exclusion (five items for cyberbullying and five items for cybervictimization for each scale). Students rated their experiences of cyberbullying and cybervictimization on five-point Likert scales ranging from 0 = "it has never happened in this period" to 4 = "it happened several times a week." Example items: "I pretended to be someone else, created a fake profile in order to send or post damaging messages about another person," "I disclosed online private information or images without the person's consent," and "I was actively engaged in excluding someone from an online group." To measure the onset of cyberbullying and cybervictimization, scores on the five-items measuring different types of cyberbullying and cybervictimization were added, and total scores ranged from 0 to 20. Reliability coefficients at T2 were, respectively, $\alpha = 0.77$ for cyberbullying and $\alpha = 0.69$ for cybervictimization.

Students' involvement in school bullying and victimization was measured using the Olweus Bully/Victim Questionnaire (Olweus, 1993; Menesini et al., 1997; Baldry and Farrington, 1999). Participants were asked to rate their bullying and/or victimization experiences in the previous 6 months by answering 14 questions (seven for bullying and seven for school victimization) on a five-point scale ranging from 0 = "never" to 4 = "several times a week." Items were then summed to create the school bullying ($\alpha = 0.60$) and the school victimization ($\alpha = 0.71$) scales.

Empathy was measured using the Basic Empathy Scale (Jolliffe and Farrington, 2006; Albiero et al., 2009) consisting of a total of 20 items (items for cognitive empathy and 11 items for affective empathy) measured on a five-point Likert scale ranging from 0 = "Strongly agree" to 4 = "Strongly disagree." Reliability coefficients were, respectively, $\alpha = 0.67$ for cognitive empathy and $\alpha = 0.72$ for affective empathy.

Moral Disengagement was measured using the Bandura et al. (1996) scale, adapted and validated in Italian by Caprara et al. (2006), consisting of 32 items, each measured on a 5-point Likert scale ranging from 1 = "Strongly disagree" to 5 = "Strongly agree" ($\alpha = 0.91$).

The Increasing Self-Awareness of Cyberbullying (ISAC) scale was developed to measure students' awareness of online risks. The scale consisting of 6 items was measured on a five-point Likert scale each ranging from 1 = "Strongly agree" to 5 = "Strongly disagree" [e.g., "Everybody could see my notice board on my social network profile(s)" and "To share online someone's photos or other materials. It is just a way to mock them"] ($\alpha = 0.74$).

To measure students' perceived social support, two subscales of the Multidimensional Scale of Perceived Social Support Assessment were used (Zimet et al., 1988, 1990). Each subscale consisted of four items, each measuring perceived parental and peer support. Students rated their perception of being socially supported on a seven-point Likert scale ranging from 1 = "Strongly agree" to 7 = Strongly disagree" (respectively, $\alpha = 0.84$ for parental support, $\alpha = 0.89$ for peer support).

Parental online monitoring strategies, as reported by adolescents, were measured using three different items. Participants rated their parents' role in speaking with them about Internet security, giving them clear Internet use rules, and monitoring their online activities on a five-point Likert scale ranging from 1 = "Always" to 5 = "Never" ($\alpha = 0.72$).

TABLE 1 Descriptive statistics of onset cyberbullying ($N = 286$).

| | *M* | SD | Min | Max |
|---|---|---|---|---|
| School bullying | 0.60 | 1.37 | 0 | 14 |
| School victimization | 2.24 | 3.37 | 0 | 18 |
| Low awareness online risk | 5.58 | 4.79 | 0 | 24 |
| Low cognitive empathy | 9.69 | 4.67 | 0 | 29 |
| Low affective empathy | 14.67 | 6.81 | 0 | 34 |
| High moral disengagement | 66.95 | 19.89 | 32 | 141 |
| Low parental support | 7.10 | 4.11 | 4 | 28 |
| Low parental online activities monitoring | 6.02 | 3.03 | 0 | 12 |
| Low peers support | 9.34 | 5.25 | 4 | 28 |
| Poor school climate | 7.67 | 5.13 | 0 | 27 |

School climate was measured with a new eight-item scale (e.g., "If I have some problems, I can count on teachers' help and support" and "Most of the students support and participate with interest in all school's activities"), each measured from 1 = "Strongly Disagree" to 5 = "Strongly Agree" ($\alpha = 0.78$).

## Procedure

Five schools in the Campania region, South Italy, participated in the study. Before data collection, the approval of the Department of Psychology's Ethical committee (29/2015) and the custodial adults and children's consent were obtained. Students participating in the study filled in the anonymous Tabby Improved Online Actuarial Checklist during school hours at the Computer Technology Room (CTR). Here, each student sat in front of a PC connected to the www.tabby.eu website and was told he/she had to fill in an anonymous self-report questionnaire regarding his/her experience using the new communication technologies and online experiences in the previous 6 months. The second data collection (follow-up T2) took place after 6 months, a few weeks before the end of the same school year.

Before filling in the questionnaire, the terms cyberbullying and cybervictimization were explained to have a common understanding of what was investigated. Students were assured of the confidentiality of the study and the anonymity of the answers provided. Students were allowed to pose questions. Students were also instructed about generating an ID code, allowing us to match the questionnaire anonymously with answers at T1 and those provided after 6 months (T2). The guideline provided to students was as follows: "Insert your personal code (two numbers of your date of birth- for example, 03 if you were born on the 3rd, last two letters of your surname, and the last 3 numbers of your mobile or home phone number/if you don't have it, e.g., 03BA362, for Barba born on the 3rd, with mobile nr: ++362)." After completing the questionnaire, all students returned to their classes.

## Data analyses

The data collected within the database were analyzed using the SPSS statistical package (version 21.0, IBM Milano, Milan, Italy). Descriptive statistics were carried out to assess means and standard deviations were calculated for each variable.

As preliminary analyses, simple correlations were calculated between risk factors of our predictive models to test multicollinearity. In line with Dancey and Reidy (2007), a cut-off of 0.70 indicated the absence of high correlations among predictors and the absence of multicollinearity.

Then, we used the hierarchical regression analysis to test our hypothesis using a model that considered the possible role of the individual, relational, and contextual risk factors (Bronfenbrenner, 1977, 1979) in youth onset of involvement in cyberbullying and cybervictimization behaviors. As criteria for the inclusion or exclusion of variables in each step of regression, we used a level of $F < 0.05$. We assessed statistical significance at least at a 0.05 level for all statistical analyses performed. We performed separate analyses for onset risk factors for cyberbullying and cybervictimization involvement measured at baseline (T1), by excluding from the following analyses all students who at baseline (T1) declared to be involved in cyberbullying and cybervictimization and including only students that at follow-up (T2) were involved in cyberbullying and cybervictimization.

# Results

## Preliminary analyses of onset risk factors for cyberbullying involvement

A total of 286 students (40.2% male students) aged between 10 and 16 years ($M = 12.16$, $SD = 1.34$) were included in the following analyses aimed at investigating onset risk factors for cyberbullying involvement. Descriptive statistics for onset risk factors measured at T1 were calculated (see Table 1).

As shown in Table 2, the maximum observed coefficient of 0.50 between affective empathy and cognitive empathy is a value below the cut-off of 0.70. Looking in more detail at the correlation matrix, following Cohen's interpretation of *r*-values (high correlation for $r > 0.40$ and moderate correlation for $0.40 < r < 0.20$, 1,988), we observed a high correlation between moral disengagement and awareness of online risks ($r = 0.40$, $p < 0.001$), the two dimensions of empathy, i.e., affective and cognitive ($r = 0.50$, $p < 0.001$), the two kinds of support, i.e., support of friends and support of parents ($r =$

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TABLE 2 Correlation matrix for onset of cyberbullying.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Moral disengagement | – | 0.02 | 0.18** | −0.08 | 0.06 | 0.40*** | 0.14* | 0.25*** | 0.20*** | 0.19*** |
| 2. School victimization | | – | 0.40*** | −0.04 | 0.09 | 0.01 | 0.31*** | 0.02 | −0.06 | 0.19** |
| 3. School bullying | | | – | −0.11 | −0.01 | 0.02 | 0.12* | 0.14* | −0.02 | 0.14* |
| 4. Low cognitive empathy | | | | – | 0.50*** | −0.01 | 0.11* | −0.01 | 0.22*** | 0.29*** |
| 5. Low affective empathy | | | | | – | −0.01 | 0.04 | −0.06 | 0.25*** | 0.21*** |
| 6. Low awareness online risks | | | | | | – | 0.12* | 0.17** | 0.29*** | 0.01 |
| 7. Low peer support | | | | | | | – | 0.44*** | 0.23*** | 0.45*** |
| 8. Low parents support | | | | | | | | – | 0.23*** | 0.34*** |
| 9. Low parental online monitoring | | | | | | | | | – | 0.26*** |
| 10. Poor school climate | | | | | | | | | | – |

*p < 0.05, **p < 0.01, ***p < 0.001.

0.44, $p < 0.001$), and between support of friends and school climate ($r = 0.45$, $p < 0.001$). This last high correlation was not surprising given that many adolescents developed friendships in the school context. School bullying and school victimization were highly associated with each other ($r = 0.40$, $p < 0.001$).

Further, a moderate correlation emerged between moral disengagement and support of parents ($r = 0.25$, $p < 0.001$), and school victimization and support of friends ($r = 0.31$, $p < 0.001$). Both cognitive and affective empathy showed moderate correlation with parental online activities monitoring ($r_{\text{cognitiveempathy}} = 0.22$, $p < 0.001$; $r_{\text{affectiveempathy}} = 0.25$, $p < 0.001$) and school climate ($r_{\text{cognitiveempathy}} = 0.29$, $p < 0.001$; $r_{\text{affectiveempathy}} = 0.21$, $p < 0.001$). Similar to empathy, the support of parents showed a moderate correlation with both parental online activities monitoring ($r = 0.23$, $p < 0.001$) and school climate ($r = 0.34$, $p < 0.001$). Parental control also resulted in a moderate correlation with support of friends ($r = 0.23$, $p < 0.001$) and with school climate (r= 0.26, $p < 0.001$).

## Regression analyses: Onset risk factors for cyberbullying involvement

The stepwise regression for bullying and victimization predicted four significant steps (Table 3). In the first step, only awareness of online risks was statistically significant for cyberbullying behaviors. Low awareness of online risks predicted the involvement in cyberbullying behavior after 6 months: $\beta = 0.28$, $t_{(1, 276)} = 4.89$, $p < 0.001$, 95% C.I. = 0.06, 0.14. In the first step, the regression model explained 8.0% of the total variance, $F_{(1,276)} = 23.98$, $p < 0.001$.

In the second step, school bullying became a significant predictor of cyberbullying behaviors. A higher level of school bullying predicted involvement in cyberbullying behavior: $\beta = 0.22$, $t_{(2, 275)} = 3.82$, $p < 0.001$, 95% C.I. = 0.13, 0.41, and awareness of online risks was still a significant predictor in step 2 of the regression model, $\beta = 0.28$, $t_{(2, 275)} = 4.94$, $p < 0.001$, 95% C.I. = 0.06, 0.14. In the second step, the regression model explained 13.0% of the total variance with an increased value of 5.0%, $F_{\text{change}(1,275)} = 14.61$, $p < 0.001$.

In the third step, gender became a significant predictor of cyberbullying behaviors. Being male predicted higher cyberbullying behaviors $\beta = 0.14$, $t_{(3, 274)} = 2.52$, $p = 0.012$, 95% C.I. = 0.11, 0.91. Awareness of online risks was still a significant predictor in step 3 of the regression model, $\beta = 0.27$, $t_{(3, 274)} = 4.79$, $p < 0.001$, 95% C.I. = 0.06, 0.14, as well as school bullying $\beta = 0.20$, $t_{(3, 274)} = 3.51$, $p = 0.001$, 95% C.I. = 0.11, 0.39. In the third step, the regression model explained 15.0% of the total variance with an increased value of 2.0%, $F_{\text{change}(1,274)} = 6.37$, $p = 0.012$.

In the fourth and final step, affective empathy emerged as a significant predictor of cyberbullying behaviors, a higher level of affective empathy predicted a high level of cyberbullying behavior, $\beta = -0.15$, $t_{(4, 273)} = -2.58$, $p < 0.001$, 95% C.I. = 0.06, 0.14. Predictors that were significant at previous steps, were still significant at the final steps, i.e., awareness of online risks, $\beta = 0.27$, $t_{(4, 273)} = 4.81$, $p < 0.001$, 95% C.I. = 0.06, 0.14; school bullying act $\beta = 0.19$, $t_{(4, 273)} = 3.43$, $p = 0.001$, 95% C.I. = 0.10, 0.38; gender $\beta = 0.18$, $t_{(4, 273)} = 3.13$, $p = 0.002$, 95% C.I. = 0.24, 1.05. The final step explained 17.0% of the total variance, with an increased value of 2.0% compared with the third step, $F_{\text{change}(1,273)} = 6.67$, $p = 0.01$.

TABLE 3 Multiple linear regression analysis (stepwise) results regarding onset of cyberbullying.

| Variable | B | SE B | β | *t* | $R^2$ | $\Delta R^2$ |
|---|---|---|---|---|---|---|
| Step 1 | | | | | 0.80 | 0.77 |
| Constant | −0.17 | 0.15 | | −1.01 | | |
| Low awareness online risks | 0.10 | 0.02 | 0.28 | 4.90*** | | |
| Step 2 | | | | | 0.13 | 0.12 |
| Constant | −0.33 | 0.16 | | −2.08* | | |
| Low awareness online risks | 0.10 | 0.02 | 0.28 | 4.94*** | | |
| School bullying | 0.27 | 0.07 | 0.22 | 3.82*** | | |
| Step 3 | | | | | 0.15 | 0.14 |
| Constant | −0.49 | 0.17 | | −2.93** | | |
| Low awareness online risks | 0.09 | 0.02 | 0.27 | 4.79*** | | |
| School bullying | 0.25 | 0.07 | 0.20 | 3.51*** | | |
| Gender (male = 1) | 0.51 | 0.20 | 0.14 | 2.53* | | |
| Step 4 | | | | | 0.17 | 0.15 |
| Constant | 0.64 | 0.47 | | 1.36 | | |
| Low awareness online risks | 0.09 | 0.02 | 0.27 | 4.82*** | | |
| School bullying | 0.24 | 0.07 | 0.19 | 3.43*** | | |
| Gender (male = 1) | 0.65 | 0.21 | 0.18 | 3.13** | | |
| Low affective empathy | −0.05 | 0.02 | −0.15 | −2.58** | | |

*p < 0.05, **p < 0.01, ***p < 0.001.

## Prelaminar analyses of onset risk factors for cybervictimization involvement

About 175 students (48.6% males), aged between 10 and 16 years ($M = 12.23$, $SD = 1.36$), were included in the following analyses aimed at investigating onset risk factors for cybervictimization involvement. Descriptive statistics for onset risk factors measured at T1 were calculated (see Table 4).

Moving to the cybervictims behaviors, as shown in Table 5, the maximum observed coefficient of 0.565 between support of friends and support of parents was below the cut-off of 0.70 indicating the absence of high correlations among predictors and the absence of multicollinearity (Dancey and Reidy, 2007). Reviewing the correlation matrix in more detail following Cohen's interpretation of *r*-values (1988), a high correlation emerged between cognitive and affective empathy ($r = 0.32$, $p < 0.001$). Further, moral disengagement was highly correlated with school bullying ($r = 0.32$, $p < 0.001$), awareness of online risks ($r = 0.43$, $p < 0.001$), parental monitoring of online activities ($r = 0.31$, $p < 0.001$), and school climate ($r = 0.32$, $p < 0.001$). School climate showed a high correlation with school bullying ($r = 0.34$, $p < 0.001$), and both support of parents ($r = 0.40$, $p < 0.001$) and peers ($r = 0.40$, $p < 0.001$), by confirming the importance of the school context. Further, a moderate correlation emerged between moral disengagement and support of parents ($r = 0.27$, $p < 0.001$) as well as school victimization and peer support ($r = 0.31$, $p < 0.001$). School bullying resulted in a moderate correlation with support of parents ($r = 0.26$, $p < 0.001$), parental monitoring of online activities ($r = 0.26$, $p < 0.001$), and school climate ($r = 0.34$, p <.001). Both cognitive and affective empathy showed a moderate correlation with school climate ($r_{\text{cognitiveempathy}} = 0.26$, $p < 0.001$; $r_{\text{affectiveempathy}} = 0.23$, $p < 0.001$). Cognitive empathy had a moderate correlation with peer support ($r = 0.21$, $p = 0.002$), whereas affective empathy showed a moderate correlation with parental monitoring of online activities ($r = 0.28$, $p < 0.001$). Awareness of online risks resulted in a moderate correlation with peer support ($r = 0.20$, $p = 0.008$), parental support ($r = 0.23$, $p = 0.003$), and parental monitoring of online activities ($r = 0.27$, $p < 0.001$). Finally, both parental support ($r = 0.27$, $p < 0.001$) and peer support ($r = 0.25$, $p < 0.001$) were moderately correlated to parental monitoring of online activities.

## Regression analyses: Onset of cybervictimization involvement

The stepwise regression model for bullying and victimization predicted five significant steps (Table 6). In the first step, only affective empathy was a statistically significant predictor of cybervictimization behaviors. A high level of affective empathy predicted a high level of cybervictimization $\beta = -0.29$, $t_{(1, 167)} = -3.86$, $p < 0.001$, 95% C.I. $= -0.14, -0.05$. In the first step, the regression model explained 8.0% of the total variance, $F_{(1,167)} = 14.90$, $p < 0.001$.

In the second step, school bullying became a significant predictor of cybervictimization. A higher level of involvement in school bullying predicted a higher level of cybervictimization $\beta = 0.28$, $t_{(2, 166)} = 3.90$, $p < 0.001$, 95% C.I. $= 0.20, 0.61$. Affective empathy was still a significant predictor in step 2 of the regression model, $\beta = -0.33$, $t_{(2, 166)} = -4.70$, $p < 0.001$, 95% C.I. $= -0.16, -0.06$. In the second step, the regression model explained 16.0% of the total

TABLE 4 Descriptive statistics of onset of cybervictimization ($N = 175$).

| | M | SD | Min | Max |
|---|---|---|---|---|
| School bullying | 0.61 | 1.33 | 0 | 10 |
| School victimization | 1.40 | 2.72 | 0 | 18 |
| Low awareness online risk | 5.64 | 4.92 | 0 | 24 |
| Low cognitive empathy | 16.49 | 4.28 | 3 | 33 |
| Low affective empathy | 25.35 | 6.10 | 2 | 39 |
| High moral disengagement | 7.05 | 3.99 | 4 | 28 |
| Low parental support | 3.88 | 2.30 | 0 | 9 |
| Low parental online activities monitoring | 8.48 | 4.58 | 4 | 28 |
| Low peers support | 7.20 | 4.91 | 0 | 20 |
| Poor school climate | 0.61 | 1.33 | 0 | 10 |

TABLE 5 Correlation matrix for onset of cybervictimization.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Moral disengagement | – | −0.01 | 0.32*** | −0.12 | 0.09 | 0.43*** | 0.01 | 0.27*** | 0.31*** | 0.32*** |
| 2. School victimization | | – | 0.12 | 0.08 | 0.14 | 0.10 | 0.20** | 0.05 | 0.18* | 0.11 |
| 3. School bullying | | | – | 0.07 | 0.13 | 0.12 | 0.05 | 0.26*** | 0.26*** | 0.34*** |
| 4. Low cognitive empathy | | | | – | 0.54*** | −0.11 | 0.21** | −0.03 | 0.18* | 0.26*** |
| 5. Low affective empathy | | | | | – | −0.04 | 0.03 | −0.05 | 0.28*** | 0.23** |
| 6. Low awareness online risks | | | | | | – | 0.20** | 0.23** | 0.27*** | 0.18* |
| 7. Low peer support | | | | | | | – | 0.57*** | 0.25*** | 0.40*** |
| 8. Low parents support | | | | | | | | – | 0.27*** | 0.40*** |
| 9. Low parental online monitoring | | | | | | | | | – | 0.27*** |
| 10. Poor school climate | | | | | | | | | | – |

*p < 0.05, **p < 0.01, ***p < 0.001.

variance, with an increased value of 8.0%, $F_{change(1,166)} = 15.25$, $p < 0.001$.

In the third step, moral disengagement became a significant predictor of cybervictimization. A higher level of moral disengagement predicted involvement in cybervictimization after 6 months β = 0.18, $t_{(3, 165)} = 2.34$, $p = 0.019$, 95% C.I. = 0.01, 0.03. Affective empathy was still a significant predictor in step 3 of the regression model, β = −0.33, $t_{(3, 165)} = -4.70$, $p < 0.001$, 95% C.I. = −0.16, −0.06, as well as school bullying β = 0.22, $t_{(3, 165)} = 3.02$, $p = 0.003$, 95% C.I. = 0.11, 0.54. In the third step, the regression model explained 19.0% of the total variance, with an increased value of 3.0%, $F_{change(1,165)} = 3.98$, $p = 0.019$.

In the fourth step, gender emerged as a significant predictor of cybervictimization. Being male predicted a higher level of cybervictimization β = 0.15, $t_{(4, 164)} = 1.99$, $p = 0.048$, 95% C.I. = 0.01, 1.17. Affective empathy, β = −0.37, $t_{(4, 164)} = -5.09$, $p < 0.001$, 95% C.I. = −0.17, −0.08; school bullying, β = 0.20, $t_{(4, 164)} = 2.70$, $p = 0.008$, 95% C.I. = 0.08, 0.51, and moral disengagement, β = 0.15, $t_{(4, 164)} = 2.01$, $p = 0.047$, 95% C.I. = 0.01, 0.03, were still significant in the fourth step of the regression model. The fourth step explained 21.0% of the total variance, with a further increased value of 2.0% compared with the third step, $F_{change(1,164)} = 3.98$, $p = 0.048$.

In the fifth and final step of the regression model, school victimization emerged as a significant predictor of cybervictimization, a higher level of school victimization predicted a higher level of cybervictimization behaviors, β = 0.154, $t_{(5,163)} = 2.02$, $p = 0.045$, 95% C.I. = 0.01, 0.20. Crucially, all predictors that were significant in previous steps of the regression model were still significant in the final step of the regression: Affective empathy, β = −0.39, $t_{(5,163)} = -5.38$, $p < 0.001$, 95% C.I. = −0.18, −0.08; school bullying, β = 0.19, $t_{(5,164)} = 2.48$, $p = 0.014$, 95% C.I. = 0.06, 0.49; moral disengagement, β = 0.16, $t_{(5,163)} = 2.12$, $p = 0.036$, 95% C.I. = 0.01, 0.03; and gender, β = 0.16, $t_{(5,163)} = 2.08$, $p = 0.040$, 95% C.I. = 0.03, 1.18. The final step of the regression model explained 23.0% of the total variance, with an increased value of 2.0% compared with the previous step, $F_{change(1,163)} = 4.06$, $p = 0.045$.

## Discussion

As far as we know, to date, no longitudinal studies on risk factors for cyberbullying and cybervictimization have been carried out adopting the criminological concept of "onset". The current study aimed to investigate the onset risk factors for youth involvement

TABLE 6 Multiple linear regression analysis (stepwise) results regarding onset of cybervictimization.

| Variable | B | SE B | β | *t* | $R^2$ | $\Delta R^2$ |
|---|---|---|---|---|---|---|
| Step 1 | | | | | 0.08 | 0.08 |
| Constant | 3.22 | 0.65 | | 4.99*** | | |
| Low affective empathy | −0.09 | 0.03 | −0.29 | −3.86*** | | |
| Step 2 | | | | | 0.16 | 0.15 |
| Constant | 3.31 | 0.62 | | 5.34*** | | |
| Low affective empathy | −0.11 | 0.02 | −0.33 | −4.54*** | | |
| School bullying | 0.41 | 0.11 | 0.28 | 3.91*** | | |
| Step 3 | | | | | 0.19 | 0.17 |
| Constant | 2.31 | 0.74 | | 3.10** | | |
| Low affective empathy | −0.11 | 0.02 | −0.33 | −4.70*** | | |
| School bullying | 0.33 | 0.11 | 0.23 | 3.02** | | |
| High moral disengagement | 0.02 | 0.01 | 0.18 | 2.37* | | |
| Step 4 | | | | | 0.21 | 0.19 |
| Constant | 2.52 | 0.74 | | 3.38*** | | |
| Low affective empathy | −0.12 | 0.02 | −0.37 | −5.09*** | | |
| School bullying | 0.30 | 0.11 | 0.20 | 2.71** | | |
| High moral disengagement | 0.01 | 0.01 | 0.15 | 2.00* | | |
| Gender (male = 1) | 0.59 | 0.30 | 0.15 | 1.99* | | |
| Step 5 | | | | | 0.23 | 0.20 |
| Constant | 2.52 | 0.74 | | 3.41*** | | |
| Low affective empathy | −0.13 | 0.02 | −0.39 | −5.38*** | | |
| School bullying | 0.27 | 0.11 | 0.19 | 2.49* | | |
| High moral disengagement | 0.02 | 0.01 | 0.16 | 2.11* | | |
| Gender (male = 1) | 0.61 | 0.29 | 0.16 | 2.07* | | |
| School victimization | 0.10 | 0.05 | 0.14 | 2.02* | | |

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

in cyberbullying and cybervictimization by conducting a short-term longitudinal study involving 286 Italian students aged between 10 and 16 years. To this aim, onset risk factors for both cyberbullying and cybervictimization involvement were analyzed separately and by excluding from our analyses all students that at baseline (T1) declared to be involved in cyberbullying or in cybervictimization.

