Culture and morality: things we value

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Culture and morality: things we value

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Editorial: Culture and morality: things we value

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KEYWORDS

culture, morality, value, WEIRD bias, independent self, moral clashes

Editorial on the Research Topic
Culture and morality: things we value

Back when the field of cultural psychology first emerged on the scene as a promising subfield within psychology several decades ago, value was the most obvious place to start (Hofstede, 2001). Of all the different ways a science could divvy up the nuances of human nature across people, places, and time, how individuals differed in their core convictions of what was important (and what wasn't) and of what was right (versus what was wrong) became powerful ways we could differentiate and understand them. People from the so-called West—or WEIRD (Western, Educated, Industrialized, Rich, and Democratic) countries at large, we now know—were individualists, concerned with the individual as a bound, stable, trait-bearing entity; those from the non-West (e.g., East Asia, South Asia, the Arab world, and Latin America) were much more collectivistic, putting group and relational concerns on par with personal ones (Henrich et al., 2010; Kitayama and Salvador, 2024).

Rethinking WEIRD biases in morality

Historically, culture and morality were largely conceptualized from a Western perspective: the moral subject was regarded as an independent self with the right to free choice, largely unrestrained by environmental and social demands, while the socially constructed nature of the self and the common good of community members were often ignored (Sandel, 1982/1998). Moreover, as the world at large moved from rural/traditional communities to more urban/modern societies, values on individual rights and free choice—and with these, individualistic and liberal moral foundations (e.g., care and fairness)—became more prized even as they clashed against the norms of social responsibility and conservative moral foundations (like loyalty and authority), which were frequently overlooked (Greenfield, 2009; Haidt, 2007). But with the advent of cultural psychology came increasing calls for research attention to alternative cultural norms and moral practices that took into account ecological systems and temporal variations.

In recent years, a growing body of research on ecological diversity (Oishi, 2014), social class (Grossmann and Varnum, 2011), religions (Cohen et al., 2016), and social change (Varnum and Grossmann, 2017) has updated our conception of culture to expand beyond merely race or ethnicity in order to make room for additional forms of culture. A number

of studies in this Research Topic "*Culture and morality: the things we value*" highlight the potent role of socioecological context (e.g., ethnicity, ideology, wealth) as macro-level predictors (Chen-Xia et al.; Grigoryev et al.; Taku and Arai; Tanaka et al.) and socioeconomic status as micro-level predictors of participants' behaviors (Hu et al.; Wu et al.; Zhang et al.), along with the role of the target being perceived (Lin et al.). Additionally, one of the most interesting aspects of culture—that also makes it more difficult to study and document—is its dynamic nature. Indeed, one of the newer topics of interest to cultural psychologists in recent years has been the issue of cultural change: what it looks like, when/where it happens, and how we can track it (e.g., Eriksson et al.).

Cultural variance vs. universality in morality

Alongside these developments within the field of cultural psychology, moral psychology has also shifted from merely documenting cultural differences in what we value to more mechanistic questions of how and why these variations exist. Cultural researchers have long argued that morality can be divided into three major domains: community code, autonomy code, and divinity code (e.g., Kollareth and Russell, 2007; Shweder et al., 1997). The community code involves people's responsibilities within specific groups and take into account forces like social class or status, interdependence, and perceived duties or obligations among group members. In contrast, the autonomy code views individuals as independent and self-governing agents who are mainly concerned with individual rights and social justice. The divinity code pertains to sacred orders and norms derived from religion, including concerns like the maintenance of purity when it comes to both body and soul. While Western moral psychology research has historically focused on the domain of autonomy when it comes to morality, cross-cultural studies have broadened the scope of moral psychology research to include these additional domains. Since its inception, Haidt (2007) further subdivided these original three moral codes into five moral foundations: Care/Harm, Fairness/Cheating, Loyalty/Betrayal, Authority/Subversion, and Purity/Degradation (Graham et al., 2011). However, recent works on moral foundations pointed to the lack of measurement invariance of the above five-factor model, especially in non-WEIRD societies (e.g., in Iran), and proposed a six-factor model of moral foundations in which equality and proportionality, as the distinct manifestations of fairness (with the former for societal wellbeing and the latter for social order), were taken into account (Atari et al., 2020, 2023).

As an illustrative example, consider the cross-cultural research on how East Asians and European-Americans differ when it comes to basic moral foundations. Compared to Westerners who more often categorized harmful behaviors (e.g., murder, discrimination) as immoral, Chinese individuals were more likely to deem uncivilized behaviors (e.g., disrespecting parents, making loud noises, promiscuous relationships) as immoral (Buchtel et al., 2015). Similarly, Wu et al. (2011) found that Chinese participants did not consider injustice to be a problem; instead, they believed that the world was generally just and orderly, despite experiencing

injustice themselves. In the face of others' suffering, Chinese participants (vs. Westerners) were less sensitive and less likely to stand up if they were not involved in some direct relationships (e.g., personal beneficiary, kinship or friendship) to the victim of unfair treatment (Wu et al., 2014; Nudelman et al., 2024). Taken together, these findings suggest that in contrast to the (presumed) universal moral norms of care and fairness that dominate morality in Western societies, Confucian cultures are more prone to take into account personal connections and face-saving as morally relevant forces.

Furthermore, research on religion and social class indicate that the morality of mental states and actions differs among different religions and socioeconomic backgrounds. For example, Cohen et al. have done several studies that demonstrate how Protestants pay more attention to thoughts about immoral actions than Jews, who instead feel that actions rather than thoughts determine one's moral standing (for a review, see: Cohen et al., 2016). In addition to these religious differences, socioeconomic differences also exist when it comes to moral judgments: relative to the working class, those from upper classes were more likely to engage in unethical behaviors and less likely to show empathy (including running red lights and aggressively driving at intersections; Kraus et al., 2010; Piff et al., 2012).

Not surprisingly, the breadth of research covered in the Research Topic reflects how far we have come and largely build on this existing literature of how culture, broadly defined, is a key force in dictating moral attitudes and beliefs. Some of this work reflect the continued effort to document existing differences between groups. This can be seen especially in response to global canon events like the COVID-19 pandemic. For example, when Taku and Arai tracked the rise of suicide ideation, they found that attitudes such as cherishing family and friends and value-congruence played a protective factor in Japan but a risk factor in the US during the COVID-19 pandemic. Along a related vein, Tanaka et al. examined differences between these two groups when it came to different forms of social support. They found that European Americans were more likely than Japanese to provide explicit support and more motivated to increase close others' self-esteem and feeling of connectedness, whereas Japanese individuals were more likely to provide attentiveness support, and were motivated by concern for their entire social groups. Likewise, class cultural dimensions like individualism-collectivism remained a potent predictor, such as predicting reactions to social norm transgressors in China vs. the U.K. (Chen-Xia et al.) and explaining the link between cultural identity and subjective wellbeing (Zhou et al.).

Interestingly, other studies in this Research Topic have found both evidence of cultural variance and universality, like when it comes to predicting people's protest responses to corrupt government practices across countries that vary in both levels of wealth and corruption (Grigoryev et al.). Still others collected data cross-culturally but did not focus on cultural differences per say and chose instead to highlight other mechanism variables like prior knowledge of a historical act of racial violence (Durham et al.). Additional studies have focused more on explanatory factors and mechanisms. Efforts to understand patriotism highlight the key role of gratitude through its impact on life satisfaction (Hu et al.). Other research covered here focus on group dynamics

more broadly, including social status and group-based competition, and how it relates to observer punishment (Lin et al.) and unethical behavior (Zhu et al.), as well as the contributing roles of emotion (e.g., envy) and cognition (e.g., belief in a just world).

Although it is beyond the scope of this Research Topic, it should nevertheless be noted that morality also has physiological, biological, and evolutionary foundations that may be universal in nature. For instance, many developmental (Hamlin et al., 2010) and evolutionary (Brosnan and de Waal, 2014) psychologists believe that morality is innate in children and even primates rather than the result of rational development (Bloom, 2013; de Waal and Suchak, 2010). In recent years, neuroscientists have explored the brain mechanisms of these types of moral behaviors and the process of gene-culture co-evolution. Much of this research suggests that moral cognition and emotions are, to some extent, also physiological and biochemical reactions (Suhler and Churchland, 2011).

Limitations and future directions

While we are proud of this Research Topic for its broad coverage of populations (e.g., Europeans, North Americans, Russians, Nigerians, Indian, and Chinese), cultural forms (e.g., race/ethnicity, social class, GDP), and research methods (e.g., cross-sectional surveys, longitudinal studies, experimental designs), there remains several limitations in this body of work on culture and morality. First, most of studies in this Research Topic were based on self-reported measures, with few studies, if any, tackling the implicit or unconscious learning of cultural norms and moralities. Second, despite the aforementioned rise of cultural and social neuroscience, none of the studies presented relied on neuroscientific methods despite their utility in providing insights into the mechanisms underlying cultural universality vs. variations. Third, studies on culture and morality often overlook the developmental trajectories over the lifespan, and the work presented here is no exception. Thus, we may be missing critical insights from childhood that contribute to the socialization of morality that may ultimately account for some of the cultural differences found in the studies presented here. Fourth, none of the existing research employed Big Data or artificial intelligence (AI) techniques, which may hold potential for analyzing large-scale behavioral patterns and predicting trends across diverse populations and species (e.g.,

humans vs. robots), especially in an era when an increasing number of human behaviors are shaped by social media (Van Bavel et al., 2024) and simulated by AI (Shanahan et al., 2023).

Lastly, none of the studies in this Research Topic touches upon the dark side of morality. Despite the contentious political era during which this Research Topic will be published, research on the moral clashes that drive social division, like those between liberal vs. conservative in the US (e.g., Graham et al., 2009) or those that threaten individual rights and liberties (e.g., Box-Steffensmeier et al., 2022), remain largely absent from this Research Topic.

Addressing these gaps could enhance our understanding of morality and facilitate the development of moral psychology to be more comprehensive in its theoretical and methodological frameworks. Therefore, future research should continue to tackle the WEIRD biases that have so long plagued psychology by examining culture and morality from the perspectives of diverse groups and ecological systems, taking into consideration both the long-standing forces of human evolution as well as the latest technological developments that may cast new insight into our understanding of good and evil.

Author contributions

MW: Conceptualization, Writing – original draft, Writing – review & editing. CM-K: Writing – original draft, Writing – review & editing, Conceptualization. TX: Writing – review & editing. YZ: Conceptualization, Writing – review & editing.

Conflict of interest

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

Publisher's note

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The impact of stereotype threat on endogenous poverty-elimination dynamics in generationally poor individuals

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Introduction: The study examines the impact of stereotype threat on generationally poor individuals and its effect on achievement motivation. It also explores the extent to which self-affirmation has an intervention effect on the negative impact of stereotype threat.

Methods and results: In Study 1, statements that contained negative stereotypes were used to elicit stereotype threat in generationally poor individuals; the results show that stereotype threat reduced the performance of generationally poor individuals in a mental-rotation task. Study 2 used a questionnaire to measure the endogenous dynamics of generationally poor individuals attempting to escape poverty after experiencing stereotype threat; participants in the stereotype-threat group showed lower-level endogenous poverty-elimination dynamics than those in the control group. In Study 3, a self-affirmation intervention was administered to the stereotype-threat group after the stereotype threat was induced. Participants in the self-affirmation group were shown to have higher-level endogenous poverty-elimination dynamics than those in the control group.

Discussion: These findings confirm the negative effect of stereotype threat on endogenous poverty-elimination dynamics and verify the effectiveness of self-affirmation in mitigating the negative effects of stereotype threat.

KEYWORDS

endogenous poverty-elimination dynamics, stereotype threat, generationally poor individuals, self-affirmation, intervention technique

1. Introduction

Franklin once said, "Poverty itself is not terrible, what is terrible is the thought that one is destined to be poor or that one must die of poverty." External factors act through internal factors. Endogenous poverty-elimination dynamics constitute a key psychological resource that can be indispensable in alleviating poverty among poor individuals. In the context of poverty alleviation in China, it is apparent that "endogenous dynamics" differ

from the "intrinsic motivation" referred to in self-determination theory in the Western psychological context (Deci and Ryan, 1985). Self-determination theory suggests that three basic psychological needs—autonomy, competence, and relatedness—are essential for an individual's psychological growth, internalization, and psychological wellbeing (Ryan and Deci, 2000, 2017). Only when an organizational environment satisfies these three basic psychological needs can individuals experience a sense of willingness, will, and choice in their work activities; enhance or maintain intrinsic motivation; and produce more consistently productive behavioral outcomes, while enhancing their physical and mental health (Gagné and Deci, 2005). Many poor people in China have lived for generations in isolated, slow-changing, and poverty-stricken areas. Individuals in such environments have little contact with the outside world and little awareness of their own poverty, which makes it difficult for them to generate enough autonomous (bottom-up) intrinsic motivation to escape poverty. According to self-determination theory, the pursuit of autonomy, competence, and relatedness derives from an intrinsic, fundamental aspect of human nature, unrelated to environmental influences or cultural upbringing. Specifically, intrinsic motivation in Western psychology is primarily a product of Western European and North American cultures, based on the specific assumptions and beliefs of Western researchers about human nature (Markus and Kitayama, 1998). These highly individualistic beliefs about independence, autonomy, and being separate from society are based on Judeo-Christian ideas regarding "good people." By contrast, in the context of China, poverty elimination is dominated by the central government's top-down poverty-reduction approach, which is based on collective power and wisdom. Thus, endogenous poverty-elimination dynamics, as a concept, is well-adapted to Chinese culture (Fu and Fu, 2020), which is typically associated with collective beliefs about individual morality, rights, and responsibilities (based on the collectivist beliefs of Confucianism).

Endogenous poverty-elimination dynamics can be categorized as a type of personality dynamics. It is important to note that an individual's ability to overcome poverty is not solely determined by a specific psychological trait, but also by the overall endogenous personality dynamics that motivates them. These endogenous dynamics serve as the driving force behind the behavior of impoverished individuals and consist of various psychological factors, such as values, self-concept, and behavioral tendencies (Fu et al., 2020). Through a series of studies conducted in the Chinese context, researchers have found that the "endogenous dynamics" of poverty alleviation are the individual's tendency to pursue poverty alleviation as a goal through personal striving, guided by a core value system (Fu and Fu, 2020; Fu et al., 2020). These endogenous dynamics consist of three internal factors, which are wrapped in layers that include core values, self-perception, and a behavioral tendency toward escaping poverty. In academic discourse in English-speaking countries, the term "Generationally Poor" usually refers to a condition of intergenerational poverty. This demographic is characterized by the persistent poverty across several successive generations within a family, which creates significant challenges in breaking free from the vicious cycle of poverty (Graves, 2017). Similarly, in Chinese academic circles, the term "Generationally Poor Individuals" (Fu et al., 2020) is frequently used to describe people whose families have experienced

poverty for three or more generations in research studies. They are characterized by low-level endogenous dynamics toward escaping poverty. Due to their long-term economic disadvantages, poor individuals are often labeled with negative stereotypes that are derogatory and insulting, such as "lazy" and "short-sighted." These stereotypes expose generationally poor people to rejection, discrimination, and ridicule. Although the resulting stereotype threat can cause intangible harm, few studies have addressed the stereotype threat experienced by this vulnerable group of generationally poor individuals. As a result, little is known about the impact of such situations.

One negative consequence of stereotype threat is a decreased level of motivation among individuals in the threatened domain (Cadaret et al., 2017). Endogenous poverty-elimination dynamics, as a personal dynamic associated with escaping poverty, is very similar to motivation. Thus, stereotype threat is likely to be its antecedent. No previous researchers have explored the antecedents of endogenous poverty-elimination dynamics among generationally poor individuals from a stereotype-threat perspective. Thus, the first question addressed in this study is: Does stereotype threat reduce endogenous poverty-elimination dynamics among generationally poor individuals? It is also worth asking which interventions can be used in this context. Self-affirmation has been proposed as an effective intervention for mitigating stereotype threat. First, self-affirmation can effectively mitigate the ego depletion caused by stereotype threat. Second, it can reduce the negative impact of stereotype threat on self-integrity by enabling people to view themselves and their resources in a more holistic way (Cohen and Sherman, 2014). As self-affirmation has been widely shown to mitigate the negative effects of stereotype threat (Sherman et al., 2013; Kinias and Sim, 2016; Hadden et al., 2020), the present study has selected this intervention.

In summary, this study investigates the impact of stereotype threat on endogenous poverty-elimination dynamics and the intervention effect of self-affirmation; it does this by inducing stereotype threat among individuals with generational poverty.

1.1. The impact of stereotype threat on endogenous poverty-elimination dynamics

Stereotype threat is a negative experiential process that occurs when an individual or group perceives a negative stereotype and is afraid of conforming to that stereotype (Steele and Aronson, 1995). It is essentially a pervasive self-evaluative threat, which varies in its nature and degree, depending on the group or situation involved. The threatened individual does not have to believe in the negative stereotype to experience threat; however, once created, negative stereotypes can be difficult to eliminate through disproof (Steele, 1997). In previous research, individuals threatened by negative stereotypes have shown reduced levels of motivation in the corresponding field. For example, stereotype threat can reduce women's motivation to major in engineering or pursue related careers (Cadaret et al., 2017). Among children, gender stereotypes reduce girls' motivation to study STEM subjects (science, technology, engineering, or mathematics) (Master, 2021).

According to Rahn et al. (2021), age stereotypes affect the social motivation of older adults, making them more likely to adopt social-avoidance strategies and potentially impacting their success in the work domain. In previous research, mental-rotation tasks have been used to examine stereotype-threat activation (Dunst et al., 2013), with some studies focusing on working memory as the explanatory mechanism (Rydell et al., 2010). Combined with the integrated process model of stereotype threat proposed by Schmader et al. (2008), stereotype-threat-related information has been shown to cause individuals living with generational poverty to feel pressured. In response, they monitor their behavioral performance consciously and suppress their negative emotions. As these processes take up a large amount of working memory, inadequate working-memory resources are left to deal with complex cognitive processes, causing poorer performance in mental-rotation tasks. Because mental-rotation task rely so heavily on working-memory capacity, the present study has used a mental-rotation task to examine the stereotype-threat effect.

Fu et al. (2019) observed that individuals who have experienced intergenerational poverty, defined as their families being in poverty for three or more generations, are subject to negative stereotypes related to their appearance, personality, behavioral habits, abilities, and interpersonal communication. Compared to other socio-economically disadvantaged groups, intergenerational poverty individuals have developed a more deeply entrenched poverty culture, which includes a heightened risk of stereotypes, due to the intergenerational transmission and accumulation of poverty. This seriously hinders their endogenous poverty-elimination dynamics. There are three reasons for this: first, stereotype threat is a type of social threat (Hirschberger et al., 2016) that can negatively affect individual self-efficacy (Cadaret et al., 2017), which reflects the extent to which individuals believe they can do something (Bundura, 1977). Lower levels of self-efficacy decrease the extent to which individuals are motivated to succeed, which then reduces their endogenous poverty-elimination dynamics. Second, stereotype threat may take up too much working memory, which could otherwise be used to deal with problems (Beilock et al., 2007); this can make it difficult for individuals to maintain their motivation levels. Third, stereotype threat can cause individuals to disidentify with a particular domain (Woodcock et al., 2012), reducing their motivation levels in that domain. Since endogenous poverty-elimination dynamics in China and intrinsic motivation in the West are both personality dynamics, stereotype threat is likely to have a negative impact on both, including endogenous poverty-elimination dynamics in generationally poor individuals.

1.2. The impact of self-affirmation on stereotype threat

Steele (1999) defined self-affirmation as a way in which individuals can affirm their self-worth in areas unrelated to stereotype threat in order to maintain self-integrity, i.e., the belief in themselves as good people. Self-affirmation reduces the defensive responses that people use to fend off threats. From the perspective of experimental manipulation, self-affirmation approaches can be categorized as positive feedback versus affirmation of core self-worth. They can also be categorized by content, as individual versus

group forms of self-affirmation. In a meta-analysis of stereotype-threat interventions, Liu et al. (2021) defined self-affirmation as an approach based on enhancing individual psychological resilience.

Self-affirmation is now widely used to counteract the effects of stereotype threat in areas such as STEM (Hadden et al., 2020), gender (Kinias and Sim, 2016), and race (Sherman et al., 2013). Hall et al. (2014) used self-affirmation to help low-income groups affected by stigmatizing labels, such as incompetence. They found that self-affirmation (achieved by verbalizing personal experiences) made the subjects feel successful and proud, reducing the stigma of poverty. Individuals who engaged in self-affirmation demonstrated better executive control than those who did not. The present study uses self-affirmation to mitigate the negative effects of stereotype threat on individuals living with generational poverty. The reasons for this are 2-fold: first, self-affirmation enables people to appreciate themselves and their resources while coping with the effects of stereotype threat. By allowing threatened individuals to view themselves more holistically and objectively, it diminishes the negative effects of threat on self-integrity (Cohen and Sherman, 2014). Self-affirmation also helps to reduce defensive responses to threats, such as denial, thus compensating to some extent for the ego depletion caused by stereotype threat (Badea and Sherman, 2019). The present study has therefore used self-affirmation as an intervention to mitigate the negative effects of stereotype threat.

In summary, generationally poor individuals are vulnerable to negative stereotypes imposed by other individuals and society in their daily lives. Those who are threatened by negative stereotypes tend to show lower levels of motivation in related areas and to have lower endogenous poverty-elimination dynamics than non-poor individuals. We therefore hypothesize that stereotype threat is one reason for the reduced endogenous poverty-elimination dynamics found among poor individuals. China researchers have also shown that stereotype threat has a higher level of ecological validity than implicit association tests in explaining bias because the terms used to convey negative stereotypes are more common in everyday life settings (Yu and Liang, 2005). The present study begins by using sentences containing negative-stereotype-related words to elicit stereotype threat in generationally poor individuals. It also uses a mental-rotation task that is commonly used to test stereotype threat, with changing response times in the mental-rotation task used to test induction validity. The study further explores the effect of stereotype threat on endogenous poverty-elimination dynamics in this group of individuals, while investigating the intervention effect of self-affirmation.

2. Study 1 inducing stereotype threat in generationally poor individuals

2.1. Purpose of the study

This study uses a mental-rotation task to elicit and test stereotype threat in generationally poor individuals. The experiment has the following two aims: first, to select vocabulary related to negative stereotypes of generationally poor individuals from the literature on endogenous poverty-elimination dynamics in poor individuals, and then to prepare statements to use in

stimulus materials to elicit stereotype threat; and second, to use a mental-rotation task to test stereotype-threat elicitation and its effects.

2.2. Material selection

Ten terms related to negative stereotypes of generationally poor individuals were selected from an article by Fu et al. (2020) on endogenous poverty-elimination dynamics. The negative stereotypes were as follows: being passive and afraid of difficulty, being lazy and unable to cope, have low self-esteem and negativity, being short-sighted, drifting along, being speculative and following others blindly, being weak-willed, being poor at communication, being snobbish or jealous, and lacking commitment. The scope of endogenous poverty-elimination dynamics included three main categories: values, self-perception, and behavioral tendencies to escape poverty.

The validity of these ten descriptive terms was rated using a 7-point scale (1 = very negative–7 = very positive). An online questionnaire was distributed on the Credamo platform and 50 valid questionnaires were obtained. The questionnaire data were processed and the mean score of each term was compared with the median value of four; a one-sample t-test was conducted and the test results are shown in Table 1. The verification process found that all mean scores were significantly smaller than the median value of four; in other words, all 10 terms had a significant degree of negativity. These results indicate that the selected materials could be used to induce the threat of negative stereotypes among individuals living with generational poverty.

The descriptive terms above were incorporated into complete declarative sentences as stimuli in the follow-up experiment, with each sentence including two elements: group affiliation and negative stereotypes, e.g., "People from poor families (group affiliation) are short-sighted (negative stereotype)." A total of 10 statements were obtained as material for the stereotype-threat group. The control group was matched with neutral statements of the same length, e.g., "Milliseconds constitute a common unit of time."

TABLE 1 Validity scores for negative stereotypes.

	M	SD	t	Cohen's d
Afraid of difficulty and passive	2.05	0.72	−18.95**	2.73
Too lazy to cope	1.86	0.73	−21.52**	3.06
Negative, with low self-esteem	2.72	0.73	−12.96**	1.86
Short-sighted	1.90	0.77	−20.06**	2.83
Drifting along	1.95	0.81	−18.31**	2.61
Speculative and following others blindly	2.62	0.68	−15.01**	2.13
Weak-willed	2.16	0.78	−17.42**	2.45
Poor at communication	3.06	0.65	−10.17**	1.45
Snobbish and jealous	1.64	0.69	−25.26**	3.61
Lacking commitment	2.46	0.65	−16.32**	2.33

**$p < 0.01$.

2.3. Research methods

2.3.1. Participants

The participants selected for this study all came from families in which three or more generations had lived in poverty. They were identified through the subsidies they received from government departments in Hainan Province, using the following evaluation criteria: (1) each family had a poverty certificate issued by a government department; (2) each family had been poor for three generations or more; (3) each family income was lower than the local minimum living standard in 2022.

Study 1 selected 120 generationally poor individuals as study participants and invited them to participate in the trial after obtaining their informed consent. Of these, 49 were males with a mean age of 33.69 years (SD = 1.33) and 71 were females with a mean age of 37.32 years (SD = 1.19). All participants were randomly assigned to either the stereotype-threat group (26 males and 34 females) or the control group (23 males and 37 females). The sample size was estimated using G*power 3.1.9.7. At a set alpha value of 0.05, the ability to achieve an effect size of 0.4 with 96.57% power with the sample in Study 1 indicated an adequate sample size.

2.3.2. Experimental design

The experiment was a single-factor between-subjects design, with the independent variable being stereotype threat (yes/no) and the dependent variable being the rate of change in response time (ms) in the mental-rotation task during the experimental phase.

2.3.3. Experimental procedures

Credamo's HBO (behavioral experiments) template was used to create the main experimental procedures, which consisted of practice and formal experiments. Two practice trials were conducted before the formal start, and participants had to practice and confirm their understanding of the experimental rules before entering the formal experiment. The formal experimental task was divided into two phases. The first phase was used to obtain the participants' baseline-level response times. The second phase was used to obtain the participants' post-stimulus response times. The experimental material was a pattern involving the Chinese characters "Xi" and "Xi" (flipped horizontally) following six angles of rotation (30, 90, 150, 210, 270, and 330°).

The experimental flow of the mental-rotation task is shown in Figure 1. Since the purpose of the first stage of the formal experimental task was to obtain the participants' baseline-level response times, the mental-rotation task was identical for both groups, and the patterns of "Xi" and "Xi" (flipped) were displayed in the top left- and top right-hand corners of the screen. The participants had to decide whether the target pattern that appeared in the middle was derived from the rotation of "Xi" or "Xi" (flipped), and to respond by pressing a key. Specifically, the "F" key was pressed for "Xi" and the "J" key for "Xi" (flipped). In the second stage, the mental-rotation task remained the same. Before the start of each trial, however, a stimulus statement appeared on the screen. The experimental group saw statements incorporating the ten negative stereotypes mentioned above, while the control group saw neutral expressions of the same length. After the statements disappeared, a mental-rotation target pattern
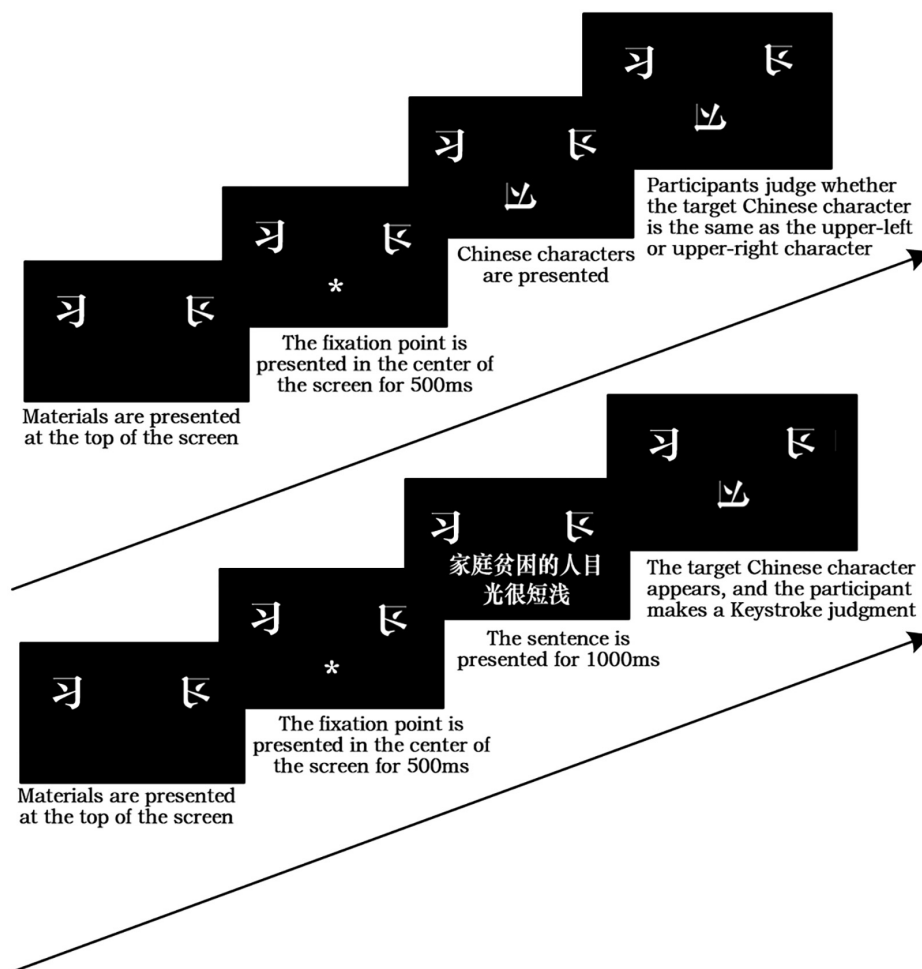
FIGURE 1
Schematic diagram of the experimental group's mental rotation task. *Representing the reminder to the participant that stimulus sentences will appear in this location.

appeared and the participants continued to perform keystroke responses. The participants' response times and accuracy rates were recorded. Following this, a number of demographic-related variables were collected from participants, including age, gender, and grade level.

The experiment was conducted in a secondary-school computer classroom in the participants' own township to ensure a consistent research experimental environment. During the study, the temperature, light, and order of the experimental environment were well controlled; the examiner clarified that participants were not allowed to talk or walk around freely during the experiment. A psychology assistant was responsible for allocating seats and distributing materials. Before the experiment began, the examiner introduced the test to all participants as a reaction-speed-related keystroke-response test and explained the rules. After the participants had completed the mental-rotation task, the true purpose of the experiment was explained to them. The entire experiment lasted approximately 15–20 min.

2.3.4. Analysis of results

To analyze the results and control for the effect of individual differences on the mental-rotation task, this study compared participant reaction times during the first and second phases of the formal experimental task (i.e., comparing the second-phase reaction time to the first-phase reaction time). The rate of change between reaction times differed significantly between the two groups of participants: $[F(1,118) = 4.51, p < 0.01, \eta^2 = 0.38]$. For participants in the stereotype-threat group, reaction times increased after the stimulus (0.21); for those in the control group, reaction times decreased after the stimulus (−0. 17). The different statements presented to the two groups caused different reaction times between the two groups: participants who encountered negative stereotypes during the second stage had a longer second-phase reaction time, while participants who encountered neutral statements had a shorter second-phase reaction time, as illustrated in Table 2.

2.3.5. Summary

Based on negative stereotypes associated with generationally poor individuals, Study 1 used a mental-rotation task to elicit and test the impact of stereotype threat and proved that this threat impacted the performance of generationally poor individuals in the mental-rotation task. In the experimental task, different phase-two statements led to a difference in phase-two reaction times between

TABLE 2 Reaction times at different stages of the mental rotation task in both groups of participants.

M (SD)	Before stimulation (ms)	After stimulation (ms)
Stereotype-threat group	2506.39 (942.13)	2932.97 (1079.87)
Control group	2666.02 (1085.11)	2062.49 (769.73)

the two groups of participants. Participants in the stereotype-threat group had an increased reaction time, while participants in the control group had a decreased reaction time. Participants in the experimental group experienced a significant increase in both their psychological and cognitive loads, due to the activation of the stereotype-threat effect. In other words, the negative stereotypes presented to participants induced a stereotype threat that interfered with their ability to complete the mental-rotation task and prevented their phase-two reaction times from decreasing. By contrast, participants in the control group experienced a decrease in reaction time after being stimulated with neutral statements, possibly due to the emergence of a practice effect, i.e., a decrease in reaction-time levels following a few repeated trials, which made the participants more proficient in the experimental procedure.

3. Study 2: Impact of stereotype threat on endogenous poverty-elimination dynamics

3.1. Purpose of the study

First, the extent to which the mental-rotation task effectively induced and activated stereotype threat was verified through repeated use of the mental-rotation task. Second, based on the successful and effective introduction of stereotype threat, the present study was able to explore its effect on endogenous poverty-elimination dynamics among generationally poor individuals.

3.2. Research hypothesis

The stereotype-threat group experienced lower-level endogenous dynamics for poverty elimination than the control group, which was not subjected to stereotype threat.

3.3. Research methods

3.3.1. Participants

Sixty generationally poor individuals were selected from a rural area in Hainan Province and invited to participate in the trial after providing their informed consent. There were 34 males and 26 females with a mean age of 31.89 years (SD = 1.23). All participants were randomly assigned to either the stereotype-threat group (12 males and 18 females) or the control group (22 males and 8 females).

3.3.2. Experimental design

A single-factor between-subjects design was used for the experiment. The independent variable was stereotype threat (yes/no), while the dependent variable was the rate of change in participants' mental rotation responses at the experimental-task stage, as well as their scores on the endogenous dynamics of poverty-elimination scale.

3.3.3. Experimental procedure

Stereotype-threat elicitation: Based on the mental-rotation task, combined with the method of eliciting negative stereotypes used in the previous study. The same elicitation method has been employed in different studies, where the reproducibility and validity of the method can be examined.

Measurement of the endogenous dynamics of poverty alleviation: the endogenous-dynamics scale of poverty elimination developed by Wu et al. (2021) was used to assess endogenous poverty-elimination dynamics among individuals living with generational poverty. The scale includes three categories: values, self-perception, and the behavioral tendency to escape poverty (among individuals living with generational poverty). It contains a total of 20 items, scored using a five-point scale, with responses ranging from 1 ("do not conform/agree at all") to 5 ("completely conform/agree"); the higher the total score, the stronger the endogenous poverty-elimination dynamics among individuals. The overall Cronbach's alpha coefficient was 0.94 for the endogenous-dynamics scale of poverty elimination used in this study. The Cronbach's alpha coefficients of the three categories of values, self-perception, and the behavioral tendency to escape poverty were 0.89, 0.82, and 0.82, respectively.

The present study was conducted in the same computer classroom as Study 1. To ensure a consistent research experimental environment, the researcher controlled the temperature, light, and order of the experimental environment; the main examiner also informed participants that they were not allowed to talk or walk around freely during the experiment. A psychology assistant was responsible for allocating seats and distributing materials. After randomly assigning all participants to one of two conditions, the main examiner introduced the test as a test of reaction speed and explained the rules. After the participants had completed the mental-rotation task, they completed the endogenous-dynamics scale of poverty elimination and added demographic variables, such as gender and age. At the end of the experiment, the main examiner explained clearly to participants the real purpose of the experiment. Each experimental session has a duration of approximately 15 to 20 min. The complete self-affirmation study spans a period of 10 days, during which participants in the experimental group are instructed to engage in self-affirmation once daily, while those in the control group are asked to narrate their daily experiences. The experimenter records daily progress throughout the study period.

3.3.4. Analysis of results

A comparison of the reaction times of the two groups of participants revealed a significant between-group difference, [$F(1,58) = 35.55$, $p < 0.01$, $\eta^2 = 0.37$], with an increased reaction time in the stereotype-threat group (0.18) and a decreased reaction

TABLE 3 Reaction times at different stages of the mental rotation task in both groups of participants.

M (SD)	Before stimulation (ms)	After stimulation (ms)
Stereotype-threat group	2537.59 (861.83)	2995.87 (1271.72)
Control group	2913.82 (1036.76)	2282.81 (787.52)

time in the control group (−0.20), as illustrated in Table 3. This proved that the stereotype-threat elicitation was effective.

The results of the data analysis of the endogenous dynamics of poverty-elimination scores showed little difference between the scores of the two groups of participants in the values category, [F(1,58) = 0.17, p = 0.693 > 0.05]; similarly, their self-perception scores were roughly the same, [F(1,58) = 3.86, p = 0.056 > 0.05]; in the behavioral-tendency-to-escape-poverty category, participants in the stereotype-threat group scored significantly lower than those in the control group, [F(1,58) = 4.38, p = 0.042 < 0.05, η^2 = 0.07]. Overall, participants in the stereotype-threat group scored significantly lower than those in the control group on endogenous poverty-elimination dynamics, [F(1,58) = 4.198, p = 0.046 < 0. 05, η^2 = 0.069], as illustrated in Table 4. The results of this study suggest that stereotype threat reduces endogenous poverty-elimination dynamics in generationally poor individuals, causing their behavioral-tendency-to-escape-from-poverty scores to fall. The results support the experimental hypothesis.

3.3.5. Summary

Stereotype threat makes people less motivated to perform well (Woodcock et al., 2012). In Study 2, stereotype-threat activation had a negative effect on endogenous poverty-elimination dynamics in generationally poor individuals. The life values of poor individuals are characterized by accepting fate, settling for the *status quo*, and drifting along (Fu et al., 2020). Such negative core values render endogenous poverty-elimination dynamics more susceptible to the negative effects of stereotype threat when people face a stereotype-threat situation. At the same time, poor individuals have low self-efficacy and are more likely to accept negative cues and to evaluate themselves negatively (Hadden et al., 2020). When situational cues include negative stereotypes, the resulting stereotype threat triggers negative self-assessment and self-integrity crises among generationally poor individuals, making them more vulnerable to the negative impact of stereotype threat on endogenous poverty-elimination dynamics.

4. Study 3 the impact of self-affirmation on endogenous poverty-elimination dynamics in generationally poor individuals

4.1. Purpose of the study

Based on the ability to mitigate stereotype threat through self-affirmation (Hadden et al., 2020), this study explored the intervention effect of self-affirmation by investigating differences caused by the presence or absence of self-affirmation in

endogenous poverty-elimination dynamics among generationally poor individuals, following activation of the stereotype-threat effect.

4.2. Research hypothesis

After a stereotype threat was activated, the self-affirmation intervention effectively mitigated the negative effects of stereotype threat on generationally poor individuals. This made the endogenous poverty-elimination dynamics higher in the self-affirmation group than in the control group.

4.3. Research methods

4.3.1. Participants

Sixty generationally poor individuals were selected from a rural area in Hainan Province and invited to participate in the trial after giving their informed consent. There were 24 males and 36 females with a mean age of 29.98 years (SD = 0.97). The participants were randomly assigned to either the self-affirmation group (10 males and 20 females) or to the control group (14 males and 16 females).

4.3.2. Experimental design

The experiment had a single-factor between-subjects design, where the independent variable was self-affirmation (yes/no) and the dependent variable was the score on the endogenous-dynamics scale of poverty elimination.

4.3.3. Experimental procedures

Like the previous study, this study elicited stereotype threat and measured endogenous poverty-elimination dynamics. The mental-rotation task, combined with negative stereotype descriptions, was used to elicit stereotype threat; the endogenous-dynamics scale of poverty elimination was used to measure the participants' endogenous poverty-elimination dynamics. The endogenous-dynamics scale of poverty elimination used in this study was the same as that in Study 2, with a Cronbach's alpha coefficient of 0.94 for the overall scale and 0.89, 0.82, and 0.82 for the three categories of values, self-perception, and behavioral tendency to escape poverty, respectively.

Self-affirmation was selected as a method previously used by Chinese researchers and easy for students to understand and implement (He, 2012); the participants achieved self-affirmation by evaluating their own interpersonal relationships and positive characteristics. Three questions asked participants to list and describe significant others in as much detail as possible and to recall pleasant experiences with them, e.g., "Please describe a past event that makes you feel proud and honored"; "Please think of a happy time with someone you are close to"; and "Please think of someone who has brought you growth." The other three questions asked participants to list and describe in detail as many of their own important and positive characteristics as possible: "Please recall one thing you have successfully accomplished"; "Please think of one or two of your own strengths or virtues"; and "Please give yourself three compliments." In the control group, participants were asked to recall and describe their experiences of the day: "Please recall

TABLE 4   Endogenous dynamics of poverty elimination in the two groups.

M (SD)	Total score for the endogenous dynamics of poverty elimination	Values	Self-perception	Behavioral tendency to escape poverty
Stereotype-threat group	3.81 (0.26)	4.06 (0.30)	3.71 (0.53)	3.45 (0.51)
Control group	3.98 (0.41)	4.11 (0.53)	4.01 (0.89)	3.71 (0.52)

TABLE 5   Endogenous dynamics scale for the poverty-elimination scores of both groups.

M (SD)	Total score for the endogenous dynamics of poverty elimination	Values	Self-perception	Behavioral tendency to escape poverty
Self-affirmation group	3.89 (0.27)	4.01 (0.46)	3.92 (0.48)	3.62 (0.59)
Control group	3.63 (0.29)	3.52 (0.27)	3.84 (0.58)	3.56 (0.58)

what you did this morning"; "Please describe what you have eaten over the past 24 h (by type or time)."

The experiment was conducted in a secondary-school computer classroom in the township where the research was carried out. First, all participants were subjected to stereotype-threat elicitation. Prior to the start of the mental-rotation task, the test was introduced to all participants as a response-speed test and the rules were explained. Next, all participants were randomly assigned to either the self-affirmation group or the control group, with one group answering self-affirmation questions and the other group daily-experience questions. When performing the self-affirmation, participants were asked to consider their own values carefully; this generally involved considering their own self-worth for 5–10 min, a more in-depth information-processing experience. Both groups of participants responded within the same time limit, after which their endogenous poverty-elimination dynamics were measured. At the end of the experiment, the main examiner explained the real purpose of the experiment and thanked the participants. The whole experiment lasted 15–20 min.

4.3.4. Analysis of results

The analysis of endogenous poverty-elimination dynamics showed an insignificant difference between the scores of the two groups of participants in the self-perception category, $[F(1,58) = 0.57, p = 0.458 > 0.05]$ and in the behavioral-tendency-to-escape-poverty category, $[F(1, 58) = 0.08, p = 0.81 > 0.05]$. In the value category, the self-affirmation-group scores were much higher than those of the control group, $[F(1,58) = 23.02, p < 0.01, \eta^2 = 0.29]$. Overall, participants in the self-affirmation group had significantly higher overall scores for the endogenous dynamics of poverty-elimination than those in the control group, $[F(1,58) = 4.47, p = 0.041 < 0.05, \eta^2 = 0.07]$, as illustrated in Table 5. This result also verifies the hypothesis.

4.3.5. Summary

Following the stereotype threat, participants who performed a self-affirmation showed much more improvement in their endogenous poverty-elimination dynamics than those who did not engage in self-affirmation. Self-affirmation was able to buffer or reduce the psychological threat to participants and reduce their defensive adaptation to the psychological threat, allowing them to focus more on the psychological-rotation task itself, rather than making defensive preparations for the stereotype-threat stimulus. Thus, participants who engaged in self-affirmation were

less hindered by the psychological threat and better able to organize their cognitive resources to meet the demands of the task at hand. Overall, the negative consequences of stereotype threat were attenuated through self-affirmation.

5. Discussion

5.1. Validity of stereotype-threat induction in generationally poor individuals

Mental-rotation tasks have often been used to investigate stereotype-threat activation; some studies have focused on working memory as an explanatory mechanism (Rydell et al., 2010). The present study has used negative stereotypes associated with generationally poor individuals to elicit and test the effects of stereotype threat *via* a mental-rotation task. The results show that stereotype threat affects the performance of generationally poor individuals in a mental-rotation task. In the experimental task, different stimulus statements were presented to two groups of participants. As a consequence, the control-group participants had a shorter reaction time during the second stage, while the stereotype-threat participants had a longer reaction time during the second stage after being stimulated with negative stereotypes. This can be explained using the integrated-process model proposed by Schmader et al. (2008), where stereotype-threat messages in the experiment caused generationally poor individuals to feel pressured and to consciously monitor their behavioral performance and to suppress the resulting negative emotions. As these processes occupied a large amount of working memory, individuals had insufficient resources left to deal with complex cognitive tasks and thus performed less well on the mental-rotation tasks.

5.2. Effects of stereotype threat on endogenous poverty-elimination dynamics in generationally poor individuals

Stereotype threat can easily trigger psychological disidentification from a domain, reducing the motivation to perform better in that domain (Woodcock et al., 2012). In the

present study, stereotype-threat activation had a negative effect on endogenous poverty-elimination dynamics among generationally poor individuals; the reduced endogenous poverty-elimination dynamics made them more likely to conform to negative stereotypes through their behavior. First, among the three main domains of endogenous poverty-elimination dynamics, the life values of poor individuals are specifically expressed as accepting fate, settling for the *status quo*, and drifting along (Fu et al., 2020). When people face a stereotype-threat situation, these negative core values undermine the intrinsic driving force that guides behavior designed to escape poverty. Second, in the self-perception category, poor individuals are characterized by low self-efficacy, accepting negative cues, and evaluating themselves negatively (Fu et al., 2020). When situational cues include negative stereotypes, the resulting stereotype threat triggers negative self-assessment and self-integrity crises among generationally poor individuals. These negative self-perceptions work together to validate the negative stereotypes in question. Finally, in stereotype-threat situations, individuals living with generational poverty lack strategies for coping with daily life tasks, goal setting, personal planning, and financial investment, due to their relatively low behavioral tendency to escape poverty (Fu et al., 2020); this further validates the corresponding negative stereotypes.

5.3. Intervening role of self-affirmation

Self-affirmation serves as an intervention tool to enhance self-value and increase positive self-concept, thereby mitigating the negative impact of stereotype threat. With regards to emotional experience, self-affirmation boosts an individual's sense of self-worth, providing a sense of security that "I am valuable" (Sherman and Kim, 2005). In terms of psychological coping, self-affirmation functions as a buffer against the impact of threatening information on self-value, reducing the challenging nature of the information, lowering the individual's defense level, and making them more receptive to threatening information (Sherman and Cohen, 2002; Correll et al., 2004). Stereotype threat can undermine an individual's self-integrity; events are threatening precisely because of their impact on self-integrity (Silverman and Cohen, 2014). When confronted with a specific threat, people can access psychosocial resources that transcend the specific threat and broaden their perspective, helping them assess the threat *via* self-affirmation in areas unrelated to the specific threat domain. This enables them to improve their performance in the negative-stereotype domain (Zhang et al., 2014). Individuals who engage in self-affirmation interventions are less hindered by psychological threats and better at organizing their cognitive resources to meet the demands of the task at hand. At the same time, self-affirming participants also pay more attention to the errors they make in cognitive tasks and are more willing to learn from their errors, rather than focusing on defensive preparations (Sherman and Cohen, 2006). In this study, the generationally poor individuals who engaged in self-affirmation had higher endogenous poverty-elimination dynamics than those who did not engage in self-affirmation, after being threatened by negative stereotypes. The self-affirmation intervention strategy is a series of exercises that enable people to demonstrate their adequacy or reflect their core personal values. Second, self-affirmation triggered self-evaluation

changes, which in turn affected self-perceptions, such as self-efficacy and self-regulation. For this reason, high levels of self-affirmation mitigate the negative effects of stereotype threats. Finally, participants reduced their fear of threats through self-affirmation, focusing instead on confronting and solving problems. They were thus more likely to think of better strategies for escaping poverty; they also had a higher propensity toward poverty-eradicating behaviors. This study combines an analysis of three categories of endogenous poverty-elimination dynamics among generationally poor individuals, showing that self-affirmation as an intervention can effectively mitigate the negative effects of stereotype threat.

5.4. Theoretical and practical implications

In its theoretical implications, this study enriches the psychological basis of poverty alleviation. At each decision-making point, the choice outcomes of poor individuals are influenced by both external and psychological resources, resulting from a combination of external and psychological resources (Fu and Huang, 2018). Of these, the external resources include natural, economic, social (interpersonal), family, educational, and psychological resources, including endogenous motivation. The combined lack of internal and external resources creates the difficulties that poor individuals face in trying to escape poverty. Although previous studies of poverty alleviation have focused on external resources, it is more important to help poor individuals alleviate poverty. Poor individuals lack endogenous poverty-elimination dynamics, a core psychological resource for eliminating poverty (Fu et al., 2020). Unlike previous family-related perspectives, this research on stereotype threats among generationally poor individuals provides a new perspective on the factors that affect endogenous poverty-elimination dynamics. Such factors are referred to as a "threat in the air," due to their universality and widespread and pervasive nature in everyday life (Steele, 1997). In discussing the impact of stereotype threat on individuals living with generational poverty, this study explores the impact of stereotype threats on endogenous poverty-elimination dynamics from the perspective of internal psychological resources—a perspective that has not been previously explored in the literature. This research therefore provides a more comprehensive understanding of the causes of endogenous poverty-elimination dynamics, providing practical and effective ideas and strategies for addressing related problems and enriching research in the field of stereotype threats and endogenous poverty-elimination dynamics.

In terms of practical implications, self-affirmation provides a simple and feasible intervention for psychological poverty alleviation. This study has examined the effectiveness of a self-affirmation intervention to combat stereotype threat through an experimental design, providing ideas for the practice of psychological poverty-alleviation, i.e., intervening with generationally poor individuals through self-affirmation to enhance their endogenous poverty-elimination dynamics. In addition, compared to other stereotype-threat interventions, the self-affirmation intervention used in this study is simple and easy

to understand. It can be introduced easily into real-life situations as well as being used in experimental studies.

5.5. Research limitations and future prospects

First, as participants came from a specific group, the sample selection had some limitations. Future studies should further explore the effectiveness of stereotype-threat elicitation methods by expanding the sample size or extending the study population. Second, this study is geared toward a short-term stereotype threat in a specific context. Future studies can further distinguish between the immediate and delayed effects of stereotype threat. Third, previous studies of stereotype-threat interventions have covered many other intervention strategies, including enhancing self-efficacy; future studies should consider other types of intervention strategies and explore their effectiveness. Finally, This study utilized laboratory methods to conduct research, which proficiently controlled for extraneous variables and bolstered the internal validity of the experiment. Nevertheless, this approach may engender a diminution in ecological validity. Hence, we intend to execute field experiments in actual environmental settings to further corroborate our research hypotheses.

6. Conclusion

This study explores the effects of stereotype threat on endogenous poverty-elimination dynamics in generationally poor individuals; it also investigates the effectiveness of a self-affirmation intervention. The results indicate that (1) stereotype threat can be elicited in generationally poor individuals and tested through a combination of relevant negative stereotypes and a mental-rotation task; (2) the presence of a stereotype threat reduces endogenous poverty-elimination dynamics in generationally poor individuals; and (3) self-affirmation interventions can mitigate the negative effects of a stereotype threat on endogenous poverty-elimination dynamics in generationally poor individuals.

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 Hainan University Institutional Review Board. The patients/participants provided their written informed consent to participate in this study.

Author contributions

NW, AF, and YL contributed to the conception and the design of the work as well as the preparation of the draft. NW and TY contributed to the analysis and interpretation of the data. JL, XW, and XH critically reviewed and contributed important intellectual input. All authors contributed to the article and approved the submitted version.

Funding

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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Does subjective socioeconomic status moderate the effect of basic psychological need satisfaction on undergraduates' affective forecasting?

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Affective forecasts are people's predictions of their future feelings in response to future events. In this study, based on the self-determination theory (SDT), we examined whether satisfying basic psychological needs influence undergraduates' affective forecasting and the moderating role of subjective socioeconomic status (SES). With a total of 423 undergraduate participants (177 males, 246 females), through one pilot study and three experiments, we first manipulated participants' basic psychological need satisfaction, i.e., autonomy need satisfaction (study 1), competence need satisfaction (study 2), and relatedness need satisfaction (study 3), then we asked low-SES and high-SES participants, respectively, to predict the pleasantness of a particular new product and evaluated the actual experience with the product. Results showed that the effect of basic psychological need on affective forecasting was not significant. When the need for autonomy need and competence need was satisfied, the impact bias was greater for the high SES than the low SES. Conversely, when the relatedness need was satisfied, the impact bias was greater for the low SES than the high SES. In conclusion, subjective SES moderated the influence of basic psychological needs satisfaction on increasing the impact bias in affective forecasting.

1. Introduction

People often want to know whether the things they are pursuing would make them happy or not. The ability to imagine possible future events allows people to anticipate the future hedonic consequences of decisions made in the here and now which is also known as affective forecasting. Affective forecasts are people's predictions of their future feelings in response to future events (Suddendorf and Busby, 2005; Gilbert and Wilson, 2007; Flynn et al., 2020). Affective forecasting plays a key role in guiding emotion

regulation and decision-making (Loewenstein and Angner, 2003; Fellows, 2004; Lam et al., 2005; Kahneman, 2011). Therefore, it is important to understand whether people would make accurate affect forecasts.

A large number of studies have found that people are not capable of successfully predicting the duration and intensity of their emotional response to future events (Gilbert et al., 2004; Brown and McConnell, 2011; Morewedge and Buechel, 2013; Mata et al., 2018; Barber et al., 2023). People frequently overestimate how happy they will be after positive events and how sad they will feel after negative ones, which has been named the impact bias (Wilson et al., 2000; Wilson and Gilbert, 2003).

Previous research found some factors influencing affective forecasting, such as focusing illusion, i.e., people focus too much on the occurrence of the focal event and fail to consider the consequences of other events that are likely to occur (Wilson et al., 2000; Wilson and Gilbert, 2005; Lench et al., 2011), immune neglect, i.e., the tendency to overlook coping strategies and other aspects of the "psychological immune system" that can reduce future distress (Gilbert et al., 1998; Diener et al., 2006), aging (Barber et al., 2023), and motivation (Morewedge and Buechel, 2013; Pauketat et al., 2016; Geng and Jiang, 2017; Geng et al., 2018). However, based on our knowledge, few studies shed light on the influence of basic psychological needs (BPNS) on affective forecasting. In the present research, we addressed the influence of BPNS on affective forecasting by examining whether subjective socioeconomic status (SES) moderates this effect.

1.1. The relations between BPNS and affective forecasting

According to self-determination theory (SDT; Deci and Ryan, 2000), the satisfaction of three basic psychological needs fosters individual growth and wellbeing. Autonomy need refers to individuals taking actions on the basis of their internal self, which is essential for self-motivation and self-regulation (Deci and and Flaste, 1995). The need for autonomy is fulfilled by perceiving that one's activities are endorsed by or congruent with the self. Meanwhile, competence need entails believing in one's ability to control behaviors (Senécal et al., 2000). The need for competence is fulfilled by the experience that one can effectively bring about his/her desired effects and outcomes. Relatedness need refers to the need to love and be loved (Deci and and Flaste, 1995). The need for relatedness is fulfilled by feeling that one is close and connected to his/her significant others. The SDT posits that the fulfillment of these three needs is an essential criterion for optimal psychological functioning and wellbeing (Ryan et al., 2008). Compelling evidence shows that greater satisfaction with the needs for competence, autonomy, and relatedness is directly associated with intrinsic motivation and positive emotions in different contexts (e.g., Tang et al., 2020; Stanley et al., 2021). For example, a recent meta-analysis has shown positive associations between work-related need satisfaction and employee wellbeing (Van den Broeck et al., 2016). Based on these literature, we proposed that basic psychological needs satisfaction would also increase affective forecasting.

1.2. The moderating role of subjective SES

Although self-determination theory suggests that the three basic psychological needs (BPNS) are equivalent with regard to their importance for psychosocial functioning, individual differences in the need strength of the three basic psychological needs exist (Ryan and Deci, 2000). More recently, it has been forwarded that the existence of individual differences in need strength as moderators of relations between BPNS and outcomes (Van Hooff and De Pater, 2019; Wörtler et al., 2020).

Socioeconomic status (SES) is one of those factors which might lead to differences in the need strength of the three basic psychological needs. SES can be divided into two categories, i.e., objective SES and subjective SES. Objective SES measures an individual's financial resources, access to educational opportunities, and participation in social institutions (Oakes and Rossi, 2003). Subjective SES assesses social class rank relative to other members of the same university, community, or country, which usually is measured by the MacArthur Scale of subjective SES (Goodman et al., 2001), in which participants mark one of the 10 rungs on a ladder to indicate their own SES rank relative to comparison individuals. Previous studies (Kraus and Stephens, 2012) showed that subjective SES was more predictable for human behavior than objective SES. Therefore, we used subjective SES in the current research.

According to Stephens et al. (2014), individuals with the high SES tend to reflect and promote cultural norms of expressive independence, i.e., having independent selves, whereas those with the low SES tend to reflect and uphold the norms of hard interdependence, i.e., having interdependent selves. Individuals of high SES have a strong sense of control over their own lives (Markus and Kitayama, 1991; Lachman and Weaver, 1998; Johnson and Krueger, 2006), while low-SES individuals rely on good interpersonal relationships to obtain abundant social resources (Piff et al., 2010). Higher SES individuals tend to offer dispositional explanations of various social outcomes, while lower SES individuals tend to offer contextual explanations of social outcomes (Kraus et al., 2009). Thus, high-SES individuals may attach more importance to autonomy need and competence need than those in low SES. In contrast, individuals in the low SES may attach more importance to relatedness need than those in the high SES. In other words, individuals with high and low SES may be different in the need strength of three basic psychological needs. Specifically, high-SES individuals have higher need strength of competence and autonomy needs, whereas low-SES individuals have higher need strength of relatedness need.

Therefore, we propose that subjective SES would moderate the effect of basic psychological need satisfaction on affective forecasting. In specific, when autonomy need/competence need is satisfied, high-SES individuals would overestimate their affective experience on products that are related to autonomy need/competence need more than low-SES individuals, i.e., show greater impact bias on the product. In contrast, when relatedness need is satisfied, low-SES individuals would overestimate their affective experience on products that are related to relatedness need more than high-SES individuals, i.e., show greater impact bias on the product.

1.3. The current research

Our primary objective was to show that the predicted relations between BPNS and affective forecasting would vary as a function of undergraduates' subjective SES. Specifically, when the autonomy need/competence need was satisfied, high-SES undergraduates would show greater impact bias in affective forecasting than low-SES undergraduates; conversely, when the relatedness need was satisfied, low-SES individuals would show greater impact bias in affective forecasting than high-SES individuals.

To achieve this objective, we have conducted four studies. First, in the pilot study, we tested the relative importance of three basic psychological needs for high-SES individuals and low-SES individuals, respectively. Then, we examined the interactive effect of basic psychological need satisfaction and SES on affective forecasting through three studies. In the pilot study, we expected that high-SES individuals attached more importance to competence need and autonomy need than low-SES individuals, whereas low-SES individuals attached more importance to relatedness need than high-SES undergraduates.

In three experiments, we examined the effect of autonomy need fulfillment (experiment 1), competence need fulfillment (experiment 2), and relatedness need fulfillment (experiment 3) on the impact bias of the low-SES individuals and high-SES individuals, respectively. We expected that when autonomy need/competence need was satisfied, high-SES undergraduates would overestimate their affective experience on products that are related to autonomy need/competence need more than low-SES undergraduates. In contrast, when relatedness need was satisfied, low-SES individuals would overestimate their affective experience on products that are related to relatedness need more than high-SES individuals. The project was reviewed and approved by the Academic Ethics Committee of the School of Education at the University before being conducted.

2. Pilot study: the relative importance of three basic psychological needs for high-SES and low-SES individuals, respectively

The goal of the present study was to examine the relative importance of three basic psychological needs for high-SES individuals and low-SES individuals, respectively. According to the self-determination theory, psychological needs have three basic types, i.e., need for autonomy, competence, and relatedness (Deci and Ryan, 2000). However, the relative importance of the three basic needs may be different for the low SES and the high SES, respectively. Therefore, in this pilot experiment, the task of dividing the circular area was used to explore the relative importance of the three basic psychological needs for the low SES and the high SES, respectively.

2.1. Methods

2.1.1. Participants

For the study, 63 college students (30 males and 33 females, $M_{age} = 21.73$ years, $SD = 1.86$) were selected as participants from a university in China.

2.1.2. Design and procedure

First, SES was manipulated. Participants were randomly assigned to complete a low or high-SES manipulation (Kraus et al., 2010; Piff et al., 2012), in which they were shown an image of a ladder consisting of 10 rungs and asked to either make a direct comparison between themselves and people who are relatively better off (low-SES condition) or worse off (high-SES condition). According to Cheon and Hong (2017), participants were provided with the following instructions:

> Think of this ladder as representing where people stand in China. Now, please compare yourself to the people at the very bottom (top) of the ladder. These are the people who are the worst (best) off—those who have the least (most) money, least (most) education, and least (most) respected jobs. In particular, we'd like you to think about how YOU ARE DIFFERENT FROM THESE PEOPLE in terms of your own income, educational history, and job status. Where would you place yourself on this ladder relative to these people at the very bottom (top)? Please select the number that corresponds to the rung where you think you stand in relation to these people.

To strengthen the SES manipulation effect, after selecting a rung, participants were then instructed to write a description of what it would be like to have an interaction with the person they had just compared themselves with. Participants were provided with the following instructions:

> Now imagine yourself in a getting acquainted interaction with one of the people you just thought about from the very bottom (top) of the ladder. Think about how the DIFFERENCES BETWEEN YOU might impact what you would talk about, how the interaction is likely to go, and what you and the other person might say to each other. Please write a brief description about how you think this interaction would go.

Then, to test whether the manipulation of SES was successful, participants were also asked to complete the MacArthur Scale of subjective SES (Goodman et al., 2001), in which participants marked one of the 10 rungs on a ladder to indicate their own SES rank. The self-reported MacArthur Scale scores of low-SES condition and high-SES condition were compared and found there was a significant difference between participants in low-SES condition and high-SES condition, $M_{highSES} = 5.10$, $SD = 1.74$, $M_{lowSES} = 3.84$, $SD = 1.82$, $t(61) = 2.80$, 95% CI [0.36, 2.14], $p < 0.01$, and $d = 0.72$, which indicated

that the manipulation of the subjective SES in the pilot study was successful.

Finally, to measure the relative importance of basic psychological needs, the participants were first introduced to the definitions of three basic psychological needs, i.e., "Autonomy need refers to individuals taking actions on the basis of their internal self; competence need entails believing in one's ability to control behaviors; relatedness need refers to the need to love and be loved," and then asked to divide the area of a circle of 12.56 square centimeters into three pieces, just like cutting a cake into three pieces with each piece representing one basic psychological need, according to the relative importance of the three needs to themselves. A larger area of a certain basic psychological need entailed that this need was more important than the others.

2.2. Results

To test the differences in importance among the three basic psychological needs for the high SES and the low SES, independent sample T-tests were conducted. From Figure 1, we can see that for autonomy need, high SES individuals attached more importance than those in the low SES ($M_{highSES} = 4.66$, $SD = 1.51$, $M_{lowSES} = 3.89$, $SD = 1.53$, $t(61) = 2.01$, 95% CI [0.01, 1.54], $p = 0.04$, $d = 0.52$); for competence need, high-SES individuals attached more importance than those in the low SES ($M_{highSES} = 4.64$, $SD = 1.29$, $M_{lowSES} = 3.84$, $SD = 1.59$, $t(61) = 2.17$, 95% CI [0.06, 1.52], $p = 0.03$, $d = 0.56$); for relatedness, low-SES individuals attached more importance than those in the high SES ($M_{highSES} = 3.27$, $SD = 1.43$, $M_{lowSES} = 4.83$, $SD = 2.17$, $t(61) = -3.36$, 95% CI [−2.49, −0.63], $p = 0.01$, $d = -0.86$). Results indicated that high-SES individuals attached more importance to autonomy need and competence need than low-SES individuals, whereas low-SES individuals attached more importance to relatedness need than high-SES individuals.

2.3. Discussion

The pilot study found that high-SES individuals attached more importance to autonomy need and competence need, whereas low-SES individuals attached more importance to relatedness need. These outcomes were consistent with our hypothesis. High-SES individuals had a stronger sense of control over their own lives and tended to have more independent choices (Lachman and Weaver, 1998; Johnson and Krueger, 2006). Thus, these individuals would have stronger competence need and autonomy need. Low-SES individuals developed interdependent selves (Stephens et al., 2014) and then would have stronger relatedness need.

3. Study 1: autonomy need satisfaction and affective forecasting

Based on the result of the pilot study, study 1 aims to examine whether high-SES individuals would have a greater impact bias in affective forecasting on the product which could satisfy their autonomy need more than low-SES individuals.

FIGURE 1
Basic psychological needs for high-SES individuals and low-SES individuals. *$p < 0.05$.

FIGURE 2
Interactive effect of autonomy need satisfaction and SES on impact bias. *$p < 0.05$.
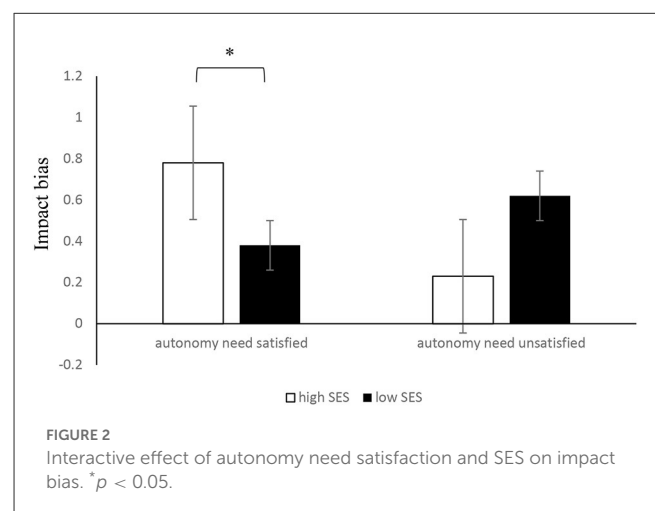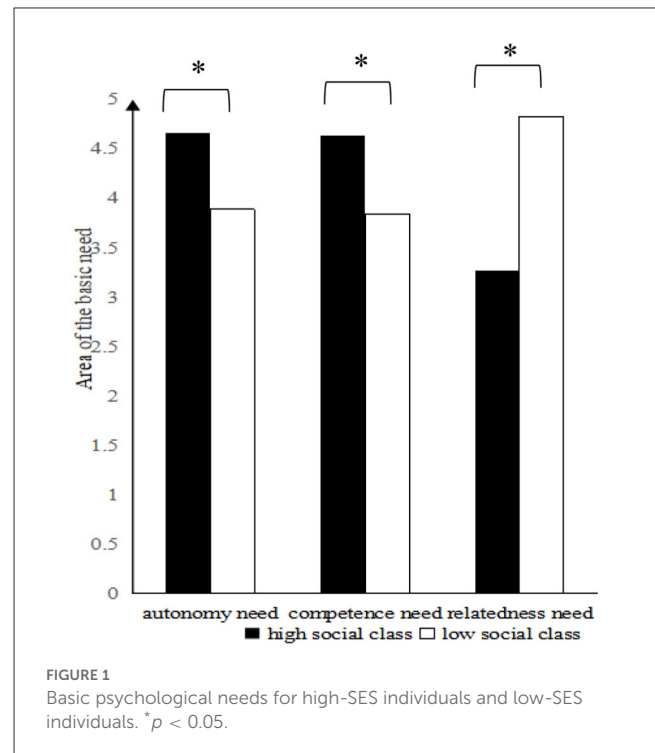
3.1. Methods

3.1.1. Participants

A power analysis using G*Power 3.1 (Faul et al., 2009) suggested a sample size of 120 participants that would provide 80% power to detect medium interaction effects ($f = 0.30$). A total of 120 college students (45 males and 75 females, $M_{age} = 18.13$ years, $SD = 0.70$) from a university in China participated in this study.

3.1.2. Experimental design and materials

A 2 (subjective SES: high SES vs. low SES) × 2 (autonomy need satisfaction: yes vs. no) between-subject design was used.

FIGURE 3
Interactive effect of competence need satisfaction and SES on impact bias. $^*p < 0.05$.

FIGURE 4
Interactive effect of relatedness need satisfaction and subjective SES on impact bias. $^*p < 0.05$.
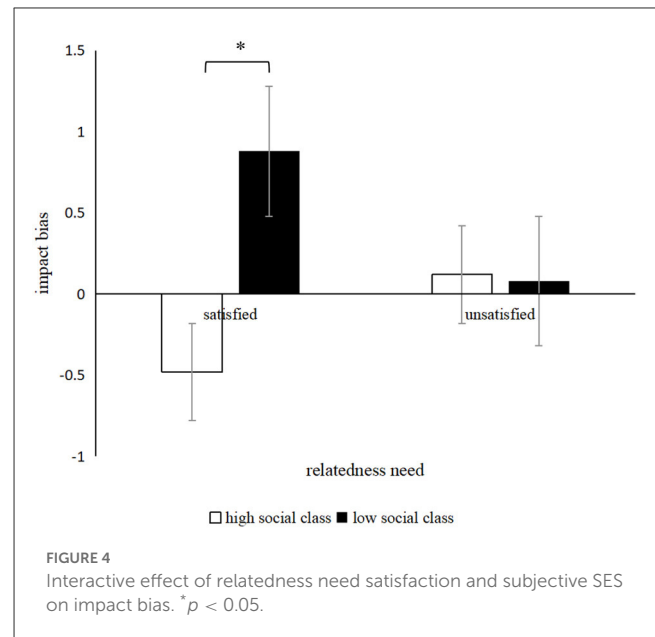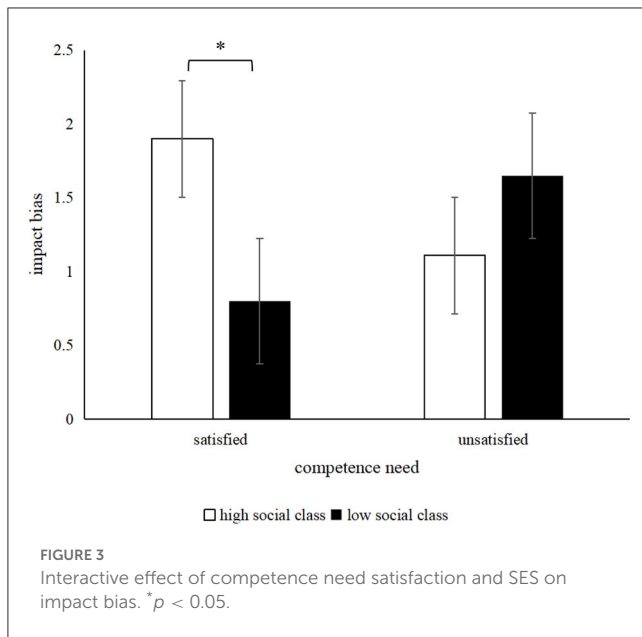
3.1.2.1. Manipulation of the subjective SES was the same as that in the pilot study

Significant differences were observed in the self-reported scores on the MacArthur Scale, $M_{highSES} = 5.30$, $SD = 1.48$, $M_{lowSES} = 4.68$, $SD = 1.46$, $t(118) = 2.30$, 95% CI [0.09, 1.15], $p < 0.05$ and $d = 0.42$. The results indicated that the manipulation of the subjective SES in the current study was successful.

3.1.2.2. Manipulation of autonomy need satisfaction

We selected Frey chocolates as the material because it was a Swiss brand with which the participants were very unfamiliar. All the participants had not eaten Frey chocolate before. In fact, only 2% of participants had heard of the brand. Thus, they had no previous experience with the brand. Therefore, the influence of previous experience on affective forecasting of the product was excluded.

When participants entered the lab, they would see three chocolates on the table that looked the same but had different flavors (i.e., air, orange, and milk). Under the condition of the autonomy need being satisfied, the participants selected the flavor of chocolates by themselves. However, under the condition in which their autonomy need was not satisfied, the flavor of chocolate was selected by the conductor of the experiment. Participants in the non-autonomy condition were assigned the same chocolate by the experimenter as what participants chose in the autonomy condition to ensure that the participants in the autonomy condition and the non-autonomy condition tasted the same flavor of chocolates.

Under the condition of more autonomy need satisfaction, the participants were told, "*Here are three chocolates from Frey, which is a famous Swiss brand. There are three different flavors, that is, air, orange, and milk. You can choose the one you like best and savor it.*" Under the condition of non-autonomy need satisfaction, the experimenter chose the participants. The participants were told, "*Here are three chocolates from Frey, which is a famous Swiss brand. There are three different flavors, that is, air, orange, and milk. As the experimenter, I would like you to savor this one.*"

3.1.2.3. Affective forecasting measure

The affective forecasting of the chocolate was measured by asking participants to predict how pleasant the taste of the chocolate would be and how much they would like the chocolate. Responses were made on a 5-point scale ranging from 1 (completely unpleasant/dislike) to 5 (completely pleasant/like). The average of two items was calculated as affective forecasting.

3.1.2.4. Affective experience measure

The affective experience with the chocolate was measured by asking participants to assess how pleasant the aftertaste of the chocolate was and how much they liked the particular chocolate. Responses were made on a 5-point scale ranging from 1 (completely unpleasant/dislike) to 5 (completely pleasant/like). The average of two items was calculated as affective experience.

3.1.3. Procedure

All participants were first randomly assigned into two groups: high SES and low SES. Upon entering the experimental room outfitted with a table and two chairs, the participant was seated at the table. On the table were three chocolates. The participants were asked to select one by themselves or assigned by the experimenter. Once the participants chose a flavor or were assigned a flavor, the other two chocolates would be removed from the table with only the chosen one left. Before tasting the chocolate, the participants were asked to predict their emotions on tasting the selected flavor of chocolate. After tasting, the participants were asked to evaluate the actual affective experience of savoring the chocolate.

3.2. Results

According to Gilbert et al. (1998), the difference in affective forecasting minus affective experience was taken as the index of impact bias.

As for impact bias, the results of the 2 (subjective SES: high SES vs. low SES) $\times$ 2 (autonomy need satisfaction: yes vs. no) ANOVA revealed that the main effect of subjective SES on impact bias was not significant; $F (1, 119) = 0.01$, $p = 0.97$, and $\eta^2 = 0.01$. The main effect of autonomy need was not significant; $F (1, 119) = 0.69$, $p = 0.41$, and $\eta^2 = 0.01$. Meanwhile, the interaction of subjective socioeconomic status and autonomy need on impact bias was significant; $F (1, 119) = 4.19$, $p = 0.04$, and $\eta^2 = 0.04$. Moreover, a simple effect analysis showed that, in the case of high-SES individuals, the individual whose autonomy need was satisfied had a larger impact bias than the individual whose autonomy need was not satisfied, which was marginally significant with a large effect size, i.e., $M_{satisfied} = 0.78$, $SD = 1.09$, $M_{unsatisfied} = 0.23$, $SD = 1.17$, $t (58) = 1.88$, 95% CI $[-0.03, 1.13]$, $p = 0.06$ and $d = 0.96$. In the case of low-SES individuals, no significant difference was observed on whether the autonomy need was satisfied more or less; $M_{satisfied} = 0.38$, $SD = 0.69$, $M_{unsatisfied} = 0.62$, $SD = 1.16$, $t (58) = -0.94$, 95% CI $[-0.73, 0.26]$, $p = 0.35$, and $d = -0.25$. When the autonomy need was satisfied, the high-SES individuals had a larger impact bias than the low-SES individuals, $M_{highSES} = 0.78$, $SD = 1.09$, $M_{lowSES} = 0.38$, $SD = 0.69$, $t (58) = 1.7$, 95% CI $[-0.07, 0.87]$, $p = 0.09$ and $d = 0.44$. When the autonomy need was not satisfied, no significant difference was observed between high-SES individuals and low-SES individuals; $M_{highSES} = 0.23$, $SD = 1.17$, $M_{lowSES} = 0.62$, $SD = 1.16$, $t (58) = -1.27$, 95% CI $[-0.98, 0.22]$, $p = 0.21$ and $d = -0.33$. The interaction is shown in Figure 2.

3.3. Discussion

Results of study 1 showed that when autonomy need was satisfied more, the impact bias of high-SES individuals was greater than that of low SES. In contrast, when autonomy need was satisfied less, no significant difference was observed between high-SES and low-SES participants, thus supporting our hypothesis.

Given that individuals in the high SES attached more importance to autonomy need satisfaction than low-SES individuals, high-SES individuals would have more positive expectations for the experience (i.e., savoring the flavor of Frey chocolate) when it was chosen by themselves. Hence, these individuals would overestimate their own positive emotions more.

Study 2 will further study the interactive effect of competence need satisfaction and subjective SES on affective forecasting.

4. Study 2: competence need satisfaction and affective forecasting

The goal of study 2 was to examine whether high-SES individuals would show greater impact bias in affective forecasting on products than those in the low SES when competence need was satisfied. In study 2, an English word test was used to manipulate the satisfaction of competence need. Under the condition of competence need satisfaction, the participants were given feedback that their correct rate on the test was higher than the normal correct rate of college students. In contrast, under the condition of competence need non-satisfaction, the participants were told that their correct rate in the test was lower than the normal correct

rate of college students. After the manipulation, they predicted the pleasantness of using a new English word book for the College English Test Band 6 (CET-6) and evaluated their experience after using the book. We predicted that when their competence needs were satisfied (i.e., high English level in English test), high-SES individuals would show greater impact bias in predicting the pleasantness of using the new English word book than those in the low-SES individuals.

4.1. Methods

4.1.1. Participants

For the study, we conducted sample size estimation using G*Power 3.1 (Faul et al., 2009) to determine the sufficient number of participants needed to detect a reliable effect. A power analysis suggested a sample size of 120 participants that would provide 80% power to detect medium interaction effects ($f = 0.30$). Finally, 120 college students (55 males and 65 females, $M_{age} = 18.15$ years, $SD = 0.69$) were selected as participants from a university in China.

4.1.2. Experimental materials and design

A 2 (subjective SES: high SES vs. low SES) $\times$ 2 (competence need satisfaction: yes vs. no) between-subject design was used.

4.1.2.1. Manipulation of the subjective SES was the same as that in the pilot study

Significant differences were observed in the self-reported scores on the MacArthur Scale, i.e., $M_{highSES} = 5.32$, $SD = 1.45$, $M_{lowSES} = 4.61$, $SD = 1.66$, $t (118) = 2.49$, 95% CI $[0.28, 0.14]$, $p < 0.05$ and $d = 0.46$, which indicated that the manipulation of subjective SES was successful.

4.1.2.2. Manipulation of competence need satisfaction

Participants took part in an English word test first and were given feedback on their performance. To manipulate the competence need satisfaction, one group of participants was told that the normal correct rate of college students was 60%, which was lower than their performance and then satisfy their competence needs, and the other group of participants was told that the normal correct rate of college students was 80%, which was higher than their performance and then could not satisfy their competence needs.

To test the manipulation of competence need satisfaction, the participants were asked to evaluate their English level after the English word test: 1 = very low to 5 = very high. Significant differences were noted in self-reported English competence, $M_{satisfied} = 3.46$, $SD = 0.62$, $M_{unsatisfied} = 2.50$, $SD = 0.65$, $t (118) = 8.59$, 95% CI $[0.76, 1.23]$, $p < 0.05$ and $d = 0.46$, In addition, to exclude the effect of this manipulation on participants' emotion and self-esteem, the participants were asked to report their emotions and self-esteem after the English word test as well. No significant differences were observed in the self-reported emotion ($M_{satisfied} = 3.98$, $SD = 0.80$, $M_{unsatisfied} = 3.70$, $SD = 0.94$, $t (118) = 1.75$, 95% CI $[-0.04, 0.59]$, $p = 0.08$) and self-esteem ($M_{satisfied} = 17.66$, $SD = 3.41$, $M_{unsatisfied} = 18.79$, $SD = 3.84$, $t (118) = -1.70$, 95% CI

[−2.44, 1.19], $p = 0.09$), which demonstrated that the manipulation of competence need satisfaction was successful.

4.1.2.3. Affective forecasting measure

A new English word book for the CET-6 exam, which included English crosswords, was used for affective forecasting. All participants were freshmen who had just entered the university and had not been exposed to CET-6. Therefore, the influence of previous experience on affective forecasting of the product was excluded.

The participants were introduced to the English word book first and then asked to predict how much they would like the book and how pleasant the experience of using the material would be. Responses were made on a 5-point scale ranging from 1 (completely dislike/unpleasant) to 5 (completely like/pleasant).

4.1.2.4. Affective experience measure

The affective experience of the English word book was measured by asking the participants to assess how much they liked the book and how pleasant their experience of using the book was. Responses were made on a 5-point scale ranging from 1 (completely dislike/unpleasant) to 5 (completely like/pleasant).

4.1.3. Procedure

Upon entering the laboratory, all participants were first randomly assigned into two groups: the high-SES group and the low-SES group. First, the participants were asked to finish the English word test and were given feedback to manipulate the competence need satisfaction. Then, the participants were introduced to the English word book and asked to answer the affective forecasting questionnaire. After using the word book for 10 min, the participants were asked to answer the affective experience questionnaire.

4.2. Results

According to Gilbert et al. (1998), the difference in affective forecasting minus affective experience was taken as the index of impact bias. As for affective impact bias, the results of the 2 (subjective SES: high SES vs. low SES) × 2 (competence need satisfaction: yes vs. no) ANOVA revealed that the main effect of subjective SES on impact bias was not significant, i.e., $F (1, 119) = 0.72$, $p = 0.40$, and $\eta^2 = 0.01$. Meanwhile, the main effect of competence need was not significant; $F (1, 119) = 0.01$, $p = 0.93$, and $\eta^2 = 0.01$. The interaction of the subjective SES and competence need satisfaction on impact bias was significant, i.e., $F (1, 116) = 6.09$, $p = 0.02$, and $\eta^2 = .05$. A simple effect analysis showed that, when the competence need was satisfied, the high-SES individuals had a larger impact bias than the low-SES individuals, $M_{\text{highSES}} = 1.90$, $SD = 1.95$, $M_{\text{lowSES}} = 0.80$, $SD = 1.75$, $t (57) = 2.27$, 95% CI [0.13, 2.06], $p = 0.03$ and $d = 0.60$. When the competence need was not satisfied, no significant difference was observed between high-SES individuals and low-SES individuals; $M_{\text{highSES}} = 1.11$, $SD = 1.78$, $M_{\text{lowSES}} = 1.64$, $SD = 1.74$, $t (59)$

$= −1.18$, 95% CI [−1.44, 0.37], $p = 0.24$ and $d = −0.31$. The interaction is shown in Figure 3.

4.3. Discussion

Results of study 2 showed that when competence need was satisfied, the impact bias of high-SES individuals was greater than that of low SES. In contrast, when competence need was not satisfied, no significant difference was observed between high-SES and low-SES participants, thus supporting our hypothesis. As individuals in the high SES attached more importance to competence need satisfaction than those in the low SES, high-SES individuals would have more positive expectations for the experience (i.e., using the new type of English word book) when their competence need was satisfied, thus overestimating their own positive emotions more.

Study 3 will further study the interactive effect of relatedness need satisfaction and subjective SES on impact bias in affective forecasting.

5. Study 3: relatedness need satisfaction and affective forecasting

The goal of study 3 was to examine whether the high-SES individuals would show a smaller impact bias in affective forecasting than those in the low SES when relatedness need was satisfied. In study 3, peer nomination was used to manipulate the satisfaction of relatedness need. Under the condition of relatedness satisfaction, the participants were given feedback that their numbers of nominations were higher than the average number of nominations in their class. In contrast, under the condition of relatedness non-satisfaction, the participants were told that their numbers of nominations were lower than the average number of nominations in their class. After the manipulation, they predicted the pleasantness of playing an interactive game named German Heart Disease and evaluated their experience after the game. We predicted that when their relatedness need was satisfied, high-SES individuals would show a smaller impact bias in predicting the pleasantness of playing the interactive game than low-SES individuals.

5.1. Methods

5.1.1. Participants

For the study, we conducted sample size estimation using G*Power 3.1 (Faul et al., 2009) to determine the sufficient number of participants needed to detect a reliable effect. A power analysis suggested a sample size of 120 participants that would provide 80% power to detect medium interaction effects ($f = 0.30$). Finally, 120 college students (47 males and 73 females, $M_{\text{age}} = 18.15$ years, $SD = 0.70$) were chosen as participants from a university in China.

5.1.2. Experimental design and materials

A 2 (subjective SES: high SES vs. low SES) × 2 (relatedness need satisfaction: yes vs. no) between-subject design was used.

5.1.2.1. The manipulation of the subjective SES was the same as that in the pilot study

Significant differences were observed in the self-reported scores on the MacArthur Scale, $M_{\text{highSES}} = 5.12$, $SD = 1.71$, $M_{\text{lowSES}} = 4.48$, $SD = 1.48$, $t (118) = 2.17$, 95% CI [0.06, 1.21], $p = 0.03$ and $d = 0.40$, which indicated that the subjective SES was manipulated successfully.

5.1.2.2. Manipulation of relatedness need

Peer nomination was adopted to manipulate the relatedness need satisfaction. All the participants were asked to nominate three persons with whom they want to join in the school outing. After nominating, the participants were given feedback on their own numbers of being nominated personally by the computer. To manipulate participants' relatedness need satisfaction, one group of participants were informed that their nominations were higher than the average number of nominations, which satisfied relatedness needs, the other group were informed that their nominations were lower than the average number of nomination, which did not satisfy relatedness needs.

To test the manipulation of relatedness need satisfaction, the participants were asked to evaluate their popularity after peer nomination: 1 = not at all to 5 = very popular. Significant differences were noted in self-reported popularity, $M_{\text{satisfied}} = 3.65$, $SD = 0.66$, $M_{\text{unsatisfied}} = 3.12$, $SD = 0.69$, $t (118) = 4.33$, 95% CI [0.29, 0.78], $p = 0.01$ and $d = 0.80$. In addition, to exclude the effect of this manipulation on participants' emotion and self-esteem, the participants were asked to report their emotions and self-esteem after the peer nomination as well. No significant differences were observed in emotion ($M_{\text{satisfied}} = 3.78$, $SD = 0.61$, $M_{\text{unsatisfied}} = 3.60$, $SD = 0.64$, $t (118) = 1.60$, 95% CI [-0.04, 0.41] and $p = 0.11$) and self-esteem ($M_{\text{satisfied}} = 17.37$, $SD = 3.83$, $M_{\text{unsatisfied}} = 18.17$, $SD = 4.18$, $t (118) = -1.09$, 95% CI [−2.25, 0.65] and $p = 0.28$), which demonstrated that the manipulation of relatedness need satisfaction was successful.

5.1.2.3. Affective forecasting measure

An interactive board game called German Heart Disease, which was a relatively new game, was adopted as the experimental material. To exclude the influence of previous experience on the preference for the board game, 30 students were randomly selected from a university for a preliminary experiment to investigate their previous knowledge of the board game. All college students mentioned that they had not played the board game before.

Participants were introduced to German Heart Disease first and were asked to predict how much they would like the game and how pleasant the experience of the game would be. Responses were made on a 5-point scale ranging from 1 (completely dislike/unpleasant) to 5 (completely like/pleasant).

5.1.2.4. Affective experience measure

The affective experience of German Heart Disease was measured by asking participants to assess how much they liked the game and how pleasant the experience was. Responses were made on a 5-point scale ranging from 1 (completely unlike/unpleasant) to 5 (completely like/pleasant).

5.1.3. Procedure

Upon entering the laboratory, all participants were first randomly divided into two groups: the high-SES group and the low-SES group. First, the participants were asked to finish the peer nomination task on the computer and were given feedback to manipulate the relatedness need satisfaction. Then, participants were introduced to the board game and were asked to complete the affective forecasting questionnaire. All participants played the board game with the confederate. After playing the game, the participants were asked to answer the affective experience questionnaire.

5.2. Results

According to Gilbert et al. (1998), the difference in affective forecasting minus affective experience was taken as the index of impact bias. As for impact bias, the results of the 2 (subjective SES: high SES vs. low SES) × 2 (relatedness need satisfaction: yes vs. no) ANOVA revealed that the main effect of the subjective SES on impact bias was significant, $F (1, 119) = 29.76$, $p < 0.001$, and $\eta^2 = 0.20$. The impact bias of the lower SES ($M_{\text{lowSES}} = 0.48$, $SD = 0.86$) was significantly higher than those of the high SES ($M_{\text{highSES}} = -0.18$, $SD = 0.63$). Meanwhile, the main effect of relatedness need was not significant, $F (1, 119) = 0.67$, $p = 0.42$, and $\eta^2 = 0.01$. The interaction of the subjective SES and relatedness need on impact was significant, $F (1, 119) = 32.81$, $p < 0.001$, and $\eta^2 = 0.22$. A simple effect analysis showed that, when the relatedness need was satisfied, the low-SES individual had a greater impact bias than the high-SES individual, $M_{\text{lowSES}} = 0.88$, $SD = 1.02$, $M_{\text{highSES}} = -0.48$, $SD = 0.65$, $t (58) = -6.18$, 95% CI [−1.81, −0.92], $p = 0.01$ and $d = -1.62$. When the relatedness need was not satisfied, no significant difference was observed between the high-SES individual and the low-SES individuals; $M_{\text{highSES}} = 0.12$, $SD = 0.45$, $M_{\text{lowSES}} = 0.08$, $SD = 0.35$, $t (58) = 0.32$, 95% CI [−0.17, 0.24], $p = 0.75$ and $d = 0.08$. The interaction is shown in Figure 4.

5.3. Discussion

Results of study 3 showed that when relatedness need was satisfied, the impact bias of low-SES individuals was higher than that of high-SES individuals. In contrast, when relatedness need was not satisfied, no significant difference was observed between high-SES and low-SES participants, thus supporting our hypothesis. Given that low-SES individuals attached more importance to relatedness need satisfaction than high-SES individuals, low-SES individuals would have more positive expectations for the experience (i.e., playing the board game) when their relatedness need was satisfied, thus overestimating their own positive emotions more.

6. General discussion

6.1. Subjective SES and basic psychological needs

The pilot study found that high-SES individuals attached more importance to the need for competence and autonomy than low-SES individuals. Meanwhile, individuals in the low SES attached more importance to relatedness need than those in the high SES. The results suggested that the need strength of basic psychological needs for high-SES individuals and low-SES individuals is different. Ryan and Deci (2000) found that individual differences in the need strength of the three basic psychological needs exist, although self-determination theory suggests that the three basic psychological needs are equivalent with regard to their importance for psychosocial functioning. The current research suggested that SES would be one kind of important individual difference that influences basic psychological need strength. Previous studies showed that individuals of high SES have a strong sense of control over their own lives (Markus and Kitayama, 1991; Lachman and Weaver, 1998; Johnson and Krueger, 2006), while low-SES individuals rely on good interpersonal relationships to obtain abundant social resources (Piff et al., 2010). These differences may lead to the difference in need strength of basic psychological needs.

6.2. The effect of basic psychological needs on affective forecasting

The current research found that the main effect of BPNS on affective forecasting was not significant, which was not consistent with our hypothesis. According to the self-determination theory, satisfying basic psychological needs can promote intrinsic motivation (Deci and Ryan, 2000). Compelling evidence shows that greater satisfaction with the needs for competence, autonomy, and relatedness is directly associated with intrinsic motivation and positive emotions in different contexts (e.g., Tang et al., 2020; Stanley et al., 2021). Previous studies demonstrated that impact bias has motivated underpinnings (Morewedge and Buechel, 2013; Pauketat et al., 2016; Geng and Jiang, 2017; Geng et al., 2018). In other words, the intensity of motivation to achieve the expected outcome would increase impact bias in affective forecasting of the expected outcome. However, the current research did not find the main effect of BPNS on impact bias. We thought one possible reason was that the effect of BPNS on affective forecasting was different for high-SES individuals and low-SES individuals, which was confirmed in the moderating analysis of the subjective SES.

6.3. The moderating role of subjective SES between BPNS and affective forecasting

The present research demonstrated the moderating effect of undergraduates' subjective SES in the effect of basic psychological needs satisfaction on the impact bias in affective forecasting. When autonomy need or competence need was satisfied, the high-SES individuals overestimated the pleasantness of the product which could satisfy their autonomy need and competence need more

than low-SES individuals. In contrast, when relatedness need was satisfied, the low-SES individuals overestimated the pleasantness of the product which could satisfy their relatedness need more than high-SES individuals.

We believe that these findings provide important new insights for affective forecasting research. Based on the basis of the moderating effect of SES in the effect of basic psychological needs satisfaction on the impact bias in affective forecasting, we proposed a *SES—BPNS fit model* of affective forecasting, i.e., when people's preferred basic psychological needs satisfaction fit with their SES, the affective forecasting would be stronger than unfit. To test the *SES—BPNS fit model*, in study 1, we coded the high SES in autonomy need satisfaction condition and low SES in autonomy need non-satisfaction condition as the *fit* condition, and coded the high SES in autonomy need non-satisfaction condition and low SES in autonomy need satisfaction condition as the *non-fit* condition. In study 2, we coded the high SES in competence need satisfaction condition and low SES in competence need non-satisfaction condition as the *fit* condition, and coded the high SES in competence need non-satisfaction condition and low SES in competence need satisfaction condition as the *non-fit* condition. In study 3, we coded the low SES in relatedness need satisfaction condition and high SES in relatedness need non-satisfaction condition as the *fit* condition, and coded the low SES in relatedness need non-satisfaction condition and high SES in relatedness need satisfaction condition as the *non-fit* condition. The independent t-test showed that in study 1, $M_{\text{fit}} = 0.70$, $SD_{\text{fit}} = 1.12$, $M_{\text{nonfit}} = 0.31$, $SD_{\text{nonfit}} = 0.96$, $t(118) = 2.06$, $p = 0.04$, $d = 0.38$; in study 2, $M_{\text{fit}} = 1.76$, $SD_{\text{fit}} = 1.83$, $M_{\text{nonfit}} = 0.95$, $SD_{\text{nonfit}} = 1.76$, $t(118) = 2.48$, $p = 0.01$, $d = 0.46$; in study 3, $M_{\text{fit}} = 0.50$, $SD_{\text{fit}} = 0.87$, $M_{\text{nonfit}} = -0.20$, $SD_{\text{nonfit}} = 0.59$, $t(118) = 5.14$, $p = 0.01$, $d = 1.01$, suggesting the impact bias in fit condition was significantly greater than that in non-fit condition, which was consistent with the *SES—BPNS fit model*.

Even though researchers have investigated numerous individual differences in affective forecasting (Nielsen et al., 2008; Tomlinson et al., 2010; Hoerger et al., 2012), few have shed light on individuals' SES. We think one possible reason for the moderating effect of SES is that when autonomy need or competence need was satisfied, high-SES individuals may have stronger motivation to experience the product which might satisfy their autonomy or competence need and expect higher pleasantness for products, leading to a bigger impact bias. In contrast, when relatedness need was satisfied, low-SES individuals may have stronger motivation to experience the product which might satisfy their relatedness need and increase positive affective expectations for products, leading to bigger impact bias.

The current research also has important implications in practice. It found that high-SES undergraduates overestimated their pleasantness more when autonomy need and competence need were satisfied, while low-SES undergraduates overestimated their pleasantness more when relatedness was satisfied. From the standpoint of marketers, for high-SES consumers, marketers should satisfy their competence need and autonomy need first, and then they would like to buy the products based on their predicted pleasantness, while for low-SES consumers, marketers should satisfy their relatedness need first and then they would like to buy the products based on their predicted pleasantness. However, standing in consumers' shoes, this result suggested

high-SES undergraduates not overestimating their pleasantness on those products relevant to autonomy need and competence need satisfaction, and low-SES undergraduates not overestimating their pleasantness on those products relevant to relatedness need satisfaction. However, our study has some limitations. In the present study, we did not examine the interaction effect of the three basic psychological needs on impact bias. Future research can test the interaction effect of different basic psychological needs on affective forecasting, such as high competence need satisfaction with low autonomy need satisfaction or high competence need satisfaction with low relatedness need satisfaction. In addition, future studies are needed to investigate the need strength of high-SES and low-SES individuals directly, such as by the need strength scale. Third, based on the present results, we inferred that motivation may mediate the effect of basic psychological needs satisfaction on affective forecasts; however, we did not measure the motivation directly. Future studies are needed to investigate the mediating role of motivation between BPNS and affective forecasting.

7. Conclusion

Overall, the findings of the present research found the moderating role of SES in the effect of basic psychological need satisfaction on affective forecasting. Specifically, for high-SES individuals, the satisfaction of autonomy need/competence need increased the impact bias in affective forecasting on products that are related to autonomy need/competence need more than that for low-SES individuals. Meanwhile, for individuals in the low SES, the satisfaction of relatedness increased the impact bias in affective forecasting on products that are related to relatedness need than high-SES individuals.