Concerning participants' onset risk factors for cyberbullying, our results highlighted that awareness of online risks, involvement in school bullying, and gender were all significantly associated with youth involvement in cyberbullying after 6 months. Specifically, consistent with previous research, our findings indicate that onset of cyberbullying in youth is predicted by low levels of awareness of online risks (Camerini et al., 2020), previous involvement in school bullying (Kowalski et al., 2014, 2019; Baldry et al., 2015; Guo, 2016; Chen et al., 2017; Cosma et al., 2020; Estévez et al., 2020), and being male (Barlett et al., 2021; Giordano et al., 2021).

Surprisingly, high levels of affective empathy were found to be significant onset risk factors for involvement in cyberbullying after 6 months. Although this finding was unexpected at first glance, as underlined by a recent systematic review and meta-analysis, cyberbullies scored lower in cognitive and affective empathy (Zych et al., 2019b). However, based on the more general literature about aggressive behaviors (Vachon et al., 2014) we can hypothesize the existence of more than two components of empathy, as, for instance, cognitive empathy, affective resonance, and affective dissonance (Vachon and Lynam, 2016). As the affective dissonance dimension is associated with aggressive and externalizing behaviors (Vachon and Lynam, 2016), it could be possible that in our study, high affective empathy predicted cyberbullying involvement, as those students reported higher capability to access victims' emotions to use them to take pleasure in others' pain. Future studies are needed to investigate the possible role of these three dimensions of empathy in youth onset involvement in cyberbullying.

Contrary to our expectations, no significant associations were found between low levels of cognitive empathy, low levels of perceived parental online monitoring and support, low levels of peer support and negative school climate, and the onset of cyberbullying behaviors.

On the onset risk factors for cybervictimization, our results highlighted that affective empathy, involvement in school bullying and victimization, and gender were all significantly associated with youth involvement in cybervictimization after 6 months. Specifically,

our findings indicate that onset of cybervictimization in youth is predicted by high levels of affective empathy, previous involvement in school bullying and school victimization, and being male.

Concerning the relationship between gender and cybervictimization, even if contrasting results were reported in the literature, our findings are consistent with those reported by Huang et al. (2019) and Rao et al. (2019); boys were more at risk than girls of being cybervictims.

Consistent with our results, involvement in school victimization, as evidenced in many previous studies, is a significant predictor of cybervictimization (Kowalski et al., 2014; Baldry et al., 2015; Estévez et al., 2020; Oriol et al., 2021; Rodríguez-Álvarez et al., 2021).

However, our results also support the "role inversion hypothesis" (Ybarra and Mitchell, 2004; Cuadrado-Gordillo and Fernández-Antelo, 2014, 2019; Baldry et al., 2016), which is the possibility of being cybervictimized as an act of revenge for being a school bully, confirming that independently of the role held in peer aggressive behaviors, school bullying and victimization are crucial risk factors for youth involvement in cybervictimization after 6 months.

Moreover, high levels of affective empathy were found to significantly affect participants' involvement in cybervictimization after 6 months, confirming the results of a recent meta-analysis (Zych et al., 2019b) that found that cybervictims reported high levels of affective empathy than non-cybervictims.

Furthermore, we also found that high levels of moral disengagement measured at baseline predicted the involvement in cybervictimization at follow-up, consistent with Pornari and Wood (2010), Kowalski et al. (2014), Chen et al. (2017), and Parlangeli et al. (2020), hypothesizing that youth with the tendency of blaming the victims and justifying violent behaviors were probably less aware of their risk of being cybervictimized.

Contrary to our hypotheses, the onset of cybervictimization was not significantly associated with being female, reporting low levels of online risk awareness, high cognitive empathy, feeling not supported by parents and monitored about their online activities, perceiving low levels of support by peers, and a negative school climate.

## Practical implications

The results underline the existence of a different pattern of onset risk factors for cyberbullying and cybervictimization, confirming the role of some of the more investigated risk factors for cyberbullying and cybervictimization, such as school bullying and victimization and gender.

However, even if our results are consistent with previous research on risk factors for cyberbullying and cybervictimization (Kowalski et al., 2014; Baldry et al., 2015; Zych et al., 2019a; Camerini et al., 2020), at the same time, they underline the existence of different patterns for youth onset involvement in cyberbullying and cybervictimization suggesting several implications for the development of further prevention and intervention programs.

Specifically, according to our results, it seems necessary to work on the implementation of holistic anti-cyberbullying programs which can adapt the nature and the type of intervention differentiating between prevention and sensitization activities from those aimed at targeting cyberbullies and cybervictims.

Prevention and sensitization programs should include specific curricula for identifying, assessing, and managing the possible "alarm bells" associated with the onset of peer aggressive behaviors such as cyberbullying and cybervictimization; this is to intervene before adolescents' involvement in such behaviors, differentiating between individual, relational, and contextual risk factors associated with the involvement as perpetrator and victim. For instance, according to our results, it could be useful for preventing youth involvement in cyberbullying to consider and implement specific modules on children and youth socioemotional abilities, focusing on empowering the affective resonance dimension while managing the affective dissonance one. Though in terms of prevention, for cybervictims, activities should focus on investigating youth's previous involvement in school bullying dynamics, and in particular, understand the possible role overlap or inversion between the involvement as school bullies or victims and the subsequent experience of cybervictimization.

The development of such prevention and intervention programs based on individual, relational, and contextual onset risk factors for cyberbullying and cybervictimization should overcome one of the main limits of current anti-bullying programs, which is their limited efficacy in preventing and reducing such behaviors over time (Polanin et al., 2021; Lan et al., 2022).

## Limitations and future research

This study has some limitations that should be addressed in future studies. First, as common in longitudinal studies, we observed a mortality ratio of 27.0% of the total sample ($N = 122$) at T2, due mainly to the one participating school dropout. Despite this limitation, the longitudinal design of our study allowed us to evaluate the causal relationship between the onset risk factors for cyberbullying and cybervictimization and the youth's involvement in such behaviors after 6 months. Furthermore, we also performed attrition rate analyses to check that the retaining sample was representative of the initial one.

Another possible limitation of our study is related to sample size, thus affecting the generalizability of our results. The small sample size involved in our analyses arises from the need to analyze how individual, relational, and contextual risk factors measured at baseline influence our participants' consequent involvement (after 6 months) in cyberbullying and cybervictimization.

Even if the reliability coefficient of some scales at T1 were around 0.60, these values should be considered acceptable given the short scales dimension (Gliem and Gliem, 2003). Future cross-cultural studies should help to verify the scales' reliability across different countries. Another limitation of the present research is the low percentage of variance explained by our hierarchical regression models that were tested (∼20.0%). This low power can be framed by considering the cyberbullying and cybervictimization nature, as all social complex phenomena, the involvement in such behaviors could be affected by the interaction of several individual, relational, and contextual factors. Despite this limitation, the identification of a different pattern of onset risk factors influencing youth involvement in cyberbullying and cybervictimization could represent a turning point for the development of effective primary prevention and promotion strategies.

Future research is needed to investigate the onset risk factors for involvement in cyberbullying and cybervictimization by implementing long-term longitudinal studies to assess their trajectories and patterns over time.

Second, another possible limitation is that our measures were self-reported, maybe eliciting participants' social desirability or leading them to underestimate their involvement in cyberbullying and cybervictimization.

## Conclusion

We investigated the onset of individual, relational, and contextual risk factors for youth and adolescents' involvement in cyberbullying and cybervictimization by involving a sample of Italian students in a short-term longitudinal study (a follow-up after 6 months). Overall, we found the existence of a different pattern of risk factors influencing adolescents' onset of cyberbullying and cybervictimization. Specifically, our results showed that being male, involvement in school bullying, low levels of awareness of online risk, and high levels of affective empathy were all significant onset risk factors for cyberbullying. Being male, involvement in school bullying and victimization, high levels of affective empathy, and moral disengagement were found to be onset risk factors for cybervictimization.

These results, underline the need to develop and implement holistic anti-cyberbullying programs that can adapt to the nature and the type of intervention, differentiating between prevention and sensitization activities from those aimed at targeting cyberbullies and cybervictims. Programs should include specific curricula for identifying, assessing, and managing the possible "alarm bells" associated with the onset of cyberbullying and cybervictimization; this is to intervene before adolescents' involvement in such behaviors, differentiating between individual, relational, and contextual risk factors associated with the involvement as perpetrator and victim.

## 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 Department of Psychology, University of Campania Luigi Vanvitelli. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

## Author contributions

AS designed the work. AA and AS analyzed the data results and revised the manuscript. AS, AA, AE, MS, and DA drafted the manuscript. 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.

The reviewer MS declared a shared affiliation with the author AA to the handling editor at the time of review.

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# Is it my fault? The role of the feeling of guilt in adolescent peer victimization

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**Introduction:** The aim of this study was to analyze the relationships between feelings of guilt, peer victimization in school, and loneliness based on adolescents' gender.

**Methods:** A total of 671 Spanish students (50.7% boys), aged 10–16years old ($M$=13.04, $SD$=1.80) from six public primary and secondary schools participated in the study. A Multivariate Analysis of Variance (3×2) was calculated.

**Results:** Adolescents with high levels of guilt presented greater physical, verbal, and relational victimization, as well as higher levels of loneliness. In addition, boys high in guilt had the highest scores in overt physical victimization, while girls high in guilt had the highest levels of loneliness.

**Discussion:** Results obtained suggest that adolescents with greater feelings of guilt feel responsible for being victims of peer aggression and for feeling lonely. These findings suggest the need to address the feeling of guilt, taking into account the gender perception.

KEYWORDS

**feeling of guilt, peer victimization, loneliness, adolescents, *ex post facto* study**

## Introduction

Peer victimization in schools is defined as a type of abuse where students are subjected to physical, verbal, and psychological violence by one or more peers (Graham, 2006). Previous studies have found a positive association between victimization and psychosocial adjustment problems, such as high levels of loneliness (León-Moreno et al., 2019; Cava et al., 2021), higher social anxiety (Webb et al., 2021; Wu et al., 2021), lower popularity, more social integration problems in the classroom (Garandeau et al., 2019; Gao et al., 2021), and suicidal ideation (Lucas-Molina et al., 2018; Quintana-Orts et al., 2020). These particularly painful and stressful interpersonal experiences for the adolescent can lead students to ask: Why me? Is it my fault? Thus, this study explores the links between feelings of guilt, peer school victimization, and loneliness in adolescence.

## Feelings of guilt and school victimization

Guilt is defined as an unpleasant feeling towards oneself due to the perception of responsibility and regret about a harm caused (real or imagined; Tilghman-Osborne et al., 2012; Conejero et al., 2019). According to Misailidi and Kapsali (2020), the feeling of guilt can emerge from the awareness that the adolescent has broken a social or moral norm (e.g., "Believing that one has done something wrong"), and, also, due to the awareness of what others think or believe about the wrong behavior (e.g., "Others believe that I intended to do something wrong"). In this regard, the feeling of guilt encourages the repair of damaged relationships (Vaish et al., 2016), and strengthens interpersonal bonds by inhibiting actions that jeopardize group relationships (Gazzillo Fimiani et al., 2020). Therefore, according to some authors, the moderate presence of this feeling is positive and adaptive by fostering the development of moral and prosocial behaviors (Hoffman, 1982; Roos et al., 2014). However, other authors (Giammarco and Vernon, 2015; Zahn-Waxler and Schoen, 2016) postulated that the feeling of guilt becomes inappropriate and excessive when it is based on cognitive distortions or erroneous beliefs regarding responsibility for a given event, such as the internal attribution of victim blaming (Thornberg et al., 2015; Harsey et al., 2017).

According to Graham and Juvonen (1998), following an episode of victimization, two internal attributions of blame may emerge: characterological and behavioral. Characterological guilt refers to the perception that negative experiences are attributed to internal, stable, and uncontrollable causes, which may inhibit the victim from seeking external help and support (Forsberg and Horton, 2020; Tholander et al., 2020), whereas behavioral guilt relates to specific controllable actions. For instance, an adolescent may attribute being victimized by a peer to being an unpleasant person (characterological guilt) or to not being kind enough that day (behavioral guilt). Prior studies have highlighted that, compared to characterological self-blame, behavioral self-blame is less maladaptive because students perceive that "things will not always be this way and can change" (Graham and Juvonen, 1998; Schacter et al., 2015).

## Feelings of guilt and loneliness

Another concerning aspect of the feeling of guilt is that it can have negative consequences in the victim's interpersonal relationships (Valdés-Cuervo et al., 2021), leading to an aggravation of victimization situations (Schacter and Juvonen, 2015). According to the Social Information Processing Model proposed by Crick and Dodge (1994), when students face a negative interpersonal experience, they try to understand why it happened, and their subjective interpretations in turn explain their emotional reactions. Thus, as suggested by Zimmer-Gembeck et al. (2016), the feeling of guilt would have a negative impact on the expectations of support and acceptance from others, accounting for not only less involvement in their social relationships (Schacter and Juvonen, 2017; Russell et al., 2019), but also for their greater perception of loneliness (Bruno et al., 2009). Similarly, positive peer relationships, and friendships in particular, have been found to have a buffering effect on victims with respect to the negative effects of guilt (Tholander et al., 2020). Moreover, Chen and Graham (2012) stated that the mechanism underlying the buffering effect of affiliative relationships is that the positive appraisal of the supportive social network may help to displace the victim's internal attribution of guilt. For instance, a victimized adolescent who has the support of a best friend is likely to conclude, "I get along with the good guys. This is not my fault."

Regarding gender differences, data obtained in different studies show that, in general, the perception of guilt is higher in girls than in boys (Bennett et al., 2005; Mazzone et al., 2016). Specifically, it has been found that one of the areas in which girls report more feelings of guilt is in the interpersonal domain (Graber et al., 2016). According to Etxebarria and Perez (2003), girls infer a greater sense of guilt in interpersonal interactions because of the expectations of care and maintenance of the affective bonds in which they have been socialized. Given this background, the main objective of the present study was to analyze the relationship between feelings of guilt, peer school victimization, and loneliness in adolescents as a function of gender. Therefore, the following hypotheses were proposed:

> *H1*: Adolescents with high feelings of guilt will present greater peer school victimization-physical, overt and relational-, as well as greater feelings of loneliness.
>
> *H2*: Girls with high feelings of guilt will report greater peer school victimization-physical, overt, and relational-and greater feelings of loneliness.

# Materials and methods

## Participants

A multistage cluster sampling was carried out to select a random sample ($N = 594$) from a total population of 58,679 adolescents of both sexes between 10 and 16 years old living in the province of Cordoba. The sample consisted of 671 adolescents of both sexes (50.7% boys and 49.3% girls), aged between 10 and 16 years old ($M = 13.04$, $SD = 1.80$), enrolled in primary education (5th and 6th grades), and compulsory secondary education (ESO) in six schools, four public and two state-subsidized, in the province of Cordoba (Spanish).

## Measures

*Guilt Scale: Inappropriate and Excessive*, from Tilghman-Osborne et al. (2012). It consists of 48 items with a response range from 0 (not at all) to 3 (very much) that measures the degree of guilt experienced by the adolescent in the past year (e.g., "Imagine

your class is participating in a game and your team loses. You cannot help but think they lost because of you"). The Cronbach's Alpha obtained in the present sample was acceptable ($\alpha = 0.94$).

*Peer Victimization Scale* (Mynard and Joseph, 2000), adapted to Spanish by Martínez-Ferrer et al. (2018). It consists of 25 items with a response range from 1 (never) to 4 (always) that rates how frequently the adolescent has been subjected to violent behaviors in the last year. The scale consists of three dimensions: overt physical victimization (e.g., "A peer has beaten me up"); overt verbal victimization (e.g., "A peer has insulted me"); and relational victimization (e.g., "A peer has told my secrets to others"). The Cronbach's Alpha obtained in the present sample was acceptable ($\alpha = 0.93$).

*Loneliness Scale* by Russell et al. (1980), adapted to Spanish by Expósito and Moya (1999). It is composed of 20 items with a response range from 1 (never) to 4 (always) that evaluates the degree of loneliness experienced by the adolescent in the last year (e.g., "How often do you feel isolated from others?"). The Cronbach's Alpha obtained in the present sample was acceptable ($\alpha = 0.89$).

## Procedure

First, an informative seminar was held with teachers and families to explain the objectives, the scope of the study, and the procedure to be followed. Next, the necessary authorizations were obtained from school administrators and participating families were requested to give active informed consent for their child to participate in the study. The battery of instruments was administered voluntarily, anonymously, and supervised in two different sessions of approximately 45 min during school hours. Participants were guaranteed the confidentiality of the information obtained. The study complied with the ethical values required in research with human beings, respecting the fundamental principles included in the Declaration of World Medical Association (2013).

## Data analysis

First, a two-stage cluster analysis was performed for guilt, obtaining three groups (Fernandez-Rio et al., 2014; Chen et al., 2020): low guilt ($n = 454$), medium guilt ($n = 176$), and high guilt ($n = 41$). Next, a multivariate factorial design (MANOVA, $3 \times 2$) was conducted with the SPSS statistical program (version 20) considering guilt (low, medium, and high) and gender (boy versus girl) as fixed factors to analyze possible interaction effects. The three dimensions of school victimization-physical, verbal, and relational-and feelings of loneliness were considered as dependent variables. Univariate tests (ANOVAS) were calculated to study differences in statistically significant variables and the Bonferroni *post-hoc* test ($\alpha = 0.05$) was performed.

# Results

We examined whether the groups were similar in terms of sociodemographic variables. As shown in Table 1, according to gender, non-significant differences were found [$\chi^2(2) = 0.428$ $p > 0.05$].

## Multivariate factor analysis

In the MANOVA, statistically significant differences were found in the main effects of feelings of guilt [$\Lambda = 0.939$, $F(8, 1{,}324) = 5.261$, $p < 0.001$, $\eta^2_p = 0.031$], and gender [$\Lambda = 0.893$, $F(4, 662) = 19.827$ $p < 0.001$, $\eta^2_p = 0.107$]. In addition, a statistically significant interaction effect was obtained between feelings of guilt and gender [$\Lambda = 0.926$, $F(8, 1{,}324) = 6.497$, $p < 0.001$, $\eta^2_p = 0.038$].

## Feelings of guilt

The ANOVA results showed significant differences in overt physical victimization, $F(2, 668) = 9.892$, $p < 0.001$, $\eta^2_p = 0.029$, verbal victimization, $F(2, 668) = 12.709$, $p < 0.001$, $\eta^2_p = 0.037$, relational victimization, $F(2, 668) = 14.762$, $p < 0.001$, $\eta^2_p = 0.042$, and loneliness, $F(2, 668) = 7.854$, $p < 0.001$, $\eta^2_p = 0.023$. Bonferroni tests ($\alpha = 0.05$) indicated that adolescents with high and medium feelings of guilt reported higher levels than adolescents with low feelings of guilt in physical, verbal, and relational victimization. Regarding loneliness, adolescents with high levels of guilt had statistically higher scores in feeling lonely than adolescents with medium and low levels of guilt.

TABLE 1 Sociodemographic variables.

| Variables | Total sample | Feeling of guilt | | | $\chi^2$ |
|---|---|---|---|---|---|
| | | Low $N = 174$ | Medium $N = 320$ | High $N = 177$ | |
| Gender | | | | | $\chi^2(2) = 0.428$ (n.s.) |
| Boys | 340 (50.7%) | 90 (51.7%) | 164 (51.3%) | 86 (48.6%) | |
| Girls | 331 (49.3%) | 84 (48.3%) | 156 (48.8%) | 91 (51.4%) | |

$\chi^2$: Chi-square; n.s: non significant

## Demographic variable: Gender

Results of the ANOVA revealed significant differences for gender in the variables physical victimization $F(1, 669) = 29.214$, $p < 0.001$, $\eta^2_p = 0.042$, and verbal victimization $F(1, 669) = 6.387$, $p < 0.01$, $\eta^2_p = 0.006$. As shown in Table 2, Bonferroni tests ($\alpha = 0.05$) indicated that boys, relative to girls, obtained higher scores in physical and verbal victimization (Table 3).

## Interaction analysis

Two statistically significant interaction effects were found between guilt and gender in the variables physical victimization $F(5, 665) = 13.807$, $p < 0.001$, $\eta^2_p = 0.094$, and the feeling of loneliness $F(5,665) = 5.578$, $p < 0.001$, $\eta^2_p = 0.040$. Regarding the first interaction, it was observed that boys with medium levels of guilt showed greater physical victimization than boys and girls with low levels of guilt and girls with medium levels of guilt. Moreover, boys with high levels of guilt reported a higher level of victimization than girls with high and medium levels of guilt and girls and boys with low levels of guilt. With respect to the second interaction, ex-post analyses revealed that girls with high levels of guilt had a greater feeling of loneliness than the rest of the groups analyzed (see Figures 1, 2).

# Discussion

The aim of the present study was to analyze the relationship between feelings of guilt, peer victimization in school, and loneliness in school-aged adolescents. First, as predicted in the first hypothesis, it was observed that adolescents with high levels of guilt presented greater school victimization-physical, overt, and relational-, which was in line with previous studies (Chen and Chen, 2019; Tholander et al., 2020). These findings are, in our view, highly relevant as various studies have pointed out that adolescents showing irrational guilt tend toward internal attribution of their victimization (Wei-Ru and Li-Ming, 2019; Forsberg and Horton, 2020), which may inhibit the search for external support (Harsey et al., 2017), and are therefore more likely to face prolonged victimization (Schacter and Juvonen, 2017). We consider these results interesting because they contribute to deepening our understanding of victim coping strategies.

In terms of loneliness, our findings are consistent to previous studies in which a positive association between guilt and loneliness was found (Bruno et al., 2009; Rostami and Jowkar, 2016). Considering that the attribution of guilt is associated with the belief or feeling of having transgressed social ethical norms or for not meeting group expectations (Etxebarria and Perez, 2003), it is plausible to think that the attribution of guilt may eventually generate an inhibition of interpersonal interactions, and undermine the adolescent's feeling of belonging and social integration (Wei-Ru and Li-Ming, 2019; Forsberg and Horton, 2020).

Concerning the interaction effect between guilt and gender, significant differences were found in the physical victimization and loneliness variables, whereas no significant differences were found in verbal or relational victimization. Specifically, the results of the present study indicated that boys with high levels of guilt scored highest in physical victimization. This finding can be explained on the basis of Control-Mastery Theory (CMT; Weiss et al., 1986; Gazzillo et al., 2017), which postulates that guilt has an interpersonal and adaptive origin and is based on the adolescents´ need to feel that their environment values and accepts them. Thus, CMT considers

TABLE 3 Means, standard deviations, *F* values, and Bonferroni *post hoc* test for the guilt groups.

| | Gender | Feeling of guilt | | | F(5, 665) | $\eta^2_p$ | *Post hoc* |
|---|---|---|---|---|---|---|---|
| | | Low | Medium | High | | | |
| PV | Boys | $1.27^a$ | $1.43^b$ | $1.67^c$ | 13.807*** | 0.094 | b > e, |
| | | (0.30) | (0.43) | (0.49) | | | a, d |
| | Girls | $1.19^d$ | $1.19^e$ | $1.26^f$ | | | c > f, e, |
| | | (0.28) | (0.29) | (0.23) | | | a, d |
| L | Boys | $1.77^a$ | $1.78^a$ | $1.80^a$ | 5.578*** | 0.040 | b > a |
| | | (0.41) | (0.44) | (0.48) | | | |
| | Girls | $1.76^a$ | $1.78^a$ | $2.24^b$ | | | |
| | | (0.44) | (0.43) | (0.65) | | | |

PV, physical victimization; L, loneliness. ***$p < 0.001$.