Data availability statement

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

Ethics statement

The studies involving human participants were reviewed and approved by the Academic Ethics Committee of Jing Hengyi School of Education, Hangzhou Normal University. The patients/participants provided their written informed consent to participate in this study.

Author contributions

FZ, LF, and XG designed the work. LF, MS, and FZ conducted the studies. XJ, LF, and YZ draft the work. XG revised the manuscript. All authors contributed to the article and approved the submitted version.

Funding

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 contribution of cultural identity to subjective well-being in collectivist countries: a study in the context of contemporary Chinese culture

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Introduction: Though the important effect of cultural identity on subjective well-being is widely acknowledged, the details of how different cultures' unique features influence well-being remain to be revealed. To address this issue in the context of Chinese culture, the present study investigates whether and how the prominent features of Chinese culture—collectivism and red culture—shape Chinese people's subjective well-being.

Methods: The Red Cultural Identity Scale, Subjective Well-Being Scale, Collectivism Scale, and Perspective-Taking Scale were used to assess 1,045 Chinese residents.

Results: The results showed that red cultural identity positively predicted participants' subjective well-being through the mediated role of collectivism. Furthermore, perspective-taking was found to moderate the mediating effect of collectivism.

Discussion: These results demonstrate that the way cultural identity predicts subjective well-being is highly correlated to specific cultural features, e.g., the opinion of values, which was significant in practice with a cross-cultural background.

KEYWORDS

cultural identity, subjective well-being, collectivism, perspective-taking, Chinese culture

Introduction

Happiness is the eternal pursuit of human beings. Kim-Prieto et al. (2005) defined happiness widely, including positive life satisfaction, quality of life, and subjective evaluation of life in terms of emotion and cognition. Subjective well-being, which refers to the overall evaluation of the assessor's quality of life according to self-set standards, is considered an important comprehensive psychological index to measure individuals' quality of life (Diener, 1984). According to the general cultural theory of subjective well-being, culture can be the main factor in constructing the concept of happiness and shaping individuals' attitudes toward it. Culture not only has a direct effect on subjective well-being but also affects it by shaping self-concept (Lu et al., 2001). However, due to the various cultures around the world, the question remains as to how the unique features of different cultures influence subjective well-being.

It has been suggested that culture amounts to a complex whole including knowledge, belief, art, morals, law, customs, and any other capabilities and habits that can be acquired as a member of society (Johnson, 2013). In the context of modern Chinese culture, red culture occupies an

important place. Red culture is referred to as systematic ideological ideas and beliefs formed by the Chinese Communist Party and left-wingers during the Chinese Revolutionary War and further developed by the construction of socialist China. Red culture not only advocates positive optimism and enterprising spirit and cultivates noble sentiment and an optimistic attitude toward life but also shows the pursuit and yearning for the good life and involves strong patriotism (Li, 2020).

Cultural identity, which represents the extent to which one identifies oneself as belonging to a specific culture, is considered a special case of social identity, encompassing ethnic identity that includes feelings toward and behaviors exploring the ethnic group to which one claims heritage (Douglass and Umana-Taylor, 2015). Furthermore, cultural identity also contributes to one's overall sense of self and belonging (Ferguson et al., 2017). Previous studies on Chinese Canadians and Chinese Americans have shown that cultural identity has a positive effect on people's subjective well-being through clarity of self-identity, which proves the significance of an individual's cultural identity to well-being (Usborne and Taylor, 2010).

In summary, there may be a positive correlation between cultural identity and subjective well-being. In contemporary China, identity in red culture represents the recognition of the ideals and values of Chinese revolutionary culture and national cultural identity in social identity and helps shape individuals' overall sense of self and belonging. If, as general cultural theory argues, the particularity of Chinese red culture has an effect on subjective well-being, the question of how it works is raised.

The present study intends to explore whether and how red cultural identity promotes Chinese residents' subjective well-being, providing further evidence for research in related fields.

The mediating effect of collectivism

Collectivism is an important dimension in determining value differences (Hamamura et al., 2013; Hofstede, 2001). It reflects the level of concern an individual has for other individuals and groups (Hui, 1988; Felfe et al., 2008) and represents a strong sense of identity with organizational norms and responsibilities (Triandis, 1996). Chinese red culture, which is derived from socialist ideology, comprises the spirit of selfless dedication (Li, 2020) and the morality of serving society wholeheartedly (Xu, 2011). Indeed, collectivism has been constantly emphasized by the authorities since China's revolution led by the CCP. Therefore, collectivism can be considered one of the crucial components of red culture. According to the Social Identity Theory, the understanding and construction of the corresponding social identity are prerequisites for being a member of a group (Brown, 2000). It is reasonable that the stronger one's identification with the red culture, the stronger one's sense of collectivism.

According to several studies conducted in collectivist countries, such as Spain and India, collectivists frequently experience higher levels of subjective well-being (Rego and Cunha, 2009; Ahuja et al., 2021). People in collectivist societies are more concerned with the well-being of groups, develop better relationships with family and friends (Martella and Maass, 2000), and engage in more altruistic behavior (Brewer, 1999), which result in higher subjective well-being. In terms of cooperation, people with higher levels of collectivism tend to have positive attitudes toward group members (Brewer, 1999), show camaraderie when working in an organizational environment (Rego and Cunha, 2009), and manifest a greater willingness to cooperate

with others and help each other (Gouldner, 1960; Deckop et al., 2003; Westwood et al., 2004). As a result, experiences of positive emotions like gratitude, joy, and comfort gained from collectivist activities push individuals toward a greater sense of happiness (Rego and Cunha, 2009). The positive effect of happiness, in turn, causes a significant enhancement in cooperation and trust. This may be due to the enhanced sociability, interpersonal warmth, group involvement, and interpersonal trust caused by positive emotions (Tov and Diener, 2009).

Overall, red cultural identity may promote people's level of collectivism, which in turn may affect their subjective well-being.

The moderating role of perspective-taking

Perspective-taking, referring to the social cognitive ability to take the perspective of others and imagine or speculate on their thoughts or attitudes, is the foundation of communicating with others and social interactions (Linde and Labov, 1975; Galinsky et al., 2005; Brown-Schmidt et al., 2008). It typically involves the comprehension of connections between various situations and the emotions they evoke (Cutting and Dunn, 1999). Individuals with higher perspective-taking abilities may be more likely to experience happiness. As Rueda et al. (2014) found in their experiments, there is a significant positive correlation between perspective-taking and happiness. Research by Shanafelt et al. (2005) has also revealed a correlation between perspective-taking and well-being; that is, high psychological well-being is associated with enhanced individual perspective-taking.

Studies have shown that there are important links between perspective-taking and cultural features. For example, Chinese people who live in collectivistic cultures are found to be better at perspective-taking than Americans who live in individualistic cultures (Wu and Keysar, 2007). According to related studies, social identity affects how well perspective-taking works and has an interaction effect on out-group favorability ratings (Tarrant et al., 2012). In a study involving participants from 63 countries, Chopik et al. (2017) discovered that participants from individualistic countries performed worse in perspective-taking tasks compared to those from collectivistic countries. These results demonstrate that individualism increases the prominence of people's own views in the perspective-taking process, which leads to an individual's greater egocentric bias in reasoning about others' mental states. Accordingly, collectivism, as a core feature of red culture, might be moderated by perspective-taking.

As argued by the Affect Value Theory, culture plays an important role in shaping the emotional sensations that people appreciate and would ideally want to experience. Those with a higher level of perspective-taking are more likely to have a higher level of cultural identity, and vice versa (Tsai et al., 2006). Nelson and Baumgarte (2004) proposed that perceived cultural dissimilarity can reduce perspective-taking, whereas perceived cultural similarity can significantly predict perspective-taking (Heinke and Louis, 2009). However, it remains to be explored whether the effect of perspective-taking acts on the relationship between red culture identity and subjective well-being.

The correlation between red cultural identity and subjective well-being may be higher in people with a higher level of perspective-taking, in line with the previous statement. In other words, for individuals with a higher level of perspective-taking, the stronger the red cultural identity, the higher the subjective well-being.

The current study

Although there have been suggestions that red cultural identity and subjective well-being are related up to this point, the underlying mechanism is still unknown. The main purpose of this study is to explore whether and how red culture identity correlates with subjective well-being. In the present study, a large sample of Chinese undergraduates was recruited. In line with the aforementioned studies, we hypothesized that: (1) red cultural identity can significantly positively predict subjective well-being; that is, the stronger the red cultural identity, the higher the subjective well-being; (2) collectivism mediates the effects of red cultural identity on subjective well-being; (3) perspective-taking plays a moderating role in the path from red cultural identity to collectivism; and (4) perspective-taking moderates the psychological effects of collectivism on subjective well-being. The hypothesized model in this study is presented in Figure 1.

Method

Participants

A convenience-based cluster sampling of 1,045 Chinese people was recruited from China (683 women). Informed consent was obtained from all participants in the study. The participants were predominantly aged between 18 and 25 years ($n = 969$, 92.73%).

Measures

Subjective Well-Being (SWB)

The Subjective Well-Being Scale (GWBS), as revised by Fazio (1977), was used to measure people's perceptions of well-being. A localized Chinese version of SWB was applied to the participants of the present study. The localized scale includes 18 items consisting of the 6 factors are: health concerns, energy levels, satisfying interesting life, depressed-cheerful mood, emotional-behavioral control, and relaxed versus tense-anxious (Xin et al., 2021). The items 2, 5, 6, and 7 were scored on a 5-point scale; items 15, 16, 17, and 18 were scored on an 11-point scale; the other items were scored on a 6-point scale. Higher scores signify higher levels of subject well-being. Cronbach's α was 0.83 for this sample.

Red cultural identity (RCI)

This was measured using 20 items consisting of 4 factors: cognitive, emotional, behavioral, and value, which were taken from a previous study (Hu et al., 2014). Each item was scored on a 5-point Likert scale (1 = "does not describe me at all" to 5 = "describes me greatly"), higher scores indicated higher levels of identity in red culture. Cronbach's alpha was 0.84 for this sample.

Collectivism

This was measured using the Confucian Values Scale (Zhang and Jolibert, 2003), which includes 15 items consisting of three factors: collectivism, environmental concern, and face value. Each item was scored on a 5-point Likert scale (1 = "disagree very much" to 5 = "agree very much"), with no reverse scoring questions. The study selected the collectivism dimension for evaluating participants' collectivist tendencies, which includes 5 items, with higher scores indicating higher levels of collectivism. Cronbach's alpha was 0.82 for this sample.

Perspective-taking (PT)

The Interpersonal Reactivity Index (IRI), developed by Davis (Cliffordson, 2001), was translated into Chinese by Zhan in 1987 (Wang et al., 2020). The localized version includes 22 items consisting of four factors: perspective-taking, empathy concern, fantasy, and personal distress. All items are rated on a five-point Likert scale ranging from 1 (does not describe me at all) to 5 (describes me
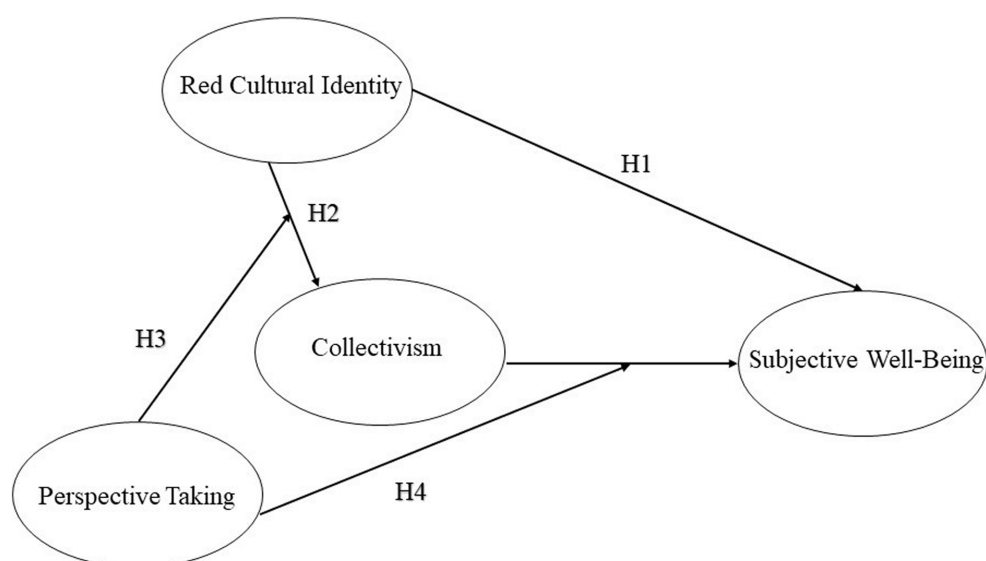

FIGURE 1
The hypothesized model.

greatly), with higher scores indicating higher degrees of thinking from the perspective of others, with reverse scoring questions. In this study, one of the perspective-taking dimensions was selected to evaluate perspective-taking ability, which includes 6 items. Cronbach's alpha was 0.78 for this sample.

Demographic variables

The participants' age groups, gender, and educational level were collected as control factors.

Statistical analysis

First, scores for all variables were averaged, and the results were normalized. The next step was to perform a Harman single factor test to identify whether there was a common method bias. Then, descriptive statistical analysis of demographic variables was performed using SPSS 21.0, and correlations between collectivism, red culture identity, perspective-taking, and subjective well-being were examined using Pearson correlation analysis. After that, tests for mediating and moderating effects were performed in SPSS using PROCESS 4.0, and the bias-corrected percentile Bootstrap method was used to estimate 95% confidence intervals for the mediating or moderating effects. The demographic variables (i.e., gender, age, educational level) were treated as control factors for all models. Subsequently, a simple effects analysis was performed on the moderating variables at ±1 SD to further investigate the model.

Results

Primary analyses

A Harman single factor test was performed to examine whether there was a common method bias after the data collection had been completed. The results found that principal component analysis was used to extract 12 factors; we extracted the factors with eigenvalues ≥ 1, and the first factor accounted for only 21.84% of the total variance, which is over 40% (Richardson et al., 2009; Podsakoff et al., 2012). These results indicate that common method bias was not serious in this study.

Descriptive statistics

First, Pearson's correlation analysis was conducted for collectivism, RCI, PT, and SWB (see Table 1). The results demonstrate that collectivism was positively correlated with RCI, PT, and SWB; RCI was positively correlated with PT and SWB; and PT was positively correlated with SWB. Therefore, hypothesis 1 and hypothesis 2 were partially supported.

The mediating effect of collectivism

We first examined the direct effect of the RCI on the SWB (see Table 2, Model 1), which illustrated a positive predictive effect of

TABLE 1 Descriptive statistics for all variables.

	1	2	3	4
1. Collectivism	–			
2. RCI	0.57**	–		
3. PT	0.48**	0.38**	–	
4. SWB	0.18**	0.18**	0.09**	–
M	3.82	3.76	3.39	4.25
SD	0.67	0.69	0.74	0.74

RCI, red cultural identity; PT, perspective-taking; SWB, subjective well-being. $N = 1,045$; **$p < 0.01$.

RCI. The demographic variables (i.e., age, gender, educational level) were treated as control factors. To test the mediating effects of collectivism, SPSS model 4 was used to investigate the mediating role of collectivism in the influence of RCI on SWB (Hayes, 2012). The mediating effect was tested using the bootstrap method with a sample of 5,000 to estimate 95% confidence intervals for the mediating or moderating effects.

As shown in Table 2, Model 2, RCI was a significant positive predictor of SWB ($\beta = 0.18$, $p < 0.001$), and RCI was a significant positive predictor of collectivism ($\beta = 0.57$, $p < 0.001$). When RCI and collectivism simultaneously predicted SWB, the positive predictive effect of RCI on SWB remained significant ($\beta = 0.11$, $p < 0.01$), and the positive predictive effect of collectivism on SWB was significant ($\beta = 0.11$, $p < 0.01$). The results of the mediation analysis indicate that collectivism plays a partially mediating role in the effect of RCI on subjective well-being, with a mediation effect of 0.07 and a mediation effect of 38.89% of the total effect. The 95% Bootstrap confidence interval of the mediation effect was [0.02, 0.11]. The direct effect was 0.11, accounting for 61.11% of the total effect, and the corresponding 95% Bootstrap confidence interval was [0.04, 0.18]. Therefore, hypothesis 3 was supported.

The moderating effect of perspective-taking (PT)

Since the mediation effect of collectivism on RCI on SWB was found to be significant, the moderating effect of PT on this mediation model was further explored.

As demonstrated in Table 2, Model 3 and Figure 2, regression analysis with gender, age, and educational level as the control variables and collectivism as the outcome variable shows that RCI significantly and positively predicted collectivism ($\beta = 0.44$, $p < 0.001$) and PT and RCI significantly and negatively predicted collectivism ($\beta = -0.07$, $p < 0.01$). Besides, while taking SWB as the outcome variable, the result revealed a significant interaction between PT and collectivism that positively predicted SWB ($\beta = 0.06$, $p < 0.05$).

Furthermore, a simple slope analysis was conducted to better understand the moderating effect of PT. According to Wang et al. (2022), the participants were divided into high and low PT subgroups based on their PT ($M \pm 1SD$). The findings showed a high subgroup effect value of 0.38 and a confidence interval of [0.31, 0.44], as well as a low subgroup effect value of 0.51 and a confidence interval of [0.45, 0.57]. The predictive effects of RCI on collectivism were calculated when PT was low or high (see Figure 3). In terms of the moderating

TABLE 2 Model coefficients for the mediation effects, and the moderation effects.

	Consequent					
	Collectivism			SWB		
Antecedents	Coefficient	SE	p	Coefficient	SE	p
Model 1						
RCI	–	–	–	0.18	0.04	0.00
Gender	–	–	–	−0.05	0.03	0.10
Age	–	–	–	0.02	0.03	0.61
Education	–	–	–	0.03	0.03	0.37
				$\Delta R^2 = 0.03$		
				$F = 9.18, p < 0.001$		
Model 2						
RCI	0.57	0.03	0.00	0.11	0.04	0.00
Collectivism	–	–	–	0.11	0.04	0.00
Indirect effect						
	–	–	–	Effect	SE	LLCI-ULCI
	–	–	–	0.07	0.02	0.02–0.11
	–	–	–	$\Delta R^2 = 0.01$		
	–	–	–	$F = 9.35, p < 0.001$		
Model 3						
RCI	0.44	0.03	0.00	–	–	–
PT	0.32	0.03	0.00	–	–	–
RCI×PT	−0.07	0.02	0.00	–	–	–
	$\Delta R^2 = 0.38$			–	–	–
	$F = 119.79, p < 0.001$			–	–	–
Collectivism	–	–	–	0.14	0.04	0.00
PT	–	–	–	−0.03	0.04	0.47
Collectivism×PT	–	–	–	0.06	0.03	0.04
	–	–	–	$\Delta R^2 = 0.02$		
	–	–	–	$F = 119.79, p < 0.001$		

RCI, red cultural identity; PT, perspective-taking; SWB, subjective well-being. The effects of control factors were omitted in Model 2 and Model 3.

role between collectivism and SWB, the result demonstrates a high subgroup effect value of 0.20 and a confidence interval of [0.09, 0.31] and a low subgroup effect value of 0.08 and a confidence interval of [−0.01, 0.17] (see Figure 4). The PT was found to moderate the mediating effect of collectivism between red cultural identity and subjective well-being (see Table 3). The conditional indirect effect for low levels of PT was 0.04, with a confidence interval of [−0.01, 0.09]. The conditional indirect effect for PT at the mean level was 0.06, with a confidence interval of [0.03, 0.10]. The conditional indirect effect for high-level PT was 0.08, and the confidence interval was [0.03, 0.12].

These results show that the mediating effect of collectivism on SWB is moderated by PT, which confirms hypothesis 4. In particular, the positive predictive effect of collectivism on SWB progressively grew, whereas the positive predictive effect of RCI on collectivism gradually decreased as PT increased. Additionally, only in the high-PT subgroup did PT significantly reduce the association between collectivism and SWB.

Discussion

The aim of the present study is to explore whether and how red cultural identity is associated with subject well-being by testing a moderated mediating model. These results demonstrate that there was a positive correlation between red cultural identity and subject well-being in which collectivism played a completely mediating role, whereas perspective-taking moderated the relationship between red cultural identity and collectivism and between collectivism and subject well-being. Specifically, those positive correlations were significantly greater for the participants with higher perspective-taking. The present study reveals the distinctive mechanism of how culture affects subjective well-being and provides new perspectives and suggestions for improving subjective well-being, especially in the Chinese cultural context.

In line with general cultural theory, we confirm that red cultural identity can predict subject well-being in a Chinese cultural context. As Social Identity Theory describes, people will assign themselves to
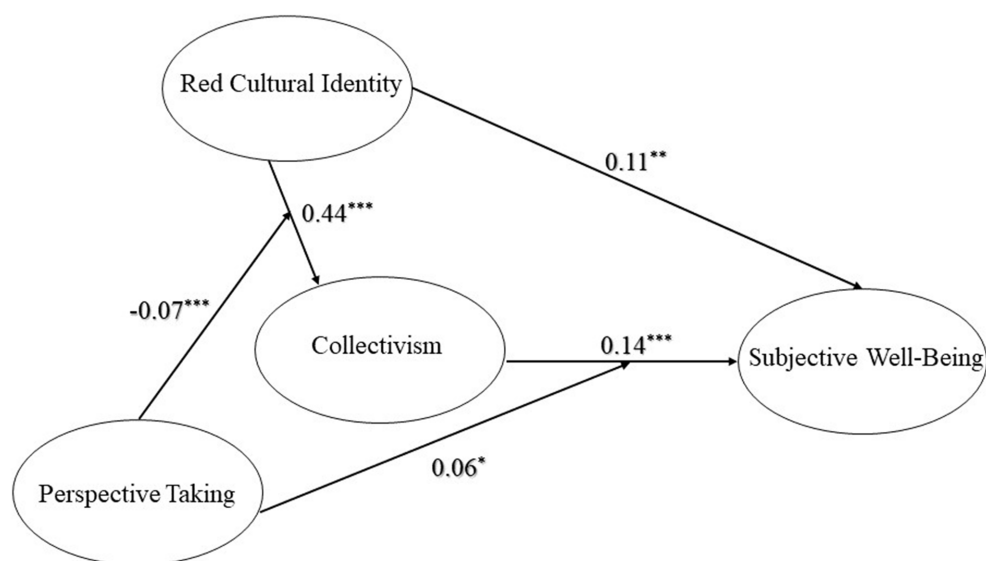
FIGURE 2
The moderated-mediation model.
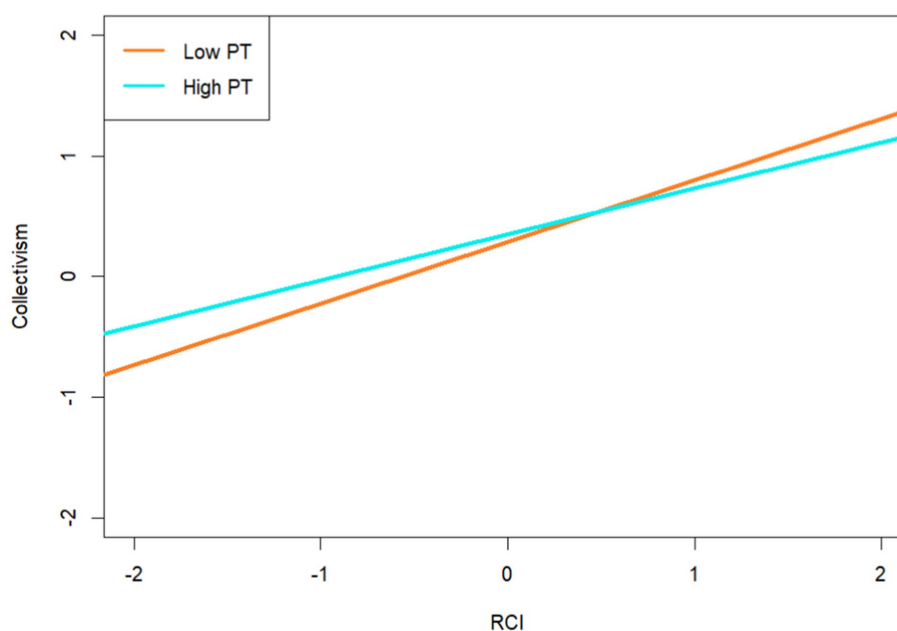
FIGURE 3
The moderating role of PT between RCI and collectivism.

the pursuit of their own cultural groups (Ashdown et al., 2011). Individuals' identity in the culture in which they live denotes the consistency between their opinions and social ideology. Committing to cultural norms reduces the potential for conflicts, which, in turn, leads to a positive personal experience.

From a cross-cultural perspective, an identity with a specific culture is believed to affect the subjective well-being of residents living in the context of that culture. For example, a previous study found that as the duration of residence in Australia increased, Chinese Australian students identified more with and accepted the host national

identification (i.e., local Australian individualism). The author stated that cultural identity has a direct positive effect on individuals' subjective well-being, even when they were not native (Zheng et al., 2004). On the contrary, international students whose cultural backgrounds conflict with the local culture tend to experience more negative feelings when they fail to adapt to the local cultural values (Zheng et al., 2004). The unique effect of local cultural identity is further verified by the World Database of Happiness, which involves 4,500 findings regarding happiness in distinctive countries. For example, immigrants' levels of happiness were found to increase over
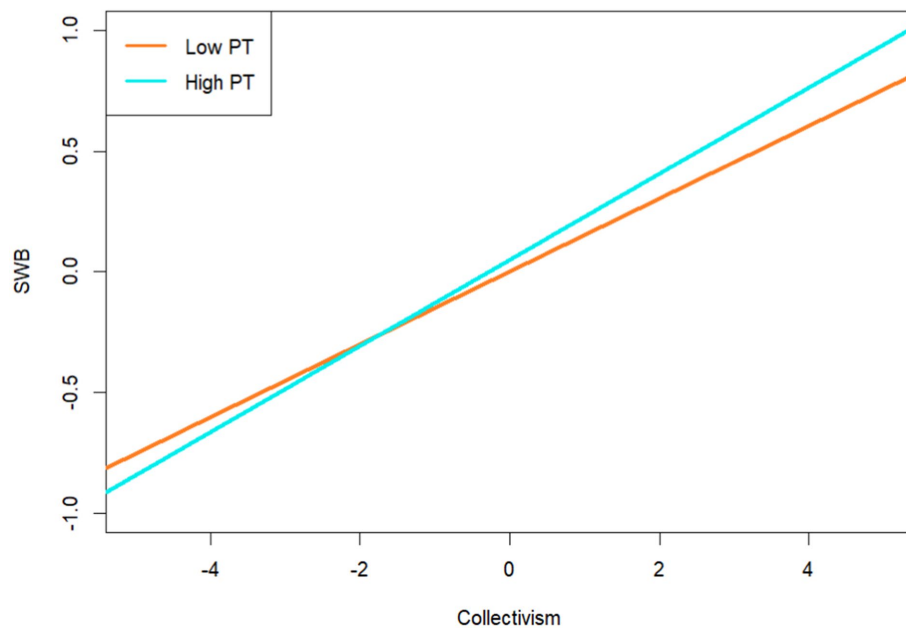
FIGURE 4
The moderating role of PT between collectivism and SWB.

TABLE 3 Conditional indirect effects of RCI on SWB.

Mediator	Value of moderator	Effect	Bootstrap SE	Lower level CI	Upper level CI
Low PT (−1SD)	−1	0.04	0.02	−0.01	0.09
Medium PT (mean)	0	0.06	0.02	0.03	0.10
High PT (+1SD)	1	0.08	0.02	0.03	0.12

time and eventually reach the levels of the native members of the communities in which they live (Veenhoven, 2012). This can be explained by the fact that immigrants gradually identify with the local culture, further indicating a positive relationship between cultural identity and well-being. Schimmack's study also indicates that the influence of the cognitive component on individual perceptions of well-being is more moderated by culture (Schimmack et al., 2002). Taken together, the subjective well-being of individuals is influenced by the extent to which they identify with the culture they live in.

Importantly, collectivism fully mediates the influence of cultural identity on subjective well-being in the context of Chinese culture. Collectivism emphasizes human interdependence, social embeddedness, and obligation and loyalty to the in-group (e.g., family; Huang et al., 2018) and has long been emphasized as a crucial component of socialist values. As observed in our results, the strong positive correlation between red cultural identity and collectivism implies that the pursuit of collectivism is still advocated by contemporary Chinese culture, which inherited it from revolutionary times. This intrinsic relevance was captured by the full mediation of collectivism between red cultural identity and subjective well-being.

Individuals who live in collectivist societies have a stronger sense of belonging to their own group (Posey et al., 2010). Therefore, red cultural identity gives individuals a sense of belonging. This is consistent with the findings of Dierdorff et al. (2011) that individuals with collectivist orientations might base their identity on group membership as well as value interdependence and the group over themselves, thus promoting the effective functions of the team. From the perspective of the Integrated Mediator–Moderator Mode, the interaction between the environment of red culture and the personality trait of high collectivism can promote life satisfaction, which is a significant part of subjective well-being (Schimmack and Diener, 1997).

Moreover, the present study also verifies that perspective-taking moderates the mediating effect of collectivism on red cultural identity and subjective well-being. In this study, perspective-taking is defined as a cognitive process in which individuals adopt other people's perspectives in an attempt to understand their preferences, values, and behaviors (Parker and Axtell, 2001). In a red cultural environment, this adoption of others' perspectives primarily involves identifying with the group in which one is embedded and following others in some red culture-related activities. Interestingly, the positive predictive effect of red cultural identity on collectivism was found to diminish with the increase in perspective-taking. This may be due to the fact that the "face" (also known as "mien-zu") is more significant in collectivist culture than in individualist culture. In the context of east Asian culture, the "face" is defined as "a reputation achieved through getting on in life, through success and ostentation" (Kim and Nam, 1998), and individuals in a collectivist culture may generate a sense of "being small and worthless" if they lose face, which may lead to negative emotions such as anxiety and fear (Luomala et al., 2015).

Individuals who are more concerned about losing face may not participate in such group activities for fear of the unknown consequences of losing face by following the crowd.

It is noteworthy that the predictive effect of collectivism on subjective well-being was significant only for the participants with high perspective-taking. This might be brought on by the differences in prosocial motivation between high-and low-perspective-taking individuals. According to a previous study, people with higher levels of perspective-taking are supposed to have higher levels of prosocial autonomy and stronger motivations for communication, which increases prosocial behavior as a result (Wang et al., 2014). Furthermore, prosocial autonomy motivation allows people to experience a greater sense of well-being (Weinstein and Ryan, 2010), higher life satisfaction (Kwok et al., 2013), more positive emotions, and fewer negative emotions (Gebauer et al., 2008). Therefore, people with higher perspective-taking might be more likely to report higher subjective well-being in a collectivist context. This may be because the effect of perspective-taking on well-being was high enough to allow the role of perspective-taking on subjective well-being to overshadow the role of cultural identity in high-perspective-taking populations.

However, the factors that affect well-being for a particular culture would not play the same role in another culture. For example, perceived social support has been shown to be positively related to overall well-being in collectivist countries (Diener et al., 1995), where increasing individualism would decrease the social support perceived in those countries (Xin and Xin, 2016). Collectivists, who prioritize harmony between the individual and the surrounding environment (Zwolinski, 2019), believe that the collective is the most important thing and focus on achieving common goals (Diener et al., 1995), resulting in a stronger need for social support and emotional attachment. When these factors decrease, individuals' loneliness increases, which leads to mental health problems and lower levels of well-being. In contrast, in Western countries where people are more concerned with personal liberty, collectivism would not be a critical factor in determining an average individual's subjective well-being. For example, it was shown that individualism, as opposed to collectivism, shows a significant positive correlation with well-being in Australia, which is generally thought to be an individualistic country (Diener et al., 1995). Individualism is more about equality, liberty, and personal rights and interests, which is contrary to the values of collectivism. Therefore, whether and how a set of values affects subjective well-being depends on the individual's specific cultural background.

The present study reveals that high perspective-taking leads to higher levels of well-being and positive emotions, which fit with positive psychology. Positive psychology is the science of what is needed for a good life, pursuing the quality of a good life, and devoting oneself to the promotion of well-being (Slade, 2010). The results of the present study also provide suggestions for positive psychology from the perspective of improving subjective well-being.

Despite the merits of the present study, it has several limitations. First, we did not collect the exact age of participants, nor their socio-economic status, eroding the ecological validity of the results. Further study could control for these variables to provide evidence of greater validity. Second, this study was conducted only in China, a typical collectivist society, ignoring the different feelings of individuals in an individualistic society. Cross-cultural studies could be introduced in the subsequent studies, comparing the findings of individualistic and collectivistic societies, and discussing the differences further.

Conclusion

This study extends the field of cultural identity and well-being research by testing the moderated mediating model in a specific cultural context. The present study clarifies how and when the red cultural identity of Chinese residents is positively correlated with subject well-being. In addition, as perspective-taking represents the ability to engage in social interaction, which is highly valued in collectivist societies, it was found to moderate the mediating role of collectivism in Chinese culture. These results demonstrate that the way cultural identity predicts subjective well-being is highly correlated to specific cultural features, e.g., the opinion of values, which was significant in practice with a cross-cultural background.

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 Institutional Review Board of ethics and human and animal protection committee of the Fujian Normal University. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

Author contributions

SZ and RL: conceptualization and methodology. HY: validation, writing—review & editing, and visualization. GL and HY: formal analysis. YH, TH, SL, and JL: investigation. GL and HY: data curation. GL, YH, TH, SL, and JL: writing—original draft preparation. RL: supervision. SZ: project administration and funding acquisition. All authors contributed to the article and approved the submitted version.

Funding

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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Cultural differences in explicit and implicit support provision and underlying motivations for self-esteem, closeness, and relational concerns

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This research explores how culture influences the motivations underlying explicit (emotional and instrumental) and implicit (companionship and attentiveness) support provision. Two studies ($N = 1,106$) compared the responses of European Americans and Japanese individuals to a close other's stressful event. The results showed that European Americans were more likely than Japanese to provide explicit support and more motivated to increase the close other's self-esteem and feeling of closeness. Conversely, Japanese individuals were more likely to provide attentiveness support, motivated by concern for an entire group and a friend. These findings support the motivation as a mediator hypothesis. On the other hand, the culture as a moderator hypothesis applied to the association between concern for an entire group motivation and implicit support provision. Specifically, concern for an entire group motivation predicted companionship support provision only in Japanese, while it predicted attentiveness support provision mainly in European Americans.

KEYWORDS

culture, social support provision, explicit vs. implicit social support, relational concerns, self-esteem

1. Introduction

Many people experience daily stress that impacts their well-being and health, and social support is a highly effective means of coping with such stress (Seeman, 1996; Uchino, 2004). When social support meets the recipient's needs and makes them feel understood and cared for, it is particularly beneficial (Cobb, 1976; Cohen and Wills, 1985). Although the importance of social support has been widely recognized, the ways in which social support transactions occur and the underlying motivations behind them differ across cultures, reflecting the influence of cultural values and norms for interpersonal relationships. European Americans tend to seek emotional comfort and instrumental aid more than East Asians (Taylor et al., 2004; Kim et al., 2008) and prioritize self-esteem motivations when seeking emotional and instrumental support (Ishii et al., 2017). On the other hand, emotional comfort obtained by perceiving a social relationship without disclosing the stressor is more beneficial for East Asians (Taylor et al., 2007), and Japanese people are more likely than European Americans to seek this implicit type of support by emphasizing relational concern motivations (Ishii et al., 2017). These cultural

differences in seeking social support and underlying motivations are also reflected in the motivations for providing social support, with self-esteem motivations being positively associated with emotional and instrumental support provision in European Americans but not in Japanese (Chen et al., 2012). In this research, testing both Japanese and European Americans, we aim to investigate the manifestation of cultural values and norms for interpersonal relationships in the underlying motivations of individuals regarding social support provision. This aspect has not been fully understood previously. We examine how various forms of motivation influence both explicit and implicit types of social support provision across different cultures.

1.1. Culture and explicit and implicit social support

Cultural psychological research highlights cultural differences in the way individuals view themselves and their relationships with others (Triandis, 1989; Markus and Kitayama, 1991). The prevalent Western notion of an independent self, which involves perceiving oneself as separate from others and autonomous, emphasizes focusing on internal attributes such as traits and preferences, presenting oneself as unique, and influencing others. This form of self guides individuals toward maintaining and enhancing self-esteem and a sense of control. Conversely, the interdependent self, which is dominant in East Asian cultures, views the individual as connected to and interdependent with others. This form of self emphasizes focusing on relationships and communication with members of one's in-group, adhering to shared norms, and fulfilling obligations and standards expected by the in-group. It guides individuals toward maintaining harmonious relationships and avoiding behaviors that disrupt group harmony.

Social support refers to expressions of caring and belonging within a social network that help individuals cope with stressors (Cobb, 1976). Although social support can be achieved in various ways, cultural psychology research has suggested that people's preferences for a specific type of social support are influenced by their cultural norms in relationships. Emotional support, which provides comfort and reassurance, and instrumental support, which provides practical aid and advice, are two representative types of social support. Both types of support (called explicit support) are typically obtained by explicitly disclosing one's needs and feelings. In Western culture, this kind of self-disclosure is considered important for achieving the shared value of independence, making it more normative than in East Asian culture (Taylor et al., 2007; Schug et al., 2010). Studies have found that European Americans were more likely than Asians and Asian Americans to seek explicit social support for coping with stressors (Taylor et al., 2004; Kim et al., 2006).

Furthermore, receiving explicit support from others (e.g., courage) during stressful times can help restore and maintain one's positive self-image (i.e., self-esteem), which is more valued in Western culture than in East Asian culture. Research found that European Americans were more likely to seek explicit support for increasing self-esteem relative to Japanese individuals (Ishii et al., 2017). In addition to seeking explicit support, research conducted by Chen et al. (2012) found that, compared to Japanese individuals, European Americans were more likely to provide explicit social support, particularly emotional support, to their friends. This support was aimed at restoring their

friends' self-esteem in the face of stressors and strengthening the closeness of their relationships.

In contrast, East Asians, who emphasize relationship harmony, may prefer implicit social support more. Implicit social support is defined by the emotional comfort obtained from social networks without disclosing one's stressors and needs (Taylor et al., 2007). Implicit social support can be provided by spending time with friends without discussing stressors or needs (i.e., companionship) and by monitoring friends who are stressed without offering tangible help (i.e., attentiveness; Chen et al., 2015). Relationships in Asian culture are relatively fixed and characterized by more obligation (Miller et al., 1990; Morling et al., 2002). Thus, East Asians are more cautious in discussing their personal needs to avoid burdening others. Research has demonstrated that Asians and Asian Americans are more likely than European Americans to be concerned about the negative impacts of disclosing stressful events on others in their social networks (i.e., relational concern; Taylor et al., 2004; Kim et al., 2006; Zheng et al., 2021). Moreover, research found that the motivation behind seeking implicit social support was more driven by relational concerns in Japanese than European Americans (Ishii et al., 2017). Chen et al. (2015) found that higher perceived closeness to a friend was associated with greater companionship and attentiveness, with this trend being stronger for Asian Americans compared to European Americans. However, it is unclear whether the utilization of implicit social support varies across cultures.

Taken together, the research reviewed above suggests that explicit social support is likely to be more prevalent and effective in Western culture, while implicit social support may be more normative in East Asian culture. Indeed, research has found that explicit social support was less effective in reducing stress responses and negative feelings in Asians and Asian Americans compared to European Americans (Taylor et al., 2007). In contrast, the perception of implicit social support was found to reduce stress and negative feelings more effectively in Asians and Asian Americans compared to European Americans (Taylor et al., 2007).

1.2. The remaining issues in culture and support provision: the roles of culture and motivation and the association between implicit social support and relational concerns

Considerable evidence has been accumulated on cultural influences on social support. However, relatively little research has examined how culture affects social support provision and the motivations behind it. Given these cultural differences in social support transactions, we aim to address two specific questions about the relationships between culture, motivation, and support provision in this research. The first question concerns the role of motivation for self-esteem in the relationship between culture and explicit social support. While cultural differences in explicit social support and motivation for self-esteem have been consistently found, it is unclear how motivation for self-esteem is related to culture and explicit social support provision. Chen et al. (2012) found a positive association between motivation for self-esteem and explicit support provision only in the US, whereas motivation for closeness predicted explicit support provision in the US and Japan. That is, culture moderated the

association between the motivation for self-esteem and explicit support provision. On the other hand, given that Taylor et al. (2004) suggested that relational concerns play a mediating role in the relationship between culture and social support seeking, motivation for self-esteem may function as a mediator in the same way. In this case, explicit social support provision would increase as a function of motivation for self-esteem that differs cross-culturally. To elucidate relationships between culture, motivation, and social support provision, we tested two hypotheses: one based on culture as a moderator of the association between motivation and social support provision, and an alternative hypothesis based on motivation as a mediator of the effect of culture on social support provision.

Second, more importantly, while a cultural difference in the motivation for relational concerns in seeking implicit social support has been noted (Ishii et al., 2017), it has been unclear whether the provision of implicit social support varies across cultures and whether it is influenced by relational concerns across cultures. Specifically, the role that relational concerns motivation plays in the relationship between culture and implicit social support provision is also uncertain. Based on the culture as a moderator hypothesis, a positive association between motivation for relation concerns and implicit support provision would be observed, particularly in East Asians (e.g., Japanese). In contrast, based on the alternative hypothesis based on motivation as a mediator, implicit social support provision would increase as a function of relational concerns motivation, which differs across cultures.

To date, no research has addressed these two questions. This study aims to fill this gap in the literature by focusing on the strength of self-esteem motivation and relational concerns motivation and their role in the relationships between culture and explicit and implicit social support in Japanese and European Americans.

1.3. Two types of relational concerns in the context of support provision: concern for an entire group and concern for a friend

While research on cultural influences on social support provision and the motivations behind it is limited, it is expected that the findings will align with the existing literature on culture and social support seeking. However, the perspectives of support seekers and providers differ, which may be reflected in the aspects of relationships they are concerned about and the types of implicit support they provide. Support seekers are likely to consider how the other person and other members of their social group respond to their request for support, whereas support providers aim to help the person experiencing stressful events and problems while also considering the indirect effects of their support on surrounding in-group members. This emphasizes that both the needs of the person seeking support and the relationships among group members are important considerations in the context of social support provision.

The measure of relational concern, which has been exclusively used in previous research, was developed from the perspective of support seekers by Taylor et al. (2004). In their research, they categorized the reasons for avoiding social support seeking into five types: preserving social group harmony, the belief that disclosing the problem makes it worse, avoiding criticism, avoiding embarrassment, and a belief in self-reliance. After conducting a factor analysis, they

found two latent variables. All five types of explanations loaded highly positively on the first factor (called relational concerns), which is characterized by a concern for maintaining relationships among in-group members and avoiding negative reputations. Conversely, self-reliance loaded highly positively, and criticism loaded highly negatively on the second factor (called independence concerns), which is characterized by the belief that individuals are expected to cope with problems on their own without concern for others' views. Interestingly, cultural differences in social support seeking were explained by relational concerns, not independence concerns. However, due to the different perspectives between support seekers and providers, a concern corresponding to independence concerns, such as concern for the potential negative impacts on the support receiver, may not only exist but also play a more active role in implicit support provision.

We propose that there are two types of concerns that motivate people to provide implicit support. First, as support seekers, support providers may share a concern about discussing stressful experiences that would bother other group members besides the receivers, potentially disrupting the harmony of the entire group. Second, people may provide implicit social support simply to avoid causing harm to receivers. We refer to the former as "concern for an entire group" and the latter as "concern for a friend." In this research, we investigate the strength of motivation for concern for an entire group and concern for a friend among Japanese and European Americans, as well as how these motivations are related to implicit social support provision.

1.4. Present research

We conducted two studies to explore the cultural influences on individuals' motivations behind social support provision, with a focus on the provision of explicit and implicit social support and the motivations for self-esteem, closeness, concern for an entire group, and concern for a friend. Figure 1 presents the models that illustrate the associations among variables we hypothesize in this research. Study 1 examined the social support that Japanese and European American participants would provide to a close friend experiencing a hypothetical stressful event, and the motivations they would emphasize in making their decision. In Study 2, we directly asked Japanese and European American participants about the support they provided to a close friend who had recently experienced a stressful event and the motivations they emphasized. This research builds on the findings of Chen et al. (2012, 2015) and adds two new types of relational concern motivations and their relationships with two types of implicit social support provision (companionship and attentiveness). Building on the findings of Chen et al. (2012), we hypothesize that European Americans will provide more explicit support and prioritize self-esteem and closeness motivations to a greater extent than Japanese individuals (Hypothesis 1). Additionally, based on the culture as a moderator hypothesis suggested by Chen et al. (2012), greater self-esteem motivation would be associated with increased explicit social support provision in European Americans, while the trend would be weaker in Japanese (Hypothesis 2a). In contrast, based on the alternative hypothesis based on motivation as a mediator, self-esteem and closeness motivations would be positively associated with explicit social support provision, and the cultural differences
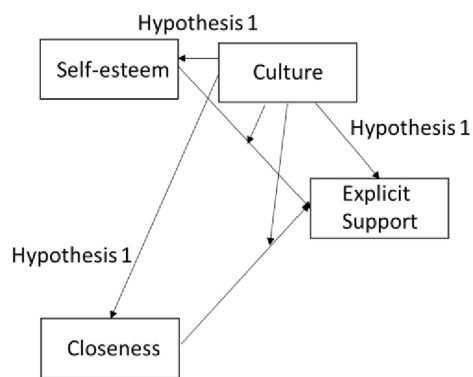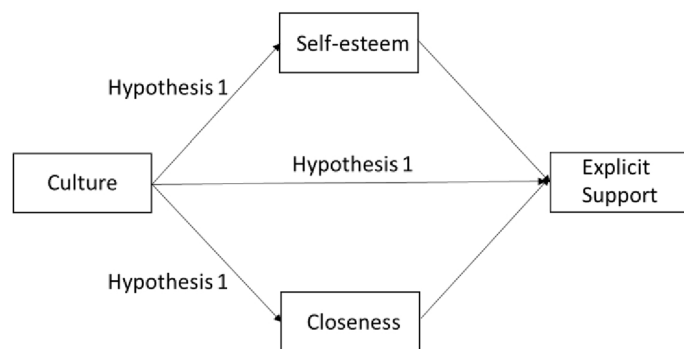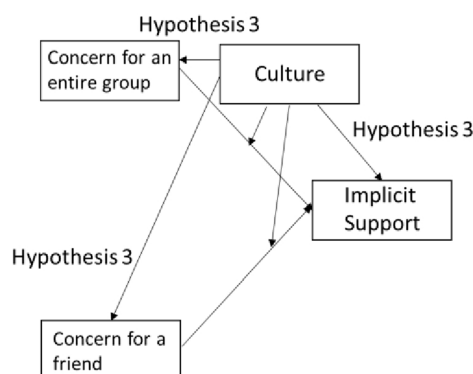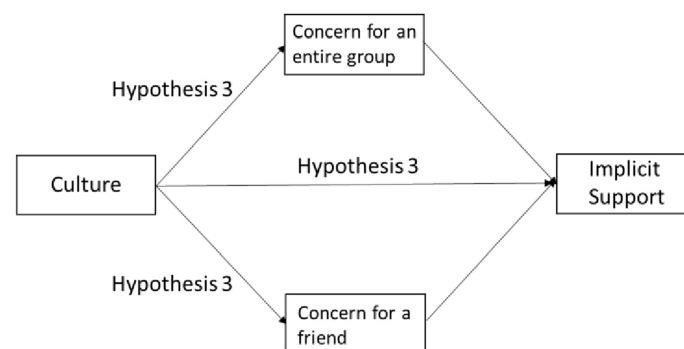
FIGURE 1
"Culture as a moderator" and "motivation as a mediator" models illustrating the associations among variables related to explicit support **(A)** and implicit support **(B)**.

in explicit social support provision would be explained by self-esteem and closeness motivations that are higher in European Americans than in Japanese (Hypothesis 2b).

Reflecting interdependence highly valued in Japanese, we expect that Japanese would provide more implicit social support and endorse more concern for an entire group motivation and concern for a friend motivation than European Americans (Hypothesis 3). Based on the culture as a moderator hypothesis, greater concern for an entire group motivation and greater concern for a friend motivation will be associated with increased implicit social support provision in Japanese, while the trend will be weaker in European Americans (Hypothesis 4a). In contrast, based on the alternative hypothesis based on motivation as a mediator, concern for an entire group motivation and concern for a friend motivation would be positively associated with implicit social support provision, and the cultural differences in implicit social support would be explained by concern for an entire group motivation and concern for a friend motivation that are higher in Japanese than in European Americans (Hypothesis 4b).

In addition, Chen et al. (2015) suggested that culturally appropriate ways of support provision are likely to occur in the case of close others (i.e., individuals with high-quality relationships). In both studies, we thus asked participants about the friend who was closest to them and had them rate how useful or disruptive the friend was in helping them achieve their goals. Although this measurement differs slightly from the one used to assess relationship quality, such as trust, intimacy, and satisfaction in Chen et al. (2015), we controlled for the ratings of the friend's instrumentality in the following analyses. Moreover, the characteristics and perceptions of stressful events, which may vary across cultures, can influence the ratings for support provision and motivations. Therefore, we adopted the methods used in previous research (Kim et al., 2006; Ishii et al., 2017) to measure the characteristics and the perceptions of stressful events and addressed the potential influences. We also added two other types of motivation (self-improvement and low efficacy) for exploratory purposes and examined their strengths and associations with implicit social support across cultures, with the results presented in the Supplementary materials.

2. Study 1

2.1. Method

Both Studies 1 and 2 were reviewed and approved by the ethics committee at Nagoya University, Japan. All responses were kept confidential.

2.1.1. Participants

We recruited 209 European Americans and 255 Japanese participants through online crowdsourcing marketplaces (Prolific for the European American participants and Lancers for the Japanese participants). According to a power analysis with G*Power 3.1, we needed at least 368 participants in total to detect a small effect size ($f^2 = 0.03$) with 80% power for an F-test (linear multiple regression: fixed model, R^2 deviation from zero) when the significance level was set to 0.05. Thirty-one participants were excluded from the following analysis for the following reasons: Three Japanese participants failed to pass attention check questions, 25 Japanese participants did not complete more than half of the whole questionnaire, two Japanese participants did not allow us to analyze their data, and one European American participant did not report her or his age. Thus, the final sample size was 433 (208 European Americans [64.9% female, $M_{age} = 38.52$, $SD = 12.12$] and 225 Japanese participants [40.9% female, $M_{age} = 42.32$, $SD = 8.92$]).

2.1.2. Materials and procedure

After consenting, participants completed questionnaires in the order of their recent stressful events, their friend's instrumentality, support provision, and motivations for support provision. We then asked them to report their demographic information (gender, age, nationality, ethnicity, education attainment, annual income, the MacArthur scale of subjective social status).

Participants were initially asked to briefly describe the biggest stressor they had faced within the last three months and identify the most relevant type of stressor from nine options (family relationship, friend relationship, romantic relationship, academic, health, financial, job, future, or other). In addition, they were asked to rate how they felt about the stressful events by using five items (stressful, negative, responsible, resolvable, and controllable) with a seven-point Likert scale (0 = not at all, 6 = very much).

The participants were then asked to think of the friend who was closest to them, write his or her initials, and rate how useful or disruptive the friend was to achieve their goals in five domains (job and academic, hobby, social relationship, financial, and other important goals) using a seven-point scale (−3 = very disruptive, 0 = neither disruptive nor helpful, 3 = very helpful). The questions regarding the friend's instrumentality were developed based on Ohtsubo and Yagi (2015). Because the internal consistency of the five items was acceptable (Cronbach's α was 0.74 for Japanese and 0.76 for European Americans), the average was computed for each participant as the friend's instrumentality score.

Next, the participants were asked to suppose that the friend was experiencing the stressful event they described previously and report on a seven-point scale (0 = never likely to do so, 6 = very likely to do so) to what extent they would help the friend in ways that they provide emotional support (three items, e.g., "I would encourage the friend by saying things like, 'Do not worry, it's going to be all right.'"; Cronbach's

α was 0.72 for Japanese and 0.63 for European Americans), instrumental support (three items, e.g., "I would suggest how to solve the problem to the friend."; Cronbach's α was 0.90 for Japanese and 0.84 for European Americans), companionship (three items, e.g., "I would increase the time I spend with the friend without talking about his/her problem."; Cronbach's α was 0.83 for Japanese and 0.84 for European Americans), and attentiveness (three items, e.g., "I would keep a little distance until the friend felt better, although I cared if he/she is okay."; Cronbach's α was 0.66 for Japanese and 0.64 for European Americans).

The participants were also presented with a list of items consisting of the six types of motivations for support provision and asked to report on a seven-point scale (0 = not at all, 6 = very much) how important each item would be to them when they thought about the ways they would help the friend. The six types of motivations were: (a) motivation for self-esteem, with three items (e.g., "I want the friend to be able to feel good about him/herself") developed by Chen et al. (2012); (b) motivation for closeness, with three items (e.g., "I want the friend to feel close to me") developed by Chen et al. (2012); (c) motivation for relational concern, with 11 items (e.g., "I do not want to hurt the friend more by asking about a problem he/she is having"), which we developed by adapting the related items used in Taylor et al. (2004); (d) motivation for the friend's self-improvement, with six items (e.g., "I want to give the friend some time alone to calm down and reflect"); (e) low efficacy of helping, with three items (e.g., "I do not know how to react to the friend who is having trouble"); and (f) no interest in helping, with two items (e.g., "I want to avoid any trouble"). We conducted an exploratory factor analysis for all the items regarding motivations of support provision and obtained six factors after excluding eight items with lower factor loadings. As we expected, relational concern was divided into two factors: concern for an entire group (four items, Cronbach's α was 0.77 for Japanese and 0.76 for European Americans) and concern for a friend (four items, Cronbach's α was 0.85 for Japanese and 0.79 for European Americans). Additionally, the factors of self-esteem (three items, Cronbach's α was 0.81 for Japanese and 0.84 for European Americans), closeness (three items, Cronbach's α was 0.84 for Japanese and 0.85 for European Americans), self-improvement (three items, Cronbach's α was 0.71 for Japanese and 0.62 for European Americans), and low efficacy (three items, Cronbach's α was 0.85 for Japanese and 0.82 for European Americans) were included. The details of the factor analysis are presented in the Supplementary materials.

2.2. Results

2.2.1. Characteristics of stressful events and relationship instrumentality with friends

Japanese rated their stressors as stressful, responsible, and controllable, as did European Americans (stressful: M (SD) s = 6.20 (0.87) vs. 6.10 (0.99), $t(431) = 1.11$, $p = 0.27$, responsible: M (SD) s = 3.98 (1.88) vs. 3.77 (2.10), $t(431) = 1.09$, $p = 0.28$, controllable: M (SD)s = 3.08 (1.51) vs. 2.83 (1.69), $t(431) = 1.61$, $p = 0.11$. However, Japanese ($M = 5.84$, $SD = 1.33$) rated their stressors as more negative than did European Americans ($M = 5.28$, $SD = 1.82$), $t(431) = 3.62$, $p < 0.001$, whereas European Americans ($M = 3.74$, $SD = 2.08$) felt more solvable than did Japanese ($M = 3.07$, $SD = 1.62$), $t(431) = 3.77$, $p < 0.001$. Participants in both cultures reported more stressful events

in family relationships, health, financial circumstances, and work. In particular, the ratio of family relationships was higher in Japanese (31.1%) than in European Americans (17.8%), X^2 (1, $N = 433$) = 9.61, $p = 0.002$. In contrast, European Americans were more likely than Japanese to report more stressful events in romantic relationships (6.7% vs. 0.4%, X^2 (1, $N = 433$) = 5.73, $p = 0.017$) and academic matters (3.4% vs. 0.0%, X^2 (1, $N = 433$) = 10.96, $p < 0.001$), although the ratio of the two stressors was relatively much lower in both cultures. Moreover, the mean score of the friend's instrumentality was higher in European Americans ($M = 1.27$, $SD = 1.33$) than in Japanese ($M = 0.87$, $SD = 1.12$), $t(431) = 5.20$, $p < 0.001$.

2.2.2. Support provision

We performed a 2 (culture) × 4 (support type: instrumental support, emotional support, companionship, and attentiveness) ANCOVA including the negative and solvable ratings for stressors and the friend's instrumentality, which differed across cultures, as covariates.[1] The main effects of culture and support type were significant, $F(1, 428) = 24.92$, $p < 0.001$, $\eta_p^2 = 0.23$, and $F(3, 1{,}284) = 11.20$, $p < 0.001$, $\eta_p^2 = 0.03$. Also, the culture and type of support interaction was significant, $F(3, 1{,}284) = 56.54$, $p < 0.001$, $\eta_p^2 = 0.12$. A post-hoc analysis showed that European Americans provided more emotional support, instrumental support, and companionship than did Japanese (emotional support: $F(1, 428) = 86.76$, $p < 0.001$, $\eta_p^2 = 0.17$, LS means (SE) = 4.20 (0.09) vs. 3.07 (0.08), instrumental support: $F(1, 428) = 10.68$, $p = 0.001$, $\eta_p^2 = 0.02$, LS means (SE) = 3.84 (0.09) vs. 3.41 (0.09), companionship: $F(1, 428) = 37.92$, $p < 0.001$, $\eta_p^2 = 0.08$, LS means (SE) = 3.99 (0.09) vs. 3.22 (0.09)), whereas Japanese provided more attentiveness than European Americans, $F(1, 428) = 38.62$, $p < 0.001$, $\eta_p^2 = 0.08$, LS means (SE) = 3.84 (0.08) vs. 3.15 (0.08). European Americans provided more emotional support than the three other types of support (ps < 0.001), whereas Japanese provided more attentiveness than the three other types of support (ps < 0.001).

2.2.3. Motivation for support provision

We performed a 2 (culture) × 6 (motivation: self-esteem, closeness, concern for an entire group, concern for a friend, self-improvement, and low efficacy) ANCOVA including the negative and solvable ratings for stressors and the friend's instrumentality as covariates. The main effects of culture and motivation were significant, $F(1, 428) = 10.33$, $p = 0.001$, $\eta_p^2 = 0.02$, and $F(5, 2{,}140) = 5.09$, $p < 0.001$, $\eta_p^2 = 0.01$. The culture and motivation interaction was also significant, $F(5, 2{,}140) = 110.40$, $p < 0.001$, $\eta_p^2 = 0.21$. A post-hoc analysis showed that European Americans reported greater motivation for self-esteem ($F(1, 428) = 57.34$, $p < 0.001$, $\eta_p^2 = 0.12$, LS means (SE) = 4.54 (0.09) vs. 3.59 (0.09)) and closeness ($F(1, 428) = 127.01$, $p < 0.001$, $\eta_p^2 = 0.23$, LS

means (SE) = 4.69 (0.09) vs. 3.29 (0.08)) than Japanese. In contrast, Japanese reported greater motivation for concern for an entire group ($F(1, 428) = 60.57$, $p < 0.001$, $\eta_p^2 = 0.12$, LS means (SE) = 1.81 (0.07) vs. 0.97 (0.07)), concern for a friend ($F(1, 428) = 45.91$, $p < 0.001$, $\eta_p^2 = 0.10$, LS means (SE) = 4.08 (0.09) vs. 3.19 (0.09)), self-improvement ($F(1, 428) = 48.31$, $p < 0.001$, $\eta_p^2 = 0.10$, LS means (SE) = 2.92 (0.08) vs. 2.13 (0.08)), and low efficacy ($F(1, 428) = 97.60$, $p < 0.001$, $\eta_p^2 = 0.19$, LS means (SE) = 2.69 (0.09) vs. 1.43 (0.09)) than did European Americans. Concern for a friend was higher than self-esteem and closeness in Japanese (ps < 0.001), whereas the trends were reversed in European Americans (ps < 0.001). Overall, motivation for concern for an entire group was lower than the five other types of motivation in both cultures (ps < 0.001).

Table 1 presents the correlations between motivation and support provision in each culture. In both cultures, self-esteem and closeness were positively associated with the four types of support provision, whereas concern for a friend and self-improvement were positively associated with the two types of implicit support provision. Concern for an entire group and low efficacy were positively associated with providing attentiveness, whereas low efficacy was negatively associated with providing emotional support. Only in Japanese was concern for an entire group positively associated with providing companionship, and self-improvement was positively associated with the two types of explicit support provision. Additionally, low efficacy was positively associated with providing companionship but negatively associated with providing instrumental support. In contrast, concern for an entire group was negatively associated with providing emotional support only in European Americans.

2.2.4. Relationship between motivation and explicit support provision: self-esteem and closeness

We initially performed a series of multiple regression analyses to investigate whether specific types of motivations were associated with providing explicit support (i.e., emotional support and instrumental support) and whether the associations were moderated by culture. Following Chen et al. (2012), we analyzed the relationships between each of the two types of explicit support and each of the corresponding motivations (i.e., self-esteem and closeness) and investigated the unique effects of the two types of motivation by controlling for each other in the regression analyses.

2.2.4.1. Self-esteem

For each explicit support, motivation for closeness was entered along with the control variables of the negative and solvable ratings for stressors, the friend's instrumentality, gender, and age (Step 1). Culture (0 = Japanese, 1 = European Americans) and motivation for self-esteem were also entered (Step 2). The interaction between culture and motivation for self-esteem was then added (Step 3). For emotional support, the main effect of motivation for closeness was significant, $b = 0.52$, $SE = 0.04$, $p < 0.001$ in Step 1 ($R^2 = 0.474$). Whereas the main effect of closeness was still significant, the main effects of motivation for self-esteem ($b = 0.23$, $SE = 0.05$, $p < 0.001$) and culture ($b = 0.40$, $SE = 0.12$, $p < 0.001$) were significant in Step 2 ($\Delta R^2 = 0.042$). Additionally, the culture and motivation for self-esteem interaction was significant, $b = -0.17$, $SE = 0.08$, $p = 0.03$ in Step 3 ($\Delta R^2 = 0.006$). In both cultures, motivation for self-esteem promoted more emotional support provision. However, the trend was rather stronger in Japanese

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1 Chen et al. (2015) found that relationship quality was positively associated with emotion-focused support provision, particularly in European Americans, whereas it was positively associated with implicit support provision, especially among Asian Americans. Based on the finding, we performed an ANCOVA by adding the interaction term of culture and the friend's instrumentality to these covariates. However, neither the culture and the friend's instrumentality interaction ($F(1, 427) = 0.44$, $p = 0.51$) nor the interaction including support ($F(3, 1{,}281) = 0.96$, $p = 0.41$) were significant.

TABLE 1 Correlations among support provision and motivation variables in Study 1.

Variable	1	2	3	4	5	6	7	8	9	10
1. Emotional support	––	0.48***	0.23***	0.19**	0.54***	0.54***	−0.05	−0.03	0.18**	−0.31***
2. Instrumental support	0.56***	––	−0.04	0.04	0.33***	0.31***	−0.13[+]	−0.13[+]	0.20**	−0.41***
3. Companionship	0.41***	0.36***	––	0.53***	0.26***	0.32***	0.26***	0.48***	0.19**	0.17**
4. Attentiveness	0.32***	0.24***	0.39***	––	0.32***	0.18**	0.14*	0.52***	0.31***	0.20**
5. Self-esteem	0.42***	0.35***	0.41***	0.23***	––	0.51***	0.11[+]	0.31***	0.42***	−0.12[+]
6. Closeness	0.53***	0.40***	0.47***	0.18**	0.63***	––	0.10	0.17**	0.18***	−0.02
7. Concern for group	−0.15*	0.01	0.02	0.25***	−0.001	−0.17*	––	0.34***	0.30***	0.52***
8. Concern for friend	0.13[+]	0.05	0.37***	0.41***	0.34***	0.13[+]	0.29***	––	0.23***	0.38***
9. Self-improvement	−0.06	0.03	0.16*	0.38***	0.19**	−0.02	0.47***	0.40***	––	0.07
10. Low efficacy	−0.20**	−0.12[+]	−0.10	0.20**	−0.01	−0.17*	0.57***	0.32***	0.37***	––

Correlations for Japanese ($df = 223$) are presented above the diagonal, and correlations for Americans ($df = 206$) are presented below the diagonal.
***$p < 0.001$, **$p < 0.01$, *$p < 0.05$, [+]$p < 0.10$.

($b = 0.32$, $SE = 0.06$, $p < 0.001$) than in European Americans ($b = 0.15$, $SE = 0.06$, $p = 0.01$), contrary to Chen et al. (2012). For instrumental support, the main effect of motivation for closeness was significant, $b = 0.32$, $SE = 0.04$, $p < 0.001$ in Step 1 ($R^2 = 0.207$). Whereas the main effect of closeness was still significant, the main effect of motivation for self-esteem ($b = 0.20$, $SE = 0.06$, $p < 0.001$) was significant in Step 2 ($\Delta R^2 = 0.023$). The culture and motivation for self-esteem interaction was not significant in Step 3, $b = 0.0002$, $SE = 0.09$, $p = 0.999$, suggesting that culture does not affect the increase of instrumental support by motivation for self-esteem.

2.2.4.2. Closeness

For each explicit support, motivation for self-esteem was entered along with the control variables of the negative and solvable ratings for stressors, the friend's instrumentality, gender, and age (Step 1). Culture and motivation for closeness were also entered (Step 2). The interaction between culture and motivation for closeness was then added (Step 3). For emotional support, the main effect of motivation for self-esteem was significant, $b = 0.47$, $SE = 0.04$, $p < 0.001$ in Step 1 ($R^2 = 0.421$). Whereas the main effect of self-esteem was still significant, the main effects of motivation for closeness ($b = 0.32$, $SE = 0.05$, $p < 0.001$) and culture ($b = 0.40$, $SE = 0.12$, $p < 0.001$) were significant in Step 2 ($\Delta R^2 = 0.095$). The culture and motivation for closeness interaction was not significant in Step 3, $b = −0.10$, $SE = 0.08$, $p = 0.22$. For instrumental support, the main effect of motivation for self-esteem was significant, $b = 0.33$, $SE = 0.05$, $p < 0.001$ in Step 1 ($R^2 = 0.204$). Whereas the main effect of self-esteem was still significant, the main effect of motivation for closeness ($b = 0.21$, $SE = 0.06$, $p < 0.001$) was significant in Step 2 ($\Delta R^2 = 0.026$). The culture and motivation for closeness was not significant in Step 3, $b = 0.06$, $SE = 0.09$, $p = 0.54$. In sum, motivation for closeness increased both types of explicit support, regardless of culture.

2.2.4.3. Mediation analysis

As shown in Table 1, motivation for self-esteem and motivation for closeness were highly positively correlated with explicit support provision in both cultures. Additionally, explicit support provision and both types of motivation were significantly higher in European

Americans than in Japanese. These patterns suggest that both types of motivation function as mediators. To examine whether cultural influences on emotional support provision were mediated by motivation for self-esteem and motivation for closeness, we conducted a mediation analysis using a bootstrapping test with 2,000 replications. Culture ($0 =$ Japanese, $1 =$ European Americans) was positively associated with motivation for self-esteem ($b = 1.17$, $SE = 0.15$, $p < 0.001$), motivation for closeness ($b = 1.76$, $SE = 0.15$, $p < 0.001$), and emotional support provision ($b = 0.80$, $SE = 0.11$, $p < 0.001$). The path from culture to emotional support provision became non-significant when motivation for self-esteem and motivation for closeness were entered as joint predictors of emotional support provision, $b = 0.17$, $SE = 0.11$, $p = 0.11$. Motivation for self-esteem ($b = 0.18$, $SE = 0.05$, $p = 0.001$) and motivation for closeness ($b = 0.24$, $SE = 0.06$, $p < 0.001$) predicted emotional support provision (Figure 2A). The indirect effect through motivation for self-esteem (95% bias-corrected CI = [0.09, 0.37]) and through motivation for closeness (95% bias-corrected CI = [0.22, 0.69]) were significant. We also conducted a comparable analysis regarding instrumental support provision. Culture was positively associated with instrumental support provision ($b = 0.48$, $SE = 0.14$, $p = 0.001$). The path became non-significant when motivation for self-esteem and motivation for closeness were entered as joint predictors of instrumental support provision, $b = −0.16$, $SE = 0.17$, $p = 0.33$. Motivation for self-esteem ($b = 0.21$, $SE = 0.08$, $p = 0.01$) and motivation for closeness ($b = 0.22$, $SE = 0.07$, $p = 0.002$) predicted instrumental support provision (Figure 2B). The indirect effect through motivation for self-esteem (95% bias-corrected CI = [0.06, 0.47]) and through motivation for closeness (95% bias-corrected CI = [0.14, 0.67]) were significant.

2.2.5. Relationship between motivation and implicit support provision: concern for an entire group and concern for a friend

We then analyzed the relationships between each of the two types of implicit support (companionship and attentiveness) and each of the two types of relational concern (i.e., concern for an entire group and concern for a friend) in the same way as we did in terms of the relationship between motivation and explicit support provision.
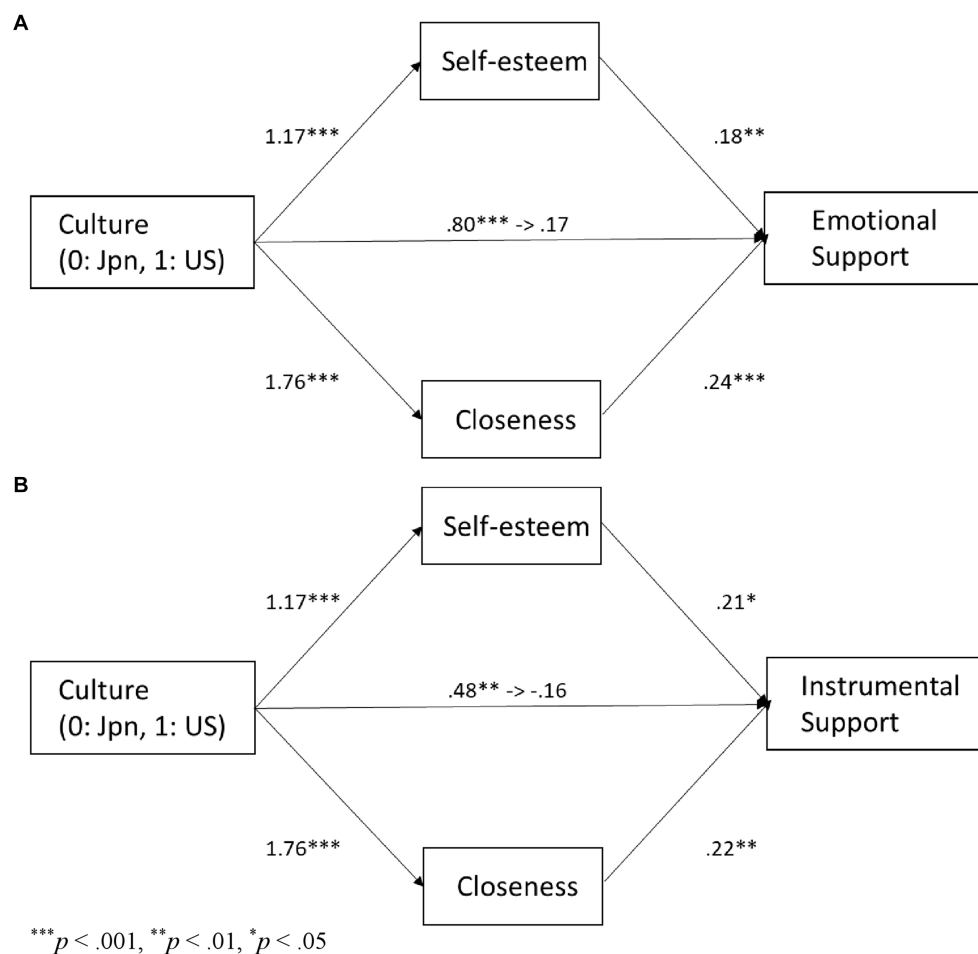
FIGURE 2
The relationship between culture and explicit support provision, mediated by motivation for self-esteem, and closeness in Study 1: emotional support **(A)** and instrumental support **(B)**.

2.2.5.1. Concern for an entire group

For each implicit support, concern for a friend was entered along with the control variables of the negative and solvable ratings for stressors, the friend's instrumentality, gender, and age (Step 1). Culture and concern for an entire group were additionally entered (Step 2). The interaction between culture and concern for an entire group was then added (Step 3). For companionship, the main effect of concern for a friend was significant, $b = 0.28$, $SE = 0.04$, $p < 0.001$ in Step 1 ($R^2 = 0.152$). Whereas the main effect of concern for a friend was still significant, the main effect of culture ($b = 1.16$, $SE = 0.13$, $p < 0.001$) was significant in Step 2 ($\Delta R^2 = 0.095$). Although the main effect of concern for an entire group was not significant in Step 2 ($b = 0.06$, $SE = 0.05$, $p = 0.29$), culture moderated the effect of concern for an entire group in Step 3 ($\Delta R^2 = 0.012$), $b = -0.27$, $SE = 0.10$, $p = 0.009$. Whereas greater concern for an entire group led Japanese to provide more companionship ($b = 0.18$, $SE = 0.07$, $p = 0.01$), the trend disappeared in European Americans ($b = -0.09$, $SE = 0.08$, $p = 0.25$) (Figure 3A). For attentiveness, the main effect of concern for a friend was significant, $b = 0.42$, $SE = 0.04$, $p < 0.001$ in Step 1 ($R^2 = 0.261$). Whereas the main effect of concern for a friend was still significant, the main effect of concern for an entire group was not significant, $b = 0.09$, $SE = 0.05$, $p = 0.053$ in Step 2 ($\Delta R^2 = 0.027$). In contrast, the

main effect of culture ($b = -0.32$, $SE = 0.11$, $p = 0.004$) was significant in Step 2. Additionally, culture moderated the effect of concern for an entire group in Step 3 ($\Delta R^2 = 0.007$), $b = 0.18$, $SE = 0.09$, $p = 0.036$. Contrary to our expectation, greater concern for an entire group likely led European Americans to provide more attentiveness ($b = 0.19$, $SE = 0.07$, $p = 0.004$), whereas the tendency disappeared in Japanese ($b = 0.01$, $SE = 0.06$, $p = 0.88$) (Figure 3B).

2.2.5.2. Concern for a friend

For each implicit support, concern for an entire group was entered along with the control variables of the negative and solvable ratings for stressors, the friend's instrumentality, gender, and age (Step 1). Culture and concern for a friend were additionally entered (Step 2). The interaction between culture and concern for a friend was then added (Step 3). For companionship, the main effect of concern for an entire group was not significant, $b = 0.08$, $SE = 0.06$, $p = 0.14$ in Step 1 ($R^2 = 0.075$). The main effects of culture ($b = 1.16$, $SE = 0.13$, $p < 0.001$) and concern for a friend ($b = 0.39$, $SE = 0.04$, $p < 0.001$) were significant in Step 2 ($\Delta R^2 = 0.215$). The culture and concern for a friend interaction was not significant, $b = -0.16$, $SE = 0.09$, $p = 0.058$ in Step 3 ($\Delta R^2 = 0.006$). For attentiveness, the main effect of concern for an entire group was significant, $b = 0.31$, $SE = 0.05$, $p < 0.001$ in Step 1

FIGURE 3
The moderating role of culture (0: Jpn, 1: US) in the relationship between concern for an entire group and implicit support provision in Study 1: companionship **(A)** and attentiveness **(B)**.
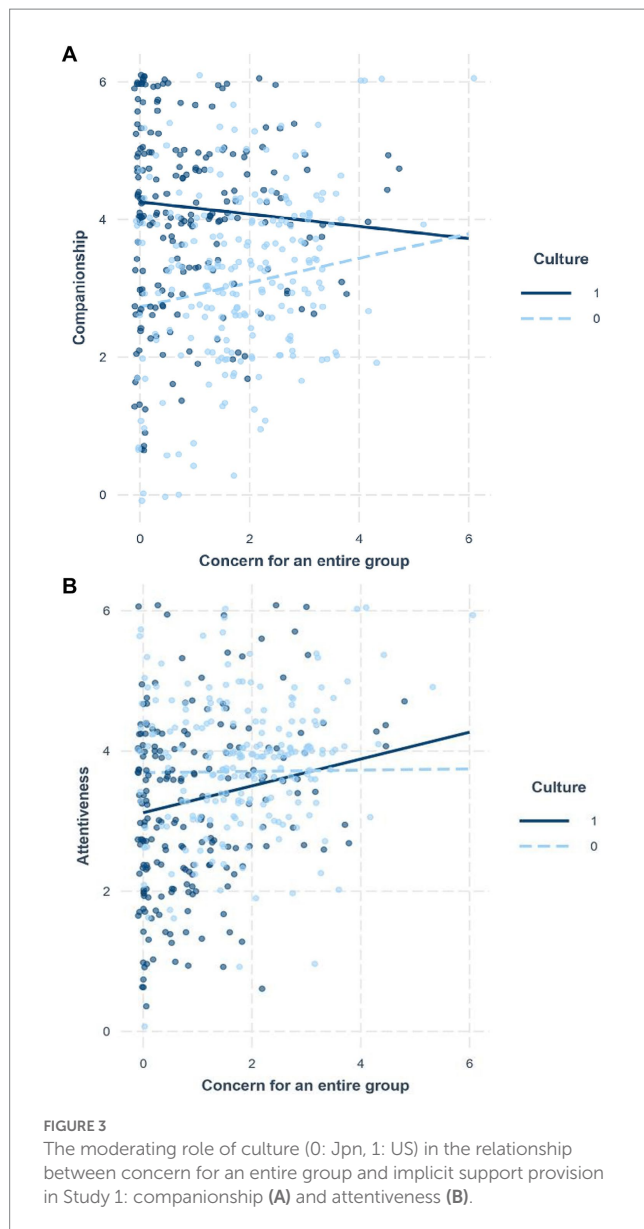
$(R^2 = 0.101)$. The main effects of culture $(b = -0.32, SE = 0.11, p = 0.004)$ and concern for a friend $(b = 0.36, SE = 0.04, p < 0.001)$ were significant, whereas the main effect of concern for an entire group was found not to be significant, $b = 0.09, SE = 0.05, p = 0.053$ in Step 2 $(\Delta R^2 = 0.186)$. The culture and concern for a friend interaction was not significant, $b = -0.04, SE = 0.07, p = 0.62$ in Step 3 $(\Delta R^2 = 0.0004)$. In sum, greater concern for a friend led people to provide more both types of implicit support regardless of culture.

2.2.5.3. Mediation analysis

As shown in Table 1, concern for an entire group motivation and concern for a friend motivation were highly positively correlated with attentiveness provision in both cultures. Additionally, attentiveness provision and both types of motivation were significantly higher in Japanese than in European Americans. To examine whether cultural influences on attentiveness provision were mediated by concern for an entire group motivation and concern for a friend motivation, we conducted a mediation analysis by using a bootstrapping test with

2,000 replications. Culture (0 = Japanese, 1 = European Americans) was negatively associated with attentiveness provision $(b = -1.60, SE = 0.24, p < 0.001)$, concern for an entire group motivation $(b = -1.07, SE = 0.12, p < 0.001)$ and concern for a friend motivation $(b = -1.09, SE = 0.14, p < 0.001)$. The path was still significant when concern for an entire group motivation and concern for a friend motivation were entered as joint predictors of attentiveness provision, $b = -0.92, SE = 0.31, p = 0.003$. Concern for an entire group motivation $(b = 0.16, SE = 0.08, p = 0.03)$ and concern for a friend motivation $(b = 0.47, SE = 0.11, p < 0.001)$ predicted attentiveness provision (Figure 4). The indirect effect through concern for an entire group motivation (95% bias-corrected CI = [−0.33, −0.007]) and that through concern for a friend motivation (95% bias-corrected CI = [−0.79, −0.23]) were significant.

3. Discussion

In summary, European Americans reported that they would provide more emotional support and instrumental support and have higher motivation for self-esteem and closeness compared to Japanese, consistent with Hypothesis 1. Study 1 also found that motivations for self-esteem and closeness positively influenced emotional and instrumental support provision in both cultures. The cultural differences in emotional support and instrumental support provision were thus mediated by self-esteem motivation and closeness motivation, which varied across cultures. This supports Hypothesis 2b but not Hypothesis 2a. Our moderation analysis showed that the relationship between emotional support and self-esteem motivation was stronger in Japanese than European Americans, which contradicts the findings of Chen et al. (2012).

In addition, consistent with Hypothesis 3, Japanese reported that they would provide more attentiveness support and have higher motivations for concern for an entire group and concern for a friend compared to European Americans. However, the results for companionship support were unexpected, as Japanese reported providing lower levels of this type of support. The relationships between concern for an entire group motivation and the provision of implicit social support differed between the two cultures. Hypothesis 4a was partially supported, as the relationship between companionship support and concern for an entire group motivation was stronger in Japanese than European Americans. However, the relationship between attentiveness support and concern for an entire group motivation was stronger in European Americans than in Japanese. Hypothesis 4b was also partially supported, as the cultural difference in attentiveness support was mediated by concern for an entire group motivation and concern for a friend motivation, which varied across cultures.

4. Study 2

To address a potential limitation of Study 1, in which participants may have projected the type of support they preferred to receive onto the support they would provide, Study 2 was conducted. In this study, a different group of Japanese and European American participants were asked to recall a recent stressful event experienced by a close other and report on the actual support provided and the underlying
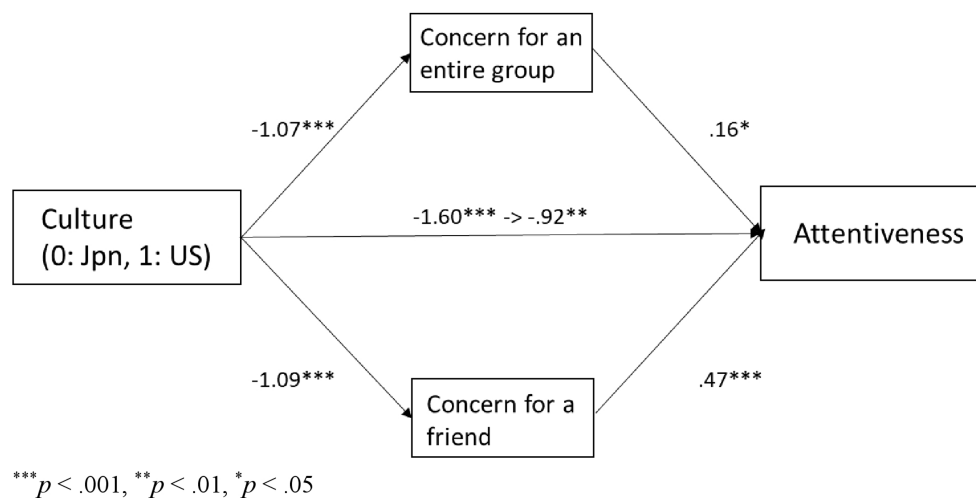
FIGURE 4
The relationship between culture and attentiveness provision mediated by concern for an entire group and concern for a friend in Study 1.

motivation. This procedure aimed to eliminate the possibility that the results in Study 1 were influenced by the participants' desired support type.

4.1. Method

4.1.1. Participants

Based on the results of the power analysis reported in Study 1, we recruited 300 European Americans and 342 Japanese participants through online crowdsourcing marketplaces (Prolific for the European American participants and Lancers for the Japanese participants). Sixty-three participants were excluded from the following analysis due to the following reasons: Six Japanese and two European American participants failed to pass attention check questions, 38 Japanese participants did not complete more than half of the whole questionnaire, one Japanese participant did not allow us to analyze their data, and five participants recruited in Japan chose another option than Asian regarding their ethnicity and 11 Americans chose another option than European American regarding their ethnicity. Thus, the final sample size was 579 (287 European Americans [46.0% female, $M_{age} = 38.40$, $SD = 14.17$] and 292 Japanese participants [44.2% female, $M_{age} = 43.16$, $SD = 9.83$]).

4.1.2. Materials and procedure

After consenting, the participants completed questionnaires in the order of their close friend's recent stressful events, the friend's instrumentality, support provision, and motivations for support provision. We then asked them to report their demographic information (gender, age, nationality, ethnicity, education attainment, annual income, the MacArthur scale of subjective social status).

The participants were initially asked to briefly describe the biggest stressor their close friend had faced within the last three months and rate how they felt it by using two items (stressful and negative) on a seven-point Likert scale (0 = not at all, 6 = very much). They were then asked to write the initials of the friend and rate how useful or disruptive the friend was to achieve their goals using a seven-point

scale (−3 = very disruptive, 0 = neither disruptive nor helpful, 3 = very helpful), as in Study 1. The internal consistency of the five items was acceptable (Cronbach's α was 0.80 for Japanese and 0.81 for European Americans); the average was computed for each participant as the friend's instrumentality score.

Next, the participants were asked to report on a seven-point scale (0 = never likely to do so, 6 = very likely to do so) to what extent they helped the friend in ways that they provided support. The 12 items used were identical to those used in Study 1. We conducted a confirmatory factor analysis of the 12-item scale for each culture. The items showed acceptable fit in both cultures (America: $\chi^2(48) = 107.66$, $p < 0.001$, CFI = 0.953, RMSEA = 0.066; Japan: $\chi^2(48) = 234.50$, $p < 0.001$, CFI = 0.880, RMSEA = 0.115). All items loaded significantly on their target factors in both cultures (emotional support: Cronbach's α was 0.72 for Japanese and 0.67 for European Americans, instrumental support: Cronbach's α was 0.90 for Japanese and 0.88 for European Americans, companionship: Cronbach's α was 0.77 for Japanese and 0.84 for European Americans, and attentiveness: Cronbach's α was 0.75 for Japanese and 0.55 for European Americans). The details of the factor analysis are presented in the Supplementary materials.

The participants were also presented with a list of 20 items consisting of the 6 types of motivations of support provision and asked to report on a 7-point scale (0 = not at all, 6 = very much) how important each item would be to them when they helped the friend. The 20 items used were identical to those analyzed in Study 1. We conducted a confirmatory factor analysis of the 20-item scale for each culture. Because one item loaded weakly on a target factor (self-improvement), it was dropped from further analyses. The remaining 19 items showed acceptable fit in both cultures (America: $\chi^2(137) = 260.18$, $p < 0.001$, CFI = 0.946, RMSEA = 0.056, Japan: $\chi^2(137) = 342.09$, $p < 0.001$, CFI = 0.908, RMSEA = 0.072). All items loaded significantly on their target factors in both cultures (self-esteem: Cronbach's α was 0.84 for Japanese and 0.84 for European Americans, closeness: Cronbach's α was 0.84 for Japanese and 0.86 for European Americans, concern for an entire group: Cronbach's α was 0.72 for Japanese and 0.81 for European Americans, concern for a

friend: Cronbach's α was 0.81 for Japanese and 0.76 for European Americans, self-improvement: Cronbach's α was 0.70 for Japanese and 0.60 for European Americans, and low efficacy: Cronbach's α was 0.76 for Japanese and 0.70 for European Americans). The details of the factor analysis are presented in the Supplementary materials.

4.2. Results

4.2.1. Characteristics of stressful events and relationship instrumentality with friends

European Americans ($M = 6.59$, $SD = 0.74$) rated their friends' stressors as more stressful than did Japanese ($M = 6.28$, $SD = 0.93$), $t(577) = 4.42$ $p < 0.001$, whereas there was no cultural difference in the rating of negativity (European Americans: $M = 6.11$, $SD = 1.44$, Japanese: $M = 6.16$, $SD = 1.12$), $t(577) = 0.46$, $p = 0.64$. Moreover, the mean score of the friend's instrumentality was higher in European Americans ($M = 0.87$, $SD = 1.04$) than in Japanese ($M = 0.71$, $SD = 0.91$), $t(577) = 2.03$, $p = 0.04$.

4.2.2. Support provision

We performed a 2 (culture) × 4 (support type: instrumental support, emotional support, companionship, and attentiveness) ANCOVA including the stressful rating for stressors and the friend's instrumentality, which differed across cultures, as covariates.[2] The main effect of support type was significant, $F(3, 1725) = 3.94$, $p = 0.008$, $\eta_p^2 = 0.01$. Also, the culture and type of support interaction was significant, $F(3, 1725) = 45.82$, $p < 0.001$, $\eta_p^2 = 0.07$. As in Study 1, a post-hoc analysis showed that European Americans provided more emotional support, instrumental support, and companionship than did Japanese (emotional support: $F(1, 575) = 18.34$, $p < 0.001$, $\eta_p^2 = 0.03$, LS means (SE) = 3.49 (0.08) vs. 2.97 (0.08), instrumental support: $F(1, 575) = 12.56$, $p < 0.001$, $\eta_p^2 = 0.02$, LS means (SE) = 3.37 (0.10) vs. 2.88 (0.10), companionship: $F(1, 575) = 9.51$, $p = 0.002$, $\eta_p^2 = 0.02$, LS means (SE) = 3.34 (0.09) vs. 2.96 (0.09)), whereas Japanese provided more attentiveness than did European Americans, $F(1, 575) = 82.58$, $p < 0.001$, $\eta_p^2 = 0.13$, LS means (SE) = 3.67 (0.07) vs. 2.73 (0.07). European Americans provided more emotional support than the three other types of support ($ps < 0.001$), whereas Japanese provided more attentiveness than the three other types of support ($ps < 0.001$).

4.2.3. Motivation for support provision

We performed a 2 (culture) × 6 (motivation: self-esteem, closeness, concern for an entire group, concern for a friend, self-improvement, and low efficacy) ANCOVA including the stressful rating for stressors and the friend's instrumentality as covariates. The main effects of culture and motivation were significant, $F(1, 575) = 35.55$, $p < 0.001$, $\eta_p^2 = 0.06$, and $F(5, 2,875) = 8.08$, $p < 0.001$, $\eta_p^2 = 0.01$. The interaction between culture and motivation was also significant, $F(5, 2,875) = 99.08$, $p < 0.001$, $\eta_p^2 = 0.15$. As in Study 1, a post-hoc analysis showed that European Americans reported greater motivation for

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2 As in Study 1, we performed an ANCOVA by adding the interaction term of culture and the friend's instrumentality to these covariates. However, neither the culture and the friend's instrumentality interaction ($F(1, 574) = 3.68$, $p = 0.056$) nor the interaction including support ($F(3, 1722) = 1.82$, $p = 0.14$) were significant.

self-esteem ($F(1, 575) = 32.54$, $p < 0.001$, $\eta_p^2 = 0.05$, LS means (SE) = 4.27 (0.08) vs. 3.63 (0.08)) and closeness ($F(1, 575) = 54.92$, $p < 0.001$, $\eta_p^2 = 0.09$, LS means (SE) = 4.16 (0.08) vs. 3.33 (0.08)) than did Japanese. In contrast, Japanese reported greater motivation for concern for an entire group ($F(1, 575) = 68.13$, $p < 0.001$, $\eta_p^2 = 0.11$, LS means (SE) = 1.66 (0.06) vs. 0.89 (0.06)), concern for a friend ($F(1, 575) = 101.21$, $p < 0.001$, $\eta_p^2 = 0.15$, LS means (SE) = 3.76 (0.08) vs. 2.60 (0.08)), self-improvement ($F(1, 575) = 20.49$, $p < 0.001$, $\eta_p^2 = 0.03$, LS means (SE) = 2.46 (0.08) vs. 1.92 (0.08)), and low efficacy ($F(1, 575) = 168.28$, $p < 0.001$, $\eta_p^2 = 0.23$, LS means (SE) = 3.12 (0.08) vs. 1.62 (0.08)) than did European Americans. Concern for a friend was higher than self-esteem and closeness in Japanese ($ps < 0.001$), whereas the trends were reversed in European Americans ($ps < 0.001$). Overall, the motivation for concern for an entire group was lower than the five other types of motivation in both cultures ($ps < 0.001$).

Table 2 presents the correlations between motivation and support provision in each culture. Consistent with Study 1, self-esteem and closeness were positively associated with the four types of support provision, whereas concern for a friend and self-improvement were positively associated with the two types of implicit support provision in both cultures. Additionally, in both cultures, providing instrumental support was positively linked to self-improvement but negatively linked to low efficacy. Consistent with Study 1, concern for an entire group was positively associated with providing companionship only in Japanese. Additionally, it was specific to Japanese that emotional support was positively linked to concern for a friend and self-improvement but negatively linked to low efficacy. In contrast, concern for an entire group and low efficacy were positively associated with providing attentiveness only in European Americans.

4.2.4. Relationship between motivation and explicit support provision: self-esteem and closeness

As in Study 1, we analyzed the relationships between each of the two types of explicit support (i.e., emotional support and instrumental support) and each of the corresponding motivations (i.e., self-esteem and closeness) and investigated the unique effects of the two types of motivation and the moderating role of culture by controlling for each other in the regression analyses.

4.2.4.1. Self-esteem

For each explicit support, motivation for closeness was entered along with the control variables of the stressful rating for stressors, the friend's instrumentality, gender, and age (Step 1). Culture (0 = Japanese, 1 = European Americans) and motivation for self-esteem were also entered (Step 2). The interaction between culture and motivation for self-esteem was then added (Step 3). For emotional support, the main effect of motivation for closeness was significant, $b = 0.52$, $SE = 0.04$, $p < 0.001$ in Step 1 ($R^2 = 0.360$). Whereas the main effect of closeness was still significant, the main effect of motivation for self-esteem ($b = 0.25$, $SE = 0.05$, $p < 0.001$) was significant in Step 2 ($\Delta R^2 = 0.033$). The culture and motivation for self-esteem interaction was not significant in Step 3, $b = -0.05$, $SE = 0.07$, $p = 0.53$ ($\Delta R^2 = 0.0004$). In both cultures, motivation for self-esteem promoted more emotional support provision. For instrumental support, the main effect of motivation for closeness was significant, $b = 0.33$, $SE = 0.05$, $p < 0.001$ in Step 1 ($R^2 = 0.127$). Whereas the main effect of closeness was still significant, the main effect of motivation for self-esteem ($b = 0.34$,

TABLE 2 Correlations among support provision and motivation variables in Study 2.

Variable	1	2	3	4	5	6	7	8	9	10
1. Emotional support	––	0.47***	0.33***	0.43***	0.52***	0.58***	−0.09	0.16**	0.18**	−0.17**
2. Instrumental support	0.50***	––	0.04	0.14*	0.34***	0.35***	−0.05	−0.11+	0.18**	−0.47***
3. Companionship	0.43***	0.25***	––	0.39***	0.34***	0.39***	0.23***	0.38***	0.27***	0.06
4. Attentiveness	0.27***	0.08	0.22***	––	0.41***	0.36***	0.05	0.42***	0.22***	0.02
5. Self-esteem	0.47***	0.38***	0.34***	0.18**	––	0.57***	0.02	0.38***	0.44***	−0.08
6. Closeness	0.53***	0.25***	0.39***	0.19**	0.64***	––	0.01	0.24***	0.27***	−0.10
7. Concern for group	0.03	0.07	0.05	0.32***	−0.001	−0.07	––	0.37***	0.43***	0.36***
8. Concern for friend	0.11+	−0.003	0.24***	0.40***	0.26***	0.22***	0.44***	––	0.34***	0.31***
9. Self-improvement	−0.01	0.16**	0.13*	0.30***	0.13*	0.01	0.46***	0.40***	––	0.16**
10. Low efficacy	−0.09	−0.22***	0.01	0.30***	−0.03	−0.02	0.57***	0.52***	0.29***	––

Correlations for Japanese ($df = 290$) are presented above the diagonal, and correlations for Americans ($df = 285$) are presented below the diagonal.
***$p < 0.001$, **$p < 0.01$, *$p < 0.05$, +$p < 0.10$.

$SE = 0.06$, $p < 0.001$) was significant in Step 2 ($\Delta R^2 = 0.052$). The culture and motivation for self-esteem was not significant in Step 3, $b = −0.14$, $SE = 0.09$, $p = 0.13$, suggesting that in both cultures, motivation for self-esteem also increased instrumental support provision.

4.2.4.2. Closeness

For each social support, motivation for self-esteem was entered along with the control variables of the stressful rating for stressors, the friend's instrumentality, gender, and age (Step 1). Culture and motivation for closeness were also entered (Step 2). The interaction between culture and motivation for closeness was then added (Step 3). For emotional support, the main effect of motivation for self-esteem was significant, $b = 0.48$, $SE = 0.04$, $p < 0.001$ in Step 1 ($R^2 = 0.318$). Whereas the main effect of self-esteem was still significant, the main effect of motivation for closeness ($b = 0.38$, $SE = 0.05$, $p < 0.001$) was significant in Step 2 ($\Delta R^2 = 0.076$). The culture and motivation for closeness interaction was not significant in Step 3, $b = −0.08$, $SE = 0.07$, $p = 0.29$. For instrumental support, the main effect of motivation for self-esteem was significant, $b = 0.42$, $SE = 0.05$, $p < 0.001$ in Step 1 ($R^2 = 0.171$). Whereas the main effect of self-esteem was still significant, the main effect of motivation for closeness ($b = 0.12$, $SE = 0.06$, $p = 0.04$) was significant in Step 2 ($\Delta R^2 = 0.009$). The culture and motivation for closeness relationship was not significant in Step 3, $b = −0.14$, $SE = 0.09$, $p = 0.13$. In sum, motivation for closeness increased both types of explicit support, regardless of culture.