TABLE 2 Means, standard deviations, and differences on guilt, peer victimization, and gender.

| | Feeling of guilt | | | | | | Gender | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Variables | Low | Medium | High | F(2, 668) | $\eta^2_p$ | *Post hoc* | Boys | Girls | F(1, 669) | $\eta^2_p$ |
| PV | $1.23^c$ | $1.32^b$ | $1.44^a$ | 9.892*** | 0.029 | a, b > c | 1.34 | 1.20 | 29.214*** | 0.042 |
| | (0.30) | (0.39) | (0.42) | | | | (0.37) | (0.29) | | |
| VV | $1.61^c$ | $1.78^b$ | $1.90^a$ | 12.709*** | 0.037 | a, b > c | 1.72 | 1.62 | 6.387** | 0.006 |
| | (0.46) | (0.55) | (0.57) | | | | (0.48) | (0.51) | | |
| RV | $1.49^c$ | $1.76^b$ | $1.79^a$ | 14.762*** | 0.042 | a, b > c | 1.53 | 1.59 | 2.582 | . 004 |
| | (0.43) | (0.53) | (0.56) | | | | (0.45) | (0.50) | | |
| L | $1.76^c$ | $1.82^b$ | $2.05^a$ | 7.854*** | 0.023 | a > b, c | 1.79 | 1.79 | 0.002 | 0.000 |
| | (0.43) | (0.43) | (0.62) | | | | (0.42) | (0.47) | | |

RV, relational victimization; PV, physical victimization; VV, verbal victimization; L, loneliness. ***$p < 0.001$.

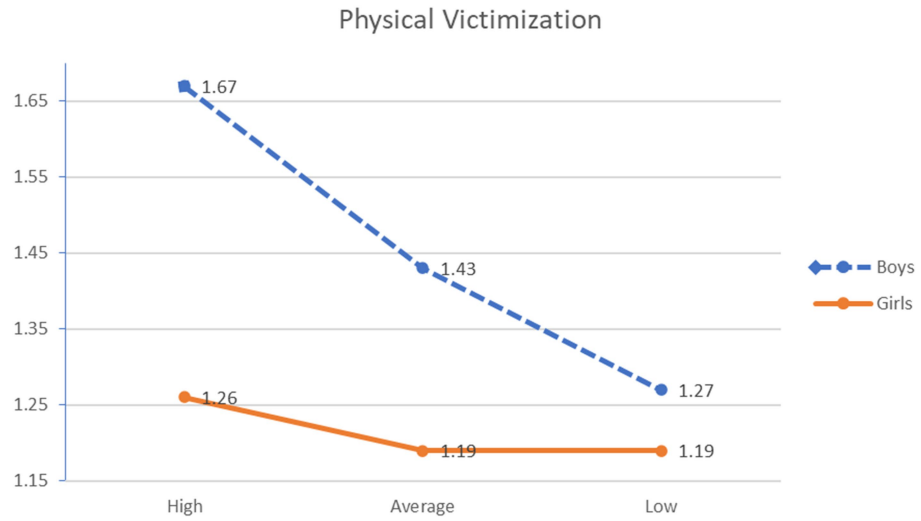


FIGURE 1
Interaction effect feeling of guilt × gender and physical victimization.

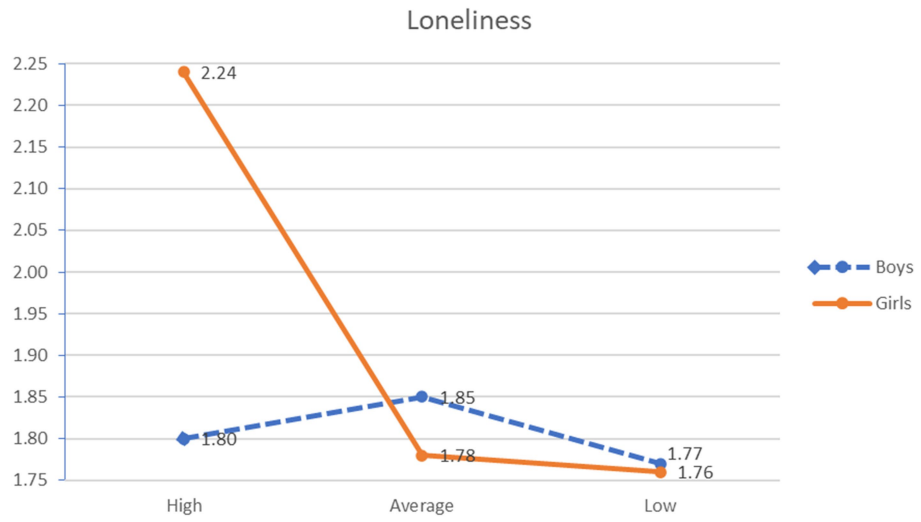


FIGURE 2
Interaction effect feeling of guilt × gender and loneliness.

guilt as a consequence of the fear of losing important relationships due to internal causes. It has been observed that physical violence is considered as an essential component of normative models of masculinity and power (Carrera-Fernández et al., 2018; Rosen and Nofziger, 2019). Therefore, it is likely that boys may attribute their victimization situation to internal causes, such as increased physical weakness, contributing to their tendency to feel guilty.

As for gender differences, it has also been observed that girls with high levels of guilt demonstrated a greater degree of loneliness than the rest of the groups analyzed. In this regard, Chen and Chen (2019) highlighted that the feeling of loneliness in adolescence may have a more negative effect on girls due to the high importance they attach to their interpersonal relationships and the belief that they have been isolated or rejected because of their own actions, increasing their tendency to blame themselves. However, contrary to expectations, there are no differences in the relationships between the feeling of guilt and verbal and relational victimization. A possible explanation for this result could be due to the normalization of these forms of violence. In a previous qualitative study (Bouchard et al., 2021), it was found that girls tend to normalize insults and behaviors aimed at damaging their reputation or social status because these actions are socially reinforced behaviors in different areas of their socialization, such as their favorite series or films. In addition, previous studies have

pointed out that these behaviors are more difficult to detect and, in many cases, minimized even by the educational community itself (Bauman and Del Rio, 2006; Wójcik and Rzeńca, 2021), aspects that can hinder the victim's self-perception (Chen and Chen, 2019), making it difficult for them to seek help (Bastiaensens et al., 2015).

Based on our findings, we suggest that these variables should be taken into account in the field of psychoeducational intervention and therapeutic work with victims at an emotional level. We recommend promoting emotional education programs because it is important for victims to be able to identify and reduce the feeling of irrational guilt and its consequences, thus facilitating proactive coping strategies, such as help-seeking and cognitive restructuring. Likewise, it is recommended that attention be paid to gender differences found in order to design prevention and intervention programs in a more specific manner.

It is important to underline that the results obtained in this study should be interpreted with caution because of the cross-sectional and correlational nature of the data. Future research incorporating the temporal dimension would help to clarify the differences obtained between the groups. Moreover, because self-reported measures were used, the measurement of the feeling of guilt, peer school victimization, and the feeling of loneliness variables, may entail some biases and social desirability effects. This limitation could be resolved by incorporating different sources of information (peer group, educational community, and family) since adolescence is a developmental period characterized by a certain degree of vulnerability and the difficulties experienced by adolescents (Bakadorova et al., 2020; Fuentes et al., 2022), not only as potential victims or aggressors in bullying and cyberbullying (Lo Cricchio et al., 2021), but also more difficulties in comparison to childhood and adulthood such as lower self-concept (Garcia et al., 2018), more problems in school (Bakadorova et al., 2020), and drug use (Fuentes et al., 2022). During adolescence, family can have a positive but also detrimental impact. Thus, when parents are involved (high warmth), children have more support and communication with them (Villarejo et al., 2020; Gimenez-Serrano et al., 2022) and benefit by achieving better adjustment (Queiroz et al., 2020; Climent-Galarza et al., 2022). School is also an important context for adolescents (Musitu-Ferrer et al., 2019; Salmela-Aro and Upadyaya, 2020). Academic motivation may be reduced, as well as performance (Veiga et al., 2021), although this trend is more marked in boys than in girls (Musitu-Ferrer et al., 2019). Overall, despite some age-related differences in academic performance (Fenzel, 1992; Salmela-Aro and Upadyaya, 2020), it has been shown that good academic performance in middle childhood and adolescence is beneficial for good adjustment (Kupersmidt and Coie, 1990; Prince and Nurius, 2014). It would also be worthwhile for future research to incorporate victims' interpretation of shame as this variable is closely related to the feeling of guilt.

## 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

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

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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.

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# The bittersweet smell of success: Malicious online responses to others achievements

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A prominent recurring theme in social comparison is the concept that individuals are not indifferent to the results that others achieve, and typically seek pleasure while avoiding pain. However, in some cases they behave atypically–counter to this principle. The purpose of this research is to investigate one atypical response, namely gluckschmerz–a negative response to information about others' success (feeling bad at others' fortunes). To advance objectives, a mixed-mode of two studies were conducted using a combination of primary and secondary analyzes, and qualitative and quantitative methods. Findings reveal that this aversive feeling encourages consumers to share online "positive" information with others but using negative malicious word-of-mouth narratives. They provide compelling evidence supporting the theory that some of the positive commercial information conveyed through electronic media triggers negative word-of mouth in the form of online firestorms driven by the discordant atypical sentiment of gluckschmerz.

KEYWORDS

**gluckschmerz, eWOM, malicious responses, firestorm, aversive feelings**

## 1. Introduction

> *"As Marty entered his recently promoted colleague's office, he noticed a photograph of his beautiful family in their new vacation home. He casually adjusts his custom suit and bragged about his upcoming board meeting and marketing speech in Davos. On one hand, Marty wanted to feel genuinely happy for him and celebrate his successes. On the other, you hoped he falls into a crevasse in the Alps. While not forgetting to subtly mention to others that 'He just got the plum assignment because he plays politics.'" (Tanya Menon, HBR April 2010).*

This story illustrates a one of common manifestations of envy–*gluckachmerz*, feelings of displeasure at others' success. Evidently, people are not always the most noble creatures. Although they should feel happy when an entity gains success, or sad then the entity suffers, they sometimes show discordant, malicious reactions of gluckschmerz. The sudden discharge of large quantities of negative sentiments to positive events usually toward high achievers or perceived rival individuals, brands, products, companies, managers, and celebrities (hereafter, commercial entities). Evidently, any negative sentiment has the potential to become an online firestorm, defined as "the sudden discharge of large quantities of messages containing negative WOM against a person, company, or group in social media network" (Pfeffer et al., 2014, p. 118). For the commercial entity under slander, such electronic offense can become a possible threat to reputation, especially when magnified by traditional media (Herhausen et al., 2019; Trifiletti et al., 2022). Thus, finding ways to detect and respond to negative eWOM (NeWOM) creates a critical social and managerial

priority (Talwar et al., 2019). To date, however, management researchers have paid little attention to gluckschmerz. In this paper, we attempt to fill this gap by examining this negative sentiment a topic which scholars have suggested is "fascinating to learn and a challenge to explore." (Hess, 2018, p. 308). The real value of studying gluckschmerz in the digital landscape may lie in its influence effect on sharing of "positive" information through the conveyance of negative narratives (negative word-of-mouth, NWOM, Hornik et al., 2015; Hornik, 2018; Hornik et al., 2021b). For example, the social media platform Reddit has numerous forums ("subreddits") in which high achievers are the subject of discussion. To illustrate, the following recent positive online story received over 40 negative online responses: *Alexey Urazov* a *Russian spokesperson announced that "Montenegro, Saint Vincent and the Grenadines have approved Sputnik V as COVID-19 vaccine."* Negative responses: *"Citizens' safety was never Putin's concern"; "Most Westerners will discredit this vaccine"*; *"… a vaccine for suicide!" "Attention! The discovery of the Sputnik V vaccine has been criticized by American scientists for unseemly rapid, corner cutting, and an absence of transparency"* (see Web Appendix A for more online stories).

Story: *Despite Huge Cash Piles, Facebook does not pay dividends. How does Mark Zuckerburg find money to pay for his home bills?*

*Mark Zuckerberg earns money from speaking engagements, sitting on corporate boards, and certainly from investments other than Facebook stock.*

*"It seems that some of his wealth comes from manipulating people."*

*"The billionaire Mr. Zuck has become a public problem that needs public solutions."*

*"Zuckerberg is a jerk!"*

*"He is a person who runs after glory. He gives priority to growth and profit over his customers."*

*"Mark Zuckerberg is a bad boy, ///, not savior of the world."*

*"His behavior is so bad that it is time for him to go"!*

In a "typical" affective situation people are expected to share positive information using positive WOM (e.g., Septianto and Chiew, 2018). However, this is not true of two "atypical" states: gluckschmerz and its inverse, schadenfreude (feelings of pleasure at others' misfortune). In the present paper, we advance the novel proposition that people sometimes derive an inherently "dark" pleasure from assessing rival entities and sharing their aversive feelings toward them, initiating or participating in online firestorms. Public discourse has always had its share of hostility and incivility, and the present era is no different in this respect. What is different now is that the current century's vast, interactive media environment has created more opportunities for public debate, and that moments of malevolent content now spread more rapidly and widely than ever before. The aversive response to this atypical sentiment stems principally from the negative attributions ascribed to a protagonist. As Gore Vidal once put it, "Whenever a friend succeeds a little something in me dies." The real value in studying gluckschmerz may lie in its effect on dissemination of negative information over the electronic media (Hornik, 2018; Massin, 2018). Our work centers on recent anecdotes evidence and scholars suggestions (e.g., Cecconi et al., 2020; Hornik et al., 2021a) that some NeWOM transmitters might be driven by this inherently malicious sentiment, which might account for some of the strong negative rhetoric found in WOM communication.

Thus, the overall objective of this paper is to present gluckschmerz as a driver of NeWOM communications containing malicious narratives. Considering that gluckschmerz sentiments are common "everyday emotions" (Van de Ven, 2018), it is imperative to investigate and understand the role of this discordant sentiment in internet behavior. Understanding the effect of gluckschmerz on NeWOM might offer an additional account to the prevalence of online firestorms in the online media (Hansen et al., 2018; Herhausen et al., 2019; Talwar et al., 2019). Extant research, however, has not investigated the role of this emotion in shaping eWOM communications. We address this gap by arguing and studying the role of this aversive feeling on sharing online "positive" information with others but by using negative malicious WOM narratives.

The article makes three important contributions to the literature. First, as one of the first empirical works to examine gluckschmerz, it may offer new insights not only for internet research, but for other social science disciplines as well. Second, as research on the drivers of WOM is less developed than research on its outcomes (Söderlund and Rosengren, 2007), and as the majority of relevant studies to date have focused on positive WOM (e.g., Shen and Sengupta, 2018; Talwar et al., 2019), the current study extends the investigation of this subject by exploring a neglected possible determinant of online firestorms and adding to the "negativity bias" discussion (e.g., Norris, 2021). Third, even though the effects and process of social sharing of emotions have been explored in conventional media, little is known about social sharing of emotions in the electronic media (e.g., Hornik et al., 2021a). While gluckschmerz has been referred to in the popular press and recently in psychology, it has received modest attention in the social and management literature. This is regrettable, as many social and managerial events might involve a response to a commercial entity's success that could provoke malicious feelings. The results of a mixed-mode of two studies we conducted using a combination of primary and secondary analyzes, and qualitative and quantitative methods, provide compelling evidence supporting the argument that some of the positive commercial information conveyed through electronic media triggers NWOM in the form of online firestorms driven by the discordant atypical sentiment of gluckschmerz.

## 2. Conceptual background

Our conceptualization merged insights culled from prior studies on gluckschmerz, social-psychology, and the concept of the online firestorm. We propose that this affective state is manifested as an online firestorm usually paired with extreme malevolent and malicious WOM narratives directed at a perceived rival entity because of its arrogance, actions, immorality, or other perceived negative features. Figure 1 outlines our conceptual framework.

### 2.1. Conceptualizing gluckschmerz "your gain, my pain"

Despite its dubious moral reputation, gluckschmerz is indeed a prevalent, fundamental human emotion that reflect the complicated, multidimensional nature of human emotional response. Because comparison with others is a basic, ubiquitous, and potent human proclivity it is usually associated with gluckschmerz (Lange and Boecker, 2019). Humans commonly compare themselves to others as a way of cultivating a positive self-image, self-improvement, and self-motivation. Table 1 summarizes and compares responses to gluckschmerz, as an atypical affect, which scholars (e.g., Smith and van Dijk (2018) have defined as "inherently malicious." This explains why gluckschmerz is rarely accounted for by frequently used formulations of emotions and, also why it is not among the standard phrases of most languages (van Dijk and Smith, 2019). It seems that there is a broad consensus that gluckschmerz is a perplexing experience (Hess, 2018) leading to wide

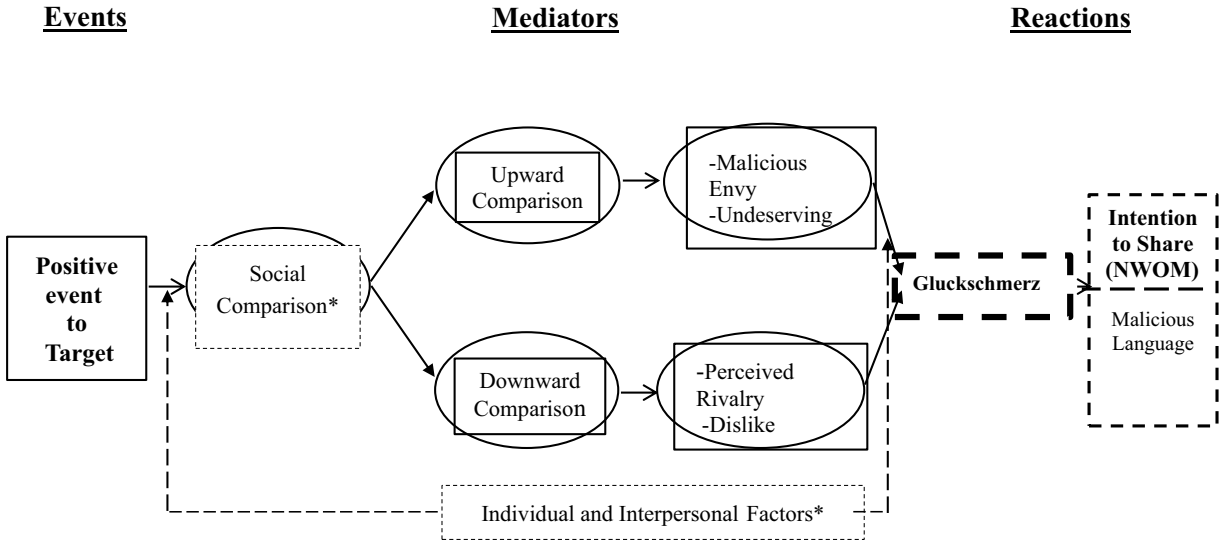


FIGURE 1
Conceptual framework. *Not treated in this study–for future research.

TABLE 1 Response facets in competitive situations.

| Typical reactions | Atypical reactions |
|---|---|
| *Pleasure when another obtains positive outcomes: Freudenfreude (e.g., Chambliss et al., 2012). | **Malicious displeasure when another obtains positive outcomes: Gluckschmerz: (e.g., van Dijk and Smith, 2019). |
| *Displeasure when another obtains negative outcomes: (e.g., Leach, 2020). | **Malicious Pleasure when another obtains negative outcomes: Schadenfreude (e.g., Hornik et al., 2019). |
| *Positive affects directed toward underdogs/low achievers (e.g., Feather, 2008). | **Negative affects directed toward underdogs/low achievers (e.g., Feather, 2008). |
| *Negative affects directed toward top-dogs/high-achievers (e.g., Jin and Huang, 2019). | **Positive affects directed toward top-dogs/high-achievers (e.g., Jin and Huang, 2019). |

range of descriptions. For example, Smith and van Dijk (2018) claimed that gluckschmerz is a passive and negative emotion as well as a hateful sentiment. Massin (2018) described it as malicious displeasure, while Gervais and Fessler (2017) regarded it as an "emotional pluripotent." All these led Johnson (2020) to recently define gluckschmerz as "counterfeit emotion." This conjecture is captured in the insulting comeback, "Do not hate me because I'm beautiful hate me because I'm young."

Similar to gluckschmerz is a concept developed by Feather (2008), which he terms "tall poppy syndrome," and which refers to the criticism to which successful entities are subjected for their arrogant and attention seeking behaviors. According to Feather (2008), the tall poppy effect arises from both envy and animosity toward entities enjoying great success. Notably, Gluckschmerz has relationships with envy, which involves a negative response to another's perceived advantage, but unlike envy, gluckschmerz does not require a clear social comparison (Wyer et al., 2019). Based on the anecdotal evidence and conceptual overview we propose the following hypotheses:

> *H1*: Participants will express displeasure (gluckschmerz) to the success of an envied and disliked, entity. Research showed that four main factors facilitate the experience of schadenfreude (Smith and van Dijk, 2018):

### 2.1.1. Malicious envy

As already mentioned, envy is likely to be associated with gluckschmerz. For example, the other entity's good fortune might provoke the inferiority, associated distress, and any subjective sense of unfairness linked to envy. This will heighten the pain of gluckschmerz, especially, as Roseman and Steele (2018) suggested, any "hopes" that the envied entity might suffer are thwarted by the turnaround of fortunes.

### 2.1.2. Deservingness

Some studies have revealed that un-deservingness is the leading predictor of the displeasure at others' fortune (e.g., Hoogland et al., 2015). Research showed that the more fortune was perceived as undeserved, the more it displeases the observer, as it reestablishes a sense of justice and civility (Hess, 2018). Individuals lacking moral qualities evoked higher levels of gluckschmerz because their success was perceived as undeserved. Based on the deservingness concept, gluckschmerz links two important areas of investigations, namely, emotional responses to success and judgments of (un)deservingness that relate to feelings of justice or injustice (Gervais and Fessler, 2017; Smith and van Dijk, 2018).

### 2.1.3. Dislike

Many instances gluckschmerz follow from prior attitudes or sentiments people have toward a successful entity (Smith and van Dijk, 2018). These are perhaps best understood by whether they like or dislike the entity, for one reason or another. However, it is important to suggest that many cases of gluckschmerz (Hoogland et al., 2015) simply grew from people prior dislikes, regardless to how they might have arisen.

### 2.1.4. Status

Observing the success of a disliked, or perceived as a rival high achievers, was found to spark more unpleasant feelings compared to observing the success of an regular entity (Feather, 2008; Hornik et al.,

2021a). Humans may be primed to constantly develop anti-big-business attitude, and to experience gluckschmerz when they face success. Truly, the tall poppy syndrome suggests that humans feel bad about the success of others who are in positions of high status due to envy and malice.

In sum, gluckschmerz emotions are aggravated by envy and disliked high status entity which its fortune is considered as undeserved. Therefore, we propose the following hypothesis:

> *H2*: Gluckschmerz sentiments are mediated by malicious envy and disliking of the rival (involving) entity, as well as a feeling of un-deservingness for the entity's success.

## 2.2. Emotions—When we care, we share

Emotions are important facets explaining peoples' behavior. Emotions arise following of an observer's conscious or unconscious evaluation of some event as positively or negatively relevant to a particular concern or goal (Kwon and Gruzd, 2017). The immediate aftermath of an emotional experience is also characterized by the social sharing process. According to appraisal theory, emotions might have functional consequences as they can motivate humans toward one reaction rather than another. Emotions are composed of two factors: valence and intensity. People tend to assess both sides of the adversity (good vs. bad), this assessment will determine if, and in what intensity they will communicate their emotions to others. NeWOM communication is considered as a personal effort to share information in an unfavorable way online with friends, family and others. As such, transmitting NeWOM messages is a social activity, as individuals share their emotions and opinions experiences with other network members through comments and discussions (Berger and Milkman, 2012).

Venting, the most commonly observed motive in previous research, is consistent with the frequent belief that discussing an emotional experience will reduce its emotional load (Rimé, 2020). In today's period of anonymous media, people can communicate their messages using forceful, sometimes even violent language, *via* social media. Many forms of negative emotion expression in the electronic media have been studied in the extant literature. For example, trolls intended is to trigger individuals' inner negative affect, such as fear and anger, resulting in distrust, doubt and irrational reactions (Berger and Milkman, 2012). Recent studies have identified several dimensions that trigger information sharing such as content-related aspects (e.g., hashtag inclusion, topics), people and network characteristics (e.g., rumor, popularity, social capital perception, and homophile) as well as emotions (A recent review see, De Bruyne et al., 2022). This proposes that emotions characterized by increased arousal, such as malicious sadness, anxiety, and amusement and, might boost sharing more than emotions characterized by low arousal, such as distrust or contentment (Lau-Gesk and Meyers-Levy, 2009). Although the system and effects of social sharing of emotions was studied in regular media, less is known about social sharing of emotions in the electronic environments (Kimmel and Kitchen, 2014). This is surprising, since communication in electronic social networks, in the form of talkbacks, blog communities, comments and social media sites, abounds with displays of emotions (Tapanainen et al., 2021; Trifiletti et al., 2022). However, all these may characterize special kinds of people, which Paavola et al. (2016) refer to as "hate holders," that is, individuals who frequently post deliberately malicious online content (Paavola et al., 2016, p. 104). Hate holders, or what Wang et al. (2019) calls "malicious users," tend to be dysphoric, tend to focus on negative aspects even in the best of times, and viewing everything through 'dark colored glasses.' Thus, emotions play a pivotal role in WOM communication because they relate outer episodes to inner concerns. Therefore, we propose that actively communicating about others' success provides to some people an emotional outlet well explained by gluckschmerz and expressed through online/social firestorm.

## 2.3. Online firestorms

Commercial entities are increasingly facing enormous online firestorms in response to their arrogance or immoral conduct, and not only from their customers (Hornik et al., 2015; Hornik et al., 2021b; Talwar et al., 2019). Conceptually, online firestorms share elements with rumors which are also carried from person to person, usually by WOM (Pfeffer et al., 2014; Herhausen et al., 2019). Unlike rumors, however, online firestorms might also be based on negative opinions to positive messages. Thus, an online firestorm denotes a phenomenon where the NWOM is intended to insult an entity and is usually without content or convincing evidence (Johnen et al., 2018). The messages in a firestorm are essentially opinions, not fact, and hence have a highly emotional and malicious form (Pfeffer et al., 2014). It has also been suggested that apart from posting messages to express their joy at others' misfortunes (schadenfreude), individuals might participate in an online firestorm as an outlet to express their negative sentiments, even in response to positive news. Indeed, online firestorms can be triggered by negative but also positive events (e.g., Hansen et al., 2018).

Emotions have a pervasive impact on behavior. Studies on social sharing of emotion show that 90% of affective experiences are carried on to others (see Rimé, 2020). "Talking helps" is a fundamental proposition in clinical psychology, and there is hardly an intervention procedure that does not consider verbalization of feelings to be helpful (e.g., Berger and Milkman, 2012). Although feelings are not verbal features, the verbal use of emotional phrases makes them relatively attainable and contagious. Using affective words in a message practically reveals the underlying intent or basic raw feelings of the sender (Herhausen et al., 2019). Thus, online firestorms seem to be more highly emotional (e.g., "This is frustrating news"). For example, Berger and Milkman (2012) revealed that stories in the New York Times that included more intensive high-arousal emotions (e.g., anxiety, fear, contempt), prompted more hostile email and shared more frequently than stories of low-arousal emotions. Sentiments of this kind were also noted in other contexts. "Negative Double Jeopardy" related to brand hate (Rogers et al., 2017) findings that the most loved brands attract more anti-brand sites, while less loved brands do not have such hate attraction. Similarly, Liao et al. (2020) introduced the concept of "oppositional loyalty" in which inter-consumer brand rivalry and brand community communications are identity-salient events that reinforce the relationship between people-brand identification and influences oppositional loyalty to successful brands. Yip et al. (2018) outlined the possible antecedents of brand hate of "trash-talking" among competing organizations and not only among consumers.

Taken together, harnessing the power of NeWOM requires an understanding of why people talk, and why some things get talked about and shared more than others. The psychology of sharing was acknowledged as a pervasive force shaping schadenfreude and many other behavior phenomena (Hess, 2018; Hornik, 2018; Hornik et al., 2021b). However, missing in most discussions are issues related to

counter-empathic sentiments such as gluckschmerz. Evidently, there is something captivating about high achievers. Even the most trivial information about those who are better off can elicit negative sentiments. Indeed, whether it is a fellow employee gaining recognition or a rival brand receiving endorsements, some consumers have experienced moments in which they felt displeasure when an eventuality had positive repercussions for someone else. These sentiments might trigger NeWOM in the form of a malicious online firestorm.

## 2.4. Gluckschmerz emotions as information

Although there are some studies showing that gluckschmerz effects peoples' emotions, what is not investigated is whether or not those emotions could affect behavior. We propose that gluckschmerz as an aversive emotion may trigger individuals to actively communicating those feelings to other. Gossiping about them, give them "back-handed" compliments. We feel that the real value in studying gluckschmerz may lie in its effect on the dissemination of negative information in the social media. We argue that gluckschmerz sentiments are not only felt privately they may also be communicated to others. Therefore, we propose the following hypotheses:

> *H3*: Gluckschmerz sentiments are strongly linked to NWOM and malicious narratives (firestorms).

To test our hypotheses and following the many recommendations (e.g., McKim, 2017), for mixed-methods (qualitative and quantitative) approaches for gaining a deeper insight into a person's emotions and subjective understanding of events, we start our research using a qualitative study. Thus, using a mixed-method approach, we employed a triangulation process consisting of both quantitative and qualitative research, including both deductive and inductive coding.

# 3. Study 1: Qualitative analysis

Inspired by Berger's et al. (2020) recent review on the importance of automated textual analysis in marketing research, we adopted the most relevant guidelines and procedures contained therein for Study 1. As a first step in examining differences in affective NWOM content, we applied a qualitative semantic-type data collection method to the study of real stories and their comments sections in the electronic media concerning commercial entities' episodes of (mis)fortune. This method provided us with a unique opportunity to compute not only the content and narratives (H1 and H2), but also the replication, longevity, and modification (assimilation) of NWOM information.

## 3.1. Procedure

In Study 1, we applied qualitative content analysis to Reddit.com, an increasingly popular news aggregation and discussion website, which is organized into diverse topics, or "subreddits" (Nascimento et al., 2018). Our intention was to select about 80 top-ranked articles on commercial topics, which could be classified as positive stories. We used Reddit's official API (Reddit, 2020; the Python Reddit API Wrapper (PRAW), for data collection purposes, focusing on three subreddits: r/Business, r/Products, and r/Brands. Due to the Covid-19 pandemic, we were forced to conduct two waves of data collection. Ultimately, we downloaded 83 top-rated positive posts/stories to the selected subreddits. For example: "McDonald's pouring new lemonade espresso in Poland"; "Nike: Jordan Jumpman Diamonds is going to be released more widely again"; "Jeff Bezos got $7 billion richer in a single day as Amazon shrugged off the coronavirus recession."

For each selected story, we coded the title, content, comments, timestamp, and scores (i.e., the difference between up votes and down votes). We ended up with 81 usable stories, and used the longevity scores, which are the cumulative number of days consumers have spent on Reddit (the difference between the last day and account creation date). Similar to Hornik et al. (2019) procedure for evaluating differences in language use, we processed comments using Semantria (sematria.com), an automated sentiment analysis platform, which was specially designed to analyze multiple rows of textual content. Availing ourselves of the trial version which enable to analyze up to 10,000 documents. The results indicated clearly whether a comment contained positive, negative, neutral, or very strong sentiments, with an error rate as low as 0.23 and an F-score as high as.85. Quantitatively, we analyzed the malicious narratives on Reddit.com as the percentage of negative comments posted in response to a single editorial relating to a specific positive news story.

To guide raters, we used an inductive analytic method (Berger et al., 2020) to develop a category scheme for the purpose of describing contents characterizing malicious narratives. Categories were drawn from commonly used categories in the literature, most notably, the work of Coe et al. (2014). Over 90% of contents were cod able into the typology (the table in online Web Appendix B provides definitions and examples of each form). After formulating our conceptual definition of online malicious behavior, we operationalized it employing eight categories of malicious communications. This procedure provided the necessary guidelines to extract words and phrases (entity extraction) as well as the relationships between them (Berger et al., 2020). To contend with this issue, two independent coders evaluated the comments first for valence and then for intensity and content assimilation in compliance with the rigorous outlines recommended by Duriau et al. (2007). Coders agreed on $K$(valence) = 0.84; $K$(malicious) = .81of their selections, indicating strong inter-rater reliability. The number of relevant malicious comments were measured by coding every comment section for each of the episodes. Malicious comments were judged to be those that used aggressive and spiteful language, including, among other things, deservedness, malicious envy, and (dis)liking remarks that might offend the corresponding entity. Semantria scores for valence and malicious-type comments were (−) 0.79 and (−) 0.74, respectively, which approximated the coders' scores.

## 3.2. Results

Table 2 provides descriptive data regarding the commercial-type stories, including karma and longevity scores. Karma indicates how much a poster has contributed to the Reddit community by an approximate expression of the total votes they have gained on their postings ("post karma") and comments ("comment karma"). When posts get upvoted, that user earns some karma (Nascimento et al., 2018).

All 81 positive stories included some (>1) negative comments. 31.2% of the comments were negative indicating a relatively high rate of NeWOM responses to a positive story or gluckschmerz-type responses, supporting H1. Content analysis of the negative responses only clearly revealed that

TABLE 2 Descriptive data for subreddits in Study 1.

| | Positive posts |
|---|---|
| No. of posts | 81 |
| No. of comments | 1,741 |
| No. of members | 375 |
| Range of no. of comments in posts | 1 to 212 |
| Mean no. of comments in posts (SD) | 20.9 (12.03) |

most (73% raters' scores and (−) 0.80 Semantria index) negative reactions contained malicious-type degrading comments, supporting H1. Although not hypothesized it should be noted that the longevity data revealed that lengthier discussions increased the rate of NWOM, clearly suggesting that online malicious sentiments intensify as discussions grow, a typical feature of online firestorms (Herhausen et al., 2019).

## 3.3. Discussion

Based on the raters' and Semantria analyzes, Study 1 provided convincing preliminary support for the H1 and H2. Content analyzes of comments posted in response to positive stories on Reddit partially replicated Hornik's (2018) findings by demonstrating strong malicious sentiments associated with gluckschmerz during NeWOM transmission. Results of Study 1 showed that intensely negative and hostile responses to bittersweet commercial episodes are common in online firestorms, and that some of the malicious narratives were related to gluckschmerz-type sentiments. As suggested by Yi and Oh (2021) using the mixed-methods approach to human emotions and behaviors and in the spirit of triangulation, validating the qualitative data with some quantitative support is recommended. We followed Study 1 with a quantitative study.

# 4. Study 2: Quantitative analysis

The goal of Study 2 was to complement the qualitative data of Study 1 by quantitatively investigating different responses to the gluckschemerz sentiments using a vignette methodology to obtain primary data (Aguinis and Bradley, 2014). The experimental story was a scenario about new owners of Samsung cell phones responding to a sudden success of a perceived rival, namely Apple cell phone. The story was piloted prior to commencing the study to assess gluckschmerz responses to a disliked, envied and undeserving entity, as well as scenario comprehension, and construct validity (Hornik et al., 2021b). Following Terpe's (2015) suggestion, we used this procedure to also investigate the extent to which the different measures are more or less resistant to context (question order and wording) effects within the survey. The cover story stated that it was a university survey intended to survey opinions on social events (Appendix C provides the scenario and scale items).

## 4.1. Participants and procedure

The study used Qualtrics® online software (version April 2020) and participants recruited *via* the Amazon Mechanical Turk® (MTurk) platform. To reveal potentially small to medium size effects and to add an adequate measure of the interactions between the scenario and the constructs, we decided in advance to recruit approximately 400 American participants, paid for an 8-min task in an online survey. The sample provided an approximately 90% power to reveal a medium main effect of $g = 0.45$ with $\alpha = 0.05$. This sample size was selected with the aim of recruiting at least 100 participants per condition. Missing data were monitored and the cases with missing values less than 5% were substituted by using the mean substitution method. Following recent research (e.g., Arias et al., 2020) on careless responding to online questionnaires including MTurk participants, specifically in studies on sensitive topics involving embarrassing items, such as our study, we used intra-individual response variability as an indicator of flagging participants who showed insufficient efforts, likely providing low-quality data (LQD; e.g., "For system checking please mark response number six"). For the sake of brevity, the various methods and major results are detailed in Web Appendix D. Participants followed an online link that guided them to the Qualtrics® study[1].They were first presented with an introduction, and once they agreed to join the study, they clicked the START button, which directed them to the task. Participants were promised anonymity and that there were no right or wrong answers. All questionnaires included the following: "To what extent do you agree with the following statements? Please use the following scale where 1 = 'Strongly disagree' and 7 = 'Strongly agree." We reverse-coded three items to make our questionnaire less prone to socially desirable responses and positive response bias. The questionnaire ended with the following relevant demographics: Age and gender.

## 4.2. Key variables

In addition to the standard gluckschmerz items (Hoogland et al., 2015; Smith and van Dijk, 2018), the questionnaire included the mediating effect items commonly associated with schadenfreude and gluckschmerz (e.g., Lange and Boecker, 2019).

### 4.2.1. Gluckschmerz

Following Hoogland et al. (2015), gluckschmerz was measured by three statements (e.g., "I'm a little disappointed with Apple's success"; $\alpha = 0.87$).

### 4.2.2. Malicious envy

Three items (Hornik et al., 2019; Loureiro et al., 2020); e.g., "When Apple succeed, it makes me feel bad"; $\alpha = 0.91$).

### 4.2.3. Deservingness

Three items (Feather, 2008; e.g., "Apple did not deserve this,"; $\alpha = 0.82$).

### 4.2.4. Disliking

Two items (Feather, 2008; e.g., "I never liked Apple"; $\alpha = 0.87$).

### 4.2.5. Personal involvement

Involvement was determined by probing the participants with two questions about whether the event affected them personally or others

1 https://biusocialsciences.eu.qualtrics.com/jfe/form/SV3t9Bt8zMQbok2Gx

whom they care about (Garcia et al., 2013; e.g., "I think this information might affect me personally"; $\alpha = 0.84$).

#### 4.2.6. Sharing of information

The dependent variable of intent to communicate and discuss the story *via* NeWOM was based upon a scale developed by Harrison-Walker (2001) and further validated by Goyette et al. (2010). Intent to share the story with others was assessed by a composite score of four behavioral intention questions (i.e., "I will communicate my negative feelings to others"; $\alpha$ =0.86). The dependent variable scale appeared directly beneath gluckschmerz and its mediating variable measures (e.g., "I would post my negative opinion while commenting on this Apple information"; $\alpha = 0.90$).

## 4.3. Results

### 4.3.1. Inter-individual validity measures

To check for possible outliers we conducted Univariate (*via Z*-scores) and multivariate (*via* Mahalanobis Distance and Cook's Distance) outlier analyzes. The number of subjects participating in this study was 403. Three questionnaires resulted in both a univariate (critically over the *Z*-score of 3.31) and multivariate outlier (beyond the chi-square benchmark of 22.1221 ($p < 0.001$), deviating from the expected univariate and multivariate outlier estimates, which were omitted from the sample. We also excluded three participants who did not mark or missed the attention check for screening out random clicking (i.e., "In this question, we want you to click on number six"), and two participants who did not respond to all the dependent measures. The final sample consisted of 391 participants. Percentages of participants who own Samsung and Apple were 31.6 and 48.4, respectively. This is close to the national market share of the two brands in 2021. There were no main effects or interactions involving the order of question presentations.

*Descriptive statistics* and correlations are displayed in Table 3. First, clear statistical results were found corroborating the influence of gluckschmerz on NeWOM, confirming H3. As predicted, malicious envy, perceived un-deservingness, personal involvement, and disliking were all found to be significantly associated with gluckschmerz. The overall mean for the gluckschmerz condition was 5.21, while the distribution of scores was slightly left/right skewed (Kolmogrov-Smirnov statistic = 0.11, SD = 1.44, skewed = −0.18; and statistic = 0.14, SD = 1.24, skewed = −0.20, respectfully). Second, as expected, a clear statistical difference were found between Samsung and Apple owners in their responses to the scenario. Specifically, applying Hayes' (2012) template 8 approach to test the differences between the two groups, no effect on malicious sentiment was found among Apple owners ($b = 0.11$, $p > 0.1$; $b = 0.08$, $p > 0.1$). Samsung owners, on the other hand, yielded remarkably high statistical results on the gluckschmerz scales ($b = 0.43$, $p < 0.05$), confirming H1. Participants who claimed either that they did not own a cellphone or that they owned a different brand also exhibited significantly high statistical results on the gluckschmerz measures ($b = 0.35$, $p < 0.05$; $b = 0.29$, $p < 0.05$).

### 4.3.2. Intent to share

A majority of Samsung participants reported a relatively high intent to share the story conveying their negative feelings ($M = 4.88$, SD = 2.21).

### 4.3.3. Mediation analyzes

To test H2 that malicious envy, perceived deservingness, personal involvement and disliking served as parallel mediators of the effect of a rival positive event on gluckschmerz, a mediation analysis including 5,000 bootstrap resamples and bias-corrected confidence intervals (Preacher and Hayes, 2008) was conducted. It provided an indirect effect of event *via* malicious envy on gluckschmerz, ab = 0.33, SE = 0.10, 95% CI (0.15, 0.57), Sobel $Z = 4.14$, $p < 0.001$. The indirect effects for disliking, ab = 0.52, SE = 0.09, 95% CI (0.33, 0.83), Sobel $Z = 6.41$, $p < 0.001$, deservingness, ab = 0.46, SE = 0.07, 95% CI (0.29, 0.43), Sobel $Z = 4.11$, $p < 0.001$, and personal involvement, ab = 0.36, SE = 0.09, 95% CI (0.25, 0.41), Sobel $Z = 3.97$, $p < 0.001$, were also significant, all in line with H3. Contrasting the central mediators the indirect effect of malicious envy did not differ significantly from the indirect effects of disliking, ab = −0.27, SE = 0.17, 95% CI (0.56, 0.05), deservingness, ab = 0.12, SE = 0.13, 95% CI (0.13, 0.33), and personal involvement ab = 0.36, SE = 0.11, 95% CI (0.27, 0.9), although the latter two did, ab = 0.39, SE = 0.12, 95% CI (0.19, 0.11).

## 4.4. Discussion

Study 2 confirmed H1, H2 and H3 by showing that gluckschmerz sentiments are enhanced and shared (NeWOM) when a high-profile (top-dog) or a leading entity enjoys good fortune, and that dislike, malicious envy, personal involvement, and un-deservingness mediate the propensity for gluckschmerz.

TABLE 3 Descriptive statistics and correlation among Study 2 constructs.

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 1. Gluckschmerz | ---- | | | | | |
| 2. Malicious envy | 0.69** | ---- | | | | |
| 3. Undeservingness | 0.65** | 0.12 | ---- | | | |
| 4. Disliking | 0.62** | 0.11 | 0.08 | ---- | | |
| 5. P. Involvement | 0.44* | 0.06 | 0.12 | 0.09 | ------ | |
| 6. Intention to share | 0.33* | 0.10 | 0.16 | 0.18 | 0.09 | ----- |
| Descriptive statistics | | | | | | |
| Mean | 5.21 | 5.19 | 5.23 | 4.77 | 4.51 | 4.52 |
| SD | 1.24 | 1.37 | 1.51 | 1.37 | 1.22 | 1.34 |
| $\alpha$ | 0.87 | 0.91 | 0.82 | 0.87 | 0.84 | 0.86 |

**$p < 0.01$; *$p < 0.05$; 2-tailed. (1) All measures on a 7-point scale.

## 5. General discussion

While anecdotal illustrations of the power of rivalry abound, little scrutiny has been made hitherto of the psychological consequences of rivalry. In this research, we provided an initial study of one outcome of perceived rivalry, namely gluckschmerz. In so doing and in the spirit of mixed-methods research in human behavior, two studies were presented: the first supplying qualitative data and the second quantitative data. In Study 1, we found that 31.2% of the comments to the positive stories were negative. Qualitative evidence indicated that most of the negative comments contained intense malicious narratives in the form of firestorms. Study 2, then, complemented Study 1 by supplying quantitative data showing that a large part of the comments on perceived rivals' success are of the gluckschmerz type embodied in NeWOM. Study 2 also underlined the significant influence of the four mediators of gluckschmerz. Thus, results provided compelling evidence supporting the argument that some of the positive information conveyed through electronic media triggers NWOM in the form of online firestorms driven by the discordant atypical sentiment of gluckschmerz. The findings from the two studies provide novel evidence for extending the range of negativity bias (Norris, 2021) and emotional reactions to others' (mis)fortune as a predictor of NeWOM.

Some of the findings go hand in hand with prior results. For instance, the correlation between the gluckschmerz and malicious envy found in our research supports Hoogland et al., 2015) findings. Similar to our research, some others work also reported that perceived deservingness, as well as other antecedents, impact gluckschmerz (Hornik, 2018; Hornik et al., 2019; Van Dijk and Smith, 2019). On a macro level, results corroborate prior research addressing the influence of emotions on sharing of information (Rimé, 2020). All adding credence to procedures and findings.

### 5.1. Theoretical significance

The current paper extends prior research on gluckschmerz by advancing the proposition that consumers derive inherent malicious pleasure, in the form of gluckschmerz, from expressing their emotions of various episodes that they receive from others. This study also adds to a growing body of work exploring how atypical sentiments, other than pure emotions, might influence the dissemination of negative information (Massin, 2018). Our results are the first to demonstrate that in addition to having an affective component, gluckschmerz may also have an adaptively tuned cognitive factor. Also, the study makes important contributions to a growing body of studies on NeWOM communication processes. A significant contribution pertains to research on online firestorms (Herhausen et al., 2019; Talwar et al., 2019).

### 5.2. Practical applications

In light of the desire of companies to better apply electronic platforms, it is important to master viral dissemination dynamics and identify posters and contents that are likely to harm reputations. Managers must realize that in the wake of polarizing opinions, the cyber world is laden with malicious content and hate speech. Such knowledge can be used to improve malicious content prevention services and design strategies to attenuate this pattern of inference. Using available dictionary-based automatic text-mining systems, decision makers might be able to estimate the high-and low-arousal levels of negative posts to anticipate their potential diffusion. The more emotion words a post contains the more it is expected to go viral. As suggested by Balaji et al. (2016), when responding to NWOM communications on the electronic media, managers can either engage in proactive or reactive Webcare interventions to mitigate the adverse effects. Proactive Web care refers to service recovery strategies or interventions posted proactively on social media in response to NeWOM communications. Reactive Web care includes interventions posted following specific negative comments from consumers in their eWOM communication. We contend that a timely response to NeWOM communications, either proactively or reactively, will help resolve gluckschmerz type issues.

This research also suggests that in situations of perceived rivalry and negative sentiments bragging might backfire. In these situations, top performers may hide their exceptional qualities in order to avoid gluckschmerz sentiments and NWOM. This work also suggests that managers are better off using messages that highlight the importance of their customers rather than bragging about their brands or managers "Brag with caution." Also, anticipate a backlash–understanding that envy is a powerful motivator, many managers pit their salespeople against one another for performance rewards. When setting up such competition they should factor in the possibility that gluckschmerz toward winners could lead to later problems. However, in some cases enhancing gluckschmerz sentiments might be used for managerial purposes. For example, the sports network ESPN has advertised its College Football Game schedule with the headline "Watch the team you love and the team you love to hate!" *Sports Illustrated* journal frequently uses negative emotions in its sports editorials and, at times, tries to provoke negative fan feelings by negative editorials about "Most rootable" teams. Also, as prior work in persuasion and suggests. For example, two-sided messages, such as ones that reveal both positive and negative information about a brand, compared to only positive information, increase evaluations of the brand (e.g., Eisend, 2007).

In a society where political candidates' careers are made or broken by the stories spread about them gluckschmerz may have extensive power to shape the political field. Indeed, disrupting positive information about political candidates with negative narratives proved to be of a balancing value (Shapiro and Rieger, 1992). The theoretical and ethical issues related to gluckschmerz and NeWOM also have implications for educators. For example, results suggest that to explore programs designed to prevent traditional bullying to help prevent online firestorms, like the German Medienhelden (Media Heroes) school educational program (Chaux et al., 2016; Schultze-Krumbholz et al., 2019). Media Heroes seeks to prevent firestorms or cyberbullying mainly by promoting empathy, providing knowledge about definitions, legal consequences, Internet risks and safety, and promoting assertive ways for bystanders to intervene.

### 5.3. Caveats, limitations, and further research

Although our research widens the knowledge on the new determinant of NeWOM communication, it is associated with some limitations, and viable ideas for further research should be identified. First, while hypothetical scenarios are frequently used as research procedures they have several drawbacks. When examining sentiments of a less socially suitable response such as gluckschmerz, the scenario

approach may suffer from demand characteristics, which are liable to obscure possible links between gluckschmerz and outcomes. In ensuring convergent validity of our conceptual framework and results, future research needs to replicate our findings when the malicious responses are calibrated by for example, physiological tests, or implicit measures (e.g., affective misattribution concepts). Second, gluckschmerz is a social phenomenon. Therefore, as depicted in Figure 1, future research should consider constructs aiming to explain malicious conduct invasion in a wider social context. On that issue, the Social-Ecological Model (Bronfenbrenner, 1979) can be offer a possible theoretical framework which may have interesting applications in the formalization of malicious content perpetration. Third, as suggested in Figure 1, some personality trait measures might also explain gluckschmerz sentiments. Future work might consider using trait constructs, like self-enhancement and dark triads, to delineate the underlying personalities of this malicious sentiment. Fourth, an important set of constructs likely to impact gluckschmerz are the individuals" cultural background, like their independent versus interdependent self-construal. Fifth, future research should examine the interaction between different communication media (Hornik, 2018) by, for example, exploring how the dynamics of the firestorm change as the negative sentiment shifts from a social media (e.g., Twitter) to a different media. Sixth, NeWOM was our primary dependent variable. Other relevant dependent variables might comprise recall, number of clicks, liking, and purchase intention. Finally, our empirical studies are based on verbal sharing of emotion. There are other, perhaps more immediate ways of communicating emotion, such as facial behavior or posture, which are means evolved to do just that for humans (Johnson, 2020). All these suggestions as well as many other avenues for future research would further expand our understandings on how to manage reputation in the face of gluckschmerz sentiments and online firestorms.