4.2.4.3. Mediation analysis

As shown in Table 2, motivation for self-esteem and motivation for closeness were highly positively correlated with explicit support provision in both cultures. Additionally, explicit support provision and both types of motivation were significantly higher in European Americans than in Japanese. These patterns were consistent with Study 1. As in Study 1, we conducted a mediation analysis by using a bootstrapping test with 2,000 replications to examine whether motivation for self-esteem and motivation for closeness function as mediators. Culture (0 = Japanese, 1 = European Americans) was positively associated with motivation for self-esteem ($b = 0.78$, $SE = 0.12$, $p < 0.001$), motivation for closeness ($b = 1.10$, $SE = 0.14$,

$p < 0.001$), and emotional support provision ($b = 0.55$, $SE = 0.10$, $p < 0.001$). The path from culture to emotional support provision became non-significant when motivation for self-esteem and motivation for closeness were entered as joint predictors of emotional support provision, $b = −0.02$, $SE = 0.10$, $p = 0.87$. Motivation for self-esteem ($b = 0.25$, $SE = 0.06$, $p = 0.001$) and motivation for closeness ($b = 0.33$, $SE = 0.05$, $p < 0.001$) predicted emotional support provision (Figure 5A). The indirect effect through motivation for self-esteem (95% bias-corrected CI = [0.10, 0.31]) and through motivation for closeness (95% bias-corrected CI = [0.23, 0.54]) were significant. We also conducted a comparable analysis regarding instrumental support provision. Culture was positively associated with instrumental support provision ($b = 0.55$, $SE = 0.15$, $p = 0.001$). The path became non-significant when motivation for self-esteem and motivation for closeness were entered as joint predictors of instrumental support provision, $b = 0.07$, $SE = 0.15$, $p = 0.64$. Motivation for self-esteem ($b = 0.40$, $SE = 0.08$, $p < 0.001$) and motivation for closeness ($b = 0.15$, $SE = 0.07$, $p = 0.02$) predicted instrumental support provision (Figure 5B). The indirect effect through motivation for self-esteem (95% bias-corrected CI = [0.18, 0.47]) and through motivation for closeness (95% bias-corrected CI = [0.02, 0.32]) were significant.

4.2.5. Relationship between motivation and implicit support provision: concern for an entire group and concern for a friend

As in Study 1, we also analyzed relationships between each of the two types of implicit support (companionship and attentiveness) and each of the two types of relational concern (i.e., concern for an entire group and concern for a friend).

4.2.5.1. Concern for an entire group

For each implicit support, concern for a friend was entered along with the control variables of the stressful rating for stressors, the friend's instrumentality, gender, and age (Step 1). Culture and concern for an entire group were additionally entered (Step 2). The interaction between culture and concern for an entire group was then added (Step 3). For companionship, the main effect of concern for a friend was significant, $b = 0.21$, $SE = 0.04$, $p < 0.001$ in Step 1
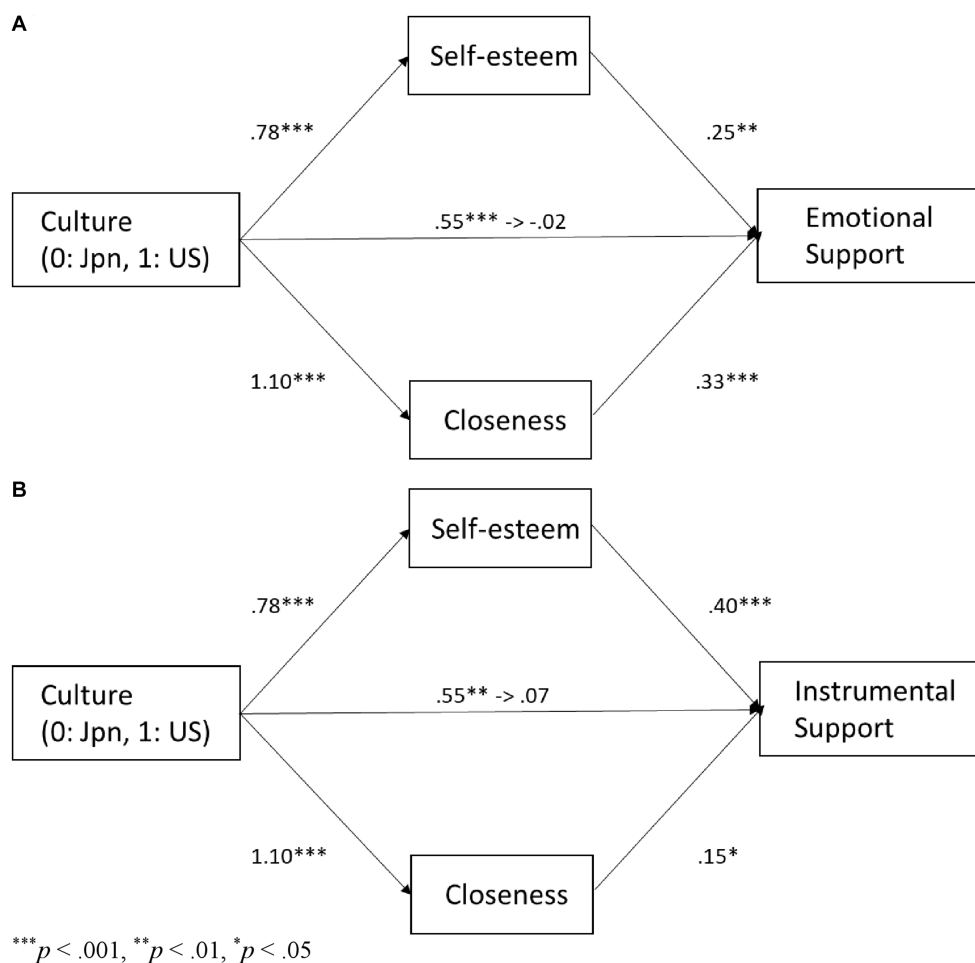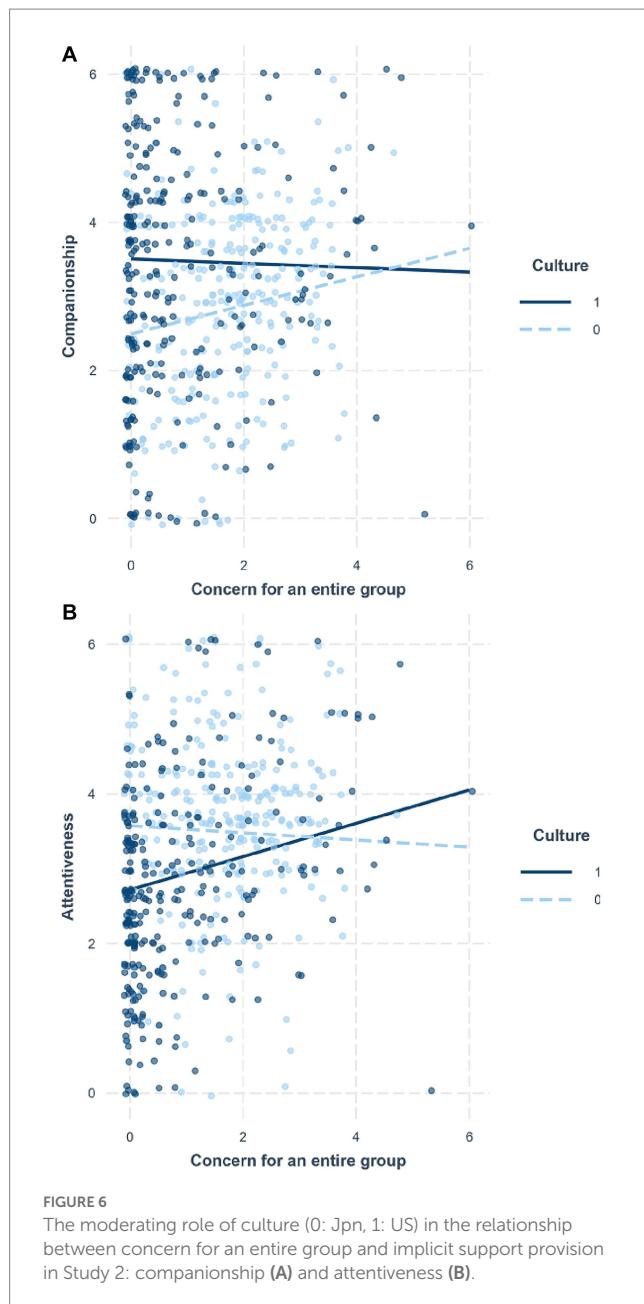
FIGURE 5
The relationship between culture and explicit support provision, mediated by motivation for self-esteem and closeness in Study 2: emotional support
(A) and instrumental support **(B)**.

($R^2 = 0.118$). Whereas the main effect of concern for a friend was still significant, the main effect of culture ($b = 0.71$, $SE = 0.13$, $p < 0.001$) was significant in Step 2 ($\Delta R^2 = 0.043$). Although the main effect of concern for an entire group was not significant in Step 2 ($b = 0.07$, $SE = 0.06$, $p = 0.23$), culture moderated the effect of concern for an entire group in Step 3 ($\Delta R^2 = 0.006$), $b = -0.22$, $SE = 0.11$, $p = 0.04$. Consistent with Study 1, whereas greater concern for an entire group led Japanese to provide more companionship ($b = 0.19$, $SE = 0.08$, $p = 0.02$), the trend disappeared in European Americans ($b = -0.03$, $SE = 0.08$, $p = 0.70$) (Figure 6A). For attentiveness, the main effect of concern for a friend was significant, $b = 0.43$, $SE = 0.03$, $p < 0.001$ in Step 1 ($R^2 = 0.262$). Whereas the main effect of concern for a friend was still significant, the main effects of culture ($b = -0.50$, $SE = 0.11$, $p < 0.001$) and concern for an entire group were significant ($b = 0.10$, $SE = 0.05$, $p = 0.04$) in Step 2 ($\Delta R^2 = 0.037$). Additionally, culture moderated the effect of concern for an entire group in Step 3 ($\Delta R^2 = 0.012$), $b = 0.27$, $SE = 0.08$, $p = 0.001$. Consistent with Study 1, greater concern for an entire group likely led European Americans to provide more attentiveness ($b = 0.22$, $SE = 0.06$, $p < 0.001$), whereas the tendency disappeared in Japanese ($b = -0.05$, $SE = 0.07$, $p = 0.47$) (Figure 6B).

4.2.5.2. Concern for a friend

For each implicit support, concern for an entire group was entered along with the control variables of the stressful rating for stressors, the friend's instrumentality, gender, and age (Step 1). Culture and concern for a friend were additionally entered (Step 2). The interaction between culture and concern for a friend was then added (Step 3). For companionship, the main effect of concern for an entire group was significant, $b = 0.15$, $SE = 0.05$, $p = 0.004$ in Step 1 ($R^2 = 0.089$). The main effects of culture ($b = 0.71$, $SE = 0.13$, $p < 0.001$) and concern for a friend ($b = 0.27$, $SE = 0.05$, $p < 0.001$) were significant, whereas the main effect of concern for an entire group was found not to be significant, $b = 0.07$, $SE = 0.06$, $p = 0.23$ in Step 2 ($\Delta R^2 = 0.072$). The culture and concern for a friend interaction was not significant, $b = -0.09$, $SE = 0.09$, $p = 0.30$ in Step 3 ($\Delta R^2 = 0.002$). For attentiveness, the main effect of concern for an entire group was significant, $b = 0.38$, $SE = 0.04$, $p < 0.001$ in Step 1 ($R^2 = 0.140$). Whereas the main effect of concern for a friend was still significant, the main effects of culture ($b = -0.50$, $SE = 0.11$, $p < 0.001$) and concern for a friend ($b = 0.33$, $SE = 0.04$, $p < 0.001$) were significant in Step 2 ($\Delta R^2 = 0.159$). The culture and concern for a friend interaction was not significant, $b = 0.02$, $SE = 0.07$, $p = 0.82$ in Step 3 ($\Delta R^2 = 0.0001$). In sum, greater

FIGURE 6
The moderating role of culture (0: Jpn, 1: US) in the relationship between concern for an entire group and implicit support provision in Study 2: companionship **(A)** and attentiveness **(B)**.

concern for a friend led people to provide more implicit support regardless of culture.

4.2.5.3. Mediation analysis

Because the tendencies regarding relational concern motivation and implicit social support provision were similar to those in Study 1, we conducted a mediation analysis using a bootstrapping test with 2,000 replications to examine whether cultural influence on attentiveness provision was mediated by concern for an entire group motivation and concern for a friend motivation. Culture (0 = Japanese, 1 = European American) was negatively associated with attentiveness provision ($b = -1.90$, $SE = 0.20$, $p < 0.001$), concern for an entire group motivation ($b = -0.93$, $SE = 0.11$, $p < 0.001$), and concern for a friend motivation ($b = -1.34$, $SE = 0.13$, $p < 0.001$). The path was still significant when concern for an entire group motivation and concern for a friend motivation were entered as joint predictors of attentiveness

provision, $b = -1.12$, $SE = 0.25$, $p < 0.001$. Concern for an entire group motivation ($b = 0.25$, $SE = 0.10$, $p = 0.009$) and concern for a friend motivation ($b = 0.41$, $SE = 0.08$, $p < 0.001$) predicted attentiveness provision (Figure 7). The indirect effect through concern for an entire group motivation (95% bias-corrected CI = [−0.43, −0.06]) and that through concern for a friend motivation (95% bias-corrected CI = [−0.80, −0.33]) were significant.

4.3. Discussion

Overall, the results of Study 2 replicated those of Study 1. European Americans provided more emotional and instrumental social support and had higher motivations for self-esteem and closeness compared to Japanese. Moreover, the motivations functioned as mediators: Cultural differences in emotional and instrumental social support were mediated by motivations for self-esteem and closeness that differ between the two cultures. In contrast, Japanese provided more attentiveness support and had higher concern for an entire group and concern for a friend compared to European Americans. The cultural difference in attentiveness support was mediated by the two types of relational concern motivations that differed between the cultures. Consistent with Study 1, culture moderated only the relationship between concern for an entire group motivation and implicit support provision: Higher concern for an entire group motivation increased companionship provision only in Japan, whereas it increased attentiveness provision only in the US.

5. General discussion

Across two studies, European Americans were more likely than Japanese to report providing emotional and instrumental support (i.e., explicit support) in response to a close other's stressful event as well as being motivated to increase the close other's self-esteem and the feeling of closeness. Explicit support provision was motivated by self-esteem and closeness that differ across cultures, which supports the motivation as a mediator hypothesis but not the culture as a moderator hypothesis. Reflecting the prevailing cultural values and norms regarding the view of self and interpersonal relationships, motivation for self-esteem was emphasized more in European Americans than in Japanese. It is intriguing that despite the culturally prioritized type of motivation, how the types of motivation predict the corresponding method of explicit support provision was not influenced by culture. Contrary to the findings of Chen et al. (2012), which suggested the moderating role of culture, Japanese showed significantly positive associations between motivations for self-esteem and closeness and explicit social support provision, just as European Americans did. That is, cultural differences in explicit social support provision can be attributed to variations in self-esteem and closeness motivation that differ across cultures.

In contrast, Japanese were more likely than European Americans to report providing attentiveness support in response to a close other's stressful event, as well as having motivations for concern for an entire group and concern for a friend. Attentiveness support provision was motivated by concern for an entire group and concern for a friend that differed across cultures, which supports the motivation as a mediator hypothesis but not the culture as a moderator hypothesis. The cultural
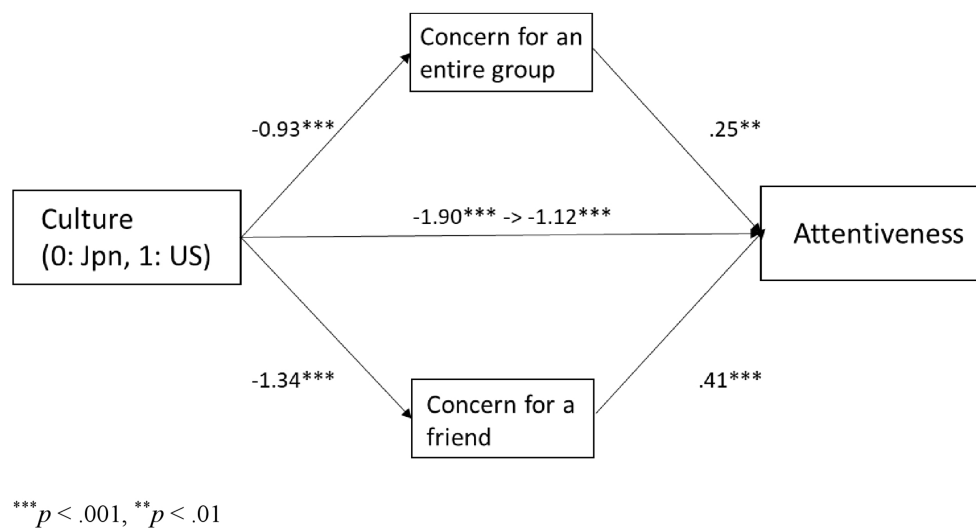
FIGURE 7
The relationship between culture and attentiveness provision, mediated by concern for an entire group, and concern for a friend in study 2.

difference in attentiveness support provision can be attributed to variations in relational concerns (i.e., concern for an entire group and concern for a friend) that differ across cultures.

The validity of the findings suggesting the motivation as a mediator hypothesis should be tested in future research. The manipulation of mindsets to increase the close other's self-esteem and the feeling of closeness, or that of mindsets to increase relational concerns, could be induced among Japanese or European Americans to examine the causal relationship between motivation and support provision. For instance, European Americans who are temporarily induced to be highly concerned about relationships by being reminded of rejection experiences may become more sensitive to potential negative impacts in the social network and the receiver by talking about stressful experiences explicitly and being provided with more implicit social support, such as attentiveness.

The current findings suggest, however, that the motivation as a mediator hypothesis does not apply, at least in part, to implicit methods of support provision. Despite the unexpected cultural difference that European Americans provided more companionship support than did Japanese, concern for an entire group motivation predicted companionship support provision only in Japanese. In contrast, concern for an entire group motivation predicted attentiveness support provision predominantly in European Americans. That is, the relationships between concern for an entire group motivation and companionship and attentiveness support provision were moderated by culture. This culture as a moderator pattern may imply two possibilities.

First, companionship support provision would be specific to Japanese providers who have a high motivation for concern for an entire group. Compared to attentiveness support provision, providers need a significant amount of time and effort to stay with the receiver. Moreover, as this research was conducted during the outbreak of COVID-19, companionship support, which requires physical and social proximity, would be particularly challenging for Japanese providers due to the collectivistic norm that promotes compliance with social distancing measures (Lu et al., 2021; Leong et al., 2022).

Therefore, Japanese providers may perceive companionship support as costly. This perception might lead to the unexpected pattern of Japanese providing less companionship support than European Americans. Nevertheless, when Japanese providers feel a great level of concern and worry about the negative impacts of support provision on their social networks, they might be motivated to provide costly implicit support, such as companionship, to signal the importance of their in-groups. In this way, costly implicit support provision, such as companionship, may demonstrate the extent to which Japanese providers value their in-groups.

Second, European Americans with a strong motivation to support a group are likely to offer implicit social support, specifically attentiveness support. In fact, providing attentiveness support was not only predicted by concern for an entire group but also by concern for a friend in the US. This raises an intriguing question: Why do European Americans with high relational concerns provide attentiveness support but not companionship, even though their levels of relational concerns and attentiveness provision are relatively lower than those of the Japanese? One possible explanation is that attentiveness support may be more practical, as it allows people to be ready to provide emotional comfort and instrumental aid. Given that European Americans tend to prefer explicit social support transactions, they may believe they are expected to provide explicit support when the circumstances surrounding their friends' situations and relationships change, and their levels of relational concerns decrease. Attentiveness may thus be placed as a preliminary step toward explicit support, particularly in European Americans with high relational concerns.

Cultural values and norms for interpersonal relationships influence the ways in which social support transactions occur and the underlying motivations behind them. For instance, motivation for self-esteem is more prominent among European Americans than among Japanese when seeking explicit support, whereas relational concern is a stronger predictor of seeking implicit support among Japanese than among European Americans (Ishii et al., 2017). The cultural differences in motivations underlying explicit and implicit

support found in this research align with those in support seeking. These findings on the cultural influences on support transactions have implications for promoting smooth and cooperative interpersonal relationships in various intercultural contexts. Given the cultural differences in support transactions, even if a provider wants to uplift a partner suffering from a stressful event by boosting their self-esteem, a partner with a different cultural background may not be motivated by such an approach. On the other hand, even if a provider believes that being attentive without self-disclosure is a good strategy to avoid further distressing a partner going through a stressful event, it may not align with the expectations of a partner with a different cultural background. Knowledge about the cultural impact on support transactions, which this present research contributes to, is crucial to prevent miscommunication between support providers and seekers.

This research provides additional evidence of cultural and motivational influences on implicit social support provision. To investigate these influences, we proposed two types of motivation related to implicit social support provision: concern for an entire group and concern for a friend. We also focused on two types of implicit support: companionship and attentiveness. The proposed distinction regarding relational concerns contributes to a better understanding of the culturally specific effects on the association between relational concerns and implicit social support provision. Concern for a friend predicted attentiveness support provision regardless of culture, suggesting that it would likely cause individuals to hold back explicit support provision that might strain a friend's feelings and reputation. Instead, they would choose to provide support in a more implicit but less costly way. In contrast, the effect of concern for an entire group was culturally specific. Specifically, its association with companionship in Japan was in line with previous work, suggesting that the assumed association between relational concerns and implicit social support would mainly refer to concern for a group, which is not limited to the recipient themselves, and companionship, which is a relatively costly form and likely signals an individual's consideration for the in-group. Given the nature of concern for an entire group and companionship, the necessity for individuals to have such a concern and provide such a type of support would be greater in a culture that mandates maintaining harmonious interpersonal relationships.

The present research raises some issues that need to be addressed in future studies. First, because we asked participants to recall stressful events that happened to themselves (Study 1) or their friends (Study 2), it is unclear to what extent their retrospective responses to their ways of support provision and underlying motivation accurately reflected their genuine psychological and behavioral tendencies. To reach more valid conclusions, future research needs to measure participants' behavioral responses to their friends' stressful events in a laboratory setting—for instance, how they handle a situation when a co-participating friend struggles with an experimental task. Second, this research relied on a cross-sectional design, so the role of motivation as a mediator remains unclear. Given the first limitation regarding participants' retrospective responses, they might rate the items of motivation to justify their response to support provision. If so, support provision methods might predict the corresponding types of motivation instead. Third, we did not control the types of stressful events. It cannot be ruled out that cultural differences might result from a specific type of stressful event that was reported disproportionately across cultures. This issue should be addressed in

a more controlled manner, such as in a laboratory setting, in future work. Finally, although we controlled for the potential influence of the friend's instrumentality, which was higher in European Americans than in Japanese in both studies, we did not address how the concrete features of friendships (e.g., the length of the friendship and the origin of the friendship) influence social support prevision and the underlying motivations. Indeed, the cultural difference in the mean score of friend's instrumentality implies that the representation of the "closest friend" might vary between Japanese and European Americans. Additionally, the concrete features of friendships would differ across cultures due to socioecological factors such as residential mobility (Oishi, 2010) and relational mobility (Schug et al., 2010). Showing one's goodness and trustworthiness through emotional and instrumental support would be more important in a mobile environment where interpersonal relationships consist of relative weak ties compared to a stable environment where interpersonal relationships are fixed. Therefore, future research should further address the motivations of providers and the corresponding ways of support provision.

Despite these limitations, our findings regarding the motivational underpinnings of explicit and implicit support provision across cultures will contribute to our understanding of social support provision within the context of cultural practices and norms. Our research underscores the role of motivation, which differs across cultures and has not been fully addressed. Our results also suggest that certain aspects of relational concerns are culturally driven and, accordingly, lead to culturally specific patterns of implicit support provision, which poses further questions for investigation in future work.

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 Nagoya University, Graduate School of Informatics, Department of Cognitive, and Psychological Sciences. The patients/participants provided their written informed consent to participate in this study.

Author contributions

RT and KI conceptualized and designed the research, prepared the materials, and collected and analyzed data. RT wrote the first draft. SZ and KI edited and finalized the manuscript. All authors contributed to the article and approved the submitted version.

Funding

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.2023.1202729/full#supplementary-material

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Roles of values in the risk factors of passive suicide ideation among young adults in the US and Japan

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The present study examined how the importance of values and perceived value congruence with families, friends, and country would be associated with the risk factors of passive suicide ideation. Specifically, the study investigated the associations that the values and perceived congruence had with thwarted belongingness and perceived burdensomeness during the COVID-19 pandemic after controlling for the impact of depression levels. The data from the US and Japan demonstrated that the values such as cherishing family and friends and value congruence played a protective factor for Japanese participants; however, the associations differed among those in the US. Values such as enduring challenges played a protective factor for perceived burdensomeness in Japan whereas values such as cherishing family and friends played a protective factor and improving society was a risk factor for thwarted belongingness for those in the US. These results can be used to further understand the roles of values in mental health.

Introduction

People sometimes realize what is most important in their lives when they experience life crises (Tedeschi et al., 2018). Some may realize they value relationships with family members, and others may realize they value their personal achievement, and yet others may value both equally without experiencing a conflict. One of the most comprehensive theories that provides systematic categorizations of personal values is Schwartz' theory of basic human values (Schwartz, 2012). According to the theory, values refer to desirable goals that influence perceptions and emotions and motivate action. During the COVID-19 pandemic, for example in France, conservation values such as favoring stability, conformity, security, and preserving traditional practices, played an important role as a mediator between the perceived threat of the pandemic and compliance with social distancing and movement restrictions (Bonetto et al., 2021). Another study conducted in Spain illustrated a protective role of conservation values such as security and conformity directed people to adhere to self-protective behaviors such as social distancing during the pandemic (Tabernero et al., 2020). And yet, these studies also report that people hold various value contents, such as self-transcendence or hedonism, almost at the same level as conservation values, even though holding these values did not seem to significantly contribute to desirable actions, as values are beliefs (Schwartz, 2012) that people hold, whether or not they are practically useful or effective.

Self-identified importance in various value contents should be shaped by a combination of various personal and social factors, including culture. When some measures were applied to

slow the speed of the pandemic, people from different cultures reacted differently. For example, in cultures where physical touch is not highly valued, people did not show strong reactions toward the government recommendation of no handshaking or hugging. In traditionally individualistic cultures such as the US, personal accomplishment may be more important than traditionally collectivistic cultures. Previous studies have demonstrated such cross-cultural differences, indicating values such as harmony and national security were valued more highly by Japanese, whereas comfortable life, wisdom, world peace, and freedom were valued more highly by Americans (Akiba and Klug, 1999).

Another aspect of values that should also be considered, beyond contents, is value congruence (Edwards and Cable, 2009). Previous studies have demonstrated the positive impact of value congruence between individuals and groups to which they belong, such as organizational and religious affiliations (Dunaetz et al., 2020). A meta-analytical study (Khaptsova and Schwartz, 2016) indicated that the positive effect of value congruence on life satisfaction held when controlling for various socio-demographic variables. Moreover, they found that the relationship between value congruence and life satisfaction was stronger when the independence of action value was less important. Since this meta-analytical study was conducted in one country (i.e., Russia), it is necessary to study how value congruence may play a role in mental health in other countries as well. One recent study (Elster and Gelfand, 2021) reported that the value-behavior relationship was stronger in "loose cultures (i.e., cultures that have weak social norms)" and was almost non-existent in "tight cultures (i.e., behavior being restricted by social constraints)." These findings suggest that people in tighter cultures such as Japan may not feel that they can choose to behave solely based on their personal values (i.e., weaker value-behavior relationship); thus, value congruence may serve a protective factor for their mental health. On the other hand, people in more loose cultures such as the US may feel that they can choose to behave based on their personal values; thus, value congruence may be of less importance.

In order to test these hypotheses, the current study focuses on two mental health factors that are proximate in suicidal ideation: thwarted belongingness and perceived burdensomeness (Van Orden et al., 2012). One pressing issue today is to identify a set of risk factors and protective factors for suicide. Suicide continues to be one of the major leading causes of death. Given its enormous psychological, societal, and economic impact, it is imperative to further study the mechanisms behind suicide. The current study focuses on two deprived interpersonal needs (i.e., thwarted belongingness and perceived burdensomeness) as the proximal causes of desire for suicide and examines how value contents as well as value congruence may serve as protective factors across two nations. A study conducted in Japan revealed that holding a value of importance in "cherishing friends and family" was associated with reduced suicidal ideation over a lifetime (Yasuma et al., 2019b), therefore similar associations were expected in the current study as well.

The current study has two purposes. First, it investigates how the perceived importance of various value contents (e.g., stable life, improving society) and perceived value congruence may vary across two nations – Japan and the US. Second, it tests if the importance of value contents would have a stronger impact than perceived value congruence on thwarted belongingness and perceived burdensomeness for people in the US, whereas the perceived congruence would show a stronger relationship for people in Japan.

Method

Participants and procedures

American sample

A total of 430 participants (18.1% male, 78.4% female, 2.6% non-binary or transgender, and 0.9% did not specify; mean age = 20.62, SD = 4.42) were recruited in the US between mid-May and mid-November of 2021. Participants were recruited through introductory psychology classes at a university in the Mid-western US. They received a course credit by participating in the questionnaire survey via Qualtrics. For the current study, the participants who passed the attention checks and typed their age were included to avoid potential bot responders. The final sample consisted of 393 (77.9% female) with a mean age of 20.55 (SD = 4.31). Sixty-five percent identified as White, 11.5% as Black or African American, 10.9% as Middle Eastern, 6.4% as Asian, and the remaining participants identified as other racial categories, such as American Indian.

Japanese sample

A total of 338 participants (49.4% male, 42.0% female, 0.9% non-binary or transgender, and 7.87% did not specify; mean age = 19.95, SD = 3.44) were recruited in various parts of Japan (36.1% from Kumamoto prefecture, 23.4% from Hokkaido prefecture, and the remaining participants were primarily from Hiroshima and Tokyo) between September and November of 2021. Participants were recruited using a snowball sampling method and participated in the same Qualtrics survey but with no incentives or course credits. The same criteria were applied to determine the final sample. The final sample consisted of 255 (47.1% female) with a mean age of 20.03 (SD = 3.69). All but one identified themselves as Asian (one responded "prefer not to answer"). The study was approved by the university institutional review board.

Measures

Importance of value contents

The degree to which each value is important or unimportant was measured using the shortened and adapted version of the Portrait Values Questionnaire. The "Recently Revised Portrait Value Questionnaire" (PVQ-RR: Schwartz and Cieciuch, 2022) consists of 57 items based on the Schwarz theory of basic values. For the current study, we used 11 items that had been adapted in previous studies (Yasuma et al., 2019a,b). These 11 items (e.g., "avoiding causing trouble," "financial success," etc.) were presented with an instruction, "how important are the following values in your life?" Participants responded using a 7-point Likert scale, ranging from 1 (extremely unimportant) to 7 (extremely important). Cronbach's alpha coefficients for these 11 items were 0.86 for the current US sample and 0.84 for the current Japanese sample. However, because these 11 items were not intended to comprehensively capture the Schwartz basic value categories, each item was used in the current study without aggregating them into higher-order value dimensions.

Perceived value congruence

The levels of perceived congruence in values were measured using the following questions that were developed for the current study, "Please select the answer that most describes the consistency of your values in relation to…" The first was "your values and your family's values," the second was "your values and your friends' values," and the third was "your values and your country's values." For each of these pairs, participants used a 7-point scale ranging from 1 (*extremely inconsistent*) to 7 (*perfectly consistent*). Cronbach's alpha coefficients for these 3 items were 0.58 for the current US sample and 0.77 for the current Japanese sample. However, because these 3 items were intended to capture the perceived congruence with family, friends, and country, respectively, each item was used in the current study without aggregating them into higher-order value congruence.

Depression

Depression was assessed using a 7-item depression subscale of the Hospital Anxiety and Depression Scale (Zigmond and Snaith, 1983; Higashi et al., 1996). Participants responded to these items (e.g., "I feel as if I am slowed down") using a 4-point scale (0 = never, 1 = sometimes, 2 = often, and 3 = always). Cronbach's alpha coefficients were 0.79 for the current US sample and 0.69 for the current Japanese sample.

Thwarted belongingness and perceived burdensomeness

Two of the proximal causes of desire for suicide, thwarted belongingness and perceived burdensomeness, were measured using the Interpersonal Needs Questionnaire (INQ: Van Orden et al., 2012; Aiba et al., 2019). Participants responded using a 7-point scale from 1 (*not at all true for me*) to 7 (*very true for me*). The 9-item subscale of thwarted belongingness (e.g., "These days, I feel disconnected from other people") showed a satisfactory internal consistency (Cronbach's alpha coefficients were 0.88 for the US sample and 0.86 for the Japanese sample). The 6-item subscale of perceived burdensomeness (e.g., "These days I think I am a burden on society") also showed a good internal consistency (alpha was 0.94 for the US sample and 0.94 for the Japanese sample).

Data analyses

First, two mixed ANOVA were conducted to examine the cross-national differences in the levels of importance of 11 value contents and three aspects of perceived value congruence. Second, a hierarchical regression analysis was conducted to test if value contents or value congruence would be more strongly associated with thwarted belongingness and perceived burdensomeness. For each country separately, demographics as well as depression levels were first entered into the model. Importance of the 11 values was then entered in the second step. Finally, the three aspects of perceived value congruence between themselves and their family, friends, and country were added. As recommended in Schwartz (2012), centering value scores have been commonly used in measures assessing personal values; thus, Z scores were used for the regression analyses. All analyses were conducted using IBM SPSS Statistics (Version 27; IBM 2021).

Results

Cross-national and within-national differences in the importance of value contents

A mixed ANOVA with nation as a between-factor and the importance of 11 value contents as within-factors showed a significant main effect of nation, $F_{(1, 622)} = 27.36$, $p < 0.001$, and values, $F_{(10, 613)} = 99.81$, $p < 0.001$. The interaction effects were also significant, $F_{(10, 613)} = 42.86$, $p < 0.001$, partial eta squared = 0.41. As shown in Table 1, follow up analyses revealed that values such as positive evaluation, financial success, improving society, graduating from school and stable lifestyle were perceived to be more important for the US participants than the Japanese participants, whereas enduring challenges was valued more highly for the Japanese participants. In both countries, cherishing family and friends was valued highly and social influence was least valued.

TABLE 1 Cross-national comparisons in the importance of value contents.

	US				Japan				p
	M	95% CI	SE		M	95% CI	SE		
1. Avoiding causing trouble	5.84	[5.71, 5.96]	0.06	b	5.73	[5.58, 5.88]	0.08	b	
2. Positive evaluation	5.91	[5.80, 6.02]	0.05	b	5.67	[5.54, 5.80]	0.07	b	**
3. Belief	5.76	[5.64, 5.88]	0.06	c	5.88	[5.73, 6.03]	0.08	b	
4. Financial success	6.05	[5.95, 6.16]	0.05	b	5.58	[5.45, 5.71]	0.07	c	**
5. Improving society	5.75	[5.63, 5.88]	0.06	c	5.34	[5.18, 5.49]	0.08	c	**
6. Interest	5.94	[5.85, 6.03]	0.05	b	6.02	[5.90, 6.13]	0.06	b	
7. Social influence	4.77	[4.62, 4.92]	0.08	e	4.58	[4.39, 4.76]	0.10	d	
8. Enduring challenging	5.36	[5.23, 5.49]	0.07	d	5.87	[5.71, 6.04]	0.08	b	**
9. Cherishing family and friends	6.39	[6.30, 6.47]	0.04	a	6.48	[6.37, 6.59]	0.06	a	
10. Graduating from school	6.45	[6.32, 6.58]	0.07	a	4.48	[4.32, 4.64]	0.08	d	**
11. Stable lifestyle	6.55	[6.46, 6.64]	0.05	a	5.91	[5.80, 6.03]	0.06	b	**

**$p < 0.01$.
Different letters in each country showed significant within-culture differences at $p < 0.01$.

Cross-national and within-national differences in value congruence

A mixed ANOVA revealed a significant main effect of nation, $F (1, 634) = 12.49$, $p < 0.001$, and value congruence, $F (2, 633) = 113.10$, $p < 0.001$. Interaction effects were also significant, $F (2, 633) = 63.94$, $p < 0.001$, partial eta squared $= 0.17$. As shown in Table 2, follow up analyses showed that the congruence was greater with family's and friends' values among the US participants, whereas the congruence with country's values was greater in the Japanese counterpart. Within the US, consistency was higher with friends than with family, and the congruence with country's values was the least. For the Japanese participants, overall consistency was rather moderate; thus, the only difference that was detected was value congruence with friends and with country (i.e., the congruence with country's values was lower; however, it was still higher than the US counterpart).

Association between importance of values, value congruence, and suicidal ideation

First hierarchical regression analysis was conducted with perceived burdensomeness. For the US sample, the overall model for Step 1 was significant, $F (3, 349) = 37.19$, $p < 0.001$, adjusted $R^2 = 0.24$. Depression was the only significant predictor, $b = 0.67$, 95% CI [0.54, 0.80], SE $= 0.06$, $\beta = 0.49$, $p < 0.001$. The model was improved at Step 2, $F (14, 338) = 9.77$, $p < 0.001$, adjusted $R^2 = 0.26$, $\Delta R^2 = 0.05$. In addition to the positive associations that depression had with perceived burdensomeness, one value, "enduring active challenges," was a negative predictor, serving as a protective factor, $b = -0.25$, 95% CI [−0.39, −0.10], SE $= 0.08$, $\beta = -0.18$, $p = 0.001$. At Step 3, the model was not significantly improved, $F (17, 335) = 8.47$, $p < 0.001$, adjusted $R^2 = 0.27$, $\Delta R^2 = 0.01$, indicating that value congruence was not associated with perceived burdensomeness (Table 3). For the Japanese sample, the overall model for Step 1 was significant, $F (3, 212) = 18.41$, $p < 0.001$, adjusted $R^2 = 0.20$. Depression was the only significant predictor, $b = 0.67$, 95% CI [0.49, 0.84], SE $= 0.09$, $\beta = 0.67$, $p < 0.001$. The model was significantly improved at Step 2, $F (14, 201) = 6.78$, $p < 0.001$, adjusted $R^2 = 0.27$, $\Delta R^2 = 0.11$. In addition to the positive associations that depression had with perceived burdensomeness, one value, "cherishing family and friends," was a negative predictor, serving as a protective factor, $b = -0.43$, 95% CI [−0.66, −0.20], SE $= 0.12$, $\beta = -0.25$, $p < 0.001$. Finally, at Step 3, the model was again significantly improved, $F (17, 198) = 7.17$, $p < 0.001$, adjusted $R^2 = 0.33$, $\Delta R^2 = 0.06$, indicating that value congruence with friends served a potentially protective factor, $b = -0.22$, 95% CI [−0.42, −0.02], SE $= 0.10$, $\beta = -0.22$, $p = 0.03$ (Table 3).

Second hierarchical regression analysis was conducted with thwarted belongingness. For the US sample, the model for Step 1 was significant, $F (3, 349) = 64.84$, $p < 0.001$, adjusted $R^2 = 0.35$. Depression was the only significant predictor, $b = 0.77$, 95% CI [0.66, 0.88], SE $= 0.06$, $\beta = 0.60$, $p < 0.001$. The model was improved at Step 2, $F (14, 338) = 20.11$, $p < 0.001$, adjusted $R^2 = 0.43$, $\Delta R^2 = 0.10$. In addition to the positive associations that depression had with thwarted belongingness, one value, "improving society," had a positive association, serving as a risk factor, whereas "cherishing family and friends" was a negative predictor, serving as a protective factor. Finally, at Step 3, the model was significantly improved, $F (17, 335) = 17.82$, $p < 0.001$, adjusted $R^2 = 0.45$, $\Delta R^2 = 0.02$, indicating that value congruence with family was associated with thwarted belongingness (Table 4). For the Japanese sample, the model for Step 1 was significant, $F (3, 212) = 25.24$, $p < 0.001$, adjusted $R^2 = 0.25$. Depression was the only significant predictor. The model was improved at Step 2, $F (14, 201) = 8.69$, $p < 0.001$, adjusted $R^2 = 0.33$, $\Delta R^2 = 0.11$. In addition to the positive associations that depression had with thwarted belongingness, age served a protective factor, $b = -0.19$, 95% CI [−0.33, −0.06], SE $= 0.07$, $\beta = -0.17$, $p < 0.01$, so as one value, "cherishing family and friends," $b = -0.25$, 95% CI [−0.42, −0.09], SE $= 0.08$, $\beta = -0.20$, $p < 0.01$. Finally, at Step 3, the model was significantly improved, $F (17, 198) = 8.21$, $p < 0.001$, adjusted $R^2 = 0.36$, $\Delta R^2 = 0.04$, indicating that value congruence with friends served a protective factor, $b = -0.19$, 95% CI [−0.34, −0.05], SE $= 0.07$, $\beta = -0.19$, $p < 0.01$ (Table 4).

Discussion

The first aim of the current study was to examine cross-national and within-national individual differences in the importance of value contents and value congruence. Results indicated that only one value "enduring challenges" was perceived more importantly for participants in Japan than those in the US and many other values such as positive evaluation, financial success, improving society, graduating from school, and stable lifestyle, were perceived more importantly for those in the US. Because values are ordered by importance, and the relative importance of multiple values guides action, researchers assessing contents of values are often recommended not to use absolute scores Schwartz, 2012. This is particularly important if the researchers aim to test theory-driven dimensionality of basic human values (Ponikiewska et al., 2020) from a cross-cultural perspective (Cieciuch et al., 2014). However, the absolute levels of ratings that the current study used seem very informative. For example, 67.1% of the US sample responded "stable lifestyle" as extremely important by choosing "7" out of 1–7 scale compared to only 32.1% of the Japanese sample. Because values that are placed at higher priority are likely to guide one's attitudes and actions, whether the highest importance

TABLE 2 Cross-national comparisons in the value congruence.

	US				Japan				p
	M	95% CI	SE		M	95% CI	SE		
Self and family's values	5.20	[5.05, 5.35]	0.08	b	4.59	[4.40, 4.78]	0.10		**
Self and friends' values	5.47	[5.35, 5.59]	0.06	a	4.62	[4.46, 4.77]	0.08	a	**
Self and country's values	3.88	[3.73, 4.03]	0.08	c	4.39	[4.20, 4.58]	0.10	b	**

$**p < 0.01$.
Different letters in each country showed significant within-country differences at $p < 0.01$.

TABLE 3 Regression models predicting perceived burdensomeness at Step 3.

	US				Japan			
	b	CI	SE	β	b	CI	SE	β
Gender	−0.09	[−0.42, 0.23]	0.17	−0.03	0.35	[0.01, 0.70]	0.17	0.12*
Age	−0.04	[−0.15, 0.07]	0.06	−0.03	−0.12	[−0.30, 0.06]	0.09	−0.08
Depression	0.57	[0.44, 0.71]	0.07	0.42**	0.38	[0.19, 0.56]	0.09	0.26**
1. Avoiding causing trouble	0.10	[−0.06, 0.25]	0.08	0.07	0.11	[−0.05, 0.28]	0.08	0.09
2. Positive evaluation	−0.06	[−0.23, 0.12]	0.09	−0.04	0.04	[−0.15, 0.23]	0.10	0.03
3. Belief	−0.04	[−0.19, 0.11]	0.07	−0.03	−0.25	[−0.49, −0.01]	0.12	−0.16*
4. Financial success	−0.01	[−0.20, 0.18]	0.10	−0.01	−0.17	[−0.38, 0.04]	0.11	−0.12
5. Improving society	0.16	[−0.03, 0.34]	0.09	0.10	0.18	[−0.01, 0.37]	0.10	0.15
6. Interest	−0.07	[−0.24, 0.10]	0.09	−0.05	−0.29	[−0.53, −0.05]	0.12	−0.20*
7. Social influence	0.15	[−0.00, 0.29]	0.08	0.11	0.08	[−0.14, 0.30]	0.11	0.06
8. Enduring challenging	−0.23	[−0.38, −0.08]	0.08	−0.17**	0.07	[−0.19, 0.34]	0.13	0.05
9. Cherishing family and friends	−0.11	[−0.29, 0.06]	0.09	−0.08	−0.36	[−0.60, −0.12]	0.12	−0.21**
10. Graduating from school	0.14	[−0.15, 0.42]	0.15	0.06	0.00	[−0.19, 0.19]	0.10	0.00
11. Stable lifestyle	−0.02	[−0.27, 0.24]	0.13	−0.01	0.19	[−0.02, 0.40]	0.11	0.14
Value congruence - family	−0.14	[−0.29, 0.01]	0.08	−0.10	−0.11	[−0.32, 0.09]	0.10	−0.08
Value congruence - friends	−0.02	[−0.18, 0.14]	0.08	−0.01	−0.22	[−0.41, −0.02]	0.10	−0.16*
Value congruence - country	−0.05	[−0.18, 0.08]	0.07	−0.04	−0.19	[−0.43, 0.05]	0.12	−0.11

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

was given or not may not be of importance, especially given that the majority of values were placed lower by people in Japan than those in the US. And yet, the fact that none of the values was perceived "extremely important" for a certain percentage of people, especially in Japan, may challenge a value theory in general, because the theory assumes everyone should have something important values. The current results raise a question: if more and more people feel that "nothing seems important to me," then how will that guide their behaviors? The argument for relative importance may need a threshold because if the perceived importance is too mild, if not weak, none of the values may become activated.

The second aim of the current study was to investigate the associations that the importance of value contents and perceived value congruence had with thwarted belongingness and perceived burdensomeness. The hypotheses were supported for people in Japan but only partially supported for people in the US. Regarding the Japanese sample, a robust protective factor for perceived burdensomeness and thwarted belongingness was "cherishing family and friends," consistent with a previous study (Yasuma et al., 2019b). This value is suggested to be classified as a benevolence value based on Schwartz's theory of basic values, which has been shown to be anxiety-free with social focus (Schwartz and Cieciuch, 2022). Furthermore, value congruence with friends also served as a protective factor. This result is consistent with a study conducted in Israel (Benish-Weisman et al., 2020), another culture that is traditionally collectivistic. Because of the collectivistic characteristics, coupled with a homogeneous society, shared values are likely to play a critical role in mental health for people in Japan, and the current results support that, which is also consistent with the cultural fear of exclusion (Wilberg, 2012).

Regarding the US sample, patterns were different between the two deprived interpersonal needs. For perceived burdensomeness, placing a value on enduring challenges served a protective factor. This type of

value is related to openness to change, which is also a part of grit and resiliency that are known to moderate the relationships between trauma and suicidal ideation (Marie et al., 2019). However, this value was not associated with thwarted belongingness. Instead, just like the participants in Japan, the value of cherishing family and friends served as a protective factor. Interestingly, however, the value of improving society served as a risk factor for thwarted belongingness. We can speculate that one's perceptions of needs for improvement in their own community might come from their observations or beliefs that others do not recognize the needs, which in turn may elicit a sense of frustration or isolation; thus, thwarted belongingness. The potentially important role of value congruence over and above the importance of value contents was expected to only be found among people in Japan given the diverse society of the US. However, although weak, value congruence with family served as a protective factor for thwarted belongingness for people in the US, as opposed to value congruence with friends found in Japan. The current study is unable to answer why this was the case. Future studies should address how value congruence plays a role in a sense of isolation and suicidal ideation.

Another future direction may aim to reveal the mechanisms behind the changes in values. The malleability of values has been suggested. Bonetto et al. (2021), for example, illustrated some forms of values such as achievement were placed lower whereas other values such as conformity and security were placed higher during the pandemic than usual. Given that values guide attitudes and actions and seem to affect the perceptions of deprived interpersonal needs, it will be critical to study under what conditions changes may occur in the relative importance of values within an individual and culture. One study suggested that changes in values, or at least a temporary adjustment of basic human values, in order to adapt to the COVID-19 pandemic may be more pronounced among individuals that are more sensitive to situational dynamics (i.e.,

TABLE 4 Regression models predicting thwarted belongingness at Step 3.