## 6. Summary

Human behavior cannot be fully understood without also studying atypical human sentiment, attitudes, and behavior in prevalent conditions of "bitter joys and sweet sorrows." We have demonstrated in this paper that when it comes to NeWOM, gluckschmerz sentiments often have a significant role in the dissemination of negative information, and may help us to better understand phenomena such as firestorms, namely the sudden discharge of large quantities of NWOM. Thus, when NWOM circulates, marketers should remember that, "good news travels fast, but bad news travels faster."

## 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.

## Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

## Author contributions

JH, MR, and OG: literature review, conceptualization, data collection, analyzes, and conclusions. 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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## Supplementary material

The Supplementary material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2023.1085317/full#supplementary-material

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# Recommendations for cyberbullying prevention and intervention: A Western Canadian perspective from key stakeholders

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**Introduction:** Cyberbullying, or repeatedly communicating antagonistic messages using digital or electronic media meant to deal out harm or discomfort to others, has been considered more pervasive and impactful than traditional bullying since perpetrators can remain anonymous online, are not bound by time or place. In addition, cyberbullied youth are reluctant to involve others such as an adult or confront the perpetrator adults. Therefore, the primary purpose of this study was to capture a holistic understanding of potential youth cyberbullying prevention and intervention strategies (i.e., inhibiting forces that may reduce cyberbullying) from key stakeholders with professional knowledge about cyberbullying (i.e., educational administration, psychological counseling, technology and bullying education consultation, policing, research, and social support services).

**Methods:** Twenty ($n$ = 20) participants were recruited using purposive and snowball sampling techniques from both urban and rural school districts in one Western Canadian province to participate in either in a semi-structured individual interview ($n$ = 16) or a scheduled focus group ($n$ = 4) to achieve depth and understanding of cyberbullying issues. The $I^3$ Model, a process-oriented metatheory of aggression with the potential to explain how cyberbullying behaviors continue to occur, was used as a frame to analyze the qualitatively gathered data using six phases of reflexive thematic analysis.

**Results:** Participants identified educational efforts related to awareness of cyberbullying and consequences of perpetration, digital citizenship programming for students and social skills training, providing remediation to youth who are in online conflict with one another, and parental engagement with the technology used by their youth as key factors in mitigating instances of cyberbullying.

**Discussion:** This study furthers research on cyberbullying prevention and intervention in schools by illuminating experiences from under researched and unique stakeholders in the field. These key findings and suggestions for future research are further discussed.

KEYWORDS

**cyberbullying, prevention, intervention, stakeholder, education, restorative conferencing**

## Introduction

The explosion of mobile technology and ubiquitous access to the Internet has allowed for greater online connection and communication than ever before. Children as young as the age of two are now using internet-based communication technologies (Aslan, 2016). American statistics suggest that almost all United States teens aged 13–17 (95%) have access to a smartphone, almost half reported being online on a 'near-constant basis' (Anderson and Jiang, 2018), and 90% use social media (AACAP, 2018). However, a by-product of the proliferation of technological advancement and access is not without unintended consequences and anti-social behaviors can flourish such as bullying, harassment, and hate speech (Fulantelli et al., 2022). Electronic aggression can be characterized by the technologies and tools used to perform the actions (Nocentini et al., 2010), the identity of the victim (Pyżalski, 2012), or by relating the cyber aggressive behaviors to the paradigm of bullying (Cassidy et al., 2011). Cyberbullying, sometimes termed electronic bullying, e-bullying, mobile bullying, or digital bullying, is defined as "any behavior performed through electronic or digital media by individuals or groups that repeatedly communicates hostile or aggressive messages intended to inflict harm or discomfort on others" (Tokunaga, 2010, p. 278). Cyberbullying actions include derogatory messaging, threats, false rumors, photo modifications, masquerading, and exclusion (Broster and Brien, 2010). Cyberbullying has been considered more pervasive and impactful than traditional bullying, partly due to the ability for perpetrators to remain anonymous online and by the fact that cyberbullying is not bound by time or place (Patchin and Hinduja, 2006; Shariff and Hoff, 2007). Please review Waasdorp and Bradshaw (2015) for a comprehensive discussion on the overlap between traditional bullying and cyberbullying. Although global prevalence of cyberbullying has been difficult to determine, a recent global review suggests that the prevalence of cyberbullying has increased since 2015. Between 13 and 57% of children and youth have reported being a victim of cyberbullying while between 6 and 46% youth have engaged in cyberbullying perpetration (Zhu et al., 2021). Average global estimates of cybervictimization and perpetration are challenging to obtain due to wide variation in research methods, demographic characteristics, and differences in measurement. However, average global rates of perpetration are currently reported at approximately 25% and victimization at 33% (Zhu et al., 2021). Some of the highest rates of cybervictimization hover at 57% in Spain (Marco and Tormo-Irun, 2018), 52% in Malaysia (Marret and Choo, 2017), and 44% in China (Rao et al., 2019). Comparative to these higher estimates, lower rates of both perpetration and victimization have been observed in other parts of the world. In Canada and South Korea, victimization rates are estimated at 13 and 14%, while perpetration rates are estimated at 7 and 6%, respectively (Beran et al., 2015; Lee and Shin, 2017). The alarming state of cyberbullying prevalence among adolescents is compounded by the fact that more than half of cyberbullied youth report they do nothing in response to their victimization (i.e., do not tell a trusted adult or confront the perpetrator; Mishna et al., 2010). This reluctance by youth to involve adults to aid in problems of cyberbullying is especially important, as there are many health-related consequences of prolonged cyberbullying victimization.

## Consequences of cybervictimization for young people

There is an abundance of literature demonstrating negative outcomes for youth related to cyberbullying. A review of the literature has revealed that cyberbullying can be detrimental to the health of adolescents and is considered an emerging public health concern (Nixon, 2014). The compromised health conditions tied to cyberbullying are related to the emotional, social, behavioral, and even physical domains of a youth's life. As a result of cybervictimization, youth may experience numerous emotional challenges including: increased anger and sadness (Beran and Li, 2005; Patchin and Hinduja, 2006), depression (Campbell et al., 2012; Bonanno and Hymel, 2013; Chang et al., 2013), and anxiety (Wigderson and Lynch, 2013). Youth also tend to experience negative social consequences from victimization, such as increased social anxiety (Juvonen and Gross, 2008; Dempsey et al., 2009), increased loneliness (Devine and Lloyd, 2012; Olenik-Shemesh et al., 2012) as well as problems with peers and having fewer friendships overall (Price and Dalgleish, 2010; Jackson and Cohen, 2012). In addition, youth may experience behavioral changes as a result of cybervictimization. Research demonstrates that young people who are perpetually victimized in the cyber world are at risk for increased violent behaviors at school, delinquency, and substance use (Hinduja and Patchin, 2007, 2008; Ybarra et al., 2007; Goebert et al., 2011). Unfortunately, cybervictimization has also been shown to increase suicidal ideation and suicidal behaviors (Hinduja and Patchin, 2010; Bonanno and Hymel, 2013; Litwiller and Brausch, 2013). With the potential for such grave consequences of cybervictimization, educators and healthcare professionals should be aware of prevention and intervention efforts that may reduce cyberbullying behaviors among youth.

## Efforts to prevent cyberbullying and cybervictimization

Several isolated components of anti-bullying and/or anti-cyberbullying programs have demonstrated the ability to reduce rates of bullying and victimization by approximately 20% (Ttofi and Farrington, 2011). Research has shown that some program components and protective factors seem to be the most influential in reducing bullying and victimization. Parental engagement and parenting strategies have consistently demonstrated an important role in the reduction of bullying and victimization. For example, in a review of parental roles and cyberbullying among youth, Elsaesser et al. (2017) found certain mediation strategies for controlling Internet and technology use were more effective than merely placing blanket restrictions on youth. When youth are involved in creating the rules about Internet and technology use, rates of cyberbullying and cybervictimization tend to decrease. In contrast, parents who are more controlling and restrictive about Internet and technology use only lead to minimal reductions in cyberbullying and cybervictimization. These findings may highlight the issue of ideal parenting approaches in relation to youth cyberbullying, as parents who exert high warmth and control (i.e., authoritative parenting) are associated with lower rates of cyberbullying perpetration compared to parents who exert low warmth and high control (i.e., authoritarian parenting; Elsaesser et al., 2017). Additionally, program intervention strategies that target

parents are some of the most effective approaches to combat bullying (Ttofi and Farrington, 2011; Roberto et al., 2017) and scholars have recommended it is important to continue targeting parents in order to reduce bullying (Hutson et al., 2018).

Other intervention strategies used to reduce bullying and cyberbullying have been investigated. Project-based learning strategies to raise awareness of cyberbullying have shown positive outcomes, such as increased vocabulary, knowledge, and awareness of the consequences of online behaviors (Chen, 2018). Additionally, anti-cyberbullying messaging and policy/practices that help persuade young people to safely use the Internet and seek social support for cyberbullying issues have shown reductions in cyberbullying rates and susceptibility to cyberbullying (Ortega-Ruiz et al., 2012; Savage et al., 2017). Other strategies to reduce cyberbullying behaviors include school-based approaches focused on traditional bullying. Although traditional bullying and cyberbullying may be defined differently (Selkie et al., 2016), some researchers have found that general bullying prevention programs have been effective in reducing cyberbullying and cybervictimization as well (Gradinger et al., 2015). For example, based on a meta-analysis of anti-bullying programming, Ttofi and Farrington (2011) found incorporating disciplinary methods (e.g., deprivation of special privileges, stern discussions with bullies), teacher training, classroom management, and cooperative group work was effective in reducing traditional bullying perpetration and victimization. Some of these methods outlined by Ttofi and Farrington (2011), such as disciplinary action and teacher training, could be applied to a school-based cyberbullying prevention/intervention strategy, but have yet to be comprehensively investigated.

Although prevention and intervention efforts that aim to reduce traditional bullying have been on the rise throughout the last decade, more evidence is needed to ascertain if those same principles can be applied to cyberbullying prevention and intervention. While there is considerable overlap between traditional bullying and cyberbullying, some research suggests that negative outcomes of cybervictimization have been significant even while controlling for involvement in traditional victimization (Perren et al., 2010). This indicates a need for cyberbullying-specific prevention and/or intervention efforts, but scholars note that these efforts have not been well-researched to date (Tanrikulu, 2018). Two recent systematic reviews have investigated the components of intervention programs and methods for cyberbullying specifically (Hutson et al., 2018; Tanrikulu, 2018). According to Hutson et al. (2018), the most commonly implemented program components include: improving digital citizenship, collaboration, communication and social skills, empathy training, education on cyberbullying, enhancing coping skills, and peer mentoring. However, Tanrikulu (2018) found that the program duration, instruments to measure cyberbullying, and theoretical program bases varied widely with no clear pattern of common program components. Such wide variation among programming makes it difficult to compare and determine which programs are most effective. While some approaches for cyberbullying prevention and intervention currently exist, research in cyberbullying prevention and intervention is inconsistent in terms of implementation and evidence.

## The current study

As Ioannou et al. (2018) indicated, cyberbullying research is dominated by self-reported measurement, which can enhance issues of social desirability, personal interpretation, and a divergence between reported behavior and actual behavior (Coughlan et al., 2009). Qualitative research in this domain would allow for a more holistic understanding of the experience and perception of key stakeholders involved in the cyberbullying world (Tracy, 2013). While purely qualitative methods in cyberbullying research are increasing, many studies focus on the youth perspective of perceptions and the experiences of cyberbullying itself (e.g., Vandebosch and Van Cleemput, 2008; Evans et al., 2016; Ghazali et al., 2017; Chia-Wen et al., 2019). Critical key informants and stakeholders who have experience managing cyberbullying issues on a regular basis may be the key to adequately addressing, designing, and implementing prevention strategies to reduce cyberbullying. Ioannou et al. (2018) offered practical suggestions for future work in cyberbullying research that highlighted the currently non-existent collaboration and dialog between multiple communities with stake in the cyberbullying world. These groups may include experts from computer science, psychology, and sociology to better shed light on the complex issue of cyberbullying. Additionally, much of the current research that qualitatively consults individuals that are not adolescents include mainly parents, school administrators, and teachers (e.g., Noah, 2012; Ragain, 2014; Young et al., 2017). The potential for unique and vital perspectives to exist outside of the view of parents, teachers, and youth warrants more exploration (Pennell et al., 2020). Furthermore, investigating this issue through the lens of multiple experiences allows for a more holistic understanding, as Couvillon and Ilieva (2011) emphasized: "cyberbullying intervention requires the joint efforts of everyone who shares concerns about the safety and children of youth" (p. 98).

As much of the cyberbullying research has been conducted in the absence of theory (Tokunaga, 2010), our research was guided by the theoretical framework of the $I^3$ Model (Finkel, 2014). The $I^3$ Model is a process-oriented metatheory of aggression that has the potential to explain how cyberbullying behaviors continue to occur and has been successfully applied in recent cyberbullying queries (Wong et al., 2018). This framework is useful in cyberbullying research as it illuminates how non-aggressive interactions may become aggressive based on three interrelated processes: inhibiting forces, impelling forces, and instigating triggers. *Inhibiting forces* are factors that decrease the likelihood of an aggressive response (e.g., ability to exercise adequate self-control in response to aggression). *Impelling forces* are influences that determine the overall strength of the response (e.g., the belief that the perpetrator is truly anonymous). Finally, *instigating triggers* are the situations that increase the likelihood of an aggressive response (e.g., experience as prior victim of cyberbullying). The $I^3$ Model posits that if instigation and impellence are heightened and inhibition is decreased, aggressive responses will surface. Therefore, in terms of prevention and intervention, it is pertinent to understand what potential inhibiting forces are recommended to reduce cyberbullying among youth.

The primary purpose of this research was to capture a holistic understanding of potential youth cyberbullying prevention and intervention strategies that are suggested by key stakeholders. To achieve this, we aimed to incorporate multiple unique, but vital, voices within the cyberbullying world that have yet to be demonstrated in formal research. Key voices need to be stakeholders who have both direct youth connections (school administrators, guidance counselors, consultants, student support professionals), and indirect youth connections (school resource police officers, bullying educators, and

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TABLE 1 Participant and occupation characteristics.

| Participant | Occupation title(s) | Occupation description(s) |
|---|---|---|
| Focus group ($n = 4$) | Principal (1), school counselor (1), youth social support workers (2) | Professionals who provide oversight and services related to educational policy, curriculum implementation, administration, and counseling and support services to students. |
| 1 | Superintendent of Education | An educational professional who has oversight into the implementation of policy, curriculum, and management of facilities. Primary liaison between the provincial government and school districts. |
| 2 | Principal | An educational professional in charge of administration of the entire school (grades K-8), disciplinary actions, resource management. |
| 3 | Principal | An educational professional in charge of administration of the entire school (grades 9–12), disciplinary actions, resource management. |
| 4 | Vice Principal | An educational professional in charge of daily administrative elements of the school (grades 9–12). Oversight of scheduling, registration, and disciplinary actions. |
| 5 | School counselor | A mental health professional that provides direct psychological counseling to students (grades 9–12), make referrals to community programs, address student needs. |
| 6 | School counselor | A mental health professional that provides direct psychological counseling to students (K-12), provide skills workshops to students, mental health education, facilitate anxiety, and depression groups. |
| 7 | School counselor | A mental health professional that provides direct psychological counseling to students (K-8), resolve social tensions between students, provide skills workshops/presentations. |
| 8 | Instructional technology consultant | A professional who works for the Ministry of Education and provides professional development programs for teaching staff related to technology. |
| 9 | Bullying educational consultant | An educator within the private sector that provides programming to students about peer respect and bullying prevention. |
| 10 | Bullying researcher | A researcher in sociology that examines youth delinquency and bullying/cyberbullying. |
| 11 | Police officer | A police officer in the school resource unit; primary liaison between staff, students, and parents in high schools (grades 9–12) and elementary schools (grades K-8). |
| 12 | Police officer | A police officer in the school resource unit; conducts risk assessments, conducts home visits, facilitates police resources between all schools in the district. |
| 13 | Police officer | A retired police officer from the school resource unit; provided liaison between staff, students, and parents in high schools (grades 9–12) and elementary schools (grades K-8). |
| 14 | Student support professional | A social work professional who works closely with schools (grades 9–12) to support students in areas of conflict resolution, bullying, relationships, and facilitates mediation between students. |
| 15 | Student support professional | An educational professional who works closely with schools (grades 9–12) to support students in areas of conflict resolution, bullying, relationships, and facilitates mediation between students. |
| 16 | Student support professional | A social work professional who works closely with schools (grades 9–12) to support students in areas of conflict resolution, bullying, relationships, and facilitates mediation between students. |
| $N = 20$ | | |

cyberbullying researchers). Through the lens of the $I^3$ Model, this study examined stakeholder suggestions that serve as inhibiting forces and may reduce cyberbullying. Potential barriers to the prevention and intervention of cyberbullying issues are also explored.

# Materials and methods

## Participants and procedures

To achieve depth and understanding of cyberbullying issues, qualitative data were collected from one-on-one semi-structured interviews ($n = 16$), as well as one focus group ($n = 4$). Participants were recruited from both urban and rural school districts in one Western Canadian province. Purposive and snowball sampling techniques were employed to target key stakeholders with professional knowledge about cyberbullying. Targeting key stakeholders with professional knowledge allowed for their experiences to be deconstructed and interpreted for a better understanding of this complex phenomenon (Tracy, 2013). A trained graduate student with extensive experience in qualitative interviewing collected all data. The focus group and interviews included key stakeholders representing professions related to educational administration, psychological counseling, technology and bullying education consultation, policing, research, and social support services. Table 1 outlines the participants and occupation descriptors. Participant recruitment ceased when the research group observed redundant responses and perspectives, which indicated data saturation (Mills and Gay, 2016). Interviews were approximately 60 min in length and interview questions related to cyberbullying methods and motivations (e.g., what are the technological means through which adolescents are cyberbullying each other?), victim and perpetrator characteristics (e.g., are there

particular reasons why certain adolescents are more likely to cyberbully and/or be cyberbullied?), how stakeholders currently viewed cyberbullying (e.g., how is cyberbullying similar or dissimilar to traditional bullying?), recommended prevention and intervention strategies to successfully mitigate cyberbullying issues (e.g., are you aware of alternate measures through which cyberbullying is being successfully addressed?), and any factors (e.g., institutional, legal) that stakeholders believed hindered the prevention and/or intervention of cyberbullying (e.g., are the school and justice systems equipped to properly prevent and/or intervene in instances of cyberbullying?). These questions were presented in a general way in order to allow for participants to deviate from the interview schedule and illuminate their experiences as they presented (Lee, 1999).

## Data analysis

The data were imported and analyzed in NVivo 12 Pro. Upon verbatim transcription of the interviews, the data were reflexively thematically analyzed, where larger themes are subsequently broken down and refined into sub-themes that represent the message of the participants using six steps or phases: familiarizing self with data; coding; generating initial themes; developing/reviewing themes; refining, defining, naming themes; and writing it up (Braun and Clarke, 2006, 2022). Multiple researchers conducted the analysis independently before jointly agreeing on the resulting themes. Regular meetings to discuss and refine emerging themes took place several times over the course of the analysis phase.

## Findings

Several inhibiting forces were identified which were believed to decrease the likelihood of online aggression related to cyberbullying issues. First, participants suggested that educational efforts related to awareness of cyberbullying and consequences of perpetration were paramount. Digital citizenship programming for students and social skills (empathy, respect, conflict-management) training were also fundamental to decreasing online aggression. Additionally, providing remediation to youth who are in online conflict with one another was suggested as a highly effective form of intervention. Last, participants emphasized parental engagement with the technology used by their youth was also key in mitigating instances of cyberbullying.

## Education

All participants indicated that educational strategies are the foundation to decreasing cyberbullying issues among youth. The educational strategies include providing students' awareness about cyberbullying and the potential legal consequences of cyberbullying perpetration, digital citizenship programming for youth, as well as social skills training in empathy, respect, and conflict management.

### Ongoing education and awareness of cyberbullying

The majority of participants described the importance of an ongoing education program and awareness of cyberbullying as an effective means of prevention. One school counselor emphasized the importance of ongoing anti-bullying education, "I think we have to continue to educate kids and cannot just stop at Grade 9—we cannot assume that because we have done this presentation once that we do not have to keep doing it every once and awhile." Another school counselor echoed similar sentiments about the impact of education on cyberbullying and how educational programming has increased awareness and communication about cyberbullying. The school counselor stated, "The fact that we have some anti-bullying thing and the pink shirt day, now we do the bullying awareness…I think those have been very helpful to bring it out into the open where people are actually talking about it." While spreading awareness of cyberbullying was emphasized, the awareness of legal consequences to cyberbullying perpetration was also recommended.

### Awareness of legal consequences

Another suggested educative lesson was the understanding that cyberbullying behaviors have the potential to become legal or criminal issues. One school counselor described how they have implemented an informational presentation for students about the potential legal consequences of cyberbullying stating; "It's always as an educational component where the police are saying to the student or the youth in their family that if this continues, this is where this could end up. This is what you can be charged with." Additionally, one police officer involved in providing legal education to students believed it was important to convey an awareness of the consequences of cyberbullying asserting; "One of the messages I try to get across is consequences. Negative consequences for negative actions and treat others the way you want to be treated." In addition to informing youth of the potential legal ramifications for cyberbullying behaviors, structured programming to foster good digital citizenship was also recommended.

### Digital citizenship programming

All participants indicated the importance of offering general digital citizenship programming as a method to prevent negative behaviors online. The aim of this programming is to ensure that students know how to act as good digital citizens. One police officer outlined, "…Instead of burying our heads, we should be teaching kids how to use these things…basically what we are talking about is being good citizens; it's not even digital citizenship, it's citizenship and we are teaching them but how online it should be." When asked about the value of teaching youth digital citizenship, a school technology consultant also stressed the importance of modeling digital citizenship and emphasizing positive interactions online:

> It's so important for us to actually take kids to online spaces and to model how we interact in those online spaces… that's how we learn behaviour…if we don't take kids to those online spaces and give them the opportunity to see us model and interact in those online spaces, then they don't have that benchmark.

While having youth understand the importance of being a good digital citizen was noted as being a key to reducing cyberbullying, providing social skills training was also considered imperative.

### Social skills training

The majority of participants believed that educating students in certain social skills would reduce cyberbullying events. These social skills

include teaching youth about empathy, respect, and conflict management. When describing the significance of having students respect each other in online spaces, one guidance counselor noted: "…so I think that it all starts with that right? Treating other people with respect." One police officer who was responsible for providing cyberbullying education to students and teachers highlighted that learning how to empathize with others should be at the forefront of cyberbullying prevention:

> My big message now is empathy. You have no idea who the other person is sitting beside you. Empathy is massive…if you empathize, you walk in their shoes, you feel their pain, you make change. One person can change the world and that's the message I'm pounding out now.

A school technology consultant reiterated that in addition to learning how to empathize with others, learning to respect others as a skill is important:

> We come from that pro skill-based approach where it's like, 'let's show them what they need to do.' We can't just tell people, 'don't be a bully, don't be a bully." If we're gonna say that, we need to replace that with what behaviour we need…we want people to understand respect… at the end of the day I think we come down to teaching those skills we want for people.

In addition to teaching respect and empathy, participants also noted that teaching conflict management is crucial. A police officer who worked within schools noted that we need to "teach kids skills on how to deal with conflict because it is a part of life." Similarly, an instructional consultant for anti-bullying messaging described a similar need to teach youth the skills to handle conflict:

> We want them to understand that conflict is natural. We don't want them to stop having conflict. That's just going to be part of being human. But how that conflict is resolved, and how that conflict is resolved when there is a power differential, is important.

Efforts toward educating youth on cyberbullying awareness, being a good digital citizen, and providing social skills training were noted as being mostly preventative. However, key stakeholders noted that remediation has been highly effective in intervening when instances of cyberbullying come to fruition.

## Restorative conferencing

The majority of participants mentioned efforts to provide students restorative conferencing was an effective intervention/response to cyberbullying incidents. School counselors, student support professionals, and police officers were the most frequently involved in remediation between youth. Our participants described remediation for cyberbullying incidents as gathering all involved in the conflict, discussing the situation, and creating a peaceful plan to end the conflict. One police officer described why bringing students together during conflict is essential:

> If there is a dispute–one is bullying the other…it gives them a chance to explain why they were doing it, but also the victim too. You know, see how it made them feel and what have you done, and hold them to more account. I think it is pretty effective.

A student support professional also endorsed this strategy when discussing the most effective ways to intervene in cyberbullying issues: "A lot of the online stuff goes away when they [students] have a chance to be able to communicate and listen to the other person and have a chance to respond." Similarly, a vice principal who did not have access to professional support for restorative conferencing described a similar process that their school implements in response to cyberbullying problems:

> We would want to bring the other party in a non-confrontational way, make the person aware of the effect of those messages…the student who has sent the message becomes aware or is made aware that the message that they've sent is injurious, and whether they know it ahead of time or not…they come to understand the full effect of that kind of a message.

When cyberbullying instances occur, it was clear that our participants felt that the most effective form of intervention was mediating the conflict between students. However, another effective strategy to reduce cyberbullying involve parental engagement with technology used by their youth.

## Parental involvement with technology

All participants identified parents as a significant resource to reduce and/or resolve cyberbullying conflicts between youth. Our participants were most likely to discuss parental involvement with technology, specifically, as a strategy to prevent or intervene in situations of cyberbullying. One student support professional described a common situation where parents may overestimate the maturity and responsibility of youth in relation to their technology use:

> Some parents are like 'woo they made it to high school, I'm out of here, bye. Suppers at 6:00,' kind of feel… 'thank god they made it to high school, and now they're old enough and mature enough, they don't need me anymore.'

This student support professional conveyed that while parents have the best intentions, this inadvertent release of control tends to escalate and mismanage issues of cyberbullying. When asked about a recommended strategy for reducing cyberbullying, one police officer suggested, "Parental controls, parents taking more responsibility in their usage of their children's usage online, them monitoring what's being said, pictures being posted and shared, parents need to take a bigger role instead of just trusting their kids." A similar sentiment was echoed by a different student support professional, when they described the importance of parents taking an active role of responsibility in their child's technology use, "I think it's important for parents to set boundaries. At a young age. In terms of having smartphones, in terms of having access to social media." Parental involvement in youth's use of technology was also discussed as a punitive strategy upon intervention. As one school counselor described" "Some of the parents then put some restrictions [on the offenders]: some lost their phones, their accounts, blah blah blah. So

the parents took a more active role in what their kids were using their technology for."

## Discussion

Cyberbullying remains a significant concern for the physical and emotional health of youth, yet it continues to infiltrate our communities. Thus, it remains imperative to pinpoint effective strategies to curtail the negative effects of cyberbullying. The purpose of this study was to outline the prevention and intervention strategies for cyberbullying suggested by key stakeholders through the theoretical lens of the $I^3$ Model. The results of this study illuminated key inhibiting forces that theoretically should decrease the likelihood of aggressive online responses, such as those involved with acts cyberbullying.

As previously noted, cyberbullying remains a relatively new phenomenon. As such, there has been limited investigation of different cyberbullying-specific prevention/intervention efforts in the academic literature to date. Nonetheless, the results of our research still complement other key findings in the literature. Our participants emphasized that ongoing education and awareness was vital to prevent instances of cyberbullying. Other research on cyberbullying prevention programs and strategies echoed similar recommendations, where prevention work needs to be routine and ongoing (Mason, 2008; Couvillon and Ilieva, 2011). Fortunately, other stakeholders in the literature appear ready to embrace such educational endeavors in their schools. In a study examining the opinions of teachers and parents about cyberbullying prevention, Gradinger et al. (2017) found that 95% of parents and 90% of teachers have positive opinions regarding facilitating and participating in anti-bully education strategies. Consequently, it is likely that teachers and parents would be supportive and invested in implementing such educative programming. Other research has already documented that teachers and educational support professionals have indicated a desire to receive additional training related to cyberbullying interventions (Bradshaw et al., 2013). Additionally, Yanagida et al. (2019) investigated the effectiveness of an anti-bullying program and acknowledged the value of implementing such education. However, Yanagida et al. (2019) noted that existing anti-bullying programs may need to be modified to address features of cyberbullying. The results of this study can speak to those suggestions, as cyberbullying awareness, digital citizenship training, and empathy, respect, and conflict management exercises can be easily implemented as new modules within existing anti-bullying programs. Lastly, similar to other researchers (Tanrikulu, 2018), ideas from key stakeholders in this study suggest educational efforts and anti-cyberbullying/bullying programming within schools is likely the best option for diminishing cyberbullying.

Traditional efforts to end conflict within schools, such as zero-tolerance bullying policies, continue to be practiced despite theories suggesting these policies contribute to the 'school to prison pipeline' phenomenon, where using punitive measures in schools push students toward the criminal justice system (Hirschfield, 2008; Berlowitz et al., 2017). Experts have argued that such policies are ineffective and lead to negative impacts in Canadian schools (Daniel and Bondy, 2008). A significant finding in this study is that key stakeholders felt that remediation efforts (e.g., restorative conferencing) were highly effective in managing cases of cyberbullying and identified restorative conferencing as an effective cyberbullying intervention. To date, the literature is limited in regard to how specific restorative justice tools have been applied to resolve school conflicts including cyberbullying (Morrison et al., 2005). However, Duncan (2016) and Das et al. (2019) both propose using features of restorative justice principles as a practical solution for schools with Duncan suggesting that 'restorative practices hold great promises for many cases' (p. 254). Das and colleagues recommend the creation and use of a virtual peace room (similar to an online chat room), and a restorative justice coordinator to facilitate interactions between conflicting parties. Duncan (2016) advocates for family group conferencing, led by a trained facilitator, when all individuals willingly participate. However, Duncan (2016) conceded that challenges to the implementation of restorative justice programs include related time requirements and financial cost, which may be partially offset by donors or sponsors. Three participants in this study were non-teaching stuff employed by a non-governmental organization through sponsored funds to provide social support to students and families. These individuals are situated directly within the school (one facilitator per school or shared among two schools). Part of their professional role is to provide youth and families conflict resolution strategies and facilitate restorative conferences between affected parties when social issues (e.g., [cyber]bullying, home conflict) emerge in the school. The restorative conferences carried out by these participants are best defined as a structured, victim-sensitive meeting involving all victims, offenders, and family/friends to address a wrongdoing and problem solve together to repair harm done (O'Connell et al., 1999). Similar to Duncan (2016), the results of this study suggest that despite the potential added costs to successfully intervene in instances of cyberbullying among students, schools should consider employing a restorative justice approach.

Another significant aspect highlighted in this study is the importance of parental involvement with their youth's technology usage. Our key stakeholders emphasized that parents tend to overestimate their child's maturity, level of responsibility, and boundaries with technology. Other research has shown that youth are less likely to participate in bullying behaviors when they have parents and teachers who clearly outline that those behaviors are not appropriate (Hinduja and Patchin, 2013). The outcry for parents to become more involved in their children's technological lives is not just emphasized by our participants. Cassidy et al. (2018) found that educators held strong beliefs that parents lacked awareness of their youth's online behaviors and activities, and generally failed to monitor their youth's online presence. Other researchers have documented that parents who have low levels of knowledge about their children's whereabouts and activities are associated with higher delinquent behaviors by the youth (Laird et al., 2003). These findings suggest that parents may be able to help reduce cyberbullying by providing more oversight and through involvement in their youth's [technological] lives. However, the types of oversight and rules imposed by parents should be chosen carefully. Elsaesser et al. (2017) found that parents who created rules with their youth around technology use, as opposed to merely restricting access to technology, were more effective in reducing rates of cyberbullying. While this research recommends parents become more involved in their youth's online lives, pragmatically doing so may be difficult as parents have noted that they do not wish to infringe in their children's privacy or lack the skills to supervise such online activities (Monks et al., 2016).

## Practical implications

Although a comprehensive review by Tanrikulu (2018) was unable to discern a consistent pattern of cyberbullying prevention/intervention programs or components, the recommendations by key voices in this study were consistent. Education (awareness, digital citizenship training, and social skills training), restorative conferencing, and parental involvement with technology are fundamental pillars to reducing cyberbullying behaviors. Our research and others echo stakeholder emphasis of prevention through education. Broll and Huey (2015) interviewed 12 police officers (school resource officers and patrol officers) in Southwestern Ontario about their perspectives on cyberbullying issues. Similar to our research findings, the police officers' emphasized education about safe and appropriate technology use and parental involvement/monitoring of technology are necessary to prevent cyberbullying. Additionally, when deliberating best practices to address cyberbullying issues among youth, it is uncommon to hear from the voices of outside or indirect stakeholders, such as the non-teaching student support professionals and police officers that are included in this study. Consulting these unique collaborators may continue to offer novel solutions to cyberbullying concerns. The implications of this research have the capacity to inform strategic programming efforts to include lessons on cyberbullying awareness, digital citizenship, knowledge of legal consequences for cyberbullying perpetration, and social skills training. This research can also better inform funding decisions for school districts. If restorative conferencing is the most effective tool to address cyberbullying issues between students, financial decisions to include a school support worker to offer these services may be vital. Last, this research illuminates important information for parents of youth who have access to technology. A recent review highlighted that less than half of the developed anti-cyberbullying programs incorporate educational content for parents, although such programs are among the most successful at reducing cyberbullying and cybervictimization (Hutson et al., 2018). In places where anti-cyberbullying education is unavailable to parents, our research suggests that merely empowering parents to take an active role in their youth's online presence could potentially reduce and/or prevent cyberbullying incidents from occurring.

## Limitations and future research

Although the results of this study provided suggestions and important implications, this study is not without limitations. This study brings a Canadian perspective to a research area that is predominantly American and European; however, the findings of this study are based on a sample from a limited geographical area (one province). Therefore, samples of key stakeholders in other parts of the country and/or world should be investigated before adopting these recommendations into practice. Additionally, the sample size is limited and therefore not completely representative of all key stakeholders who work with youth and schools. One future direction could be to use the results of this study to create a survey to confirm these findings with a broader sample. In addition, one of our main findings was that providing restorative conferencing for youth experiencing conflict can help reduce and/or resolve cyberbullying in schools. However, only some of the stakeholders in our sample had access to this type of a resource. Because restorative conferencing can occupy a great deal of time and financial resources and is typically supported by non-educative school personnel, not all schools will have the personnel, expertise, or funding to facilitate these types of conferences. Future research should continue to ask unique stakeholders (e.g., police officers, student and family support professionals) about other types of potential school supports available in their particular geographic area as the responses may provide different suggestions for solution. Last, while much of the cyberbullying literature remains atheoretical, this study is one of few to employ the I3 Model to target the inhibiting forces that reduce cyberbullying, specifically. Therefore, it is recommended that future research continue to apply the I3 Model to assess the overall utility of its use within cyberbullying research.

# Conclusion

This study sought to capture a holistic understanding of potential youth cyberbullying prevention and intervention strategies (i.e., inhibiting forces that may reduce cyberbullying) from key stakeholders with professional knowledge about cyberbullying (i.e., educational administration, psychological counseling, technology and bullying education consultation, policing, research, and social support services) through the theoretical lens of the $I^3$ Model. The perspectives and opinions of partners with indirect connections to youth are rarely sought, which contributes to the uniqueness of the study. Furthermore, these novel perspectives suggest promising approaches (e.g., restorative conferencing) to successfully intervene in cyberbullying incidents. Participants identified educational efforts related to awareness of cyberbullying and consequences of perpetration, digital citizenship programming for students and social skills training, providing remediation to youth who are in online conflict with one another, and parental engagement with the technology used by their youth as key factors in mitigating instances of cyberbullying. These findings illuminated key inhibiting forces that theoretically should decrease the likelihood of aggressive online responses, such as those involved with acts cyberbullying. The reduction and/or prevention of cyberbullying incidents from occurring should continue to be a focus of current research to better understand the challenges youth face and the supports they need to function in today's technology focused world.

# Data availability statement

The datasets presented in this article are not readily available because this project remains in progress and data analysis is on-going. Requests to access the datasets should be directed to l.hellsten@uwinnipeg.ca.

# Ethics statement

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

## Author contributions

BH is a student researcher who developed the initial draft of the manuscript under the supervision and mentorship of L-aH. L-aH is the Principle Investigator, and LM is the Co-Investigator of the related funded research project and the caretakers of the resulting dataset. All authors including BS (student researcher) contributed equally to the editing and review of 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.

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# Measuring empathy online and moral disengagement in cyberbullying

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This investigation intends to explore how adolescents report empathy in online contexts and moral disengagement in cyberbullying incidents, and how these two constructs are related. To accomplish this goal, three studies were conducted considering the need to develop new instruments to uncover this new approach of measuring empathy and moral disengagement. In the first study, we adapted the Portuguese version of the Empathy Quotient-short form to online contexts, which resulted in the Empathy Quotient in Virtual Contexts (EQVC). We also developed the Process Moral Disengagement in Cyberbullying Inventory (PMDCI), in order to assess moral disengagement in these specific situations. In the second study we conducted exploratory factor analyses ($N$ =234) of these instruments. Finally, in the third study, we conducted confirmatory factor analyses ($N$ =345) of both instruments. These results showed how adolescents reported empathy in online contexts and moral disengagement in cyberbullying incidents. Specifically, empathy revealed a bi-dimensional structure including difficulty and self-efficacy in empathizing (Cronbach's $\alpha$ =0.44, 0.83, respectively), whereas process moral disengagement revealed four unidimensional questionnaires including locus of behavior, agency, outcome, and recipient (Cronbach's $\alpha$ =0.76, 0.65, 0.77, 0.69, respectively). Furthermore, a correlational analysis was also performed of both constructs, and we also considered the variable sex. Results showed that difficulty in empathizing was negatively associated with sex (with girls revealing more difficulty than boys) and all moral disengagement mechanisms except for behavior. Moral disengagement was positively correlated with sex, suggesting boys morally disengaged more from cyberbullying. The instruments provided new insights on how empathy and moral disengagement can be specific to online contexts and cyberbullying situations, and how they can be used in educational programs to promote empathy and gain insight on moral disengagement within this phenomenon.

KEYWORDS

**assessing empathy online, measuring moral disengagement in cyberbullying, instruments, cyberbullying, adolescents**

## 1. Introduction

People are not only autonomous agents, but also function as the product of a reciprocal interplay of intrapersonal, behavioral, and environmental events (Bandura, 1986). Therefore, this investigation is based on the Social Cognitive Theory, which adopts an agentic perspective. Specifically, in this investigation we explore the relation between two intrapersonal factors that

are proven to play an important role in cyberbullying involvement, which are empathy and moral disengagement.

Cyberbullying is a pervasive problem in our society, as it increases and causes harmful consequences in the lives of children and adolescents (Kowalski et al., 2014). Considering this, it is of utmost importance to be familiar with factors that play a role in preventing or reinforcing this type of behavior (Lo Cricchio et al., 2020). Many factors have been studied in relation to cyberbullying, such as empathy and Moral Disengagement (MD) (Marín-López et al., 2020; Ferreira et al., 2021).

When someone is involved in conflicts, empathy allows us to empathize with and understand others, but also helps us to predict the type of response of others (i.e., aggressive). Thus, it is assumed that empathy can serve as a control mechanism in conflict dynamics (Klimecki, 2019), which may include aggressive behavior (Tampke et al., 2020), such as in bullying and cyberbullying.

Therefore, empathy plays an important role in cyberbullying, however, it does not explain or predict it (Pfetsch, 2017). In fact, empathy has been found to be negatively related to cyberbullying perpetration (Garaigordobil, 2015). With respect to bystander behavior, empathy has been found to be an important factor for increasing prosocial behavior (Barlińska et al., 2018), therefore it can be considered a protective factor (Zhu et al., 2021).

Considering that cyberbullying may be seen as intentional and repeated acts of aggression toward peers (Hinduja and Patchin, 2009), involving moral aspects (Romera et al., 2021), it is also crucial to understand moral (dis) engagement within this phenomenon, which is an important risk factor in the cyberbullying cycle (Gao et al., 2020; Romera et al., 2021). With respect to bullying, Wang and Goldberg (2017) suggested that MD predicted and increased bullying perpetration in adolescence, and Thornberg et al. (2019) also found that bullying perpetration could also lead to MD. That is, MD impacted aggressive conduct, and aggressive conduct also impacted MD progressively over time (Bandura, 1999). For example, Falla et al. (2020) found that moral disengagement also had an impact on bullying victims, since cognitive restructuring (i.e., moral justification, euphemistic language and advantageous comparison) influenced the association between victimization and later, bullying behavior. Moreover, that same set of MD mechanisms were the single strongest predictor of both offline and online bullying (Romera et al., 2021). Thus, mechanisms of MD prevent individuals from feeling unpleasant emotions when perpetrating transgressions (Mazzone et al., 2019). Falla et al. (2021) argued that MD mechanisms may lead to a decrease in empathy, considering that the first seem to promote aggressive behavior, and the latter is related to prosocial behavior. Thus, considering that empathy seems to play an important role in moral development (Cameron et al., 2019), assessing both constructs with regards to online contexts and understanding the possible relation between them, may provide an important contribution to the field. For example, Francisco (2022) discussed that empathy can be viewed as a shield for the impulsive use of MD mechanisms, since they found that when adolescents did not spontaneously use MD mechanisms to justify aggressors' and/or bystanders' cyberbullying behavior, they tended to show empathic responses instead. Moreover, Haddock and Jimerson (2017) studied the correlation between MD and empathy and found that this correlation was statistically significant and negative. Specifically, these authors found that affective empathy and cognitive empathy both significantly predicted MD. Accordingly, as MD increased, affective and cognitive empathy decreased. In general, students who had higher scores in MD, tended to have lower scores in empathy. Despite the differences that can occur in feeling empathy online and the activation of MD mechanisms with respect to cyberbullying incidents, we believe that a similar relationship might occur between these constructs, since it occurs within bullying (Haddock and Jimerson, 2017). Therefore, this study aims to assess adolescents' perceived empathy with regards to online contexts and their MD in cyberbullying situations with two new instruments. We also proposed to understand the relationship between the two constructs, considering adolescents' perspectives, because the MD instrument was developed according to adolescents' point of view regarding cyberbullying scenarios.

## 1.1. Measuring adolescents' perceived empathy regarding online contexts

### 1.1.1. The importance of the online context

This study is positioned within the perspective of empathy online, namely that it is possible to express "traditional empathic characteristics such as concern and caring for others … through computer-mediated communications" (Terry and Cain, 2016, p. 1). In fact, this study focuses specifically on empathy in virtual contexts, because empathy itself is not online, but rather, occurs within individuals as they establish interpersonal relations in virtual contexts. To date, few studies have considered this specificity and have assessed empathy with adapted instruments. That is, few studies have considered the online characteristics of empathy, when studying cyberbullying. Nonetheless, some studies have already taken empathy in virtual contexts into account. For example, Carrier et al. (2015) and Manasia and Chicioreanu (2017) found that virtual empathy was positively related with empathy in face-to-face interactions, however, virtual empathy was lower for both sexes. Complementarily, Marín-López et al. (2020) found no differences between the different cyberbullying roles with respect to online empathy. Considering the scarce literature with respect to empathy in virtual contexts and cyberbullying (Marín-López et al., 2019, 2020), it is crucial to develop further research in this area of knowledge.

Assessing empathy is important to explain bystanders' role in cyberbullying situations. For instance, Macaula and Boulton (2017) found that when comparing positive bystanders' responses in bullying and cyberbullying, the rate of responses tended to be higher in cyberbullying. Moreover, this type of responses in both bullying and cyberbullying was positively and moderately correlated with empathy. Also, positive bystander responses tended to increase, as a result of cyberbullying severity. Another study (Schultze-Krumbholz et al., 2018) found that higher levels of both cognitive and affective empathy were associated with prosocial defending, when compared to passive bystander behavior. Notwithstanding, the research presented above considered measures of empathy without accounting for the online context.

From a phenomenological perspective, Fuchs (2014) proposed that it is not possible for empathy to occur in online contexts, since we lose our perceptual access to other individuals' physical presence, and thus, we lose our direct empathic access to others. Accordingly, for empathy to occur, we need to perceive other individuals' "lived body" (see Osler, 2021), and this is not possible in online "disembodied

communication" (Fuchs, 2014, p. 167). Moreover, the temporal delay and the loss of perceptual queues (i.e., the perception we have is not apprehended by all our sensory capabilities) that occurs in technological mediated communication prevents us from perceiving someone's physical and emotional experience. This was not a concern in face-to-face interactions, but do come into play in online interactions (Osler, 2021). Despite these perspectives, we believe it is possible to feel empathy in online contexts, even if individuals do not see others in person. We consider this to be true because empathic skills can be developed through the use of virtual reality (e.g., Bertrand et al., 2018), which is also different from face-to-face interactions. Moreover, although there are differences between online and offline communication, individuals tend to use other cue systems at their disposal, with the objective of promoting and detecting these cues, as well as developing relationships (Walther, 1995). Therefore, if relationships can be developed, empathy can also be possible in online interactions. In fact, through interpersonal communication online, individuals are able to infer what others might be thinking/feeling in a certain situation (Carrier et al., 2015). Nonetheless, the specificities of online contexts, may make it difficult for empathic reactions (Terry and Cain, 2016). Despite the fact that few studies have investigated empathy in virtual contexts and its specificities, it has been already proven that empathy can be experienced online. For example, Preece (1999) found that empathy online was quite common in support groups, which corroborates our position. This author discussed that the difference between synchronous and asynchronous systems impacts communication. Firstly, the pace of interaction is very different between these systems, that is, in one it is almost immediate, whereas in the other, it can take much more time (i.e., hours, days, or weeks differing from the platform). Moreover, another important difference is regarding the mode of expression, and other features that allowed nonverbal expression, whereas in the asynchronous system the primary mode is written text. It is important to highlight that this investigation is from the 1990's, and several features of online communication have changed. However, more recent studies have found that text-type emoticons and graphic emojis are processed in a similar way to in-person facial expressions (Gantiva et al., 2019), and participants who viewed text-type emoticons exhibited face imitation mirroring (O'Neil, 2013). Therefore, we can argue that it is possible to feel empathy when interacting in virtual contexts.

### 1.1.2. Gaps in existing scale development

Considering the importance of accounting for online features in measuring empathy, we sought new instruments on empathy that were developed according to the online context. To date, we found three instruments directly adapted from the Basic Empathy Scale (Jolliffe and Farrington, 2006), that is, the Virtual Empathy Scale (Carrier et al., 2015), the Online Empathy Questionnaire (Marín-López et al., 2019) and the Virtual Basic Empathy Scale (Manasia and Chicioreanu, 2017). Also, another instrument was adapted by García-Pérez et al. (2016) based on the Basque version (Gorostiaga et al., 2014) of the *Test de Empatía Cognitiva y Afectiva* (TECA) from López-Pérez et al. (2008). Additionally, Happ and Pfetsch (2015) developed the Media-Based Empathy (MBE) Scale (original name *Skalazumedienbasierter Empathie*) based on a pool of items according to the Interpersonal Reactivity Index (Davis, 1980) and an instrument to assess media empathy by Früh and Wünsch (2009), which included media concern, affective media empathy, cognitive media empathy, and immersion in video games, with items related to different types of media, as well as fictional and real people. Of all these instruments, only the Online Empathy Questionnaire (Marín-López et al., 2019) was used in relation to cyberbullying behavior.

Despite the valuable contributions in terms of the aforementioned instrument development and validity studies, and after a detailed analysis of the respective items, we found that the Empathy Quotient (EQ) by Baron-Cohen and Wheelwright (2004) would be appropriate to reach our objectives. Specifically, these authors defined empathy as "The drive or ability to attribute mental states to another person/animal and entails an appropriate affective response in the observer to the other person's mental state" (Baron-Cohen and Wheelwright, 2004, p. 168). The term "quocient" derives from the Latin word "quotiens" which means "how much" or "how many" (Baron-Cohen and Wheelwright, 2004, p. 166). According to this perspective (Baron-Cohen, 2011), that if individuals only focus on their own problems or interests, they are likely to feel less empathy. In fact, when individuals feel empathy, they are able to identify what others are thinking or feeling and are able to provide an adaptive emotional response. Thus, this view of empathy entails two fundamental stages: recognition and response. Accordingly, empathy occurs when there is recognition and an adaptive response, which helps avoid hurting others and fosters prosociality.

Some studies have provided evidence that the Empathy Quotient was the third most used instrument (e.g., Ilgunaite et al., 2017) and a recent a meta-analysis by Hall and Schwartz (2019) determined that it was the second most used instrument in research. For this investigation the aim was to choose an instrument that had been widely used and already validated for several countries (e.g., Redondo and Herrero-Fernández, 2018), but that also included items assessing accurate interpersonal perception (Hall and Schwartz, 2019), since it is an important feature when assessing empathy, specifically in the virtual contexts, as is the case with this study. Moreover, we preferred to adapt the short form of this questionnaire, which had already been developed by Wakabayashi et al. (2006), and adapted for the Portuguese population (Rodrigues et al., 2011). Our study provides an important contribution, since it proposes to adapt this last version of the instrument to a younger population and for online contexts.

### 1.1.3. Goals of the present work

Considering the literature reviewed, one of the main purposes of this study is to present and evaluate a new version of the Portuguese short form of the EQ for adolescents communicating online, entitled Empathy Quotient in Virtual Contexts (EQVC).