	US				Japan			
	b	CI	SE	β	b	CI	SE	β
Gender	0.28	[0.01, 0.54]	0.14	0.09*	0.06	[−0.19, 0.31]	0.13	0.06
Age	0.08	[−0.01, 0.17]	0.05	0.07	−0.17	[−0.30, −0.04]	0.07	−0.17*
Depression	0.61	[0.50, 0.72]	0.06	0.47**	0.34	[0.21, 0.48]	0.07	0.34**
1. Avoiding causing trouble	0.11	[−0.02, 0.23]	0.06	0.08	0.01	[−0.10, 0.13]	0.06	0.01
2. Positive evaluation	−0.16	[−0.30, −0.01]	0.07	−0.11*	0.07	[−0.07, 0.21]	0.07	0.07
3. Belief	−0.02	[−0.13, 0.10]	0.06	−0.01	−0.06	[−0.23, 0.12]	0.09	−0.05
4. Financial success	−0.05	[−0.20, 0.10]	0.08	−0.03	−0.01	[−0.16, 0.14]	0.08	−0.01
5. Improving society	0.20	[0.05, 0.35]	0.08	0.14**	−0.01	[−0.15, 0.13]	0.07	−0.01
6. Interest	−0.12	[−0.26, 0.03]	0.07	−0.09	−0.09	[−0.27, 0.08]	0.09	−0.09
7. Social influence	−0.01	[−0.13, 0.12]	0.06	−0.00	−0.00	[−0.16, 0.16]	0.08	−0.00
8. Enduring challenging	−0.00	[−0.12, 0.12]	0.06	−0.00	−0.17	[−0.36, 0.02]	0.10	−0.15
9. Cherishing family and friends	−0.26	[−0.40, −0.12]	0.07	−0.19**	−0.21	[−0.38, −0.04]	0.09	−0.16*
10. Graduating from school	−0.23	[−0.46, 0.00]	0.12	−0.10	0.16	[0.02, 0.30]	0.07	0.16*
11. Stable lifestyle	0.13	[−0.08, 0.33]	0.11	0.08	−0.00	[−0.15, 0.15]	0.08	−0.00
Value congruence - family	−0.13	[−0.26, −0.01]	0.06	−0.10*	−0.05	[−0.20, 0.10]	0.08	−0.05
Value congruence - friends	−0.12	[−0.24, 0.01]	0.07	−0.08	−0.19	[−0.34, −0.05]	0.07	−0.19**
Value congruence - country	−0.03	[−0.14, 0.07]	0.05	−0.03	−0.02	[−0.19, 0.16]	0.09	−0.01

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

people with low emotional stability) (Fischer et al., 2021). If so, various positive changes in values that were reported by traumatized people, known as post-traumatic growth (Tedeschi et al., 2018), might have been affected by the individuals' sensitivities. This speculation should be tested in future research.

In the interpretation of our results, there are some limitations. First, this study adapted the 11 value contents that were selected in previous studies (Yasuma et al., 2019a). Although the researchers did not provide the rationale behind their selection, these 11 items may not fully cover the full range of values that have been universally identified. For example, Schwartz' theory consists of four higher order values that form two dimensions. One is self-transcendence - self-enhancement dimension, and the other is openness to change - conservation dimension. The 11 items that the current study adopted failed to capture the dimension of self-transcendence, which could play an important role in perceived burdensomeness, because one study demonstrated that activating self-transcendence values promoted prosocial behaviors during the COVID-19 pandemic (Russo et al., 2022). Future research should use a full scale of basic values so that each value is structured as a circular continuum hierarchical model. Similarly, value congruence was assessed using self-report methodologies, that is, conscious level of "perceived" discrepancies. In order to evaluate how objective value congruence may affect mental health, it is necessary to calculate the discrepancies between an individual's importance of values and the groups' aggregated importance of values; however, such method also may have its disadvantages, knowing that individuals belong to multiple groups and communities. The second limitation is related to sampling. An unbalanced gender ratio with limited sample size must have affected our results. We also did not collect socio economic status of the participants. Sampling equivalence is difficult to meet for any

cross-cultural studies. But the cross-national differences that were identified in the current study might have been due to the cross-religious differences, given that more Christians were included in the US sample and more non-religious individuals were included in Japan. This is important, because values are often closely tied to religious faith (Saroglou et al., 2004) and non-monotheistic religions and the nature of causality between values and religiosity has not been fully elucidated (Sagiv and Schwartz, 2022). The relatively low appreciation of value among the Japanese may be related to the large number of non-religious individuals. Similarly, the data we presented here were collected during the COVID-19 pandemic, but because it was a cross-sectional research design and we were not able to compare how the findings might differ from pre-COVID or post-COVID, we could not know how the results we obtained were due to the COVID-19 pandemic. It is critical to replicate the current study.

In summary, we investigated the cross-national and individual differences within each nation in the importance of values and value congruence during the COVID-19 pandemic. We also demonstrated the associations that these two aspects of values had with thwarted belongingness and perceived burdensomeness. Our data from two countries, albeit with some limitations, shed light on the multiple paths for future studies that may further refine the Interpersonal Theory of Suicide (Chu et al., 2017, for a review; Van Orden et al., 2005). When it comes to the moment of actions, personal importance of values and perceived value congruence may be the factors that play a key role.

Data availability statement

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

Ethics statement

Author contributions

Funding

Acknowledgments

Conflict of interest

Publisher's note

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Cultural variations in perceptions and reactions to social norm transgressions: a comparative study

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Introduction: Humans are similar but behave differently, and one main reason is the culture in which they are born and raised. The purpose of this research is to examine how the perception and reaction to those who transgress social norms may vary based on the individualism/collectivism of their culture.

Methods: A study (*N* = 398) conducted in the United Kingdom, Spain, and China showed differences in the perception and reaction to incivilities based on individualism/collectivism.

Results: People from highly collective countries (China) perceive uncivil transgressors as immoral and enact more social control over them than people from highly individualistic countries (U.K.). They also experience more discomfort when facing uncivil transgressors, and this discomfort mediates the increasing immorality perceived on the agents of incivilities in contrast with people from less collective countries.

Discussion: Our findings provide insights into how cultural factors shape individuals' perceptions of social norm violations and emphasize the importance of considering cultural differences when addressing incivility.

1. Introduction

Social norms, which are "behaviors of group members that act as implicit rules, considered to be both descriptive of what group members are and prescriptive (injunctive) of how they should be" (Fiske, 2004, p. 484), are influenced by culture and play a crucial role in shaping cultural differences. Social science has come a long way in expanding its research into other countries; however, most cross-cultural studies are still primarily carried out in Western societies where most studies are WEIRD (conducted with participants who are white, educated, industrialist, rich, and democratic). Western concepts and ideas continue to dominate theories, frameworks, research plans, data collection strategies, analyses, and interpretations in research on cross-cultural values, beliefs, and morality, despite some expansion to include data from previously understudied nations and regions (Goodwin et al., 2020). Traditionally, studies on civility and morality have concentrated on Western societies, but it is now more crucial than ever to consider Eastern cultures that place a greater emphasis on collectivism, interpersonal

harmony, and respect for authority (Schwartz, 1994). Therefore, it is necessary to consider cultural differences in values and norms that may exist between Western and Eastern cultures when studying civility and morality.

Non-Western cultures, whose moral practices and beliefs might be dissimilar from those in the West, have largely been ignored in this field. It is necessary to note that Western moral tradition focuses more on deontological ethics, where moral obligations are viewed as fact-like requirements of behavior that can be generalized to other situations (Angle and Slote, 2013). Eastern countries, such as China, are strongly influenced by Confucianism, a form of virtue ethics that emphasizes politeness and everyday courtesy to train character (Hursthouse, 2013; Sarkissian, 2014). In this sense, the cross-cultural study by Buchtel et al. (2015) found that though immorality is usually seen as a universal concept, the behaviors that are considered immoral vary greatly between countries, especially between Western countries where harmful behaviors are considered immoral and Eastern countries where uncivilized behaviors are considered immoral. That means, though individualistic cultures, like the United Kingdom, may place a higher priority on individual liberties and rights, collectivist cultures, like China, may place a higher emphasis on harmony, group cohesion, and the social norms that maintain them.

The degree to which a social norm is respected and followed can influence the impact of incivilities, which influenced our interest in the cultural dimension of individualism and collectivism. Hofstede (2001)'s definition of individualism and collectivism described individualism as a cultural dimension that values individual autonomy and independence, where individuals prioritize their own interests over group interests. On the other hand, collectivism emphasizes the importance of group harmony, interdependence, and loyalty, where individuals prioritize the interests of the group over their own interests. Countries differ in their endorsement of collectivistic or individualistic values, and this can influence people's reactions to incivilities. As seen in a study in eight countries by Brauer and Chaurand (2010), they observed that the more individualistic a country was, the less they enact social control over uncivil behaviors. However, all eight countries were Western, and we claim Eastern nations must be taken into account to fully comprehend the complexities of civility and morality across various cultures. The present study aims to explore the differences in the reaction to incivilities between Eastern and Western countries that differ in the cultural dimension of individualism/collectivism. Specifically, we selected the highly individualistic United Kingdom, Spain, which falls in between individualism/collectivism, and the highly collectivistic China, with scores of 89, 51, and 20 in individualism, respectively (Hofstede, 2001).

Individuals in collectivistic cultures tend to have a more interdependent definition of self and feel more interconnected with others (Markus and Kitayama, 1991; Triandis, 2001), which may make them feel more personally implicated when witnessing a norm transgression. Furthermore, collectivistic cultures place a greater emphasis on their neighborhood and view uncivil behaviors that harm the neighborhood as more problematic. Therefore, individuals from collectivistic cultures would be more likely to react to social norm transgressions by exerting social control over the transgressor compared to those from individualistic cultures (Triandis, 1995). Additionally, when a social norm is transgressed, it implies a lack of regard and a violation of mutual respect that can determine how negative people feel when mistreated (Cialdini et al., 1990; Reno et al.,

1993; Bendor and Swistak, 2001). Being the target of a norm transgression is unpleasant and has been linked to negative feelings (Ekman, 2004; Porath and Pearson, 2012, 2013). The more a person's actions violate these norms, the more unpleasant people's experience of the incident (Costa-Lopes et al., 2013). Facing incivilities create discomfort (Moon et al., 2018) and even moral outrage (Moisuc et al., 2018). Moreover, this experience can also be influenced by the culture; specifically, Moon et al. (2018) found that the degree of power distance in different cultures influences the victim's acceptance of incivilities, particularly when the behaviors are exhibited by individuals in powerful positions within their organization. However, the acceptability of incivilities is not only influenced by the cultural dimension of power distance but also by the cultural dimension of tightness/looseness, that is, the strength and tolerance of social norms (Gelfand et al., 2011). Thus, people from countries with high power distance find incivilities more acceptable, but they also feel great discomfort, which may be influenced by their cultural tightness regarding the importance of norms (Moon and Sánchez-Rodríguez, 2021).

Even more, the impact of social norm transgressions is not limited to those who experience them but can also influence how transgressors are perceived and evaluated. Those who engage in uncivil behaviors may face not only social disapproval but also dehumanization and moral condemnation (Kelman, 1973; Brauer and Chaurand, 2010; Bastian et al., 2013; Buchtel et al., 2015). Social control reactions can differ and be influenced by personal implications, and people may have different perceptions and reactions to norm violations and transgressors (Chekroun and Brauer, 2002; Brauer and Chekroun, 2005; Nugier et al., 2009; Moisuc et al., 2018). Dehumanization can impact the extent to which others view the transgressor as deserving of moral concern, as well as the level of blame assigned to them (Bastian et al., 2011). However, not only is there a gap in the literature of dehumanization enacted by people that are not from WEIRD countries (Ceci et al., 2010; Henrich et al., 2010), there are also differences in how this dehumanization happens. Chen-Xia et al. (2022) observed that gender plays a significant role in the dehumanization of uncivil agents, the lack of stereotypically feminine traits leads to being seen as less human than others. Additionally, Buchtel et al. (2015) observed that transgressing social norms may lead to moral condemnation that can be influenced by the Eastern or Western culture of the ones involved. However, they only observed the behaviors. In this sense, we also seek to study differences regarding the transgressor of social norms. With this in mind, this study aims to examine the perception and reaction to uncivil transgressors based on the cultural differences of individualism/collectivism.

1.1. The present study

The purpose of this research is to examine the relationship between culture and incivility. Specifically, we intend to study how the reaction to those who transgress social norms may vary based on their individualistic/collectivistic cultures.

The perception of social norm transgressions may vary in different countries. In this case, we chose three countries based on their scores in Hofstede (2001)'s individualism and collectivism scale that has been repeatedly validated in cross-cultiral research (Basabe and Ros, 2005) and is widely used in educational, environmental, social, and organizational research (Moon and Sánchez-Rodríguez, 2021; Bruno

et al., 2023; Helferich et al., 2023; Kramer, 2023). Following this scale, we selected United Kingdom as a highly individualistic country, with a score of 20. China as a highly collectivistic country, with a score of 89, and Spain as country that stands in between, with a score of 51.

Using behaviors that are considered equally uncivil in the three countries, we expect participants of the United Kingdom, Spain, and China to consider the agent as equally uncivil given that they will be presented as performing equally uncivil behaviors in the three countries (Hypothesis 1a). Whereas we expect their perception of immorality to increase the more collective their culture is, for example, participants from China will consider the transgressor as more immoral than participants from the United Kingdom (Hypothesis 1b).

While some studies suggest that immoral behavior contributes to increased cultural differences in causal attribution (Miller, 1984), with Westerners more inclined to emphasize internal dispositional factors such as personality traits, and Easterners more likely to attribute behavior to external situational factors (Morris and Peng, 1994; Choi and Nisbett, 1998; Masuda and Kitayama, 2004), it might be anticipated that Westerners are more prone to perceive individuals as immoral after witnessing them engage in such behavior compared to Easterners. This assumption may not hold true for transgressions related to social norms of civility. However, research has demonstrated an asymmetry in the perception of (im)moral and (un)civil behaviors (Rodríguez-Pérez et al., 2022). Immoral behaviors are often considered more objectively identifiable than moral behaviors, while civil behaviors are deemed more objectively identifiable than uncivil ones. This implies that recognizing what is immoral is easier than recognizing what is uncivil. Furthermore, there exist disparities in behaviors classified as immoral or uncivil between Eastern and Western countries (Buchtel et al. (2015)). While a substantial number of behaviors are universally categorized as uncivil, Eastern countries tend to identify a higher number of behaviors as uncivil, and these behaviors are often perceived as immoral as well. This phenomenon is less pronounced in Western countries. In a way, this observation aligns with prior research highlighting Easterners' strong emphasis on contextual factors and their dedication to preserving social harmony (Son, 2012). Given these insights, it is plausible to expect that, in cases involving incivilities or breaches of social norms, Easterners would be the ones to exhibit a greater tendency to be more critical of individuals who commit such transgressions. This is consistent with the distinctive self-concept prevalent among non-WEIRD Easterners, which is shaped by the significance of social relationships (Markus and Kitayama, 1991).

Following the previous reasoning, we also expect differences in the extent to which they feel discomfort in these situations (Moon et al., 2018). Specifically, we expect participants to feel more discomfort when they are from highly collectivistic cultures (Hypothesis 1c). Additionally, we expect differences in their reactions of social control (Moisuc et al., 2018) where it has been observed in Western countries that the more collectivistic is a country, the more they will enact social control (Brauer and Chaurand, 2010). And finally dehumanization (Chen-Xia et al., 2022) toward the transgressor, that is, we expect participants from collectivistic cultures the ones to enact more social control (Hypothesis 1d) and dehumanize more (Hypothesis 1e). Finally, we expect a mediating effect of discomfort on the immorality of the agent based on culture; that is, we expect that the participants of more collectivistic countries experience more discomfort when facing these uncivil behaviors which is what lead them to consider the transgressor as an immoral person (Hypothesis 2).

2. Method

2.1. Participants and design

The sample ($N = 398$) consisted of 131 British people from the general population who identified as British (63 women, $M_{age} = 34.64$ years, $SD_{age} = 9.02$), 144 Spanish people from the general population who identified as Spanish (73 women, $M_{age} = 28.47$ years, $SD_{age} = 8.36$), and 123 Chinese people from the general population who identified as Chinese (66 women, $M_{age} = 29.50$ years, $SD_{age} = 6.91$). All participants gave their informed consent and received financial incentives in exchange for their participation.

The study followed a single factor between-subjects design, with the independent variable being the culture with three levels based on the nationality of the participants (British vs. Spanish vs. Chinese). All participants received a questionnaire in their native language where they were presented with a person performing three uncivil behaviors. Questions measured six dependent variables for each behavior: behavior incivility, agent incivility, agent immorality, discomfort, social control, and dehumanization. G*Power 3.1 (Faul et al., 2007) suggested we needed 390 participants to detect a medium effect size ($f = 0.20$) with 95% power ($\alpha = 0.05$).

2.2. Materials

2.2.1. Type of behavior and background story

We selected 3 uncivil behaviors from Rodríguez-Gómez et al. (2022)'s database ("damaging the street furniture," "throwing papers and garbage in the street," and "jumping the queue") and conducted a pretest ($N = 77$) where participants rated to what extent they considered the behavior uncivil ("Taking into account that Civility refers to behaviors related to courtesy and respect for others. Please indicate on a scale from 1 *not at all uncivil* to 7 *extremely uncivil* to what extent you believe that such behavior is uncivil") and negative ("Please indicate on a scale from 1 *not at all inappropriate* to 7 *extremely inappropriate* to what extent you believe this behavior is inappropriate"). The three behaviors presented were framed in this context: "Imagine that the following happens to you: you are outside your house on the street when you suddenly see a person who is (damaging the street furniture/throwing papers and garbage on the street/jumping a queue)".

Analysis of the responses showed that the three behaviors were perceived significantly as uncivil when compared to the midpoint of the civil scale (4.0). Specifically, "damaging street furniture" had a mean of 6.3, $SD = 1.17$, $t(76) = 17.23$; $p < 0.001$, $d = 1.96$, 95% CI [1.58, 2.35]; "throwing papers and garbage in the street" had a mean of 5.96, $SD = 1.44$, $t(76) = 11.98$; $p < 0.001$, $d = 1.36$, 95% CI [1.05, 1.67], and "jumping the queue" had a mean of 5.26, $SD = 1.56$, $t(76) = 7.09$; $p < 0.001$, $d = 0.81$, 95% CI [0.55, 1.06]. Likewise, the three behaviors were significantly negative. Specifically, "damaging street furniture" had a mean of 6.13, $SD = 1.22$, $t(76) = 15.35$; $p < 0.001$, $d = 1.75$, 95% CI [1.39, 2.10]; "throwing papers and garbage in the street" had a mean of 6.12, $SD = 1.32$, $t(76) = 14.10$; $p < 0.001$, $d = 1.61$, 95%, CI [1.26, 1.94], and "jumping the queue" had a mean of 5.08, $SD = 1.68$, $t(76) = 5.64$; $p < 0.001$, $d = 0.64$, 95% CI [0.40, 0.89].

2.2.2. Behavior incivility (as control)

We adapted an item from the incivilities study by Chen-Xia et al. (2022) to measure the incivility of the behavior. Specifically, participants rated the civility of the behavior on a 7-point scale with endpoints labeled 1 = *not at all uncivil* and 7 = *extremely uncivil*. We expected Chinese, Spanish, and British participants to rate the uncivil behavior as equally uncivil.

2.2.3. Agent incivility

We adapted an item from the study of incivilities by Chen-Xia et al. (2022) to measure the incivility of the agent. Specifically, participants rated the civility of the agent on a 7-point scale with endpoints labeled 1 = *not at all uncivil* and 7 = *extremely uncivil*. We expected all participants to rate the uncivil agent as equally uncivil.

2.2.4. Agent immorality

Participants also rated the immorality of the agent on a 7-point scale with endpoints labeled 1 = *not at all immoral* and 7 = *extremely immoral*. We expected Chinese participants to rate the agent of uncivil behaviors as more immoral than Spanish participants, and Spanish participants more than British participants.

2.2.5. Discomfort

We adapted an item from the study of Moon et al. (2018) to measure how uncomfortable it was to see a person performing that behavior. Specifically, participants rated their discomfort on a 7-point scale with endpoints labeled 1 = *not at all uncomfortable* and 7 = *very uncomfortable*. We expected higher ratings of discomfort from Chinese participants than Spanish participants, and higher ratings from Spanish participants than British participants for uncivil situations.

2.2.6. Social control

We adapted an item from the study of incivilities by Brauer and Chaurand (2010) to measure social control. Specifically, participants indicated to what extent they would react to that behavior, expressing disapproval to the agent, on a 9-point scale with endpoints labeled 1 = *not at all* and 9 = *very much*. We expected Chinese participants to indicate higher social control than Spanish participants, and Spanish participants higher than British participants for uncivil agents.

2.2.7. Dehumanization

We adapted the Ascent of Human measure of blatant dehumanization by Kteily et al. (2015) to measure dehumanization. Participants were presented with a brief text ("Some people seem highly evolved, while others do not appear to be different from lower animals. Using the image below as a guide, use the sliders to indicate how evolved you consider the person who performs the behavior to be") and indicated their answer on a 0–100 slide with endpoints labeled 0 = *Least evolved* and 100 = *Most evolved*. We expected Chinese participants to dehumanize the uncivil agent more than Spanish participants, and Spanish participants more than British participants.

2.2.8. Attention check

A true or false item was included at the end of the questionnaire to check their attention ("Please indicate whether the following statement is true or false: One of the questions in the questionnaire was about throwing papers and garbage in the street"). Participants who failed this question would be eliminated from the analysis.

2.3. Procedure and data analysis

We collected data using a self-administered online questionnaire on the Qualtrics platform. To do this, we generated an electronic reference for the survey and distributed it to people from the United Kingdom, Spain, and China through the Prolific platform in exchange for economic retribution. Participants were presented with a survey in their native language and were selected based on their nationality, as well as the country where they lived most of their life (Brauer and Chaurand, 2010). Then, the participants were asked to read a situation carefully and imagine that it happens to them. A brief text was presented, adapted for each behavior. For example, "You are outside of your house, on the street, when you suddenly observe a person who is damaging the street furniture." Each behavior was presented in a random order and six dependent variables were then presented below. In the end, they were asked to answer an attention check item to determine their inclusion in the study.

We used SPSS program 25 version for the analyses. A significance level of 0.05 was set. Descriptive statistics were calculated, and we performed a One-way Analysis of Variance (ANOVA) with culture (British vs. Spanish vs. Chinese) as the independent variable for each dependent variable. Also, the SPSS PROCESS macro (Model 4) developed by Hayes (2018) was used to conduct a mediation analysis. Effects were reported with 95% confidence intervals (CIs), and the bootstrapping method with 5,000 resamples of the data tested the robustness of mediating effects.

3. Results

Before conducting the analyses, we carried out a verification of the uncivil behaviors perceived by the participants. To this end, we conducted between-subjects ANOVA (culture: British vs. Spanish vs. Chinese) with behavior incivility as the dependent variable. No significant differences were observed based on the culture of the participants [$F(2,395) = 0.361$; $p = 0.697$; $\eta^2 = 0.002$]. As a result, there were no differences in the evaluation of the incivility of the uncivil behaviors in the three groups ($M = 6.19$, $SD = 0.66$ for British; $M = 6.23$, $SD = 0.80$ for Spanish; $M = 6.27$, $SD = 0.69$ for Chinese). These results show that, regardless of the cultural group, the selected behaviors meet the requirement of being perceived as equally uncivil by participants of the three cultures differing in individualism/collectivism.

3.1. Agent incivility and immorality

To determine if the three cultural groups rated the agents as uncivil (H1a) similarly and immoral (H1b) differently, we carried out two separate between-subjects ANOVAs (culture: British vs. Spanish vs. Chinese) with agent incivility and agent immorality as the dependent variables.

As seen in Figure 1, the results related to agent incivility showed no differences based on the culture [$F(2,395) = 2.395$; $p = 0.093$; $\eta^2 = 0.012$; $M = 6.05$, $SD = 0.75$ for British; $M = 6.20$, $SD = 0.82$ for Spaniards and $M = 6.16$, $SD = 0.76$ for Chinese]. However, the ANOVA results showed differences when evaluating the agent immorality [$F(2,395) = 6.987$; $p = 0.001$; $\eta^2 = 0.034$]. Specifically, these differences were between the Chinese participants ($M = 5.96$, $SD = 0.78$) and the British participants

FIGURE 1
Agent incivility and agent immorality in each country.
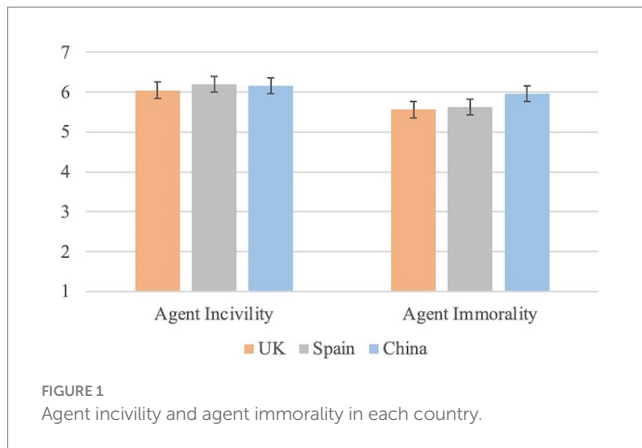
($M = 5.56$, $SD = 0.88$; $t(252) = 3.76$; $p < 0.001$, $d = 0.481$, 95% CI [-0.601, -0.188]) and between the Chinese participants and the Spanish participants ($M = 5.63$, $SD = 1.00$; $t(265) = 2.96$; $p = 0.003$, $d = 0.368$, 95% CI [-0.553, -0.111]). No differences were found between the British participants and the Spanish participants ($t(273) = 0.544$; $p = 0.587$, $d = 0.074$, 95% CI [-0.288, -0.163]). This means that, as expected in H1a, the three cultural groups consider the agent similarly uncivil. Agent incivility is in line with behavior incivility. However, as stated in H1b, Chinese participants rated these equally uncivil agents as more immoral than British and Spanish participants. That is, a person performing a behavior considered uncivil will also be seen as uncivil. However, uncivil agents were also considered immoral by participants of the highly collectivistic culture and not by participants of highly individualistic cultures.

3.2. Discomfort

This study is also interested in discovering differences in the experience of discomfort when facing incivility, based on the participants' culture. The results of the between-subjects ANOVA (culture: British vs. Spanish vs. Chinese) showed significant differences between the cultural groups [$F(2,395) = 25.62$; $p < 0.001$; $\eta^2 = 0.115$]. Specifically, Chinese participants ($M = 6.01$, $SD = 0.89$) showed more discomfort than British participants ($M = 4.99$, $SD = 1.32$; $t(252) = 7.11$; $p < 0.001$, $d = 0.884$, 95% CI [-1.293, -0.732]), and Spanish participants ($M = 5.55$, $SD = 1.12$) also showed more discomfort than British participants ($t(265) = 3.75$; $p < 0.001$, $d = 0.457$, 95% CI [-0.844, -0.263]). In addition, differences between Chinese and Spanish participants were also significant ($t(265) = 3.65$; $p < 0.001$, $d = 0.441$, 95% CI [-0.708, -0.212]), confirming hypothesis 1c. Social norm deviance generates discomfort, and this discomfort varies in people from cultures that differ in individualism/collectivism, with participants from collectivist cultures more affected and experiencing more discomfort.

3.3. Social control

To determine to what extent participants considered uncivil behaviors to be socially controlled, a between-subjects ANOVA (culture: British vs. Spanish vs. Chinese) with social control as the dependent variable was conducted. Results showed differences based on the culture [$F(2,395) = 3.322$; $p = 0.037$; $\eta^2 = 0.017$]. Specifically,

these differences were between the British participants ($M = 5.65$, $SD = 1.89$) and the Chinese participants ($M = 6.11$, $SD = 1.71$; $t(252) = -2.01$; $p = 0.04$, $d = 0.255$, 95% CI [-0.227, -0.906]) and between the British participants and the Spanish participants ($M = 6.15$, $SD = 1.65$; $t(273) = -2.33$; $p = 0.021$, $d = 0.282$, 95% CI [-0.917, -0.077]). No differences were found between the Chinese participants and the Spanish participants ($t(265) = 0.182$; $p = 0.856$, $d = 0.024$, 95% CI [-0.368, -0.442]). Collectivist cultures enact more social control on those who perform behaviors that transgress social norms. Therefore, the H1d hypothesis is partially accepted because not only Chinese participants but also Spanish participants estimated that they will socially control uncivil agents to a greater extent than British participants.

3.4. Dehumanization of the transgressor

The between-subjects ANOVA (one-way) of the culture (British vs. Spanish vs. Chinese) with dehumanization as the dependent variable showed differences between the three cultural groups [$F(2,395) = 8.38$; $p < 0.001$; $\eta^2 = 0.041$]. Specifically, these differences were between the Spanish participants ($M = 39.61$ years, $SD = 29.48$) and the Chinese participants ($M = 50.18$ years, $SD = 25.96$; $t(265) = -3.08$; $p = 0.002$, $d = 0.380$, 95% CI [-17.321, -3.826]) and between the Spanish participants and the British participants ($M = 52.37$ years, $SD = 27.37$; $t(273) = 3.71$; $p < 0.001$, $d = 0.449$, 95% CI [5.990, 19.536]). No differences were found between the Chinese participants and the British participants ($t(252) = 0.653$; $p = 0.514$, $d = 0.082$, 95% CI [-4.411, 8.791]). These results do not confirm H1e, in which we expected a higher tendency to dehumanize transgressors in collectivistic cultures.

3.5. Mediation effect of discomfort on the immorality of the agent based on culture

To perform the mediation analysis we used Model 4 in SPSS PROCESS macro (Hayes, 2018) to test the mediation effect of discomfort on the immorality of the agent based on culture. To do that we set the independent variable as categorical and dummy coded with indicator, setting the groups as 1 = Spanish, 2 = British, and 3 = Chinese, to compare the participants of the most collective country (China), and the most individualistic country (UK), with the country in between them (Spain).

As seen in Figure 2, the mediation was significant. Culture was associated with discomfort in both cases, when comparing a country that scores in the middle part of Hofstede (2001)'s individualism and collectivism scale (Spain) with a highly individualistic country (UK) ($a_1 = -0.55$, $p < 0.001$), the association was negative, whereas when it was compared with a highly collectivistic country (China) ($a_2 = 0.46$, $p = 0.001$), the association was positive.

On the other hand, discomfort was positively associated with the immorality given to the agent ($b = 0.31$, $p < 0.001$); meanwhile, the direct effect of culture on the immorality of the agent was not significant in both comparisons ($c_1' = 0.11$, $p = 0.282$; $c_2' = 0.19$, $p = 0.070$), whereas the total effect of culture on immorality of the agent was not significant for Spain vs. UK ($c_1 = -0.06$, $p = 0.567$) but significant for Spain vs. China ($c_2 = 0.33$, $p = 0.003$).
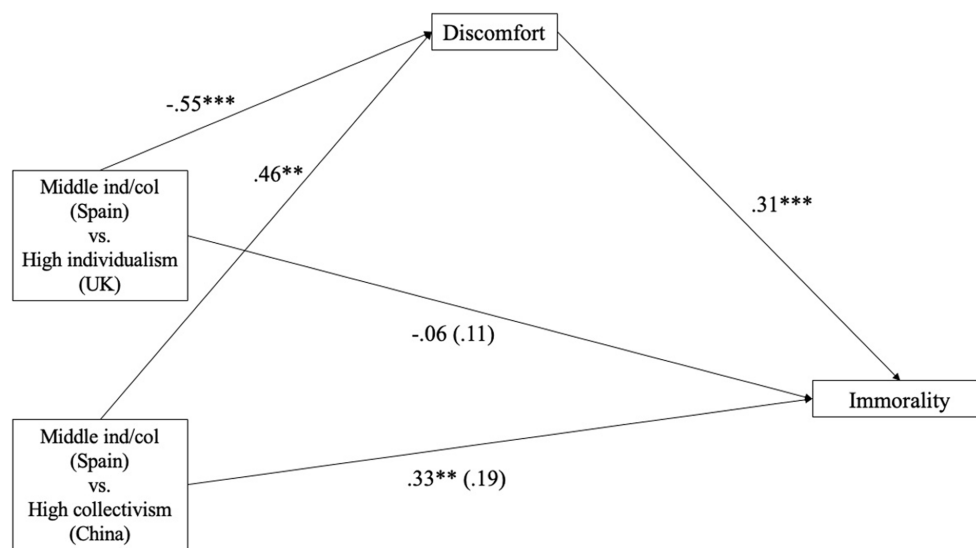
FIGURE 2
Mediation Effect of discomfort on the immorality of the agent based on culture. $p < 0.05$; **$p < 0.01$; ***$p < 0.001$; ind/col, individualism/collectivism.

To test the indirect effects, we inspected the bootstrapped CIs with 5,000 samples. The indirect effect was significant in both comparisons. Specifically, culture indirectly affected the immorality of the agent through the mediating pathway of discomfort, decreasing the immorality when it when it was compared with a more individualistic country ($B_1 = -0.17$, SE = 0.05, 95% CI [−0.27, −0.08]), and increasing it when compared with a more collectivistic country ($B_2 = 0.14$, SE = 0.04, 95% CI [0.06, 0.23]).

This is in line with Hypothesis 2. These results show that when people face incivilities, they will face discomfort, and this discomfort increases when they are from more collective countries. Additionally, the more discomfort they feel, the more they will perceive the uncivil transgressor as someone immoral. The individualism or collectivism of a country is not what directly lead people to consider someone who behaved uncivilly as an immoral person, it is the increasing discomfort they feel when facing these incivilities what leads them to perceive the perpetrator as an immoral person.

4. Discussion

The aim of the present study was to explore differences between countries in their reaction to social norms transgressions regarding civility based on the cultural dimension of individualism/collectivism. Specifically, we investigated the perception of incivilities and immorality, as well as the experience of discomfort, dehumanization, and social control over the perpetrator of uncivil behaviors varying based on the culture of participants from the United Kingdom, Spain, and China.

The results showed that certain behaviors can be considered equally uncivil in different countries, and all participants perceive the agent of these behaviors as equally uncivil. However, people from highly collectivistic cultures (China) perceive uncivil agents as more immoral than participants from less collectivistic cultures (Spain and the United Kingdom), which is in line with Hypothesis 1a and 1b.

These results can be discussed with previous research where what is considered "immoral" or "uncivil" have been studied in different cultures, yet exact behaviors under each definition and overlap were not mentioned nor differentiated. In this sense, Buchtel et al. (2015) observed that when evaluating behaviors, those that were considered uncivil were also seen as immoral in Eastern cultures but not in Western cultures. We observe that this pattern also applies to those that transgress these norms. If you throw garbage in the streets and you are seen as an uncivil person by others, and you are also seen as an immoral person by people from Eastern countries.

These cultural differences regarding incivilities are present not only in the perceptions of agents who perform these behaviors but also in how these transgressions affect observers, as those from highly collectivistic cultures experience more discomfort, which is in line with hypothesis 1c. Moon and Sánchez-Rodríguez (2021) observed that although people from countries with high power distance find incivilities more acceptable, they also feel great discomfort, which may be influenced by their cultural tightness regarding the importance of norms. Following this, our results show a clear distinction regarding the degree of discomfort felt by people from the three different countries that vary in their cultural dimensions of individualism and collectivism, the latter having a stronger reaction toward social norm transgressions. Also, even though we did not confirm hypothesis 1e where we expected collectivist cultures to dehumanize more in the three countries, we did observe it in the western countries. Dehumanization research has been mainly carried in Western countries where the results have been vastly replicated, however, it is unknown how it works in Eastern countries (Zhou and Hare, 2022), the only interaction with the East is when evaluating different presented agents that may be from non-WEIRD countries, or with participants that are not born in Western countries but reside there. In this sense, our results show that although dehumanization also happens in Eastern countries, the way it is enacted may not be in the same way as in Western countries, at least in the case of social norms related to civility.

Finally, our results also showed that the increasing discomfort felt but people from highly collective countries when facing incivilities is what mediates the immorality perceived on the people behaving uncivilly (hypothesis 2), which showed that what leads Western people to consider someone who litters as immoral is not simply because their culture focuses on collectivism, the context or social norms, but the high discomfort they feel in those situations what leads to it in contrast with people from Western countries. This finding can also be related to previous research on gender differences in incivilities where female transgressors faced greater moral outrage than male transgressors and this emotional disparity led to different consequences for them (Chen-Xia et al., 2022). This shows that in the case of incivilities, emotional reactions have an important weight, they differ based on gender, and now, culture is also highly related to emotional reactions linked to incivilities.

Moreover, participants also differed in how they reacted toward the transgressor, dehumanizing and enacting social control over them differently, though these differences were only partially in line with hypothesis 1d. The results of the Eastern country are consistent with previous research carried out in Western countries (Brauer and Chaurand, 2010). Though our hypothesis was only partially confirmed, participants from China and Spain enacted more social control than British participants who are from a highly individualistic country. Even though there were no differences between Spain and China, and Spain is technically an individualistic country by Hofstede (2001), it is one of the most collectivist Western countries.

People comply with norms, be they self-expectations or personal norms, due to enforcement or adherence to their values (Schwartz, 1977; Morris et al., 2015). When these norms are transgressed, the perception of the transgressor and the reaction will be related to how important the norm was to the witness. And the importance of a norm is learned through socialization and influenced by the culture in which an observer is raised, leading to clear personal differences.

The results of the study suggest that the culture plays a significant role in shaping individuals' perceptions of incivility and social norms violations. In this study, participants from China, Spain, and the United Kingdom showed differences in their evaluation of uncivil behaviors and their transgressors by answering various questions related to their perceptions of immorality, discomfort, dehumanization, and social control over the perpetrator. However, these findings should be interpreted with caution since they are based on a single study with limitations. The number of behaviors and countries used, though based on literature (Hofstede, 2001) and controlled statistically, are high in internal validity but limited, and more examples should be tested for a higher ecological validity. Also, individuals' cultural values can vary within the same cultural setting based on dispositional traits or due to contextual factors (Mendoza-Denton and Mischel, 2007; Leung and Cohen, 2011). Additionally, future research is necessary to observe if these results can be replicated in highly collectivist Western countries where their primary education is not influenced by Confucian teachings. It would also be interesting to determine if "moral cognition" is universally unique from "norm cognition" in general, given the potential for differing categories of social norms in Chinese and English (Sripada and Stich, 2007; Sinnott-Armstrong and Wheatley, 2013).

In conclusion, the study found that the culture, specifically the individualism and collectivism, does affect individuals' relations with incivility and immorality. Also, people from collectivistic countries are more likely to experience more discomfort and enact social control over uncivil transgressors. Behaving uncivilly leads to dehumanization, but the degree in which a transgressor is dehumanized may differ in Eastern and Western countries. These findings suggest that cultural values, such as collectivism or individualism, can play a crucial role in shaping individuals' responses to social norm violations and incivility. Future research is needed to replicate and extend these results, as well as to explore other cultural dimensions that may influence individuals' responses to social norm violations.

Data availability statement

The datasets presented in this study can be found in online repositories. The names of the repository/repositories and accession number(s) can be found at: https://osf.io/axbpn/?view_only=35e03176b01c440882debf260d5edb18.

Ethics statement

The studies involving humans were approved by the study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Ethics Committee on Research and Animal Welfare of the University of La Laguna (CEIBA2017-0266). The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

XC-X contributed to the data curation, formal analysis, investigation, methodology, software, visualization, writing – original draft, writing – review, and editing. VB contributed to the project administration, conceptualization, funding acquisition, supervision, writing – review, and editing. LR-G contributed to the supervision and editing. AR-P contributed to the conceptualization, funding acquisition, investigation, project administration, resources, supervision, writing – original draft, writing – review, and editing. All authors contributed to the article and approved the submitted version.

Funding

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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Appropriateness ratings of everyday behaviors in the United States now and 50 years ago

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Introduction: A crucial aspect of social norms pertains to determining which behaviors are considered appropriate. Here we consider everyday behaviors. Some everyday behaviors are rated as more appropriate than others, and ratings of the appropriateness of a given behavior may vary over time. The objective of this study is to elucidate the reasons behind variation in appropriateness ratings of everyday behaviors in the United States. Our theory focuses on how the evaluation of the appropriateness of a behavior is influenced by its potential for externalities and internalities, and how this influence may cause a change in norms over time.

Method: Employing a preregistered design, we asked American participants to rate 37 different everyday behaviors based on their appropriateness in a range of common situations, as well as their potential negative externalities (e.g., being loud, being aggressive, taking up space) and positive internalities (e.g., pleasurability). Changes over time were calculated as the difference between mean ratings obtained in this study and ratings of the same behavior in a similar study conducted 50 years ago.

Results: As expected, overall appropriateness ratings of everyday behaviors are associated both with their externalities and their internalities, so that the least appropriate behaviors tend to have considerable potential for negative externalities and little potential for positive internalities. Moreover, behaviors that have considerable potential for negative externalities are perceived as less appropriate now than 50 years ago.

Discussion: By describing how social norms for everyday behaviors depend on the externalities and internalities of behaviors, this study contributes to theories about the emergence and change of social norms.

KEYWORDS

social norms, everyday behaviors, externalities, internalities, values, norm shifts

Introduction

Even though our everyday lives are governed by social norms, it is far from well understood why certain behaviors are deemed more appropriate than others. Research in social psychology seldom examines variations across behaviors. An exception to this trend is a study conducted by Price and Bouffard (1974), which explored the appropriateness ratings of 15 common behaviors in 15 different situations among a sample of American college students. Notably, this study departed from the usual focus on individual differences and instead examined distinctions between behaviors and situations—an approach also reflected in works by Price (1974), Genereux et al. (1983), Pervin and Furnham (1987), and Gelfand et al. (2011). Price and Bouffard (1974) found that variance in ratings was primarily attributed to differences between behaviors and situations, rather than variations among raters. Aggregating ratings across situations and raters revealed notable discrepancies in overall appropriateness ratings among behaviors. For instance, the overall appropriateness rating for "shouting" was significantly lower than that for "eating." Consequently, Price and Bouffard (1974) argued that the overall appropriateness of a behavior should be considered an inherent characteristic of the behavior itself.

In this study, we delve into the origins of overall appropriateness. We propose that behaviors are judged as inappropriate if they possess characteristics that are generally valued negatively in that society. Moreover, we contend that a small number of such characteristics can account for differences in appropriateness ratings across numerous behaviors. Additionally, we hypothesize that changes in values over time lead to corresponding shifts in appropriateness ratings. Our reductionist approach suggests that a behavior can be meaningfully represented by measures of a few key properties. The objective of this paper is to explore this approach empirically. We employ a series of four steps: First, we propose a concise set of characteristics of behaviors: their potential for creating negative externalities (i.e., negative consequences for bystanders) and positive internalities (i.e., a positive experience for the actor). Second, we assess the perceived presence of these characteristics across a wide range of everyday behaviors in the United States. Third, we investigate whether these characteristics can account for variations in appropriateness ratings between behaviors in the United States. Finally, we examine whether these characteristics predict how appropriateness ratings of everyday behaviors have changed since the pioneering study of Price and Bouffard (1974).

Defining everyday behaviors

Following Price and Bouffard (1974), our focus is on everyday behaviors. In the original study, a group of students was asked to keep a detailed diary for a day. From these diaries, the researchers extracted a set of 15 acts (run, talk, kiss, write, eat, sleep, mumble, read, fight, belch, argue, jump, cry, laugh, and shout) that they labeled as everyday behaviors. We suggest a formal definition: An everyday behavior is a conscious act such that at least some people do it regularly, most people could do it if they wanted to, and it can, in principle, be done in almost any location. Note that these criteria exclude one of the original behaviors, sleeping, as people

are not conscious when they sleep. Arguably, other rules apply to unconscious people.

Social norms and appropriateness ratings

The concept of social norms is multi-faceted. It encompasses behavioral regularities, expectations of others' behavior, sanctions for deviant behavior, and ideas about how one should behave (e.g., Brennan et al., 2013). It is to the latter, injunctive, aspect of social norms that appropriateness ratings speak. Ratings of the appropriateness of various behaviors are often used to compare the strength of norms across different societies (Gelfand et al., 2011; Eriksson et al., 2021a,b). Here we are instead interested in how ratings compare between different behaviors within one society.

Theories of norm emergence

A key question for theories of social norms is why norms emerge in the first place (Hechter and Opp, 2001). In a brief review of classical thinking in this area, Gelfand et al. (2017, p. 801) distinguish between a perspective where norms are "thought to arise from cultural idiosyncrasies" and an opposing "functionalist" perspective. Of course, it may be that different explanations are required for different norms. For example, certain societies have taboos against certain foods or drinks that are consumed with gusto in other societies; this is arguably a case of cultural idiosyncrasies. On the other hand, a functionalist perspective seems more apt to explain why cooperative behavior is regarded as good in societies across the world (Curry et al., 2019). Indeed, many norms are thought to be cooperation norms at heart, that is, they are thought to emerge to mitigate negative externalities and promote positive outcomes (Hechter and Opp, 2001; Bicchieri, 2005; Roos et al., 2015; Richerson et al., 2016). In line with this "instrumental" perspective on norms, research on social norms frequently focuses on antisocial vs. prosocial behaviors (Malti and Krettenauer, 2013; House, 2018). One of the goals of the present study is to examine to which extent the instrumental perspective can also account for why appropriateness ratings vary across different everyday behaviors.

The potential for negative externalities

Importantly, everyday behaviors are not prosocial or antisocial in themselves. The context matters. To illustrate, let's consider the act of shouting. Shouting can be considered prosocial in specific situations, such as when it is necessary to warn others of some threat. In many other situations, shouting is more likely to be perceived as antisocial. Arguably, this is due to a specific characteristic of shouting: it is loud. Loudness infringes on the sonic environment of bystanders. The loudness of shouting has the *potential* to create negative externalities in contexts where there are bystanders who are engaged in other activities or who are seeking a quiet environment.

Averaged across different contexts, a louder behavior will generate greater negative externalities than a quieter behavior, assuming all other factors are equal. Assuming that negative

externalities affect people's perceptions of behaviors, as the instrumental perspective on norms suggests, we may therefore expect behaviors to be regarded as overall less appropriate the louder they are.

Note that loudness is just one example of a behavioral characteristic that can produce externalities. Another example is behaviors that occupy physical space, potentially infringing on the environment of bystanders. A third example is behaviors that exhibit aggression, thereby threatening others and demanding their attention. Instead of trying to capture all negative externalities, we shall focus on these three examples and see how far that will get us. These examples of externalities have two properties that make them especially likely to have observable influence on appropriateness ratings of everyday behaviors.

First, the potential that loudness, occupancy of space, and aggressiveness have to generate negative externalities is fairly *universal*, that is, independent of who the bystanders are. This is because they interact directly with human biology, in contrast to negative externalities caused by violation of cultural sensitivities (e.g., based on religion or nationalism). Whether the latter externalities arise will not only depend on the behavior itself but also on the specific identity of the bystanders, so the effect on appropriateness ratings will be noisy and more difficult to detect. While different cultures may well differ in the *extent* to which they experience, say, loudness as a negative externality, we assume the direction to be universal (i.e., a sufficiently loud and unwelcome noise is experienced negatively by people everywhere).

Second, loudness, occupancy of space, and aggressiveness all show a great deal of *variation across everyday behaviors*. In other words, it is easy to think of several everyday behaviors that are, say, loud, as well as several that aren't. By contrast, almost no everyday behaviors in the United States create, say, a bad smell. Even though the negative externality of a bad smell may be quite universal, its effect on appropriateness ratings will be difficult to detect if almost no behaviors cause bad smell.

For the same reason, we do not study positive externalities. While studies of cooperation norms often focus on helping behaviors, it seems to us that clear positive externalities are rare for the behaviors we count as everyday behaviors.

The potential for positive internalities

In addition to externalities, there are reasons to believe that people also consider the *internalities* of behavior, that is, the value the behavior has for the actor. Here we rely on the literature on cooperation in economic games. According to theories of social/moral preferences, people take the balance of the value to others and the value to themselves into account when making decisions (Fehr and Schmidt, 1999; Van Lange, 1999; Bolton and Ockenfels, 2000), and they perceive that balancing the values for others and the self is morally right (Capraro and Perc, 2021). While these theories formally apply to economic games, these games are in turn assumed to represent a much wider scope of situations in which actors have different interests. We therefore expect people to take not only externalities but also internalities into account then they judge how appropriate an everyday behavior is.

In the context of externalities, we argued that everyday behaviors impose costs on bystanders through their sensory

systems. Conversely, regarding internalities, certain behaviors directly engage with the agent's internal reward system (Schultz, 2015). In other words, an act such as eating may inherently possess pleasurable qualities. For this reason, we would expect eating to be rated as more appropriate than behaviors that are less pleasurable but otherwise similar.