According to some of the literature, empathy can be developed over time (Gerdes et al., 2010) and may be considered a capacity (or ability), suggesting that individuals have the potential to empathize or not (Hall and Schwartz, 2019). In fact, in some circumstances, feeling empathy requires effort and cognitive costs, and therefore, individuals may avoid feeling empathy (Cameron et al., 2019). Thus, considering the specificities of the online environment and its consequences in interpersonal relationships, we felt the need to assess empathy that occurs specifically in virtual contexts. Moreover, empathy can be situation and context specific (Cameron et al., 2019) such as in cyberbullying situations. Nonetheless, despite the widespread consensus that empathy is predetermined by circumstances (Barlińska et al., 2013), none of the empathy definitions clearly state that empathy can decrease in some situations. That is, for example, in a bullying situation, an

individual might feel empathy, however, if a similar situation occurs online, the same individual might not feel the same degree of empathy. This is one of the reasons we opted to adapt an empathy instrument for online contexts, as it may be more difficult for individuals to feel empathy toward others in these digital environments (Pfetsch, 2017).

## 1.2. Assessing moral disengagement in cyberbullying situations

According to the Social Information Processing theory (Walther, 2015), the lack of nonverbal cues in many forms of computer-mediated communication (CMC) causes relational information to be exchanged more slowly. As a result, relationships develop more slowly *via* CMC than in face-to-face interactions, but eventually reaches equivalent levels of development (Walther, 1992). Moreover, the scarcity of social–emotional cues and the easiness of sharing media content may facilitate the use of certain MD mechanisms (Runions and Bak, 2015).

Before cyberbullying had been linked to MD (for a meta-analytic review see Zhao and Yu, 2021), Suler (2004) had already investigated some characteristics of the online world that impacted individuals' online actions. For instance, Suler (2004) argued that in cyberspace, people tended to say and do things that normally they would not in face-to-face interactions. Suler explained how dissociative anonymity, invisibility and asynchronicity facilitated online disinhibition. He also discussed other factors, however considering cyberbullying situations, those three seemed more important. Specifically, Suler defended that dissociative anonymity allowed people to distance themselves from their online behavior, which is one of the main principles that helps explain online disinhibition. Furthermore, the fact that it was possible to be invisible in online interactions also amplified the disinhibition effect because people did not worry about how they looked when they communicated online (Suler, 2004). Thus, considering that the virtual online world seems to be characterized by a degree of disinhibition (Suler, 2004), which is a crucial social environment for MD (Bandura et al., 1996), cyberbullying behavior will be more frequent for individuals with higher MD (Zhao and Yu, 2021). That is, the lack of emotional cues in online settings may result in dehumanization (i.e., depriving another person from human qualities; Bandura, 2002), whereas the ease with which young people share information online, may facilitate the diffusion and displacement of responsibility (distributing the responsibility for several individuals or attributing the responsibility to an authority; Bandura, 2002). Accordingly, ambiguous communication, which is common online, may provoke cyber aggression which is justified by the perceived blame of the other (Runions and Bak, 2015). Moreover, the same authors argued that young people are technologically more immersed, and media attention is increasing regarding extreme cases of cyberbullying. Hence, the relationship between online contexts and the use of MD mechanisms stresses the importance of assessing the construct in terms of specific behavior that occurs online, which in the case of this study, is cyberbullying behavior.

To our knowledge, few studies have accounted for MD in online settings. For instance, Paciello et al. (2020) found that online MD and offline MD were correlated, even though they were distinct constructs. Moreover, they found that depending on the degree of externalizing behavior, the importance of online and offline MD was different. Specifically, cyberbullying was only significantly related to online MD for low externalizing adolescents, whereas for medium externalizing behaviors, both online and offline MD were significant. For high externalizing participants, only offline MD was significant. Complementarily, Marín-López et al. (2020) found that online MD was generally higher for children who were involved in cyberbullying (specifically cyberbullies and cybervictims), when compared to those who were not.

Some instruments have already been developed to assess MD in cyberbullying context. One of the first measures of MD in cyberbullying situations was from Bussey et al. (2015), in which they reworded 8 items from the MD scale by Bandura et al. (1996). Later, Day and Lazuras (2016) developed the Cyberbullying-specific Moral Disengagement Questionnaire (CBMDQ-15) which is a 15-item scale based on thematic analysis of focus group interviews with undergraduate students, from where eight themes reflecting the MD mechanisms (Bandura, 1991) emerged. In recent years, two more questionnaires were developed. Marín-López et al. (2019) developed the Moral Disengagement through Technology Questionnaire, also based on Bandura et al. (1996) and adapted to online interactions. Additionally, Cuadrado-Gordillo and Fernández-Antelo (2019) combined two different questionnaires (Day and Lazuras, 2016; Meter and Bauman, 2018) and transform the different types of aggression to online contexts. More recently, Paciello et al. (2020) developed the Online Moral Disengagement scale referring to "online social settings and misbehavior" (Paciello et al., 2020, p. 191).

Despite the aforementioned instruments to assess MD in online interactions (e.g., Paciello et al., 2020) and cyberbullying situations (e.g., Bussey et al., 2015), we consider that the development of a new instrument would be beneficial to assess the construct as a process for the Portuguese population, rather than just an adaptation to the Portuguese language. The main objective was to develop an instrument that could capture adolescents' view regarding cyberbullying phenomenon, and MD as a process. That is, we intended to follow Bandura's (2002) Social Cognitive Theory, but we also aimed to complement this perspective with new information that participants may report regarding MD in cyberbullying situations. We consider this important because most instruments presented were only adaptations to online contexts, without considering adolescents' view of the phenomenon. Thus, this study also aims to present the new developed instrument to assess MD regarding cyberbullying situations (Process Moral Disengagement in Cyberbullying Inventory [PMDCI]), as well as to evaluate its psychometric properties.

## 1.3. Adolescents' perceived empathy online and moral disengagement in cyberbullying

Empathy is central for moral development (Cameron et al., 2019), as it can be an antecedent of moral attitudes (Hyde et al., 2010). Additionally, as empathy can be considered the base for more abstract moral concepts, as well as attitudes toward society, it is probably an antecedent of subsequent moral attitudes, such as MD. For example, Hyde et al. (2010) postulated that both MD and empathy share an element of disengagement, that is, MD is directed at society and its values, whereas empathy can be considered more person-specific. For instance, moral self-censure derives from how aggressors regard the individuals they harm, therefore, if they perceive another person as

human this can activate empathic reactions through perceived similarity (Bandura, 1992). Moreover, Francisco (2022) found that when spontaneously talking about fictitious cyberbullying scenarios, participants who tended to use less MD mechanisms to justify aggressors' and bystanders' cyberbullying behavior, showed more empathic responses. Thus, empathy and MD seem to be related, as they can be seen as opposite sides of the same coin, and therefore, highlighting the importance of a concerted work including empathy and MD, with the aim of increasing prosocial behavior online (Francisco, 2022). Moreover, MD and empathy are two relevant personal factors in cyberbullying bystanders' behavior. However, the relationship between the two constructs is not fully understood (Marín-López et al., 2020). Thus, taking this into account, and considering the virtual world and cyberbullying involvement, we propose that adolescents' perceived empathy regarding online contexts may be related to MD with cyberbullying situations.

It is known that gender can have an impact on several individual factors, such as empathy and MD. For example, Falla et al. (2021) found gender differences with respect to empathy and MD in relation to bullying. Specifically, the authors found that girls had higher scores on both cognitive and affective empathy, and that boys had higher scores on several MD mechanisms, such as cognitive restructuring, minimizing responsibility, distorting consequences and dehumanizing. Thus, considering these gender differences we argue whether gender can have an impact on the variables of this study. Therefore, we question: (1) Is there a relationship between Empathy in virtual contexts and MD related to cyberbullying situations? If so, how are these constructs related?; and (2) What is the role of gender in empathy in virtual contexts and MD in cyberbullying situations?

In order to reach our objectives and answer our research questions, we present three distinct studies. A first study explores the initial adaptation of the EQVC and the preliminary development of the PMDCI. A second study presents the exploratory psychometric evidence of the EQVC and the PMDCI, whereas a third study shows the confirmatory analyses of the instruments and a correlational study of the two constructs.

# 2. Study 1- Adaptation of the EQVC and preliminary development of the PMDCI

## 2.1. Method

### 2.1.1. Ethical aspects

For all the studies presented, authorization to complete the questionnaires in the online context was granted by the Ministry of Education of Portugal, the Portuguese National Commission of Data Protection, the Deontology Committee of the researchers' institution, the schools' boards of directors, the teachers, the parents and the adolescents themselves. Before the completion of the questionnaires, students were informed that psychological assistance was available if needed, considering the sensitivity of the subject in study. Additionally, students were informed that all information collected was anonymous and confidential and that they could quit at any time if they were not comfortable. This study was not preregistered. Further information regarding the initial adaptation and construction of the instruments, all items (Portuguese version), and additional information are available in the Supplementary material.

## 2.2. Initial adaptation of the EQVC

All the 22 items from the Portuguese version of the EQ short form were converted to the online context considering its specificities. Later, these items were compared to the original version in English, by a bilingual Portuguese-English teacher. Considering the different populations from the original version (i.e., adults) and ours, some modifications were made to simplify the items and make them more comprehensible for the adolescent population. Lastly, small changes were made considering students' feedback in the face validity session (see Supplementary Appendix A.1 and Supplementary Appendix Table A.1).

## 2.3. Initial construction of the PMDCI

### 2.3.1. Participants

Thirty-four 9th grade students (Mage = 14.29, SD = 0.72, 53% female) participated in an in-depth semi-structured interview with fictitious scenarios.

### 2.3.2. Procedure

A qualitative study was conducted to explore adolescents' MD in cyberbullying situations. In-depth semi-structured interviews with scenarios were conducted and *verbatim* transcribed. Later, we performed a content analysis with a mixed approach (deductive/inductive), based on the Social Cognitive Theory (Bandura, 2002). The coding units we established were adolescents' written verbalizations with meaning (Amado et al., 2014), summing a total of 396 verbalizations, which were analyzed. We performed an initial phase, where categories were created, and a re-checking phase, where a set of verbalizations were analyzed by two other researchers and adjustments were made to the operational definition of the categories. Finally, two independent coders rated the data. Inter-rater reliability was excellent, as mentioned in the literature (McGraw and Wong, 1996), with an ICC = 0.99, with a 95% confident interval = 0.99–0.99. From this analysis, the categorization process went beyond the Social Cognitive Theory. That is, several categories of MD mechanisms emerged from the analysis, as well as other attributions (Figure 1), both regarding aggressors' and bystanders' behavior from the scenarios (see Francisco et al., 2022 for a detailed description).

It is important to highlight that we considered MD as a process, since several mechanisms tend to be used before the aggression, during the behavior and after as consequents of the behavior, as presented in Figure 1. Thus, considering this novel approach, the qualitative data was the starting point of the development of the PMDCI because we sought to develop an instrument that could capture adolescents' beliefs and perspective of this phenomenon as accurately as possible. Hence, from the categories that emerged from the content analysis, we created the items for the PMDCI. All the procedures regarding scale development can be found in the Supplementary Appendix A.2.

## 2.4. Results

Study 1 allowed us to develop the EQVC and the PMDCI. The EQVC is composed of 22 items in Portuguese, for the adolescent population. The final items were translated into English, for the purpose of presenting this investigation (Supplementary Appendix Table A.8). As for the PMDCI, it was an instrument about the psychological mechanisms adolescents use to justify their

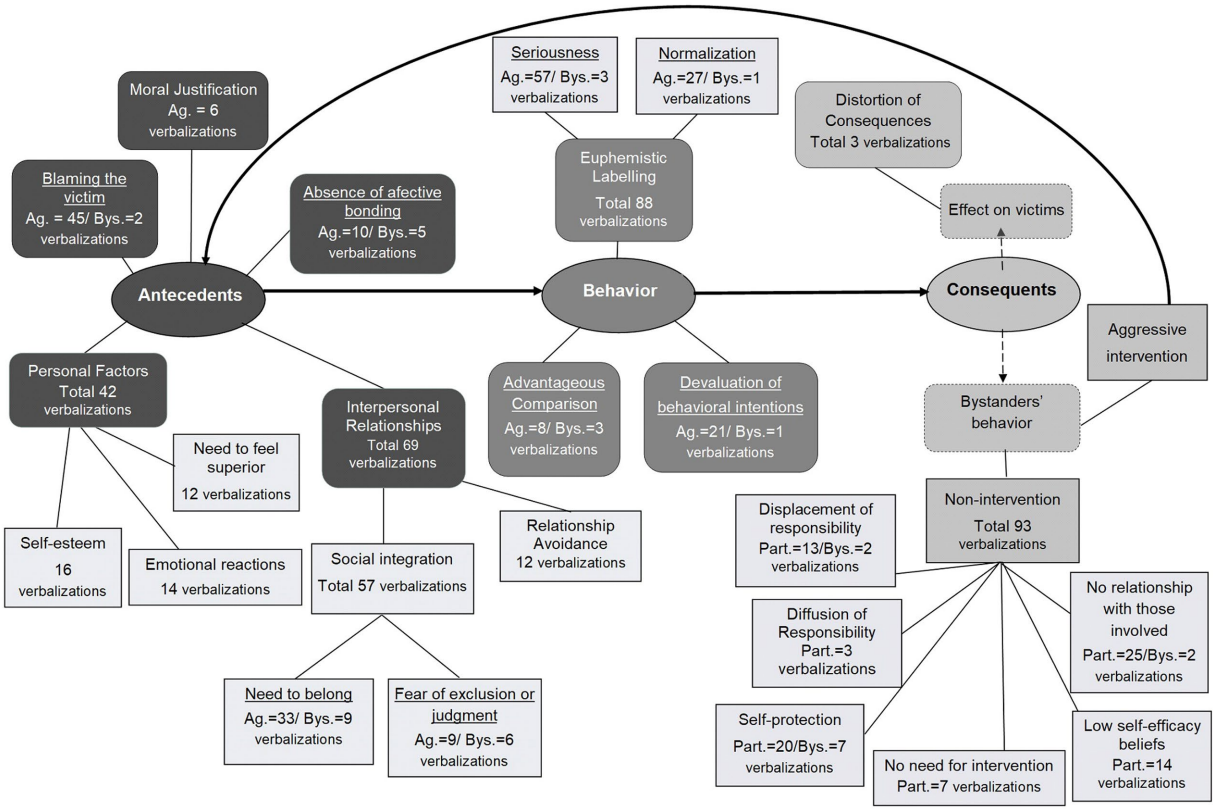


FIGURE 1
Procedural model of cyberbullying in the perspective of participants, as bystanders of the scenarios. Ag., aggressors' behavior; Bys., bystanders' behavior; Part., participants' bystanders behavior in the scenarios. From Francisco et al. (2022).

cyberbullying-related actions, in the perspective of possible aggressors and bystanders (Supplementary Appendix Tables A.2–A.6). The inventory begins with a brief introduction about adolescents' daily use of ICT. The PMDCI (Supplementary Appendix A.3) is also composed of two scales (the aggressor's and bystander's perspective), because when speaking freely about the cyberbullying scenarios, adolescents tended to use MD mechanisms to not only legitimize cyberbullies' actions, but also to approve cyber bystanders' aggressive behavior. The PMDCI also includes a Non-Intervention scale. However, for the purpose of this work, only the bystander scale was used, since it is part of a larger investigation that aims to improve bystanders' prosocial behavior online. The Bystander Scale of the PMDCI is composed of 36 items (24 regarding MD mechanisms, 3 regarding the devaluation of behavioral intention, and 9 items in the attribution category). All items were presented with a Likert scale from 1 (*totally disagree*) to 4 (*totally agree*).

# 3. Study 2 – Preliminary testing and exploratory psychometric evidence of the EQVC and 363 the PMDCI

## 3.1. Method

### 3.1.1. Participants

A total of 234 students participated in the exploratory factor analysis (EFA) study ($M_{age}$ = 13.24; $SD$ = 1.18; 51.7% girls), 35.9% of whom were in the 7th grade, 25.6% were in the 8th grade and 38.5% were in the 9th grade (Supplementary Appendix A.4). All 234 participated in the EFA of the EQVC and 230 participated in the EFA of the PMDCI.

### 3.1.2. Procedures

The new created version of EQ (EQVC) and the new developed instrument (PMDCI) were administered on-line in a classroom context, individually with the guidance of an educational psychologist. Students took approximately 40 minutes to complete both questionnaires. After the data gathering, EFA was conducted with FACTOR 10.10.02 (Ferrando and Lorenzo-Seva, 2017) to understand the factorial structure of both instruments. Specifically, we intended to explore if the EQVC yielded the same structure of the EQ-short form (Portuguese version), or if considering the new context and different population, the structure of the instrument would change. Regarding the PMDCI, since it was developed considering the four loci (i.e., Behavior, Agency, Outcome and Recipient) and the respective MD mechanisms, we intended to evaluate the best way to validate the instrument. That is, we were interested in understanding if the instrument should be considered as a single scale, or if it should be regarded as a questionnaire with different scales (i.e., one scale for each locus) involving the distinct locus of the MD.

## 3.2. Results

### 3.2.1. Exploratory evidence of the EQVC

In order to uncover the underlying structure of the EQVC, we performed an EFA (see Supplementary Appendix A.5 for more

TABLE 1 Proposed bi-factorial model parameters of the EQVC.

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | |
|---|---|---|---|---|---|---|---|---|
| Mardia's coefficient skewness | $78.41 < 22(22+2) = 528$ | | $54.56 < 19(19+2) = 329$ | | $78.81 < 22(22+2) = 528$ | | $52.78 < 19(19+2) = 329$ | |
| Mardia's coefficient kurtosis | $605.06 > 22(22+2) = 528$ | | $465.91 > 19(19+2) = 440$ | | $588.02 > 22(22+2) = 528$ | | $449.76 > 19(19+2) = 440$ | |
| Kaiser–Meyer–Olkin | 0.89 | | 0.90 | | 0.91 | | 0.92 | |
| Bartlett sphericity | $\chi^2_{231} = 2543.4$ ($p < 0.001$) | | $\chi^2_{171} = 2292.2$ ($p < 0.001$) | | $\chi^2_{231} = 2415.8$ ($p < 0.001$) | | $\chi^2_{171} = 2356.1$ ($p < 0.001$) | |
| % Explained variance | 48% | | 52% | | 51% | | 55% | |
| GFI | 0.98 | | 0.99 | | 0.99 | | 0.99 | |
| CFI | 1.00 | | 1.00 | | 1.00 | | 1.00 | |
| RMSR | 0.057 | | 0.055 | | 0.051 | | 0.049 | |
| RMSEA | 0.028 | | 0.032 | | 0.015 | | 0.018 | |
| α | 0.68 | 0.91 | 0.64 | 0.91 | 0.68 | 0.92 | 0.64 | 0.92 |
| ω (95%) | 0.68 [0.58, 0.74] | 0.91 [0.88, 0.93] | 0.64 [0.54, 0.72] | 0.91 [0.88, 0.93] | 0.68 [0.57, 0.74] | 0.92 [0.90, 0.94] | 0.63 [0.53, 0.72] | 0.92 [0.90, 0.94] |

α and ω were calculated for difficulty in empathizing and self-efficacy regarding empathy, in all models. ω is assessed with 95% confidence interval.

details). We present the correlations and descriptive statistics of all items, including skewness and kurtosis (Supplementary Appendix Table A.7). Regarding univariate normality, all variables were approximately normally distributed according to the literature, with skewness absolute values less than 2 and kurtosis absolute values less than 2 (George and Mallery, 2016). We also analyzed multivariate normality accordingly to Bollen and Long (1993), where multivariate normality is accepted if Mardia's coefficient is lower than P (P + 2), considering P the number of observed variables. Considering that the EQVC presented 22 observed variables, Mardia's coefficient for skewness of $78.41 < 22(22+2) = 528$ and for kurtosis is $605.06 > 22(22+2) = 528$. Moreover, as for the correlation matrix, we used polychoric correlations (Muthén and Kaplan, 1985; Brown, 2006) (Supplementary Appendix Table A.7). Furthermore, before proceeding to the EFA results, Kaiser–Meyer–Olkin (KMO) and Bartlett Sphericity were assessed. As for KMO it was 0.89 revealing sampling adequacy, and Bartlett Sphericity test was $\chi^2_{(231)} = 2543.4$ ($p < 0.001$), which indicated that we could proceed with factor analysis. In order to retain the appropriate number of factors we used Horn Parallel analyses (O'Connor, 2000). In the FACTOR program (Ferrando and Lorenzo-Seva, 2017) the Optimal Implementation of Parallel Analysis (Timmerman and Lorenzo-Seva, 2011) suggested that two factors should be extracted. We used the Unweighted Least Squares (ULS) method for factor extraction. Specifically, Robust Factor Analysis based on the Robust Unweighted Least Squares (RULS) was used to fit the factor solution. Robust Promin Rotation was used to achieve factor simplicity (Lorenzo-Seva and Ferrando, 2019). As according to the literature (Bandalos and Finney, 2010), we took into account all items with structure coefficients superior to 0.30, and no items revealed loadings greater than 0.40 on the two factors (Supplementary Appendix Table A.2). According to the literature (McDonald, 1999), goodness-of-fit values ($GFI = 0.98$) and ($AGFI = 0.98$), residuals statistics ($RMSR = 0.06$) were good. The EQVC presented 48% of the explained variance. We then compared the bi-factorial model to the unifactorial model (Supplementary Appendix A.6 and Supplementary Appendix Table A.9). Considering the results, we decided to keep the bi-factorial model since the percentage of explained variance was higher. Regarding reliability, McDonald's Omega (Hayes and Coutts, 2020) was also assessed for both factors: factor 1 presented $\omega = 0.68$, 95% CI [0.58, 0.74], showing acceptable reliability, and factor 2 presented $\omega = 0.91$, 95% CI [0.88, 0.93], with excellent reliability (Supplementary Appendix A.6).

Later, we conducted a Multidimensional Normal-ogive Graded Response Model (Reckase, 1985), whose parameters can be seen in Supplementary Appendix Table A.8, as well as the item loadings. This model presents a discrimination parameter ($a$), which is important in the preliminary adjustment of questionnaires and item selection (Matteucci and Stracqualursi, 2006). Most items revealed moderate item discrimination, however, items 1, 4, and 5 revealed low item discrimination, presenting values between 0.424 and 0.586, as indicated in the literature (Baker, 2001). Item discrimination reveals how well an item differentiates individuals scoring high and low on the latent ability being measured (Depaoli et al., 2018). Then, we performed the analysis again without items 1, 4, and 5 to see how the model change. Lastly, we had some participants with Weighted Mean-Squared Index larger than 2.0 (Ferrando et al., 2016), thus, these participants were removed and the analysis was performed again. Table 1 shows a comparison between 4 proposed EFA models: (1) with all participants and all items, (2) with all participants and without items 1, 4 and 5, (3) without infit/outfit participants and all items and (4) without infit/outfit participants and without items 1, 4, and 5.

The elimination of participants improved the % of explained variance (from 48 to 51%); the RMSEA and the RMSR were the fit indices that had better improvement. Moreover, the elimination of the 3 items improved the model essentially in terms of % explained variance (from 48 to 55%), and also the same indices as described above. Considering these improvements, we conducted Confirmatory Factor Analysis (CFA) with this structure.

### 3.2.2. Exploratory factor analysis of the PMDCI

With the aim of assessing the structure of the PMDCI, we performed an EFA with data from 230 participants to the 5 scales included in the questionnaire (4 scales regarding Loci of MD and 1 scale regarding Attributions for the cyberbullying behavior), considering the Bystanders' perspective (i.e., Bystander scale). We present the correlations and descriptive statistics of all items, including skewness and kurtosis (Supplementary Appendix Table A.10).

Regarding univariate normality, most of the variables were normally distributed, with skewness absolute values less than 2 (Bollen and Long, 1993), with the exception of the items from the Attribution Scale. Regarding kurtosis, all variables had less than 5 in

absolute value. With respect to multivariate normality, according to Bollen and Long (1993), it is accepted if Mardia's coefficient is lower than P(P + 2), considering P the number of observed variables. Moreover, as for the correlation matrix, we used polychoric correlations (Muthén and Kaplan, 1985; Brown, 2006). Furthermore, before proceeding to the EFA, Kaiser–Meyer–Olkin (KMO) and Bartlett Sphericity were assessed (Supplementary Appendix Table A.11). All scales had high KMO which revealed sampling adequacy, as well as a significant Bartlett Sphericity test, which indicates that we could proceed with factor analysis.

In order to retain the appropriate number of factors, we followed the same procedures used for the EQVC. Our EFA suggested that a single factor should be extracted of each scale of the PMDCI. As for the factor structure (Supplementary Appendix Table A.12), we took into account all items with structure coefficients superior than 0.30 (Bandalos and Finney, 2010). Regarding reliability, all scales reveal good internal consistency values (Supplementary Appendix Table A.11).

Regarding Explained Variance, all scales were above the minimum range, as according to the literature (Hair et al., 2014). As for the model fit indices, all scales presented satisfactory values of goodness-of-fit values and residuals statistics (Supplementary Appendix Table A.11), according to the literature (McDonald, 1999).