All norms cannot be explained by externalities and internalities

Our proposal is that externalities and internalities are major factors behind norms. Note that this does not exclude the existence of other factors. For example, consider norms about sex. It is typically pleasurable to have sex, and the externalities of having sex do not seem to be worse than for other noisy, physical behaviors. Yet there are very strong norms against having sex in public. Note that if people would have especially loud or unpleasurable sex in public, it seems likely that bystanders would find that especially inappropriate. Thus, it is not the case that externalities and internalities do not apply. Rather, norms against public sex depend on some additional factors too. Our working assumption is that such additional factors have a limited scope. In other words, the proposal we want to test is that a few general kinds of negative externalities and positive internalities are sufficient to account for much of the variation in appropriateness ratings across everyday behaviors.

Change over time in everyday norms

Our theory assumes that when people judge the appropriateness of behaviors, they take externalities and internalities into account. Judgments likely involve both a direct process, where people judge a behavior directly based on its externalities and internalities, and an indirect social process, in which people learn what is appropriate from other people who in turn, either directly or indirectly, base their judgments on externalities and internalities. Note that the process cannot be entirely indirect; for an effect to arise at all, some judgments must be directly influenced by externalities and internalities.

An important point is that the process may lead to norms changing over time. Here we draw on the moral argument theory (Strimling et al., 2019). According to this theory, individuals may change their judgment of a behavior when exposed to an argument that resonates with them. The theory further assumes that the arguments that most reliably resonate with people, at least in the United States, concern whether the behavior is harmful, and whether it is fair. Thus, when discussing the morality of various behaviors, individuals who currently accept a behavior is more likely to be swayed by an argument of the type "but it is harmful/unfair" than by an argument of the type "but it is against tradition/religion." Strimling et al. (2019) presented a mathematical model of the dynamic effects of this mechanism, predicting that those judgments that are justified by arguments based on harm and fairness will over time become gradually more common in the population. To test this prediction, the researchers selected a broad set of morality norms (about gender roles, abortion, freedom

of speech, etc.) for which the change over the last half-century was known, and examined which arguments these norms were associated with. As predicted, norm strength had increased over time specifically for those morality norms that were supported by arguments concerning harm and fairness.

In sum, the moral argument theory posits that change in morality norms is determined by the kinds of arguments that apply to judging a certain behavior as inappropriate. The same theory could be applied to everyday norms as well. Namely, the kind of universal negative externalities that we study here—generated by loudness, occupancy of space, and aggressiveness—can easily be conceived as harm or unfairness to bystanders. From the moral argument theory, we then obtain the prediction that norms against everyday behaviors in the United States will have become stronger specifically for those behaviors that have a clear potential for negative externalities. In other words, we expect that everyday behaviors with clear negative externalities will receive worse appropriateness ratings today than a half-century ago.

What about positive internalities? This kind of argument was not included in prior studies of the moral argument theory. It is possible that positive internalities work in the same way as negative externalities, so that the possession of positive internalities will contribute to a behavior being rated as increasingly appropriate over time. However, it may also be that positive internalities seldom are voiced as an argument, but mainly serve as an internal judgment heuristic ("if I enjoy doing it, it is an okay thing to do"). In that case, they will not drive a change in norms over time. Thus, the moral argument theory does not yield a clear prediction on whether the positive internalities of everyday behaviors contribute to change in their appropriateness ratings.

Hypotheses

Above we have outlined the idea that behaviors differ in their potentials to produce externalities and internalities, and that these potentials affect how people ate the appropriateness of a behavior. Our first hypothesis is that much of the variation in the overall appropriateness of everyday behaviors can be reduced to these potentials.

Hypothesis 1. Between-behavior differences in overall appropriateness in the United States is in part explained by between-behavior differences in the potential to produce negative externalities (as measured by the degrees to which a behavior is loud, aggressive, and takes up space), which has a negative influence on overall appropriateness, and positive internalities (as measured by the degrees to which a behavior is pleasurable), which has a positive influence on overall appropriateness.

Our second hypothesis is that externalities, and possibly also internalities, determine how appropriateness ratings change over time.

Hypothesis 2. Over the last 50 years, overall appropriateness ratings in the United States have decreased especially for those everyday behaviors that possess high potential to produce negative externalities. It is also possible that overall appropriateness ratings have increased for those behaviors that possess high potential to produce positive internalities.

In these hypotheses, it is important to note that we consider the potentials to produce externalities and internalities as inherent

properties of the behavior itself. In practical terms, these potentials are measured by aggregating subjective ratings from a sample of raters. Implicitly, we assume that there is a general consensus regarding these potentials. For instance, regardless of the specific sample of raters used, we assume that shouting will consistently be rated as louder than eating, and that the potential for pleasurability will be rated higher for eating compared to shouting. We present this assumption as a hypothesis.

Hypothesis 3. Differences between everyday behaviors in the degrees to which they, in the United States, are rated as pleasurable, loud, aggressive, and taking up space, are largely independent of the sample of raters used.

We have similarly assumed that overall appropriateness is a property of the behavior itself, while in practice it is measured through aggregation of ratings not only across a sample of raters but also across a sample of situations. Our assumption requires that the results are largely independent of both kinds of samples. In their discussion of overall appropriateness as a behavioral dimension, Price and Bouffard (1974) implicitly assumed such independence. However, they did not explicitly test it in their data, nor did they provide an argument for why sample independence would arise. Our theory, together with Hypothesis 3, provides such an argument. We therefore state sample independence of overall appropriateness as a final hypothesis.

Hypothesis 4. Differences between everyday behaviors in the degrees to which they, in the United States, are rated as overall appropriate is largely independent of (a) the sample of raters and (b) the sample of situations.

Materials and methods

This is a preregistered study. The hypotheses, the data collection, and the primary analyses were preregistered at AsPredicted (Hypotheses 1 and 2[1]; Hypotheses 3 and 4[2]). We report all measures, and exclusions in this study. We used R version 4.2.2 (R Core Team, 2022) for data processing, analysis, and visualization including packages dplyr (Wickham et al., 2023a), tidyr (Wickham et al., 2023b), ggplot2 (version 3.4.0, Wickham, 2016), and ggrepel (Slowikowski, 2022). All data, the codebook, the analysis code, and the questionnaire are available at OSF.[3]

Data was collected using an online questionnaire. The purpose of the study was clearly described to participants and informed consent was obtained. Participants were completely anonymous, and the study did not seek to influence them in any way. Studies fulfilling these criteria are exempt from ethics review according to regulations in Sweden (the country from which the study is conducted).

Selection of behaviors

Our hypotheses concern systematic variation across behaviors. Thus, the study needs to include a sufficiently large set of behaviors.

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1   https://aspredicted.org/9G7_TK4

2   https://aspredicted.org/P2V_L4Y

3   https://osf.io/nzgpt/

We expected a large effect size: a correlation above 0.50 between overall appropriateness and the net possession of potential for externalities-internalities. To achieve 80% power for detecting this effect size at a significance threshold α = 0.05, a sample of at least 29 behaviors is required. The study of Price and Bouffard (1974) used the aforementioned set of 15 behaviors of which we used all but sleeping. From a related study by Gelfand et al. (2011), we obtained another five behaviors: sing, curse, flirt, blow one's nose, listen to music on headphones. To obtain additional everyday behaviors we organized a brainstorming session with two research assistants, which resulted in a list of suggestions. From this list we excluded behaviors that did not fully satisfy our definition, as well as some behaviors that we judged to be too ambiguous or too similar to another behavior. To make sure that appropriateness ratings capture the relevant differences in social judgments across behaviors, we also did not include behaviors that are clearly socially obliged (not just appropriate). After adding the remaining behaviors to those obtained from prior studies, we arrived at a total list of 37 everyday behaviors that we use in this study. See Table 1.

Selection of situations

We use the same 15 situations as Price and Bouffard (1974): in class, on a date, on a bus, at a family dinner, in the park, in church, at a job interview, on a downtown sidewalk, at the movies, in a bar, in an elevator, in a restroom, in one's own room, in a dormitory lounge, at a football game.

Participants

Participants in the United States were recruited online using Prolific during the period January 17–20, 2023. The recruitment goal was a sample of 400 participants, reasonably balanced with respect to gender (women vs. men), age (above vs. below 40 years), ideological affiliation (liberals vs. conservatives), and education (college educated vs. not). The final sample consisted of 555[4] participants (50% women and 2% of other gender, 38% above 40 years, 56% liberals, 54% college educated).

Justification of sample size

In a similar study on arguments for moral opinions, Vartanova et al. (2021) collected a total of 100 ratings per item, which was sufficient to capture the variation in ratings across items and to establish its similarity between subsamples of participants (e.g., women vs. men). We therefore set a similar goal of 100 ratings of each characteristic per behavior. To avoid fatigue, each participant only rated a random selection of 10 behaviors (out of 37). Thus, a

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4   By mistake, the main survey did not include "fight" but instead included "pray audibly" twice. We therefore ran an additional data collection in which 150 participants rated "fight" along with four randomly selected behaviors. We also excluded ratings from the second evaluation of "pray audibly" from 30 participants who evaluated the behavior twice.

sample size of 400 participants would be sufficient to reach the goal of at least 100 ratings of each characteristic per behavior.

The questionnaire

After obtaining informed consent, we asked participants for their age and country of residence, and whether they committed to thoughtfully providing their best answers to the questions. Participants were deemed not eligible for the study if they reported an age below 18 years or reported a country of residence other than the United States or did not commit to providing their best answers.

In the first main part of the questionnaire, participants were asked "For each behavior below, please indicate how appropriate it would be < in class/on a date/on a bus/etc. >." They rated the behaviors five times for different situations, which were selected at random for each participant from the full set of situations. Following Price and Bouffard (1974), ratings were given on a ten-point scale from 0 to 9, anchored at 0 = The behavior is extremely inappropriate in this situation and 9 = The behavior is extremely appropriate in this situation.

In the second part of the questionnaire, participants were asked "For each of the behaviors below, to what extent do you agree that it < takes up space/is loud/is aggressive/is pleasurable > ." They rated the behaviors four times, once for every characteristic. Ratings were given on a five-point Likert scale (strongly disagree, somewhat disagree, neither agree nor disagree, somewhat agree, strongly agree), coded from 1 to 5.

The questionnaire ended with questions about level of education, gender, and political views on a seven-step scale from extremely liberal to extremely conservative.

Analysis

The following analyses were preregistered.
Hypothesis 1
For each behavior, we estimate its current overall-appropriateness rating in the United States by the average of all ratings of the behavior across all 15 situations. We similarly estimate the behavior's average possession rating for each characteristic.

Using the 37 behaviors as the units of analysis, we first calculate the raw correlations between overall-appropriateness ratings and possession ratings. This is done to ascertain that all signs are as expected: negative correlations with the negative externalities "loud," "aggressive," and "takes up space," and a positive correlation with the positive internality "pleasurable."

We reverse-code the possession ratings for negative externalities so that higher scores refer to less negative externalities. We then calculate two indices for each behavior: an *externalities index* calculated as the average of the three externalities ratings, and an *externalities-internalities index* calculated as the average of all four possession ratings. We test Hypothesis 1 in two steps. In the first step, we perform a simple linear regression of overall appropriateness on the externalities index-internalities, expecting a positive effect. In a second step, we examine the independent effects of externalities and internalities by performing a linear regression

TABLE 1   Average ratings of 37 different everyday behaviors (sorted by increasing overall appropriateness).

Behavior	Overall appropriateness	Is loud	Is aggressive	Takes up space	Pleasurable
Fight	0.71	4.55	4.82	4.05	1.39
Spit	1.36	2.18	3.86	2.23	1.68
Argue	2.21	4.46	4.52	2.50	1.46
Run	2.45	2.86	2.97	3.88	3.29
Fart	2.47	3.57	2.65	2.04	2.52
Shout	2.83	4.77	4.32	2.03	2.11
Do a jigsaw puzzle	3.00	1.34	1.35	3.99	3.85
Curse	3.08	3.91	4.28	1.87	2.48
Sit on the floor/ground	3.20	1.30	1.74	3.92	2.95
Jump	3.24	2.94	2.67	3.54	3.13
Belch	3.25	4.09	2.78	2.06	2.57
Pray audibly	3.40	3.82	2.31	2.11	2.88
Play cards	3.53	2.33	1.63	3.69	4.06
Bring a dog	3.75	3.31	2.07	4.15	3.95
Whistle	3.77	4.29	2.32	1.64	3.20
Work on a laptop	3.81	2.00	1.48	3.61	3.03
Cry	4.05	3.70	1.99	1.79	1.84
Talk on the phone	4.08	4.10	2.25	2.17	3.41
Dance	4.10	3.10	2.20	4.06	4.22
Sing	4.11	4.34	1.92	2.03	4.05
Flirt	4.37	2.67	2.44	2.05	4.04
Kiss	4.43	2.13	2.17	2.48	4.52
Mumble	4.58	2.09	1.70	1.51	2.39
Blow one's nose	4.58	4.02	2.25	2.04	2.38
Write	4.91	1.38	1.37	2.38	3.86
Listen to music on headphones	5.01	2.07	1.45	1.60	4.52
Fiddle with one's phone	5.12	1.75	1.54	1.81	3.71
Read	5.28	1.32	1.15	1.92	4.32
Take a selfie	5.44	1.82	1.79	2.90	3.56
Sigh	5.63	2.66	2.11	1.47	2.79
Chew gum	5.88	2.73	1.67	1.30	3.67
Eat	5.95	2.70	1.52	2.91	4.55
Hold hands	6.28	1.32	1.42	2.26	4.42
Laugh	6.82	4.25	1.88	1.61	4.66
Talk	7.06	3.85	2.12	2.09	4.07
Wave to a friend	7.11	1.38	1.41	1.74	4.30
Drink water	7.70	1.66	1.23	1.69	4.19

of overall appropriateness on two regressors: the internalities rating and the externalities index. We accept the hypothesis if the effects are significant at $p < 0.05$.

Hypothesis 2

The overall-appropriateness levels in the United States 50 years ago are obtained from the study of Price and Bouffard (1974). Data from both points in time are therefore only available for 14 behaviors. This gives us very limited power to confirm this

hypothesis, but it is the best we can do. We test the hypothesis in two steps, similar to Hypothesis 1, but with the difference that we are here analyzing variation in the *change* in appropriateness ratings.

In the first step, we analyze whether appropriateness ratings change more in the negative direction the worse the externalities-internalities index of the behavior is. Thus, change scores (current ratings minus ratings from 50 years ago) should exhibit a positive

slope with respect to the externalities-internalities index. To test the hypothesis, we therefore perform a linear regression of change scores on the externalities-internalities index across the 14 behaviors (This is equivalent to estimating the interaction between time and externalities-internalities in a linear model that takes into account that appropriateness ratings refer to the same set of behaviors at both time points).

In the second step, we instead regress the change scores on two regressors, the internalities rating and the externalities index, to estimate their independent effects on how appropriateness ratings change over time (This analysis was not preregistered).

Hypothesis 3

We test this hypothesis using four different splits of the full sample of 400 raters into two non-overlapping subsamples, "A" and "B": male vs. female[5], above vs. below 40 years[6], with vs. without college degree, and liberal vs. conservative ideological affiliation. For every split we aggregate characteristic-possession ratings per behavior in each subsample. For a given characteristic, we accept the hypothesis if, in every split, we find a Pearson correlation between the "A" ratings and the "B" ratings of at least 0.71 (corresponding to at least 50% of the variance of aggregated ratings in one subsample accounted for by the aggregated ratings in the other subsample).

Hypothesis 4

We test Hypothesis 4a by the same method as Hypothesis 3, substituting overall-appropriateness for characteristic-possession and aggregating over the subsample of raters as well as over the full sample of situations. We accept the hypothesis if, in every split, we find a Pearson correlation between the "A" ratings and the "B" ratings of at least 0.71.

To test Hypothesis 4b in a corresponding way, we need to repeatedly split the full sample of situations into non-overlapping subsamples. As there are no corresponding demographic variables for situations, we make four random splits of the 15 situations into an "A" sample of size 7 and a "B" sample of size 8. We aggregate appropriateness ratings over the subsample of situations as well as over the full sample of raters. and use them to calculate two separate overall-appropriateness ratings of each behavior by aggregating their ratings across all situations in the subsample and across the entire sample of raters. We accept the hypothesis if, in every split, we find a Pearson correlation between the "A" ratings and the "B" ratings of at least 0.71.

Results

Test of Hypothesis 1

The overall appropriateness and aggregated ratings of potentials for externalities and internalities of the 37 everyday behaviors are presented in Table 1. As expected, the overall appropriateness of everyday behaviors is negatively correlated with their loudness, $r = -0.36$, aggressiveness, $r = -0.71$, and

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taking up of space, $r = -0.47$, and positively correlated with their pleasurability, $r = 0.70$. A linear regression of overall appropriateness on the externality-internality index yields a significant positive effect, $B = 1.83$ 95% CI [1.34, 2.33], $\beta = 0.79$ $t = 7.52$, $p < 0.001$, explaining 62 percent of the variance in overall-appropriateness ratings across behaviors (see Figure 1). When the externalities index and the internalities score are entered as separate regressors, significant independent effects are observed of both externalities, $B = 1.09$ 95% CI [0.49, 1.70], $\beta = 0.47$, $t = 3.68$, $p < 0.001$, and internalities, $B = 0.71$ 95% CI [0.27, 1.15], $\beta = 0.42$, $t = 3.26$, $p < 0.001$, together explaining 63 percent of the variance. We conclude that both externalities and internalities contribute to the overall appropriateness of a behavior. In sum, Hypothesis 1 was supported.

Test of Hypothesis 2

As expected, behaviors were generally rated somewhat less appropriate in 2023 than in 1974, with the greatest decreases in overall appropriateness observed for the behaviors with the lowest scores on the externality-internality index (fighting and arguing). See Figure 2. A linear regression of the difference scores for overall appropriateness on the externality-internality index yielded a significant positive effect, $B = 0.55$ 95% CI [0.29, 0.81], $\beta = 0.80$, $t = 4.58$, $p < 0.001$, explaining 64% percent of the variance in difference scores across behaviors. When the externalities index and the internalities score are entered as separate regressors of change scores, there is a significant independent effect of externalities, $B = 0.58$ 95% CI [0.25, 0.92], $\beta = 0.84$, $t = 3.83$, $p < 0.001$, but no significant effect of internalities, $B = -0.01$ 95% CI [−0.25, 0.23], $\beta = -0.02$, $t = -0.08$, $p = 0.94$. Thus, the findings support the hypothesis that negative externalities drive norm change, but do not support that norm change is influenced by positive internalities.

Tests of Hypotheses 3 and 4

When the full sample of 555 participants was split into two non-overlapping subsamples, based on either gender, age, education, or ideology, the Pearson correlation between ratings aggregated in each subsample ranged between 0.97 and 0.99 for loudness, between 0.97 and 0.98 for aggressiveness, between 0.96 and 0.98 for taking up space, between 0.96 and 0.99 for pleasurability, and between 0.97 and 0.99 for overall appropriateness. See Table 2. We conclude that rating differences between behaviors are indeed largely independent of the sample of raters.

Similarly, when the full sample of 15 situations was split at random into two non-overlapping subsamples, the Pearson correlation between the overall-appropriateness ratings obtained in each subsample ranged between 0.83 and 0.92 across four random splits, well above the 0.71 threshold (We then extended the analysis to 100 random splits, none of which yielded a correlation below the 0.71 threshold). We conclude that sample independence of overall-appropriateness ratings of behaviors also applies to the sample of situations. In sum, Hypotheses 3 and 4 were supported.

FIGURE 1
The overall appropriateness ratings of 37 everyday behaviors in the United States, plotted against their externality-internality index.

FIGURE 2
Change scores (2,023 levels minus 1,974 levels) for overall appropriateness ratings of 14 everyday behaviors in the United States, plotted against their externality-internality index. Note that changes are typically in the negative direction (i.e., below the reference line at zero).
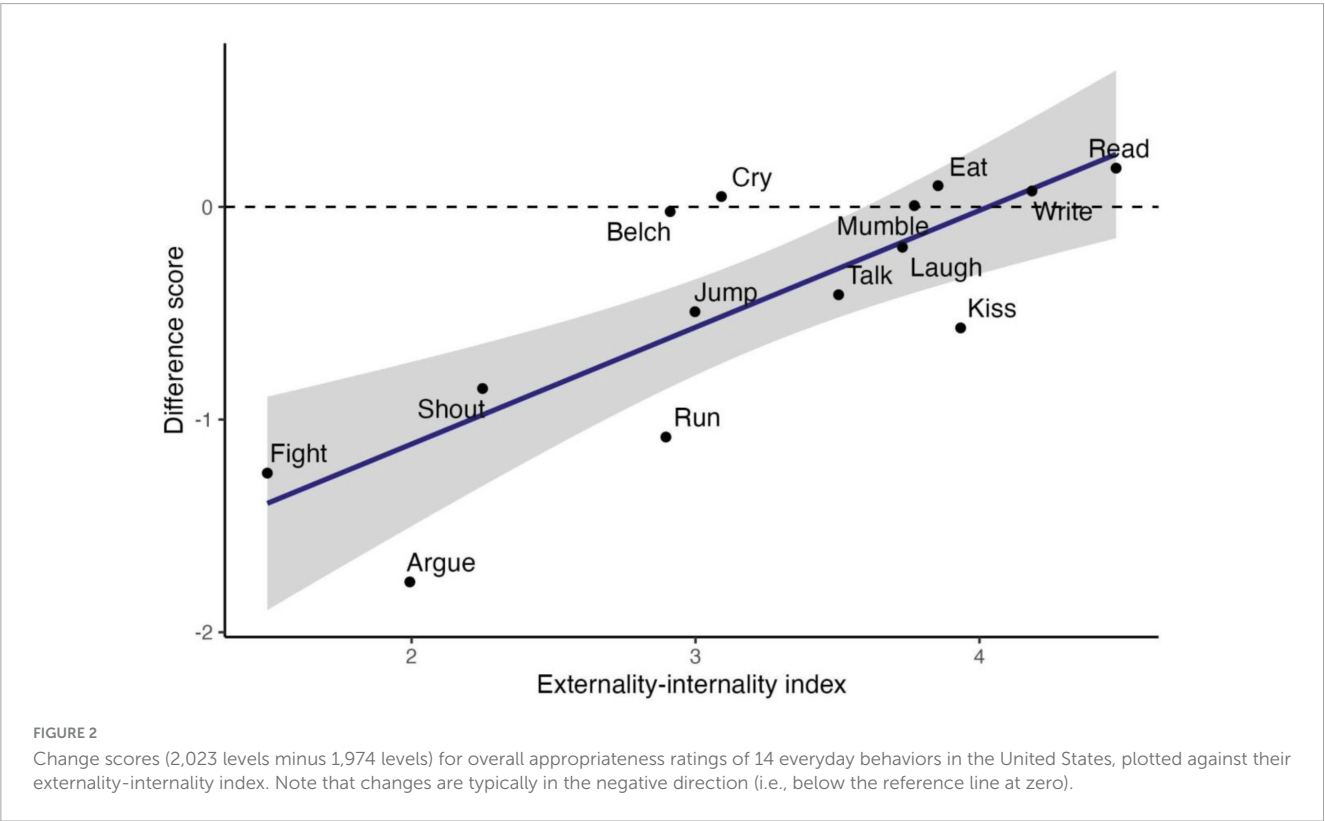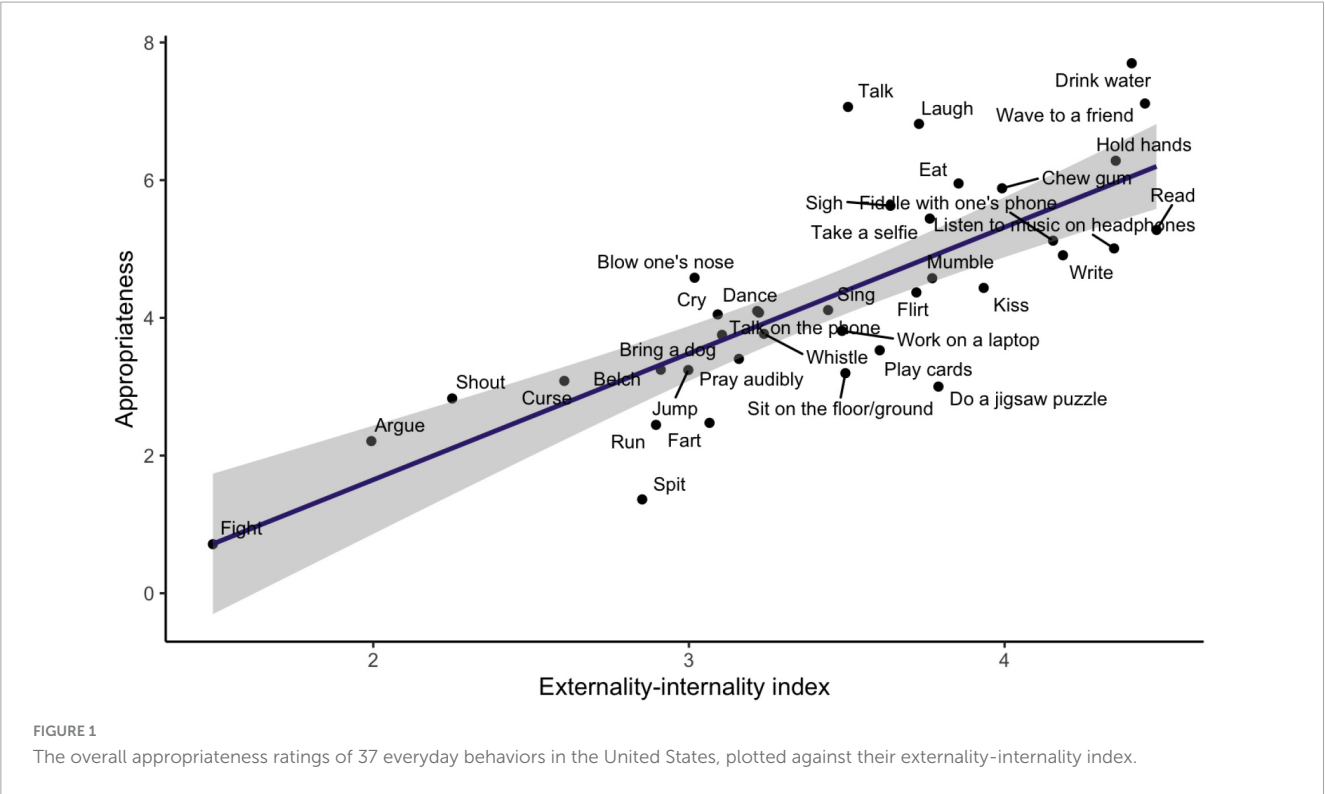
Discussion

This study focused on ratings of the appropriateness of everyday behaviors in the United States. We defined everyday behaviors as conscious acts that exhibit two forms of universality: first, that at least some individuals regularly engage in these acts (and most people could if they desired), and second, that these acts can be performed in nearly any setting in the given society. While the situational context can influence how others perceive the appropriateness of an act, the impact on appropriateness ratings

TABLE 2 Pearson correlations (across 37 behaviors) between aggregated ratings from different subsamples.

Behavioral characteristic	r(Male, female)	r(Above 40, below 40)	r(With, without college degree)	r(Liberal, conservative)
Overall appropriateness	0.98	0.98	0.99	0.97
Loudness	0.99	0.97	0.99	0.99
Aggressiveness	0.97	0.98	0.98	0.98
Takes up space	0.97	0.96	0.98	0.96
Pleasurability	0.96	0.97	0.99	0.97

r(X, Y) refers to the Pearson correlation between aggregated ratings from the X subsample and aggregated ratings from the Y subsample.

tends to remain relatively constant across different behaviors (Price and Bouffard, 1974). Therefore, averaging ratings of a behavior across various situations allows us to obtain an overall measure of appropriateness. This approach enables us to move beyond narrow considerations of why a specific everyday behavior is appropriate or inappropriate in a given situation and instead focus on determining the factors that determine overall appropriateness levels across different behaviors.

Our hypothesis posited that a behavior's potentials for externalities and internalities are significant determinants of its overall appropriateness. Supporting this hypothesis, we found that measures of these potentials accounted for a significant portion of the variation in overall appropriateness ratings across a range of everyday behaviors. These findings align with instrumental theories of social norms, which suggest that norms emerge to mitigate negative externalities and promote positive ones (Hechter and Opp, 2001). However, our study goes beyond instrumental theories by demonstrating that social judgments also take internalities into account. This aligns with studies on moral preferences (Capraro and Perc, 2021) and makes sense from a group-level optimization perspective, as the total payoff to the group encompasses both internalities and externalities.

While our reductionist approach to explaining the appropriateness of everyday behavior by focusing on a few key characteristics, such as the potentials for internalities and externalities, proved to be valuable, it is essential to acknowledge that these characteristics do not encompass all aspects relevant to appropriateness. Behaviors may differ in their perceived privacy, religious significance, association with certain individuals, and more. These additional characteristics could be measured and studied for their effects on appropriateness ratings. However, considering that internalities and externalities already accounted for a substantial portion of the variation in appropriateness ratings, the impact of these additional characteristics may be limited.

Our approach in this study is quite original. Unlike studies that view social norms as dichotomous concepts and examine specific cases of norm emergence (e.g., Hechter and Opp, 2001), we examined continuous variation in appropriateness ratings across multiple behaviors. This approach allows for statistical testing of hypotheses regarding differences between behaviors. We believe this is a crucial complement to studies that manipulate social judgments through framing or the provision of information about behavior frequency (e.g., Cubitt et al., 2011; Eriksson et al., 2015; Banerjee, 2016; Lindström et al., 2018). Even in such studies, the effects of social information on social judgments are often overshadowed by intrinsic differences between behaviors. For

example, in the study by Lindström et al. (2018), contributing to a public good was consistently rated higher than free-riding, regardless of manipulations of free-riding frequency. Therefore, understanding social norms necessitates consideration of the intrinsic differences between behaviors.

Thanks to the availability of data on how everyday behaviors were rated in the United States in 1974, from the original study by Price and Bouffard (1974), we were able to examine how appropriateness ratings have changed over time. We found a drop in appropriateness ratings related to the behaviors' potential for negative externalities. Behaviors that have a clear potential for negative externalities, such as fighting and arguing, are now rated as considerably less appropriate than 50 years ago. This finding is consistent with the moral argument theory of opinion change, which describes how norms may change gradually as individuals sometimes change their judgments of behaviors due to exposure to arguments that point out externalities in the form of harm and unfairness to others. As described by Strimling et al. (2019), the aggregated effect of individuals changing their judgments in one direction more often than in the other direction is that population-level exhibit directional change.

In contrast to these dynamic effects of negative externalities, we did not find any evidence of dynamic effects of positive internalities. Our interpretation is that the influence of internalities and externalities goes through different pathways. The dynamic effects of externalities arise because people explicitly use externalities as arguments for judgments of everyday behaviors ("don't do that, it's disturbing other people"). Internalities may instead influence ratings mainly as a judgment heuristic ("I like doing that so it is an okay behavior") and seldom be voiced as an argument.

It is important to note some limitations in this comparison of ratings over time. Firstly, the data from the 1970s were only available for 14 behaviors. As behaviors are the units of analysis, this means that the analysis of the role of potentials for internalities and externalities in rating changes over time is based on just 14 data points. Additionally, the data from the 1970s were obtained from students, whereas the new data came from a more diverse sample of the population. Nevertheless, this difference in sample characteristics is unlikely to drive our findings. In the current study, we found that differences between behaviors in their aggregated ratings were remarkably consistent across various demographic groups in the United States. The results regarding differences between behaviors were virtually identical whether the ratings came from young or old participants, men or women, individuals with or without a college degree, or liberal or conservative participants. This consistency across samples is advantageous for research

on this topic and supports the conceptualization of the rated characteristics as inherent to the behaviors; however, note that this study does not answer to what extent ratings of these characteristics are consistent across cultures.

The ability to explain historical changes in appropriateness judgments raises the prospect of predicting how they will evolve in the future. Assuming that the process that drove the observed changes is still ongoing, we predict further decreases in the perceived appropriateness of behaviors with a high potential for negative externalities.

One important limitation of our study is that it exclusively focuses on society-level norms in the United States. It is widely recognized that everyday norms vary in strength across societies (Gelfand et al., 2011), and they may also vary between groups within a society. While not examined in this study, our theory suggests that this variation may stem from underlying differences in the valuation of internalities and externalities. Exploring this variation across cultures and societies is a valuable area for future research.

In conclusion, this study contributes to our understanding of the emergence of social norms by explaining differences in the perceived appropriateness of everyday behaviors. Furthermore, it provides a theoretical and empirical foundation for future investigations into the reasons behind changes in social norms over time and their variations across different cultures.

Data availability statement

The datasets presented in this study can be found in online repositories. The names of the repository/repositories and accession number(s) can be found below: All data, the codebook, the analysis code, and the questionnaire are available at OSF (https://osf.io/nzgpt/).

Ethics statement

Ethical approval was not required for the studies involving humans because data was collected using an online questionnaire. The purpose of the study was clearly described to participants and informed consent was obtained. Participants were completely anonymous, and the study did not seek to influence them in any way. Studies fulfilling these criteria are exempt from ethics review according to regulations in Sweden (the country from which the study is conducted). The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

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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Psychological constraint on unethical behavior in team-based competition

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A growing body of research contributes to our knowledge about unethical behavior. However, very little is known about how group-based competition shape members' unethical behavior. Building on social learning theory, we conducted three studies to reveal how group-based competition may affect individual's unethical behavior for their team. Study 1 and 2 are laboratory experiments in which participants were randomly assigned into groups of three members and engaged in group-based competition (or engaged in individual-based competition in an individual context) with monetary incentives. Different from individual-based competition where mean number of unethical behaviors for the self in the losing condition was larger than that in the winning condition, in group-based competition mean number of unethical behaviors in favor of group between the winning and the losing condition was not significantly different. Both studies also showed that there are less unethical behaviors in the group-based competition than in the individual-based competition. Study 2 further revealed that collective efficacy negatively associated with mean number of unethical behaviors in group-based competition. Study 3 was a field study with employees from bank subsidiaries working as teams, and results from their self-reported data confirm the relationship between collective efficacy and unethical behaviors observed in Study 2. Together, these results suggest that collective efficacy has the effect of curbing unethical behavior in group-based competition, thus contributing to the understanding of group-based experience on unethical behaviors.

KEYWORDS

intergroup competition, lying behavior, collective efficacy beliefs, immoral behavior, group identification

Introduction

Groups are widely utilized to organize people toward collective goals (Kozlowski and Ilgen, 2006). In the course of goal pursuit, there are usually multiple groups striving for incompatible goals (e.g., companies compete for market share, football teams compete for championship). One's progress in attaining desired outcomes decreases others' probability of goal attainment, so group members in this context will be motivated to gain or maintain advantages (Deutsch, 1949; Pruitt, 1998; De Dreu, 2010; Garcia et al., 2013).

Competition not only can promote competitiveness, leading to improved group performance (Pike et al., 2018), but also can provoke unethical behavior (Goette et al., 2012; Bennett et al., 2013; Kilduff et al., 2016). Although group-based competition are pervasive

in human society, empirical research examining unethical behavior in this context is still limited. The present research hereby explores whether unethical behavior in group-based competition differs from that in individual-based competition, and tries to reveal how social bonding in groups affects individuals' unethical behavior.

Competition

Competition is interaction processes in which individuals vie for goals or resources, with one party's goal pursuit impeding another party's goal striving (Deutsch, 1949).

Engaging in competition may entail increased physiological arousal (Neave and Wolfson, 2003; To et al., 2018), result in risk-taking behaviors (To et al., 2018) and heightened motivation to outperform their opponents (Yip et al., 2018).

When individuals are outperformed by opponents, such experience may hurt their identity (Aquino and Douglas, 2003; Leavitt and Sluss, 2015) and give rise to discouragement and lowered self-satisfaction (Bandura, 1991). According to social learning perspective, individuals in this situation would apply their moral standards more leniently (Bandura, 1999; Sharma et al., 2014) and tend to morally disengage from self-regulation (Bandura, 1991, 1999). Thus the situation of being disadvantageous would inflame unethical impulse, triggering unethical behaviors aiming at gaining advantage (Pierce et al., 2013). Based on the above reasoning, we could expect an enhanced value competition losers would place on retaining advantages, leading to an increase in unethical behavior, as compared to winners.

Group-based competition and unethical behavior

Individuals have the innate need to affiliate with social groups (Baumeister and Leary, 1995), and to identify with their groups (Tajfel, 1982; Ashforth and Mael, 1989). In group-based competition contexts, because individuals are concerned about their relative group outcomes, they are apt to participate in unethical behaviors toward competitors to maintain group advantage (Halevy et al., 2010; Goette et al., 2012). Unethical behaviors targeting at improving group interests rather than the self are coined *pro-group unethical behaviors* (Thau et al., 2015) and *unethical pro-organizational behavior* (Umphress and Bingham, 2011). Such unethical behaviors have been consistently observed in recent studies (Molinsky and Margolis, 2005; Gino and Pierce, 2009; Umphress et al., 2010; Umphress and Bingham, 2011; Shalvi and De Dreu, 2014; Thau et al., 2015; Chen et al., 2016; Fehr et al., 2019; Jiang et al., 2022). It is suggested that individuals conduct pro-group unethical behaviors with the purpose of being included by their groups (Thau et al., 2015) or maintaining exchange relationship with their groups (Umphress et al., 2010; Umphress and Bingham, 2011).

In many work groups, task jointness and coordination produce a sense of shared responsibility which fosters affective ties to groups (Thye et al., 2019), promote ingroup cohesiveness (Deutsch, 1949;

Stein, 1976; Tajfel and Turner, 1979) and cooperation (Erev et al., 1993; Bornstein et al., 2002). Individual members embedded in such cohesive relational network act as valuable resources to each other, as their interactions consist of such features as mutual aid, reciprocal norms, and interpersonal trust that enable individuals to act together effectively to pursue collective goals (Putnam, 1993). According to Bandura's social cognitive theory (Bandura, 2000), the interdependence of individual member functioning and members' shared beliefs in their collective power to produce effects provide a basis for the development of collective efficacy belief—belief in the collective power to produce desired outcomes (Gibson, 1999; Bandura, 2000; Kozlowski and Ilgen, 2006). This belief has positive impact on psychological wellbeing. For instance, it associates with resilience to impediments and setbacks (Bandura, 2000), serves as buffer of stressor-strain relations (Jex and Bliese, 1999; Tucker et al., 2013; Esnard and Roques, 2014), and reduces anxiety (Salanova et al., 2003). Thus collective efficacy belief developed in group-based competition is helpful in buffering stress produced in individuals' interaction with rivals, leading to a more benign appraisal of stressful events in competitive interaction (e.g., group-based disadvantage), as suggested by previous literature (Kawachi and Berkman, 2001).

On the other hand, individuals like to think of themselves as moral, so conducts that are in line with their moral standards build their sense of self-worth, whereas behaving in ways that violate their moral standards are detrimental to their self-worth and may cause self-condemnation (Bandura, 1999). Since individuals who engage in joint tasks can count on other group members' expertise and efforts, collective efficacy belief would have the effect of mitigating individuals' impulse to behave in ways that will violate their moral standards in group-based competitions. Indeed, recent work suggests that individuals sometimes are aversive to unethical behavior when it advances their own interests because they want to maintain their positive view of self-concept (Mazar et al., 2008; Mead et al., 2009; Shalvi et al., 2011a,b).

Therefore, group-based competitions would have differential impact on behaviors, as compared to individual-based competitions where outcomes are solely determined by personal performance. We could expect a mitigated motivation to behave unethically in group-based competitions, compared with that in individual-based competitions, and a negative association between collective efficacy belief and unethical behavior in group-based competitions.

Hypothesis 1: There are more unethical behaviors in the losing condition than in the winning condition in individual-based competitions.

Hypothesis 2: There are less unethical behaviors in the group-based competitions than in the individual-based competition.

Hypothesis 3: There is a negative association between collective efficacy belief and unethical behavior in group-based competitions.

Overview of the present research

To test the hypotheses, the present study focused on unethical behavior after winning or losing a competition. Study 1 and 2 are laboratory experiments in which participants were assigned into groups of three members and engaged in group-based competitions (or individual-based competitions in an individual context) with monetary incentives. Participants were instructed to engage in two consecutive competitions with the same competitor, namely repeated team-based competition (RTB) or repeated individual-based competition (RIB). In Study 1, winning or losing outcome was determined by participants' true performances. The authors compared unethical behaviors between the winning and the losing conditions and between the RTB and the RIB. In Study 2, participants were randomly assigned to a winning or a losing condition. The purposes of Study 2 were to replicate findings in Study 1, and test the relationship between collective efficacy and pro-group unethical behavior. Study 3 was a survey study with employees from bank subsidiaries working as teams, to garner empirical evidence for ecological validity of our conclusions.

Study 1

Methods

Participants

A total of 132 native Chinese-speaking undergraduate students from a university in southwest China (44% male; M_{age} = 20.77, SD_{age} = 1.58; N_{RTB} = 72, N_{RIB} = 60) participated in this experiment. The experiment employed a 2 (competition mode: individual-based competition vs. team-based competition) × 2 (competition outcome: win vs. loss) between-subjects design. Gender ratio was balanced in each cell. In the absence of a suitable estimate of expected effect size, the sample size was derived from a previous study using a similar protocol (Schurr and Ritov, 2016). Three participants in RIB were dropped out from data analysis because of equal performance in a dyad in the first competition (N = 2) or skepticism about the competition outcome (N = 1).

Experimental procedure

The experiment was conducted in a computer lab. Upon arrival, participants read and signed the informed consent, and were ushered to sit in front of their computer screens. Before the onset of the experiment, an experimenter introduced all the experimental tasks, and then participants proceeded to complete each task under the guidance of the experimenter.

Participants were instructed to engage in two consecutive competitions with the same competitor for bonus (see **Figure 1**). In RTB, participants were informed that they had been randomly assigned into teams of three and each team had been randomly paired with another team to engage in two consecutive competitions. In RIB, participants were informed that they had been randomly paired with another individual to engage in two consecutive competitions. They first engaged in a cognitive task (the 1st competition) in which they experienced winning

FIGURE 1
Experimental procedure.
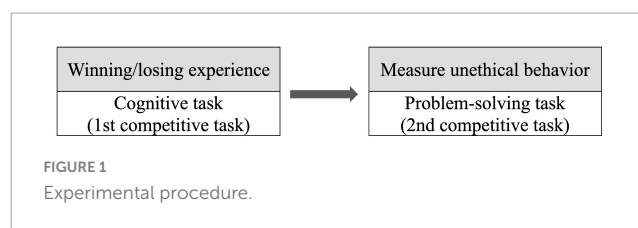
or losing, and then competed with the same competitor in a problem-solving task (the 2nd competition which was also used to track their unethical behavior). They participated in exchange for 20 RMB (2.74 USD) plus 15 RMB (2.05 USD) bonus for winning each competition. To minimize social influences, participants were anonymous to one another. Finally, participants indicated whether they were skeptical about the outcomes they received in the two competitive tasks.

Cognitive task

This was the first competition task used to elicit winning or losing experience. There were 10 practice trials and 50 formal trials (see **Figure 2**). In each trial, participants identified the number of identical characters between two random character strings shown on their screen (e.g., "df%&*" and "d9ij#%") and responded by pressing a number key within 10 s (press "2" for the above sample). The number of characters in each string ranged from 4 to 11, and the number of identical characters between each pair of strings ranged from 0 to 9. There was no feedback after each trial; participants were shown on their screen their total correct responses once completing all the trials.

The cognitive task was completed in private and after all participants completed this task, two experimenters kept record of their scores. Participants were informed that winning and losing outcomes were determined by their actual performance and those whose total number of correct responses exceeded their competitor were winners. Information regarding their own score, team total score (only in RTB), competitor's total score, competition outcome (i.e., win/loss), and reward (i.e., 0/15RMB) was filled on the first page of questionnaires distributed to them according to their seat numbers.

Problem-solving task

To track unethical behavior, the authors created a Chinese version of anagram task. Inspired from standard anagram task in which participants create words from different series of seven letters under time pressure (Gino and Margolis, 2011; Thau et al., 2015; Welsh et al., 2015), participants in the present study were asked to find as many four-character idioms as possible based on 200 Chinese characters spread in a 10 × 20 table within 60 s. They then wrote on an answer sheet the number of idioms they found, giving them the opportunity to over-report their performance. Unbeknownst to them, the problem was unsolvable except for two obvious idioms intentionally aligned in the center of the table (i.e., "根深蒂固," "坐井观天"). All participants should be familiar with the two idioms. Participants could win 15RMB bonus if the number of idioms they reported exceeded that of their rival, so they had the motivation to over-report. Following Thau et al. (2015), the number of idioms over-reported constituted our measure of unethical behavior.

FIGURE 2
The cognitive task. *Appears in the middle of the screen for 500 ms between the blank screen and the response screen to calibrate visual fixation on the screen.

FIGURE 3
Study 1: mean number of idioms overstated by condition. Error bars represent standard errors.
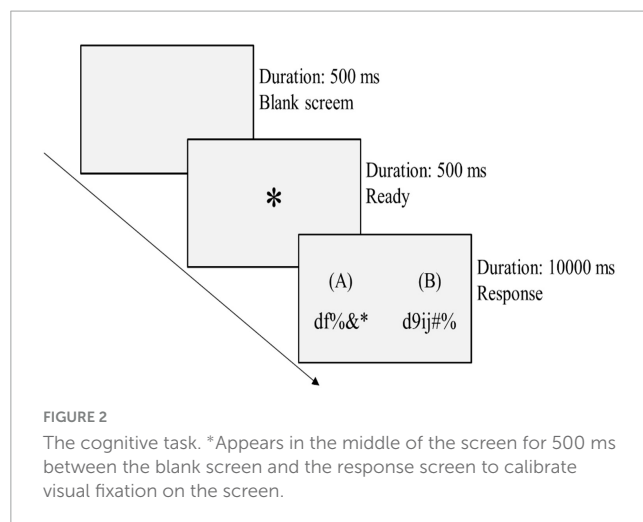
Results

Figure 3 displays the mean number of idioms over-reported by condition. The analysis yielded a significant main effect of competition outcome [M_{loss} = 1.95, SD_{loss} = 3.54 vs. M_{win} = 0.97, SD_{win} = 1.61; $F_{(1,125)}$ = 5.09, p < 0.05, η_p^2 = 0.04]. Further analyses showed that the number of idioms over-reported in the losing group was significantly larger than that in the winning condition in RIB [M_{loss} = 3.14, SD_{loss} = 4.69 vs. M_{win} = 1.29, SD_{win} = 1.96; $F_{(1,55)}$ = 3.74, p = 0.058, η_p^2 = 0.06], thus supporting Hypothesis 1. This difference was not statistically significant in RTB [M_{loss} = 1.00, SD_{loss} = 1.79 vs. M_{win} = 0.72, SD_{win} = 1.26; $F_{(1,70)}$ = 0.581, p = 0.448]. Results also provide support for Hypothesis 2 by showing a main effect of competition mode—the number of idioms over-reported in RIB was larger than that in RTB [M_{RIB} = 2.23, SD_{RIB} = 3.70 vs. M_{RTB} = 0.86, SD_{RTB} = 1.54; $F_{(1,125)}$ = 8.18, p < 0.01, η_p^2 = 0.06]. There was no interaction effect.

Findings in Study 1 suggest that group or team has an effect of mitigating the demonstration of unethical behavior. We reasoned that unethical behavior in team-based competitions could be constrained by collective efficacy. However, Study 1 did not provide direct evidence for this point, thus Study 2 was designed to replicate findings in Study 1 and to shed light on the relationship between collective efficacy and unethical behavior in team-based competition.