Later, we conducted a Multidimensional Normal-ogive Graded Response Model for unifactorial models (Samejima, 1969), whose parameters can be seen in Supplementary Appendix Table A.12, as well as the item loadings, for all the 5 scales. Considering the discrimination parameter values, it was concluded that all items from all scales revealed good discrimination (Baker, 2001), indicating that there was no need to remove items. Thus, we conducted CFA with the original structure of all 5 scales.

# 4. Study 3 – The confirmatory analyses of the instruments and a correlational study of the studied constructs

## 4.1. Method

### 4.1.1. Participants

For the CFA, our sample consisted of 345 students (*M*age = 13.13; *SD* = 1.27; 51% boys), 40.5% of whom were in the 7th grade, 27.1% in the 8th grade and 32.4% in the 9th grade. Most students were Portuguese (85.8%). All 345 participated in the CFA of the EQVC and 342 participated in the CFA of the PMDCI, as well as in the correlational study.

### 4.1.2. Procedures

Before proceeding to the CFA, univariate and multivariate normality of all scales were evaluated and the distributions were considered non-normal. This is consistent with the literature (Yuan and Bentler, 1998), since non-normality is prevalent in real data (Blanca et al., 2013) and it would dictate the possibilities in the data analysis, because structural equation modeling assumes the normality of latent variables (Bollen, 1989). Thus, several estimation methods were investigated and analyzed considering the nature of our data (for a detailed description see Supplementary Appendix A.7).

With this in mind, we attempted to analyze several estimation methods that could be applied to our data. As a way of summarizing our results, we only mentioned the ULS parameters in the text, as advised by Bollen (1989) because it does not make distributional assumptions regarding the observed variables. Moreover, the other estimation procedures are presented in the Supplementary Material and referred to when they are considered relevant.

For the CFA of the EQVC and PMDCI we used IBM, SPSS AMOS 24.0 (Arbuckle, 2019) and the *lavaan* package (Rosseel, 2012) in R Project (R Core Team, 2020). ULS and ML with Bollen-Stine Bootstrapping were conducted in AMOS, and ML with Satorra-Bentler correction and WLSMV were conducted using the *lavaan* package in R software. Several Fit Indices will be presented according to the different estimation methods (Supplementary Appendix A.7), and organized by their main classification. Considering that the covariance matrix might not be as asymptotically distributed as chi-square with the ULS method (Bollen, 1989), several statistics are not reported, such as the chi-square test and other fit indexes based on this statistic. Instead, we used the following fit indexes to ascertain the tested models: GFI, AGFI and PGFI (more information regarding Fit Indices are in the Supplementary Appendix A.9).

As for the correlational study, Spearman correlation coefficients were used to examine the relationship between the variables.

## 4.2. Results

### 4.2.1. Confirmatory factor analysis of the EQVC

We examined the multivariate normality and considering that the critical ratio for both skewness and kurtosis was outside the interval of [−1.96, +1.96] (Byrne, 2010), some procedures were made to account for the non-normal distribution of the data. Thus, first several multivariate outliers were removed, and multivariate normality was assessed again. However, the distribution was still non-normal.

We tested various possible models so as to confirm the initial structure of the EQVC suggested by the EFA with confirmatory factor analysis. We attempted to test a model with all participants and no covariances (model 1), a model without outliers and no covariances (model 2) and a model without outliers and with covariances (Supplementary Appendix Table A.13 and Supplementary Appendix Figure A.1) between the error terms (model 3). From the results presented, we chose model 3, which according to the literature (Jöreskog and Sörbom, 1984; Cole, 1987; Blunch, 2008) presented good reference values [$\chi^2(149) = 151.626$, $\chi^2/df = 0.793$, GFI = 0.969, AGFI = 0.961, SRMR = 0.054, NFI = 0.930, PGFI = 0.759, PNFI = 0.810].

Despite the good fit of the model, several relationships between each factor and corresponding items were lower than the cut-off value of 0.5, as suggested in the literature (e.g., Bandalos and Finney, 2010). All unstandardized path coefficients[1] were significant at $p < 0.05$, with the exception of item 3, which was equal to 0.05 (Supplementary Appendix Figure A.1). Moreover, the construct

1 Unstandardized path coefficients and corresponding significant statistics were not available for ULS, thus, we present values from the ML with Bollen-Stine Bootstrap.

TABLE 2 Validity measures of Model 3 from the EQVC.

| Factors | Cronbach's alpha | McDonald's omega | CR | AVE | ASV | MSV |
|---|---|---|---|---|---|---|
| Difficulties in empathizing | 0.44 | 0.45 [0.30–0.54] | 0.39 | 0.18 | 0.12 | 0.12 |
| Self-efficacy beliefs regarding empathy | 0.83 | 0.83 [0.79,0.86] | 0.83 | 0.26 | 0.12 | 0.12 |

CR, construct reliability; AVE, average variance extracted; ASV, average shared variance; MSV, mean shared variance.

reliability scores were low for the Difficulties in Empathizing and higher than 0.80 (Hair et al., 2014) for the Self-efficacy regarding Empathy (Table 2). Thus, the second factor presented good construct reliability; however, the first, which only has 4 items, revealed low reliability. Convergent validity was low for both factors since the Average Variance Extracted (AVE) scores were lower than 0.50 (Henseler et al., 2009). Nonetheless, the Average Shared Variance scores below the AVE scores (Hair et al., 2014) indicated good discriminant validity of both factors. Additionally, the simplified model also presented lower Modified Expected Cross-Validation Index (MECVI), indicating that it has better validity in the population we are studying (Marôco, 2014).

The bi-factorial structure that we found could be the result of reverse coding (Woods, 2006). Even though the factor Difficulties in Empathizing revealed low construct reliability, we decided to keep the bi-factorial structure, since this is a pilot study of an adapted instrument to online contexts, which is quite different from the offline environment. Nonetheless, further studies are required to better assess the EQVC, and to better understand if the bi-factorial structure results from reverse coding, or from the characteristics of online contexts.

### 4.2.2. Confirmatory factor analysis of the PMDCI

In order to confirm the initial structure suggested by the EFA of the scales from the PMDCI, various possible models were tested for the 5 scales (Supplementary Appendix Tables A.14–A.18). Hence, we attempted to test a model with all participants and no covariances (model 1), a model without outliers and no covariances (model 2) and a model without outliers and with covariances between the error terms (model 3).

Considering the *Locus Behavior* scale, the best model (model 3) presents several covariances between items (Supplementary Appendix Table A.14 and Supplementary Appendix Figure A.2). According to the literature (Jöreskog and Sörbom, 1984; Cole, 1987; Blunch, 2008), the factor model we opted for presented good reference values [$\chi^2(25) = 9.638$, $\chi^2/df = 0.386$, GFI = 0.991, AGFI =0.983, SRMR = 0.051, NFI = 0.975, PGFI =0.550, PNFI = 0.677].

As for the *Locus Agency* scale, model 3 which presents the covariances between two error terms of items (Supplementary Appendix Table A.15 and Supplementary Appendix Figure A.3) presented good reference values [$\chi^2(8) = 1.233$, $\chi^2/df = 0.154$, GFI = 0.997, AGFI =0.992, SRMR = 0.032, NFI = 0.987, PGFI =0.380, PNFI = 0.526], as according to the literature (Jöreskog and Sörbom, 1984; Cole, 1987; Blunch, 2008).

As for the *Locus Outcome* scale, we only assessed 2 models, since the Modification Indices did not indicate the need to covariate error terms of items (Supplementary Appendix Table A.16 and Supplementary Appendix Figure A.4), thus we only had model 1 with all participants, and model 2 without outliers. Model 2 presented good values [$\chi^2(9) = 0.904$, $\chi^2/df = 0.100$, GFI = 0.997, AGFI =0.993, SRMR = 0.028, NFI = 0.993, PGFI =0.427, PNFI = 0.596], as according to the literature (Jöreskog and Sörbom, 1984; Cole, 1987; Blunch, 2008). Nonetheless, Model 1 presented better validity in the population of study, since it has lower MECVI (Marôco, 2014).

Considering the *Locus Recipient* scale, model 3 presented the covariances between four error terms (Supplementary Appendix Table A.17 and Supplementary Appendix Figure A.5). According to the literature (Jöreskog and Sörbom, 1984; Cole, 1987; Blunch, 2008), the factor model we opted for presented good reference values [$\chi^2(7) = 6.366$, $\chi^2/df = 0.909$, GFI = 0.993, AGFI =0.979, SRMR = 0.042, NFI = 0.979, PGFI =0.331, PNFI = 0.457].

Finally, for the *Attribution scale*, model 3 presented the covariances between two error terms (Supplementary Appendix Table A.18 and Supplementary Appendix Figure A.6) revealed good reference values [$\chi^2(26) = 1.198$, $\chi^2/df = 0.046$, GFI = 0.992, AGFI =0.987, SRMR = 0.05, NFI =0.987, PGFI =0.573, PNFI = 0.713], according to the literature (Jöreskog and Sörbom, 1984; Cole, 1987; Blunch, 2008).

Despite the good fit of the selected models, PGFI did not present good values for all scales. It was below the cutoff of 0.6 (Blunch, 2008) in the Locus Agency, Outcome and Recipient and near the cutoff in the Locus Behavior and Attribution scale. Nonetheless, the other estimation procedures revealed good fit indices, supporting our model choice, as can be seen by comparing RMSEA and AIC. Also, all models chosen presented lower MECVI (Marôco, 2014), indicating better validity in the population of study, except for the Locus Outcome scale.

As can be seen in Supplementary Appendix Figures A.2–A.6, several relationships between each factor and corresponding items were lower than the cut-off value of 0.5 (Bandalos and Finney, 2010). Nevertheless, all unstandardized path coefficients were significant at $p < 0.05$. Moreover, the composite reliability scores ranged from 0.62 to 0.88, revealing medium to high construct reliability (Hair et al., 2014), as can be seen in Table 3. However, the AVE was low for Locus Behavior, Agency and Recipient and approximate of the 0.50 as indicated in the literature (Henseler et al., 2009) for Locus Outcome and Attributions. Thus, for the former scales, convergent validity was low, and for the later, convergent validity was almost adequate. Nonetheless, the Average Shared Variance (ASV) scores below the AVE scores (Hair et al., 2014) indicated good discriminant validity for all scales, except for Locus Outcome, of which the ASV could not be calculated, since this scale did not have correlation between error terms.

### 4.2.3. Correlational study

In this investigation, we found that empathy in online contexts appeared to be divided in two factors (i.e., Difficulties in Empathizing and Self-efficacy regarding Empathy), and that Moral Disengagement with respect to cyberbullying situations was composed of 4 different *loci*

TABLE 3 Validity measures of Model 3 for all scales from the PMDCI.

| Factors | Cronbach's alpha | McDonald's omega | CR | AVE | ASV | MSV |
|---|---|---|---|---|---|---|
| Locus behavior | 0.76 | 0.76 [0.71, 0.79] | 0.75 | 0.26 | 0.12 | 0.16 |
| Locus agency | 0.65 | 0.66 [0.57, 0.71] | 0.62 | 0.24 | 0.07 | 0.07 |
| Locus outcome | 0.77 | 0.78 [0.72, 0.82] | 0.80 | 0.42 | N/A | 0.00 |
| Locus recipient | 0.69 | 0.65 [0.54, 0.73] | 0.68 | 0.30 | 0.18 | 0.22 |
| Attributions | 0.88 | 0.89 [0.80, 0.93] | 0.88 | 0.45 | 0.10 | 0.10 |

CR, construct reliability; AVE, average variance extracted; ASV, average shared variance; MSV, mean shared variance. N/A, not available.

TABLE 4 Correlations between EQVC and PMDCI.

| Variable | Gender | Difficulties empathizing | Self-efficacy empathy | Attributions | Locus behavior | Locus agent | Locus outcome |
|---|---|---|---|---|---|---|---|
| Gender | – | | | | | | |
| Difficulties empathizing | −0.114* | – | | | | | |
| Self-efficacy empathy | −0.041 | −0.124* | – | | | | |
| Attributions | 0.223** | −0.135* | −0.072 | – | | | |
| Locus behavior | 0.174** | −0.072 | 0.000 | 0.410** | – | | |
| Locus agent | 0.226** | −0.169** | −0.075 | 0.234** | 0.294** | – | |
| Locus outcome | 0.136* | −0.218** | 0.033 | 0.363** | 0.580** | 0.277** | – |
| Locus recipient | 0.196** | −0.142** | 0.026 | 0.404** | 0.632** | 0.393** | 0.529** |

*$p < 0.05$, **$p < 0.01$.

(i.e., Behavior, Agency, Outcome and Recipient) and Attributions (for the definition of each scale/variable see Supplementary Appendix A.10). Thus, regarding the first research question, Difficulties in Empathizing was negatively and significantly correlated with Attributions ($r = -0.135$, $p < 0.05$) and 3 Locus of MD [Agent ($r = -0.169$, $p < 0.01$), Outcome ($r = -0.218$, $p < 0.01$), and Recipient ($r = -0.142$, $p < 0.01$)]. That is, the more difficulty participants had in empathizing, the less attributions and the three different Loci were used. However, with respect to self-efficacy in empathizing, it was not statistically significantly correlated with any variable. Considering the second research question, difficulties in empathizing was negatively and significantly correlated with gender ($r = -0.114$, $p < 0.05$), meaning that girls tended to have more difficulties in empathizing, and boys tended to have less. Additionally, gender was positively and significantly correlated with Attributions ($r = 0.223$, $p < 0.01$), Locus of Behavior ($r = 0.174$, $p < 0.01$), Locus of Agency ($r = 0.226$, $p < 0.01$), Locus of Outcome ($r = 0.136$, $p < 0.05$) and Locus of Recipient ($r = 0.196$, $p < 0.01$). This means that boys tended to use more attributions and MD Loci with regards to cyberbullying. Correlations can be found in Table 4.

# 5. Discussion

Although investigating cyberbullying is crucial, it is difficult to assess adolescents' view of this phenomenon since students tend to underrate their involvement (Francisco et al., 2015), which further demonstrates the importance of studying other related constructs, such as empathy and MD. That is, by understanding how these types of variables operate within the cyberbullying cycle, the more we are able to understand cyberbullying and its relationship with these variables. Thus, this investigation proposed a different perspective of these constructs, considering the specificities of the online world. Thus, we presented a preliminary study of two new instruments with respect to empathy and MD, considering that the characteristics of cyberspace can make right from wrong more difficult to distinguish (Marín-López et al., 2019), and have an impact on online interactions (Marín-López et al., 2020).

## 5.1. Empathy quotient in virtual contexts

Our proposed model of empathy in virtual contexts was highly distinct from the one initially proposed by Baron-Cohen and Wheelwright (2004) for face-to-face interactions. This was expected; since online contexts have some features that make feeling empathy difficult (Terry and Cain, 2016). Thus, instead of having three factors (i.e., cognitive empathy, emotional reactivity, and social skills) (Suler, 2004), EFA and CFA showed a bi-factorial structure. Therefore, the first factor refers to the difficulties in empathizing specifically in online contexts (by referring the term "difficulty" in most of the items) or not being able to understand something online. The second factor refers to self-efficacy beliefs regarding empathy, which according to Bandura (1997), refers to individuals' beliefs regarding their capacity to control their own behavior and the environment that surrounds them, and specifically in this case, with respect to empathy.

This structure shares some similarities with the Portuguese short form of the EQ, since the factor Difficulties in Empathizing has the same 6 items as the Empathic Difficulties. Even though, two items had to be eliminated because of low discrimination, the fact that other study (Rodrigues et al., 2011) found a factor with the same structure gave us some support for our two-dimensional structure. Despite the bi-factorial structure of the EQVC, which could be a direct

consequence of the reverse worded items, as well as careless respondents (Woods, 2006), if all the items of the first factor had already been aggregated together in other study (Rodrigues et al., 2011), we may suppose that they in fact, form a factor. Nonetheless, further investigation should be conducted, adding more (positively worded) items to this factor to reassess the bi-factorial structure and understand if it is specific to the online context.

As for the second factor, all items of Self-efficacy beliefs regarding Empathy refer to a capacity which is perceived by the participant (e.g., "I find it easy to put myself in someone else's shoes online"). According to Bandura (2001, p.10) efficacy beliefs are the foundation of human agency, therefore the perceived self-efficacy to accomplish goals is more important than the actual capacity. These beliefs are the driving force to act, despite the difficulties that may arise in the course of action (Bandura, 2001). Thus, in the context of online empathy, it is of major importance that adolescents feel that they can deal with those situations, specifically considering online features that hamper empathy. Moreover, this structure informed us that in online contexts the different components of empathy (i.e., cognitive empathy), are not as relevant as the easiness/difficulty in feeling empathy, as well as the self-efficacy beliefs related to it.

Considering the results from this investigation, with respect to the factorial structure and reliability values, it seems important to continue this work of improving this instrument on empathy in virtual contexts, in order to understand whether the structure holds if more items are included, or if the instrument is analyzed with a different population, for example. Moreover, it would be interesting to test model invariance, in order to understand if the instrument behaves differently regarding boys and girls, separately. This would be important to test, since empathy is usually higher for girls (Jolliffe and Farrington, 2006). Moreover, it would also be interesting to evaluate the convergent validity, with other measures of MD in online interaction, as well as to assess discriminant validity with measures of empathy in virtual contexts.

## 5.2. Process moral disengagement in cyberbullying situations questionnaire

As for MD, instruments to address it related to cyberbullying situations have begun to appear (e.g., Bussey et al., 2015), but research on this topic remains a current concern (e.g., Paciello et al., 2020). For example, Bussey et al. (2015) addressed this issue in a general sense (i.e., "Cyberbullying annoying classmates is just teaching them a lesson") or without specifying who the aggressor is (i.e., "If people give out their passwords to others, they deserve to be cyberbullied"). Items with this mixed approach made us question if the level of MD would be the same if participants put themselves in the place of aggressors or bystanders. Also, the qualitative research that led to the development of the instrument supported this idea, since adolescents did not use MD mechanisms only to legitimize cyberbullies' actions, but also to approve cyber bystanders' aggressive behavior (Francisco et al., 2022). Therefore, we decided to develop an instrument that could assess MD from the aggressors' and bystanders' perspectives. This distinctive feature allows us to understand the role of MD with respect to the aggressors' and bystanders' cyberbullying behavior, however, for the purpose of this study, only the bystander scale was analyzed.

With a different perspective, Marín-López et al. (2019) focused on Moral Justification, Diffusion of responsibility, Distortion of consequences and Attribution of blame. However, we wanted to capture the impact of MD mechanisms as a process. Thus, we chose to develop a measure that included all mechanisms, separated by locus, since the qualitative study showed that not all mechanisms have the same impact in explaining cyberbullying behavior (Francisco et al., 2022), and not all of them were mentioned (Figure 1). Moreover, for investigation purposes, some scales may prove to be more useful than others. Furthermore, we consider MD as a process; since this view provides a better understanding of how cyberbullying starts and how adolescents perpetuate this type of behavior, considering that some mechanisms may occur in specific timings of the cyberbullying cycle (Tillman et al., 2018).

Confirmatory Factor Analysis verified the unidimensionality of the five scales (i.e., 4 Locus and Attributions) of the Bystander perspective of the PMDCI. Future studies should evaluate the psychometric properties of the Aggressor's perspective and compare it to the Bystander's perspective. It would also be important to evaluate the convergent validity, with other measures of MD in online interaction, as well as to assess discriminant validity with measures of empathy in virtual contexts. Furthermore, it would also be very important, especially in terms of intervention, to understand if the role of the distinct loci differ according to different grade levels and participants' age, because it is known that MD increases over the years in high school (Smith and Slonje, 2010) and severe cyberbullying incidents peak during middle adolescence (Festl et al., 2017).

## 5.3. Empathy online and moral disengagement in cyberbullying

With respect to the relationship between both constructs, we believe that when students felt more difficulties in empathizing, the need to resort to MD mechanisms to decrease moral self-sanctions lessened (Bandura, 2002). However, this does not mean that they would not get involved in cyberbullying situations. That is, if they did enter the cyberbullying cycle, since they had difficulties in empathizing, they would not use MD mechanisms, because they did not feel that the situation could transgress their moral standards. Considering gender issues, girls felt more difficulties in empathizing probably because they needed more social cues to do so (Suler, 2004; Runions and Bak, 2015). Even though they generally scored higher on empathy (Baron-Cohen and Wheelwright, 2004; Carrier et al., 2015), ICT may have brought them more challenges, especially considering that empathy can be effortful (Cameron et al., 2019), they may perceive more difficulties in empathizing. With respect to MD, we were expecting positive significant correlations regarding gender, since boys tended to express significantly higher levels of moral justification, euphemistic labeling, diffusion of responsibility, distortion of consequences and blaming the victim than girls (Thornberg and Jungert, 2014).

## 5.4. Limitations and future directions

This study has some limitations, among them the convenience sample (Marín-López et al., 2020), sample size (Gerdes et al., 2010), and age of participants (Barlett et al., 2016), therefore we cannot generalize findings. Additionally, self-report instruments can lead to false reporting and social desirability (Thornberg and Jungert, 2014),

thus it would be interesting to compare adolescents' results to peer reports (Garaigordobil, 2015). Also, procedures of data collection may not establish validity of the data (Gerdes et al., 2010), thus, comparison with objective data collected from ecologically valid contexts, would be important. Moreover, test–retest reliability would be important to better assess the instruments (Redondo and Herrero-Fernández, 2018).

### 5.5. Implications for practice

In terms of implications for practice, we believe the EQVC may provide some clues for intervention regarding the promotion of empathy in online contexts. Specifically, it can help identify which areas may be more prone to evoke some difficulties in feeling empathy when interacting virtually. Moreover, considering the importance of self-efficacy in goals and expectations (Bandura, 2001), it seems of extreme importance to stimulate and develop self-efficacy specific to online interactions, as well as to empower children and adolescents, so they can be able to persevere when deciding to act against cyberbullying events. Regarding MD, as Bandura et al. (1996) argued, the different mechanisms seem to differ in their contribution to detrimental conduct, hence the PMDCI allowed us to understand which MD mechanisms could interfere more with justifying cyberbullying behavior, and therefore, be an in-depth resource for interventions. That is, by providing information about the most common mechanisms used, this inventory can inform researchers and practitioners about what type of intervention can be developed within a specific population. Consequently, future interventions could be more accurate in terms of psychological needs, as well as more focused and shorter. These features may be important considering the difficulties that are often encountered with respect to the time available to work with children and adolescents beyond the school schedule. We believe that these versions of the EQVC and the PMDCI are promising instruments that can be further improved, and can also be used with other Portuguese-speakers (i.e., from Brazil and Angola, for example), however cultural differences may emerge. Moreover, we believe that these instruments can also be translated and adapted to other countries. Finally, the two instruments that resulted from this investigation can make an important contribution to understand the complex nature of cyberbullying to improve prosocial behavior online.

## Data availability statement

The datasets presented in this article are not readily available because the Portuguese National Commission of Data Protection and the Deontology Committee of the researchers' institution do not allow the availability of the datasets. The data that supports the findings of this study are available in the Supplementary material of this article. Requests to access the datasets should be directed to sofifrancisco@gmail.com.

## Ethics statement

The studies involving human participants were reviewed and approved by Deontology Committee of the Faculty of Psychology University of Lisbon. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

## Author contributions

SF designed and executed the study, analyzed the data, and wrote the manuscript. PC assisted with the design, collaborated with the data analyses, and the writing of the study. AV assisted with the design, execution and writing of the study, collaborated with the editing of the final manuscript. NP assisted with writing and the editing of the final manuscript. All authors approved the final version of the manuscript for submission.

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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.2023.1061482/full#supplementary-material

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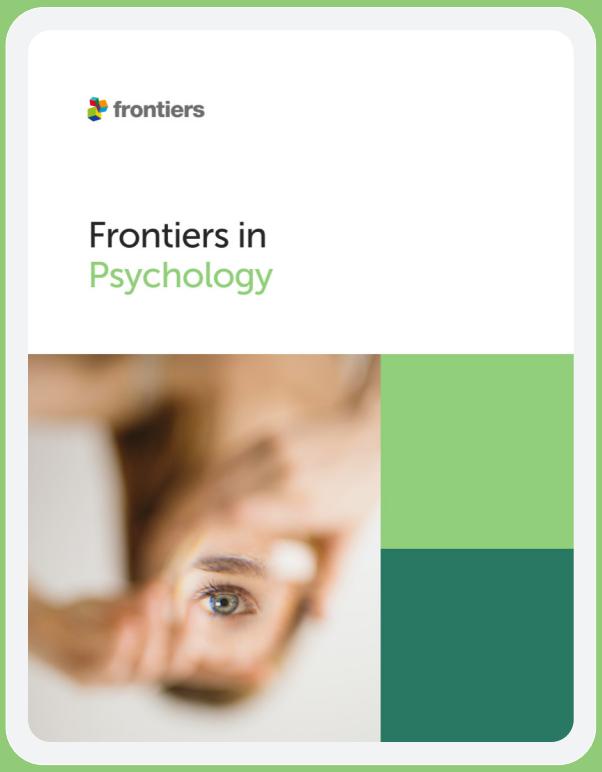


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