Study 2

Methods

Participants

A total of 120 students (45% male; M_{age} = 21.23, SD_{age} = 1.76; N_{RIB} = 60, N_{RTB} = 60) participated in this study. Experimental protocol was similar to the one used in Experiment 1. Nine participants in RIB were dropped out from data analysis because of equal performance in a pair of students in the cognitive task (N = 2), or skepticism about the competition results (N = 2), or computer glitch (N = 5).
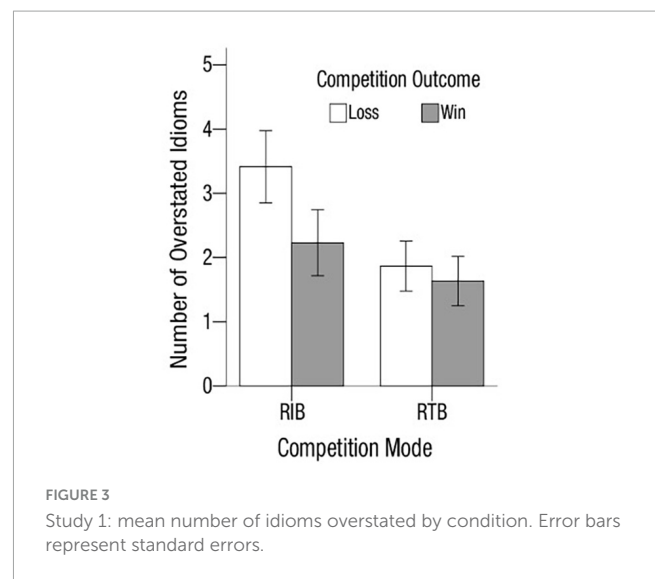
Experimental procedure

Experimental procedure was identical to Study 1 with the following exceptions: (1) Winning and losing in the cognitive task were determined by chance, allowing to control individual difference variables (e.g., cognitive ability) that could affect their unethical behaviors. (2) After the practice of the cognitive task, participants in RTB completed items measuring their collective efficacy and group identification. According to the minimal group paradigm (Tajfel, 1970), merely being categorized into an experimental group is sufficient to induce favoritism to the ingroup and discrimination against an out-group. These measures can reveal how collective efficacy and group identification link to unethical behavior after winning or losing a competition. In addition, the authors also measured affectivity as a control variable.

Measure

In RTB, competition outcomes are determined by collective efforts, and each member has no direct control about team outcome they desire. Under such circumstance, individuals turn to collective agency—relying on peers' expertise and efforts in group tasks (Bandura, 2000). Therefore, collective efficacy may play an important role in shaping their behaviors. To reveal the relationship between collective efficacy and unethical behavior, the authors included a four-item scale adopted from Jex and Bliese (1999), α = 0.85 (e.g., "I have real confidence in my team's ability to perform its mission"). Responses were given on a 9-point scale ranging from 1 (*strongly disagree*) to 9 (*strongly agree*). Previous literature suggests that group identification associates with unethical behavior in favor of in-groups (Umphress et al., 2010; Umphress and Bingham, 2011), so the present study assessed participants' team identification with a four-item scale modeled from Doosje et al. (1995), α = 0.86 (e.g., "I am glad to be a member of our team"). Responses were given on a nine-point scale ranging from 1 (*not at all*) to 9 (*very much*). An affectivity scale (Watson et al., 1988) was used to measure participants' feelings after the first competition (Cronbach's α:0.84 for Positive Affect subscale, 0.88 for Negative Affect subscale). Participants indicated

FIGURE 4
Study 2: mean number of idioms over-reported by condition. Error bars represent standard errors.
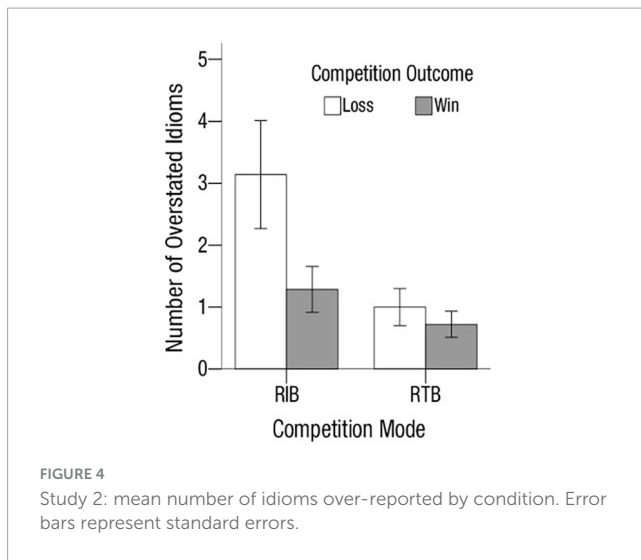
to what extent they had experienced the feelings depicted at the present moment (e.g., "hostile," "excited") on a five-point scale ranging from 1 (*very slightly or not at all*) to 5 (*extremely*).

Results

Figure 4 displays the mean number of four-character idioms over-reported by condition. Results showed a main effect of competition mode [$M_{RIB} = 3.35$, $SD_{RIB} = 4.61$ vs. $M_{RTB} = 1.75$, $SD_{RTB} = 2.10$; $F_{(1,107)} = 6.28$, $p < 0.02$, $\eta_P^2 = 0.06$], and a main effect of competition outcome [$M_{loss} = 3.11$, $SD_{loss} = 3.93$ vs. $M_{win} = 1.88$, $SD_{win} = 3.06$; $F_{(1,107)} = 4.26$, $p < 0.05$, $\eta_P^2 = 0.04$]. There was no interaction effect. Furthermore, the number of idioms over-reported in losing condition was larger than that in the winning condition, and the difference was significant in RIB [$M_{loss} = 4.60$, $SD_{loss} = 5.00$ vs. $M_{win} = 2.15$, $SD_{win} = 3.93$; $F_{(1,51)} = 3.79$, $p = 0.057$, $\eta_P^2 = 0.07$], but not in RTB [$M_{loss} = 1.87$, $SD_{loss} = 2.13$ vs. $M_{loss} = 1.63$, $SD_{loss} = 2.09$; $F_{(1,60)} = 0.183$, $p = 0.67$]. These results were consistent with Study 1, suggesting that our findings were robust.

In RTB, the number of idioms over-stated between the winning and the losing condition was not significantly different, so the authors lump together the data to test the relationship between collective efficacy and unethical behavior. A regression analysis predicting the numbers of idioms overstated as a function of collective efficacy, controlling for competition outcome, positive affect, negative affect, and team identification, revealed a significantly negative effect of collective efficacy, $b = -0.81$, $p < 0.001$, supporting Hypothesis 3. This finding contributes to literature by emphasizing the role of collective efficacy in inhibiting unethical behavior in team-based competitions. Moreover, results also showed a significantly positive effect of team identification, $b = 0.50$, $p < 0.05$, suggesting that the more individuals are identified with their team the more likely they are willing to help their team through unethical means. Thus this finding seems to be in concordance with past research

on unethical pro-organizational behaviors (Umphress et al., 2010).

Study 3

Methods

Participants

We selected work groups in bank subsidiaries because they fit the definition of teams as ongoing groups imbedded in an organizational system whose members exhibit interdependencies with respect to workflow, goals, and outcomes (Kozlowski and Ilgen, 2006). The relations between bank subsidiaries also fit the notion of competition or rivalry characterized as repeated competition for market share (Kilduff et al., 2010). The data for the study were collected by means of self-administered questionnaires delivered in person to employees who were assured that their responses would be anonymous. Of the 160 questionnaires delivered, 159 usable ones were returned (45.3% male, $M_{age} = 34.68$). All had a university degree.

Measures

Respondents' unethical behaviors were assessed with six items drawn from the unethical pro-organizational behavior scale (Umphress et al., 2010), $\alpha = 0.91$ (e.g., "If it would help my organization, I would misrepresent the truth to make my organization look good"). Team identification ($\alpha = 0.91$) and collective efficacy ($\alpha = 0.89$) were same as the ones used in Study 2. Following prior literature (Kish-Gephart et al., 2010; Umphress et al., 2010; Thau et al., 2015), we also included following control variables: self-control, job satisfaction, and impression management. Self-control scale was assessed via scale by Tangney et al. (2004), $\alpha = 0.78$ (e.g., "I am able to work effectively toward long-term goals"). Job satisfaction was assessed with four items drawn from a job satisfaction scale (Brooke et al., 1988), $\alpha = 0.84$ (e.g., "I feel fairly satisfied with my present job"). Impression management subscale was from the Balanced Inventory of Desirable Responding (Paulhus, 1984), $\alpha = 0.86$ (e.g., "Once in a while I laugh at a dirty joke"). In addition, we measured respondents' competitiveness, perceived organizational support, and perceived market performance, as these variables could also affect their unethical behaviors in favor of their team. Competitiveness was measured by five items from the competitive orientation scale (Chen et al., 2011), $\alpha = 0.71$ (e.g., "I feel somewhat disappointed when others perform better than me"). Perceived organizational support was assessed with six items (Eisenberger et al., 2001), $\alpha = 0.88$ (e.g., "Our bank really cares about my wellbeing"). All responses to these scales were given on a seven-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). We also controlled for organizational performance by using three items (marketing/profitability/market share) from a perceived market performance scale (Delaney and Huselid, 1996) which concerned respondents' perceptions of their organization's performance relative to their competitors. Responses to this scale were given on a four-point scale ranging from 1 (*worse*) to 4 (*much better*), $\alpha = 80$.

TABLE 1 Study 3: regression results.

Variables	Unethical behavior	
	b	SE
(Constant)	3.71**	1.29
Gender	0.24	0.21
Age	−0.06***	0.01
Job satisfaction	−0.04	0.16
Competitiveness	0.22	0.13
Perceived organizational support	0.38*	0.19
Impression management	−0.15	0.19
Perceived market performance	0.33	0.21
Collective efficacy	−0.39*	0.19
F	4.69***	
R	0.45	
R^2	0.20	
Adjusted R^2	0.16	

$N = 159$. Dependent variable is unethical behavior. $*p < 0.05$. $**p < 0.01$. $***p < 0.001$.

Results

Regression analysis was used to test Hypotheses 3. Results were shown in **Table 1**. When controlling for job satisfaction, competitiveness, perceived organizational support, impression management, perceived market performance, as well as demographic variables (gender and age), results revealed a significantly negative effect of collective efficacy, $b = -0.39$, $p < 0.05$. This finding supports Hypothesis 3 that there is a negative association between collective efficacy and unethical behavior in group-based competition. This finding is consistent with Study 2, and provides further insight for the role of collective efficacy belief in constraining unethical behavior in team-based competition.

General discussion

Past decades have witnessed a growing body of research contributing to our knowledge about the antecedents and consequences of unethical behavior (Treviño, 1986; Ford and Richardson, 1994; O'Fallon and Butterfield, 2005; Tenbrunsel and Smith-Crowe, 2008; Bazerman and Gino, 2012; Treviño et al., 2014). However, empirical research examining unethical behavior in group-based competitions is limited. The present research provides insights concerning how and why group-based competition experiences shape members' unethical behavior. We showed that there are less unethical behaviors in the group-based competition than in the individual-based competition, and that collective efficacy has the effect of curbing unethical behavior in group-based competition.

Our studies make the following theoretical contributions to literature: Research suggests that goal settings can stimulate unethical behavior (Ordóñez et al., 2009), particularly when people fail in attaining their goals (Schweitzer et al., 2004). Our studies

confirmed this goal-induced unethical behaviors in individual-based competition, and more importantly, we shed further light on psychological constraints (i.e., collective efficacy belief) on unethical behavior in group-based competitions. Our research also contributes to competition and rivalry literature (Kilduff et al., 2010). Our behavioral experiments consist of two consecutive competitions, each with a winning and a losing outcome. This repeated competitive relationship is consistent to the defining feature of rivalry (Kilduff et al., 2010). Existing literature suggests that rivalries boost unethical behaviors (Kilduff et al., 2010). Our findings suggest that loss in a group-based competition did not result in more unethical behaviors as compared to the winning condition. Thus we provide new knowledge about how group-based rivalry influences individuals' unethical behaviors.

In two behavioral experiments, we observed that losers in the individual-based competition were more intended to behave unethically as compared to winners. Few study has aimed at revealing how competition loss (vs. win) might affect unethical behavior. Our study is consistent with a related stream of research showing that individual-level financial deprivation (Kern and Chugh, 2009; Reinders Folmer and De Cremer, 2012; Sharma et al., 2014) and perceived payment inequity (Greenberg, 1990, 2002; Gino and Pierce, 2009, 2010a,b; Houser et al., 2012; John et al., 2014) lead to maleficent acts. Both competition loss and relative deprivation are forms of goal failure that may lead to heightened motive to restore advantages among those who are falling behind (Locke and Latham, 1990). These individuals tend to place greater significance on competition outcomes, leading to eager styles of goal pursuit (Kilduff, 2014; Converse and Reinhard, 2016; Kilduff and Galinsky, 2017) and unethical acts aiming at outperforming their opponents (Kilduff et al., 2016; Kim and Guinote, 2021). Thus our finding is consistent with goal-induced unethical behavior observed in prior studies (Schweitzer et al., 2004; Ordóñez et al., 2009; Welsh and Ordóñez, 2014).

In Study 1 and 2, different from the individual-based competition, we found that loss (vs. win) in the group-based competition did not lead to more unethical behaviors in a subsequent group-based competition. However, it is unclear whether experiencing a group-based competition would affect unethical behavior in favor of personal benefits in a subsequent individual-based competition. Therefore, we conducted a follow-up experiment in which all participants engaged in a team-based competition, followed by an individual-based competition in which each participant competed with an individual from the competing team. Experimental protocol was identical to the one used in Study 2 with the following exception: The first competition (cognitive task) was a team-based competition and the second one was an individual-based competition in which each participant competed with an individual from the competing team. We speculated that losers in the first competitive task (the team-based competition) are more unethical than winners in the consecutive individual-based competition. A total of 64 students (47% male; $M_{age} = 19.69$, $SD_{age} = 1.42$) were randomly assigned to a losing ($N = 32$) or a winning ($N = 32$) condition. The experiment was a between-subjects design. The number of idioms participants over-reported in the losing condition ($M_{loss} = 2.13$, $SD = 2.550$) was larger than those in the winning condition [$M_{win} = 0.84$, $SD = 1.273$, $F_{(1,62)} = 6.469$, $p = 0.013$, $\eta_p^2 = 0.094$]. This result confirmed our speculation and suggest that group-based competition experience

did not alter unethical behavior for the personal interests in the individual-based competition.

Competitions and rivalries are ubiquitous in organizational life, but it is far from clear how group-based competition processes influence employees' unethical behaviors. Some literature points to the relation between perceived loafing and lesser effort in groups (Schnake, 1991; Mulvey and Klein, 1998; Heuzé and Brunel, 2003), while other literature suggests that engaging in group-based competitions or rivalries may promote members' intrinsic motivation in group tasks (Tauer and Harackiewicz, 2004), motivating their cooperation with partners (Erev et al., 1993; Bornstein et al., 2002; De Cremer and van Dijk, 2002), and improving group performance (Mulvey and Ribbens, 1999; Kilduff et al., 2010; Pike et al., 2018). Our research suggests that collective efficacy belief developed in group-based competition would increase members' confidence in achieving good performance, and such collective efficacy belief would have the effect of inhibiting unethical behaviors. Thus managers could use techniques (e.g., team-based incentives) to promote employees' collective efficacy.

The present study has some limitations: Our research did not answer how intensity of competition affects unethical behaviors. Cartwright and Menezes (2014) interestingly showed in their experiment that competition intensity at medium level is more likely to produce unethical behavior. It is far from clear the mechanism underlying their finding, thus future research could devote to exploring how and why different levels of competitions intensity would influence unethical behaviors, especially in group-based competitions. Another limitation relates to the fact that our research did not consider whether degree of similarity between current competitive interactions and past ones would affect unethical behavior. Rivalry relational schemata develop from past competitive experience, and high degree of similarity between current competitive interactions and past ones will facilitate the activation of rivalry relational schema, and will evoke unethical behaviors to gain advantages (Kilduff, 2014; Converse and Reinhard, 2016). Future research can manipulate degree of similarity to see how it influences unethical behaviors.

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 humans were approved by the Nanjing Xiaozhuang University Institutional Review Board. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

YZ: Conceptualization, Data curation, Formal analysis, Writing – original draft. LZ: Methodology, Data curation, Writing – review and editing. YH: Data curation, Formal analysis, Writing – review and editing.

Funding

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 gratitude on patriotism among college students: a cross-sectional and longitudinal study

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Introduction: Patriotism, a positive emotional attachment to one's country, has been associated with prosocial behavior, social responsibility, and gratitude. It plays a crucial role in promoting social harmony and national development. However, the factors influencing patriotism and their mechanisms remain unclear. This research consists of two studies exploring the internal mechanisms that connect gratitude and patriotism.

Methods: Study 1 conducted a cross-sectional analysis among 3,826 college students to investigate the influence of gratitude on patriotism, emphasizing the mediating role of general life satisfaction and the moderating impact of socioeconomic status. This approach aimed to elucidate the complex relationships between these variables within college students. Study 2 adopted a longitudinal approach, surveying 905 college students across three-time points. This study was designed to explore the temporal mediation of general life satisfaction in the gratitude-patriotism relationship, offering insights into the evolution of these constructs over time. The sequential surveys aimed to capture the dynamic nature of gratitude's impact on patriotism, considering the continuous interplay with general life satisfaction among college students.

Results: Study 1 reveals a noteworthy finding: Gratitude enables the direct prediction of patriotism, while additionally, general life satisfaction plays a role between them. Furthermore, the predictive effect of gratitude on patriotism is strengthened among individuals with higher levels of socioeconomic status. However, there is no significant moderating effect between general life satisfaction and patriotism by socioeconomic status. Study 2 demonstrates that general life satisfaction plays a significant mediating role in the relationship between gratitude and patriotism, over a period of three times. However, the moderating influence of socioeconomic status was not substantiated in the longitudinal mediation model.

Conclusion: These two studies shed light on the complex relationship between gratitude and patriotism. They emphasize the significance of gratitude, general life satisfaction, and socioeconomic status in shaping patriotism, offering potential avenues for understanding the internal mechanisms that influence patriotism.

1 Introduction

Patriotism refers to an emotional attachment to an in-group, signifying a sense of belonging, responsibility, and pride (Mummendey et al., 2001). It encompasses an individual's positive feelings and attachment to their country (Osborne et al., 2017). National identity involves a citizen's cognitive recognition of their political community and their inclination to accept the nation's political, cultural, and ethnic values (Wodak, 2009; Huang et al., 2023). Patriotism is thought to stem from a sense of national identity (Blank and Schmidt, 2003). Therefore, an individual's political attitudes, values, and participation also represent manifestations of patriotism. Patriotism holds considerable importance for both the nation and the individual, acting as a vital factor in the development of civic relations in a mature country (Spinner-Halev and Theiss-Morse, 2003). It also reflects an individual's identification with and pride in their country's shared culture, history, and political system (Ariely, 2021). Patriotism contributes to civil liberties and national security (Williams et al., 2008). Previous research has shown that patriotism plays a critical role in shaping civic attitudes and behaviors, correlating positively with various prosocial outcomes, including responses to crises (Rupar et al., 2021) and pro-environmental attitudes and behaviors (Hamada et al., 2021). Most previous studies have concentrated on the impact of patriotism on emotional and social behavior (Dražanová and Roberts, 2023), while also exploring the cultivation of patriotism in adolescents (Sharma and Hooda, 2023) and the influence of physical exercise on adolescent patriotism (Bas, 2016). However, few studies have explored the antecedent variables of patriotism. Nonetheless, evidence suggests that factors such as gratitude may influence patriotism, as gratitude can affect prosocial behavior, political attitudes, and political participation (Pang et al., 2022). These positive behaviors reflect a stronger patriotic desire (Hardin, 1993). Therefore, we hypothesize that gratitude may promote patriotism in individuals. Based on this, the present study aims to explore the intrinsic mechanism between gratitude and patriotism, thereby providing a theoretical groundwork for subsequent research endeavors.

Gratitude, originating from the Latin word gratia, signifies grace within the psychological literature (Emmons and McCullough, 2004). It has been conceptualized in various ways, such as a moral virtue, an emotional response to the kindness of others, a personality trait (Emmons et al., 2003), a broad life orientation (Wood et al., 2010), and an emotion referred to as generalized gratitude (Lambert et al., 2009). Although this study

has not found direct evidence of gratitude influencing patriotism, related research still demonstrates a connection between the two. Gratitude can promote positive social behavior, which reflects an individual's high level of patriotism (Hardin, 1993; McCullough et al., 2001). Based on moral affect theory, gratitude serves a specific moral function in driving individuals toward prosocial behavior (McCullough et al., 2001). Consequently, gratitude is associated with various essential social and individual outcomes, potentially impacting a range of positive behaviors (Lee, 2022). These encompass prosocial behavior (Bartlett and DeSteno, 2006; Grant and Gino, 2010; Pang et al., 2022; Li et al., 2023) and social justice (Yost-Dubrow and Dunham, 2018). Building on this foundation, Hardin posits that voluntary contributions for collective benefit also represent a form of altruism (Hardin, 1993). Local patriotism, which reflects a sense of belonging and attachment to one's city or community, demonstrates altruism within the community (Hardin, 1993). Local patriots are more inclined to engage in prosocial behavior, indicating that gratitude not only promotes an individual's prosocial behavior but also contributes to elevating their level of patriotism (Hardin, 1993). This indirect evidence suggests a correlation between gratitude and patriotism. Apart from their direct relationship, is there an intrinsic mechanism between them? Therefore, we further explore the roles of life satisfaction and socioeconomic status in the relationship between gratitude and patriotism.

Scholars have extensively investigated life satisfaction at the individual level (Easterlin, 1995; Blanchflower and Oswald, 2000), providing evidence to support the notion that life satisfaction may be a pivotal factor in the relationship between gratitude and patriotism. On one hand, a connection exists between gratitude and life satisfaction, the broaden-and-build theory of positive emotions posits that positive emotions can initiate a cascading effect, expanding individuals' range of other positive emotions and behaviors (Fredrickson, 2001). Grounded in this theory, researchers have conducted numerous studies on gratitude and life satisfaction, discovering that gratitude positively affects individuals' psychological wellbeing and life satisfaction (Perez et al., 2021; Lee, 2022). On the other hand, an indirect relationship exists between life satisfaction and patriotism through related variables. Individuals' wellbeing can impact their political engagement, such as their intention to vote (Weitz-Shapiro and Matthew, 2011; Flavin and Keane, 2012). Furthermore, studies have revealed that governments frequently prioritize enhancing citizens' wellbeing to foster active political participation (Ward, 2020; Ward et al., 2021). Nonetheless, despite the wealth of research illustrating the influence

of life satisfaction on the political domain, a direct association between life satisfaction and patriotism remains to be established.

This knowledge gap highlights the need for further investigation to better understand the complex relationship between these variables. Interestingly, recent studies have revealed a complex relationship between socioeconomic status and patriotism. On one hand, Yost-Dubrow and Dunham (2018) found that individuals with lower socioeconomic status tend to report higher levels of patriotism. On the other hand, individuals with higher socioeconomic status are more likely to base their political beliefs on moral considerations (Brown et al., 2021). These findings suggest that social and economic status may play a crucial role in the link between gratitude, life satisfaction, and patriotism (Rubin and Stuart, 2018). By examining these variables as moderators, this study seeks to shed new light on the interplay between psychological wellbeing, socioeconomic status, and patriotism. Furthermore, this study will employ mediation and moderation analyses to explore the complex mechanisms underlying the relationship between gratitude, life satisfaction, and patriotism.

The primary objective of this research is to elucidate the underlying mechanisms that connect gratitude and patriotism. By examining the roles of general life satisfaction and socioeconomic status, this study aims to deepen the understanding of how gratitude influences patriotism. Specifically, the research consists of two distinct studies: The first study focuses on investigating the impact of gratitude on patriotism, taking into account the mediating role of general life satisfaction and the moderating effect of socioeconomic status. This aims to unravel the complex interplay between gratitude, life satisfaction, and patriotism, providing insights into how these variables interact to shape patriotism. Building upon the insights from the first study, the second study delves into the longitudinal dynamics of these relationships. It explores how the mediating role of life satisfaction in the gratitude-patriotism nexus evolves over three different time points, offering a comprehensive understanding of the temporal aspects of this relationship.

1.1 The relationship between gratitude and patriotism

Gratitude, both as a dispositional trait and a transient state of mind, has been shown to have a profound impact on individuals' emotional wellbeing and generate a multitude of positive social outcomes (Wood et al., 2010; Bartlett et al., 2012). Additionally, this emotion reinforces individuals' moral responsibility to assist those in need, as demonstrated by studies in the field (Wood et al., 2010; Bartlett et al., 2012). Furthermore, moral affect theory posits that gratitude serves as a specific moral function that motivates individuals to engage in prosocial behavior, further enhancing the positive impact of this emotion (McCullough et al., 2001). Recent research has suggested that individuals who exhibit more commendable social behaviors, such as prosocial and altruistic actions, tend to be more patriotic (Hardin, 1993; Rupar et al., 2021). Notably, gratitude has also been found to have a close link with national sentiment (Karakaya, 2022), providing further evidence for the potential influence of gratitude on patriotism. Therefore, gratitude may serve as a critical factor in shaping individuals'

attachment to their nation and inspire them to engage in behaviors that benefit their community and country.

Gratitude is a crucial element of a broader life orientation that involves recognizing and appreciating the positive aspects of the world (Wood et al., 2010). Grateful individuals tend to openly express their appreciation more often (McCullough et al., 2002), and this expansion of gratitude has enduring and adaptive benefits that enhance personal resources, including physical, intellectual, social, and psychological resources. Therefore, grateful individuals tend to have a more positive outlook, which may contribute to a stronger sense of national identity (Blank and Schmidt, 2003).

Although there is no direct evidence that establishes a causal relationship between gratitude and patriotism, research suggests that gratitude has positive effects on prosocial behavior, which in turn can indirectly support the hypothesis. This is because prosocial behavior, such as altruism and kindness, is associated with greater patriotism (Hardin, 1993; Rupar et al., 2021). Therefore, it is plausible to suggest that gratitude, which has been shown to promote prosocial behavior (McCullough et al., 2001), may also play a role in fostering a stronger sense of national identity and patriotism. However, further research is needed to explore this relationship in greater detail. Individuals with high levels of gratitude are likely to recognize the value of benefits and creatively express gratitude through various prosocial behaviors (Fredrickson, 2001; Li et al., 2023). Moreover, gratitude fosters various forms of relationship behavior, including social affiliation (Bartlett et al., 2012), social inclusion (Bartlett et al., 2012), perspective-taking (Gordon and Chen, 2013), and social support (Lau and Cheng, 2017). Gratitude also reduces antisocial behavior (Stieger et al., 2019). According to the moral affect theory of gratitude, beneficiaries, and donors exhibit prosocial behavior when they experience gratitude (McCullough et al., 2001; Pang et al., 2022). Thus, those who display high levels of gratitude are more likely to possess positive values and a stronger sense of national identity.

1.2 Gratitude, general life satisfaction, and patriotism

General Satisfaction with Life (GSL) is a crucial component of subjective wellbeing, representing the cognitive evaluation of one's quality of life based on individual criteria (Emerson et al., 2017). When circumstances are favorable, individuals are likely to experience a high degree of life satisfaction. However, other factors, such as gratitude and patriotism, may also play a role in shaping this evaluation. Gratitude has been conceptualized in various ways and has been linked to numerous social and individual benefits, including better physical and mental health (Lavelock et al., 2016) and overall wellbeing (Wood et al., 2010; Zhang et al., 2022). The outcomes of trait gratitude include domain-specific satisfaction, and individuals with high gratitude traits tend to appreciate what they have, known as a "have focus," leading to increased satisfaction across all areas of life (Fagley and Adler, 2012). Research has consistently shown that gratitude traits are positively associated with life satisfaction (Buschor et al., 2013), with both self-reported and peer-reported traits of gratitude linked to life satisfaction (Perez et al., 2021). Moreover, Zhang found a strong association between grateful traits and life satisfaction after

a time lag of 4 weeks in one of three studies. Gratitude traits are also associated with satisfaction in other areas of life (Zhang, 2020), such as job satisfaction (Kim et al., 2019; Moon and Jung, 2020) and school satisfaction (Sun et al., 2014). On the other hand, patriotism, the love and devotion to one's country, has also been found to correlate positively with life satisfaction (Zhang and Zuo, 2012; Gomez Berrocal et al., 2020). Thus, life satisfaction may serve as a mediator between gratitude and patriotism.

Life satisfaction has important political implications because it is associated with regime support (Chen and Shi, 2001; Stutzer and Bruno, 2006; Tang, 2016) or increasing the possibility of political participation in various types of regimes (Weitz-Shapiro and Matthew, 2011). The key to individual life satisfaction is individual pride (Chen et al., 2015) and a sense of belonging. According to social identity theory (Tajfel and Turner, 1986), an individual can identify himself as a member of a group and incorporate the meaning and value given to him by the group into his self-representation. In addition, according to the Intergroup Emotions Theory (Mackie et al., 2000), when individuals have a high sense of belonging to their collective, they will have strong emotional attachment and value attachment. Extending emotions from the individual level to the group level (Smith and Kim, 2006). When we all belong to a large collective (country), the sense of belonging of the individual becomes the sense of belonging to the country, and the sense of pride becomes the pride of the country (Zhang et al., 2020). There is a significant positive correlation between national identity and both national pride and in-group preference (Zhang and Zuo, 2012). In addition, an individual's political values are closely related to their life satisfaction (He et al., 2022). This suggests that there is an indirect positive correlation between life satisfaction and patriotism. Therefore, it can be inferred that individuals who have a strong sense of national identity and pride, as well as those who hold values that align with their country's ideals, are likely to experience greater life satisfaction (Liu et al., 2021). Additionally, this may have implications for policymakers and educators who wish to promote patriotism and national identity as a means of enhancing overall wellbeing and social cohesion. Thus, general life satisfaction may play a mediating role between gratitude and patriotism.

1.3 The moderating influence of socioeconomic status

Socioeconomic status (SES) is considered the primary determinant of class identity (Jackman and Jackman, 1973). It comprises both objective material resources or capital and the subjective experience of these resources, typically assessed through indicators such as wealth, education, and occupational prestige (Kraus et al., 2011). Moreover, a powerful socioeconomic status is also associated with a solid political and moral foundation (Brown et al., 2021). The measurement of subjective socioeconomic status relies on individuals' perceptions of their socioeconomic status and their sense of place in the social hierarchy relative to others (Singh-Manoux et al., 2005). A person's socioeconomic status reflects their level of access to material and social benefits from society and may also constitute a dominant or subordinate structure (Ishio, 2010).

For young people, SES mainly refers to the perceived status of their family in the social and economic class (Goodman et al., 2015).

It mainly studied the determinants of class identity and the relationship between class identity, political attitudes, and behaviors (Adler et al., 2000; Pankaew et al., 2022). Patriotism is often seen as a political attitude (Martynov et al., 2020), which is people's self-identification as citizens of a country (Martynov et al., 2020). So social class is associated with patriotism. Most previous studies have shown that socioeconomic status is negatively correlated with patriotism, and people with lower socioeconomic status will engage in more pro-social behaviors (Yost-Dubrow and Dunham, 2018) and be more patriotic (Hardin, 1993). Osborne suggests that social dominance tendencies (SDO) are closely related to patriotism (Osborne et al., 2017). He postulated that the relationship between SDO and patriotism should be positive in countries that support group-based hierarchies and dominate worldwide politics, and negative in countries that formally oppose social hierarchies and have (relatively) no global influence. The white respondents tended to belong to lower groups (Peña and Sidanius, 2002), the higher their level of American patriotism. The class in different statuses has different value orientations, behavior modes, and group living habits, resulting in the difference in value culture and benefits orientation. Socioeconomic status affects individuals' political views and political trust and then affects individuals' identification with the dominant values of society (Schoon et al., 2010). According to the rational Voter Model (Meltzer and Richard, 1981), a famous theory of the relationship between socioeconomic status and economic policy preferences, it is proposed that if the current national tax and welfare system is unfavorable to people, they may form negative political attitudes and reduce patriotism (Martynov et al., 2020).

Gratitude has been found to have a strong positive influence on prosocial behavior among individuals with low socioeconomic status, suggesting that both gratitude and general life satisfaction are likely to be significant factors affecting patriotism (Yost-Dubrow and Dunham, 2018). However, the influence of gratitude on individuals with high socioeconomic status requires careful consideration. While gratitude traits have been positively associated with charitable giving, an indicator of prosocial behavior, this relationship's dependency on socioeconomic status warrants further examination (Carvalho et al., 2021). Specifically, individuals of higher socioeconomic status with pronounced gratitude traits may engage in more prosocial behaviors, yet the direct link to patriotism remains to be explored (Hardin, 1993).

Importantly, socioeconomic status has been identified as a significant predictor of an individual's wellbeing and life satisfaction (Vayness et al., 2020), factors that are intricately linked with national identity, pride, and patriotism (Chen et al., 2015; Wei et al., 2022). It posits that individuals with lower socioeconomic status might find their sense of patriotism more influenced by their levels of gratitude and life satisfaction. In contrast, those with higher socioeconomic status might display different patterns, possibly correlating their sense of patriotism more closely with broader aspects of wellbeing and potentially gratitude traits (Chen et al., 2015).

1.4 The present study

This study draws upon the theoretical frameworks of moral affect theory (McCullough et al., 2001), Broaden-and-Build Theory

(Fredrickson, 2001), and social identity theory to investigate the relationship between gratitude and patriotism through two separate research endeavors (Tajfel and Turner, 1986). Study 1 focuses on examining the impact of gratitude on patriotism while considering the mediating role of general life satisfaction and the moderating effect of socioeconomic status. By analyzing these intricate relationships, the study aims to uncover the complex interplay among gratitude, general life satisfaction, and patriotism, providing valuable insights into their interdependent dynamics. To further investigate causal relationships among several variables, building on the findings of Study 1, Study 2 takes a longitudinal approach to delve deeper into the mediating role of general life satisfaction in the association between gratitude and patriotism. This investigation explores how the effects of gratitude on patriotism evolve, offering valuable insights into the temporal dynamics of these psychological constructs. This research aims to develop a more nuanced understanding of the factors influencing patriotism by integrating various theoretical perspectives and examining the potential role of gratitude in shaping patriotism. Our study proposes a structural equation model (refer to **Figure 1**) to explore the hypothesized relationships. We suggest that general life satisfaction may act as a mediator in the relationship between socioeconomic status and patriotism. Additionally, we hypothesize that socioeconomic status could have a moderating effect within this mediation framework. This approach seeks to uncover the intricate dynamics between gratitude, general life satisfaction, and patriotism, contributing to the broader discourse on patriotism. Through this model, we intend to learn more about how gratitude and patriotism interact. We proposed the following three hypotheses:

> H1: Gratitude has a positive predictive effect on patriotism.

> H2: General life satisfaction mediates the relationship between gratitude and patriotism.

> H3a: Socioeconomic status moderates the relationship between gratitude and patriotism, such that the relationship is stronger among individuals with high socioeconomic status compared to those with low socioeconomic status.

> H3b: Socioeconomic status moderates the mediating effect of general life satisfaction between gratitude and patriotism, with the mediating effect being more significant in individuals with low socioeconomic status compared to those with high socioeconomic status.

2 Materials and methods

2.1 Participants and procedures

This study employed a cluster sampling method to select and analyze the sample. Participants were chosen from five colleges and universities in Henan and Zhejiang provinces.

A total of 3,900 questionnaires were collected, and after excluding invalid responses, 3,826 questionnaires were collected. Among the participants, there were 1,367 male students and 2,459 female students. The average age of the participants was 19.06 ± 1.03 years, with the majority falling into the age groups of 18, 19, or 20 years, comprising 28.2%, 39.3%, and 20.4% of the sample, respectively. The study was conducted in collaboration with the Relevant education department in 2022. Data collection from all participating schools was completed within 2 weeks. Participation in the study was entirely voluntary and anonymous for both schools and students. All sampled schools willingly agreed to participate in the research. To ensure confidentiality, a dedicated period was allocated for students to complete the questionnaires. Participants were assured that their responses would be promptly sealed in envelopes to maintain confidentiality. Out of the 4,290 questionnaires distributed, 3,900 responses were collected, resulting in an impressive 91% response rate. After carefully examining the survey data, 64 responses were excluded due to patent responses or excessive missing values. As a result, a total of 3,826 valid responses were included in the final analysis. During the dissemination of research results to local stakeholders, stringent procedures were implemented to protect the confidentiality of the respondents. No information related to the participants' affiliation was recorded to ensure their anonymity. Initially, the study design included a nested structure, with individuals nested within schools. However, to minimize the risk of respondents being identifiable to local stakeholders familiar with their schools, only the respondents' school levels were collected. These measures were implemented to uphold ethical standards and safeguard the privacy of the study participants while ensuring the reliability and validity of the research.

In Study 2, the longitudinal sample was derived from the initial participant pool of Study 1. We specifically targeted a subset of college students who had participated in the first study. This approach was chosen to ensure continuity and relevance in the data collected over time. To select participants for the longitudinal study, we employed a stratified sampling method. This involved identifying a representative subset of students from the larger group surveyed in Study 1. The criteria for selection included a willingness to participate in multiple surveys over a year and the ability to provide consistent, reliable responses across different time points. The longitudinal study consisted of three surveys, conducted at fixed intervals. This staggered approach was designed to capture the evolving nature of the relationships between gratitude, patriotism, and general life satisfaction over time. The participants were contacted via the contact information they had provided in the initial survey, and they were briefed about the nature and purpose of the follow-up studies. To ensure a high response rate and consistent participation, we maintained regular communication with the participants and provided reminders before each survey. This careful selection and follow-up process allowed us to gather longitudinal data from a committed and reliable subset of the original sample, ensuring the validity and robustness of our findings. Among the participants, there were 240 male students and 665 female students, representing a diverse gender distribution. The age range of all participants was between 16 and 23 years old, with an average age of 18.88 ± 1.00 years. Notably, the highest proportion of participants, 37.1%, fell into

FIGURE 1
The proposed moderated mediation model.
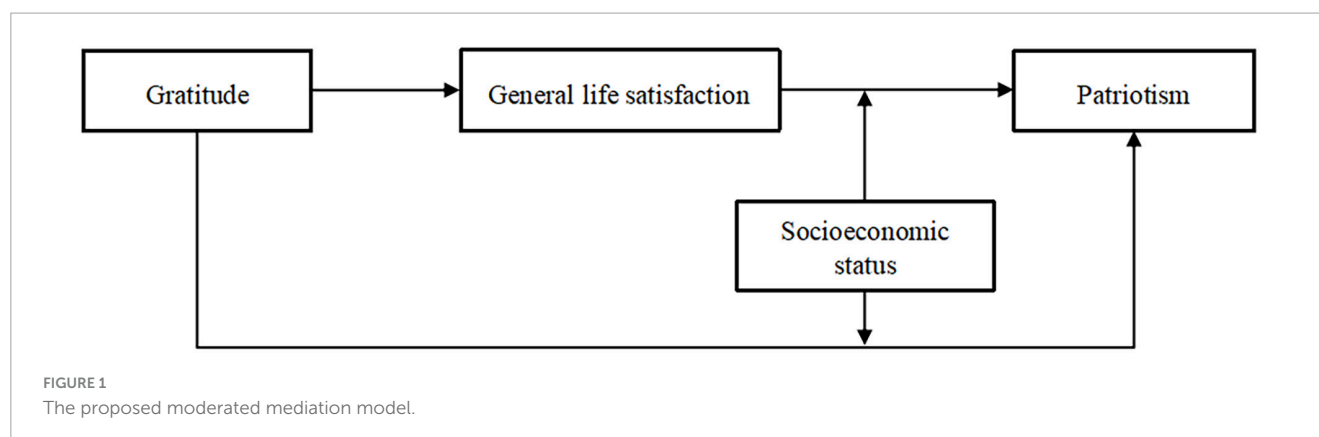
the 19-year-old age group, highlighting the significance of this age cohort in the study.

2.2 Measurements

2.2.1 Gratitude

The gratitude questionnaire comprises six items, including statements such as "There are many things in my life for which I feel grateful." Responses are scored on a 6-point scale, ranging from "strongly disagree" to "strongly agree," to assess individual variations in the tendency toward gratitude (McCullough et al., 2002). The higher the total scores of the questionnaire, the higher the individual's gratitude tendency. In the cross-sectional and longitudinal samples of this study, the Clone Bach coefficient of the questionnaire ranged from 0.73 to 0.76.

2.2.2 Socioeconomic status

In examining the impact of socioeconomic status on various psychological constructs, researchers frequently employ the 'ladder scale,' a methodological tool widely recognized in both domestic and international studies (Adler et al., 2000). This scale is particularly illustrative in the context of China, where it represents different positions of families within the societal structure. The "ladder" metaphorically depicts these positions: the higher a family is placed on the ladder, the better their overall circumstances, encompassing aspects such as financial stability, social standing, and access to resources. A 10-level score was adopted, and the subjects were asked to subjectively assess their position on the ladder where their family stands. Those who stand at the top of the ladder have the most money, the most education, and the best jobs, compared with those at the bottom.

2.2.3 General life satisfaction

General life satisfaction, a key variable in studies exploring the interplay between socioeconomic status and psychological constructs, is typically measured using the General Life Satisfaction Scale. This scale comprises six items, each rated on a scale ranging from "strongly disagree" to "strongly agree." This six-point scoring system is designed to assess an individual's overall satisfaction with their life. A representative item from the scale, for instance, is "I am satisfied with my life." Such statements are intended to gauge a respondent's general sense of contentment and wellbeing. The cumulative score from these items provides a comprehensive measure of an individual's life satisfaction, offering valuable insights into their subjective wellbeing and its potential correlations with other factors like gratitude and patriotism. The Clone Bach coefficient of the questionnaire ranged from 0.75 to 0.80 in the cross-sectional and longitudinal samples of this study (Leung and Leung, 1992).

2.2.4 Patriotism

The questionnaire on patriotism in The Moral Emotion Questionnaire for College Students was 5 items in total (Huang et al., 2014). An example of an item from this section is "I believe that national interests should always be the top priority," reflecting the depth of patriotism. Respondents rate each item on a scale that ranges from "completely inconsistent" to "completely consistent." This scale is quantified using a six-point grading system, allowing for a nuanced assessment of the degree of patriotism. The Clone Bach coefficient of the questionnaire ranged from 0.78 to 0.92 in the cross-sectional and longitudinal samples of this study.

2.3 Data analysis

In this study, we used SPSS 25.0 and Mplus 8.3 to conduct data analysis. Firstly, we performed Pearson correlation analysis on gratitude, general life satisfaction, patriotism, and socioeconomic status using SPSS 25.0. Next, we used the ML estimator in Mplus 8.3 to estimate the parameters of the Structural Equation Model (SEM) and perform the mediation analysis. To test the mediating and moderating effects, we conducted repeat sampling using BC Bootstrap and estimated the 95% confidence intervals through 1,000 samples.

In this study, we employed a questionnaire survey approach, which inherently carries the risk of common method bias. To address this concern, we analyzed both cross-sectional and longitudinal data using Harman's single-factor test. The analysis identified four factors with eigenvalues exceeding 1. The primary factor explained 31.20 and 24.75% of the variance in the cross-sectional and longitudinal datasets, respectively, which is below the 40% threshold commonly used to indicate significant common method bias. Consequently, our results suggest that common method bias is not a substantial concern in this study. Furthermore,

TABLE 1 Descriptive statistic of cross-sectional data (*N* = 3,826).

	M ± SD	1	2	3	4
1. Gratitude	4.38 ± 1.83	–			
2. General Life Satisfaction	4.88 ± 0.78	0.42***	–		
3. Patriotism	4.31 ± 0.93	0.51***	0.30***	–	
4. Socioeconomic Status	5.35 ± 0.74	0.09***	0.18***	−0.04*	–

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

TABLE 2 Participants' scores for various variables in the three measurements (*N* = 905).

Variables	T1	T2	T3
Patriotism (M ± SD)	5.33 ± 0.77	5.39 ± 0.85	5.26 ± 0.87
General life satisfaction (M ± SD)	4.25 ± 0.87	4.39 ± 0.84	4.24 ± 0.81
Gratitude (M ± SD)	4.83 ± 0.78	4.58 ± 0.8	4.6 ± 0.83

we conducted a multicollinearity assessment. The results indicated that all Variance Inflation Factor (VIF) values were below 2, signifying that multicollinearity does not pose a significant issue in our analysis.

2.4 Results

2.4.1 A model fit analysis

Regarding model fit, both the cross-sectional and longitudinal models demonstrated a good fit with the data. The fit indices for the cross-sectional model were: $\chi^2/\text{df} = 4.72$, $p = 0.000$, Comparative Fit Index (CFI) = 0.99, Tucker-Lewis Index (TLI) = 0.98, Root Mean Square Error of Approximation (RMSEA) [90% CI] = 0.03 [0.01, 0.05], and Standardized Root Mean Square Residual (SRMR) = 0.01. For the longitudinal model, the indices were: $\chi^2/\text{df} = 2.57$, $p = 0.00$, CFI = 0.99, TLI = 0.98, RMSEA [90% CI] = 0.04 [0.02, 0.06], and SRMR = 0.03. These results indicate robust model fits in both instances.

2.4.2 Descriptive statistics

The mean, standard deviation, and correlation coefficient of each variable are as follows:

Table 1 suggests that socioeconomic status is significantly negatively correlated with patriotism. Patriotism, socioeconomic status, and gratitude are significantly positively correlated with general life satisfaction, respectively, while gratitude and general life satisfaction are significantly positively correlated with patriotism, respectively.

Table 2 provides a comprehensive overview of the average levels and variability of gratitude, general life satisfaction, and patriotism at three distinct time points in the study. By examining the means and variances of these variables across time, we can gain valuable insights into their temporal dynamics and how they may change over the course of the study.

Table 3 lists the correlation coefficients between the variables at the time points of the three measurements. Patriotism at each time point was significantly correlated with general life satisfaction and gratitude. This provided a basis for further analysis of the causation and mediation effects of these variables.

2.4.3 A moderated mediation model of the relationship between gratitude and patriotism: evidence from cross-sectional samples

The results show that the moderated mediation model is significant ($R^2 = 0.28$, $F = 293.57$, $p < 0.001$). Gratitude significantly positively predicted patriotism ($\beta = 0.33$, $p < 0.001$, 95% CI [0.26, 0.41]), which verifies Hypothesis 1 (Figure 2). Gratitude significantly positively predicts general life satisfaction ($\beta = 0.46$, $p < 0.001$, 95% CI [0.46, 0.53]), general life satisfaction significantly positively predicts patriotism ($\beta = 0.13$, $p < 0.001$, 95% CI [0.41, 0.47]). Since the confidence interval does not contain 0, it indicates that general life satisfaction plays a partial mediating role between gratitude and patriotism, and hypothesis 2 is supported.

We found a statistically significant moderating effect of socioeconomic status on gratitude and patriotism ($\beta = 0.37$, $p < 0.001$, 95% CI [0.01, 0.03]). However, the moderating effect between general life satisfaction and patriotism was not significant. This partially supports hypothesis 3, which posited that socioeconomic status moderates the relationship between gratitude and patriotism (Table 4).

To understand the moderating effect of socioeconomic status on gratitude and patriotism in a more specific way, a simple slope test is needed, that is, the effect value of gratitude on patriotism is calculated according to the mean of socioeconomic status score plus or minus one standard deviation, and a simple effect analysis chart is drawn (Figure 3). According to the simple slope test, gratitude has a significant positive effect on patriotism when socioeconomic status is low (M-1SD), but its prediction effect is small ($\beta_{simple} = 0.28$, $P < 0.001$). When the socioeconomic status is high (M + 1SD), gratitude can also significantly positively predict patriotism ($\beta_{simple} = 0.78$, $P < 0.001$), which indicates the socioeconomic status rises, both gratitude and patriotism rise as well.

In addition, we computed the effect size of general life satisfaction on patriotism by using the mean of the socioeconomic status score plus or minus one standard deviation. We then created a simple effect analysis chart to examine the moderating effect of socioeconomic status on the relationship between general life satisfaction and patriotism (see Figure 4). However, the results of the simple slope test revealed that general life satisfaction did not have a significant impact on patriotism when socioeconomic status was low (M-1SD) ($\beta_{simple} = 0.49$, $P > 0.05$). Similarly, when

TABLE 3 Correlation analysis of variables across three-time points (T1 to T3, N = 905).

	1	2	3	4	5	6	7	8	9
Patriotism (T1)	1								
Patriotism (T2)	0.36***	1							
Patriotism (T3)	0.34***	0.50***	1						
General life satisfaction (T1)	0.29***	0.12***	0.20***	1					
General life satisfaction (T2)	0.22***	0.37***	0.30***	0.42***	1				
General life satisfaction (T3)	0.19***	0.23***	0.36***	0.40***	0.45***	1			
Gratitude (T1)	0.50***	0.29***	0.36***	0.41***	0.31***	0.28***	1		
Gratitude (T2)	0.32***	0.52***	0.41***	0.23***	0.36***	0.27***	0.46***	1	
Gratitude (T3)	0.29***	0.37***	0.64***	0.29***	0.33***	0.42***	0.49***	0.53***	1

***$p < 0.001$.

FIGURE 2
The result of the moderated mediation model. N = 3,826; ***$P < 0.001$.
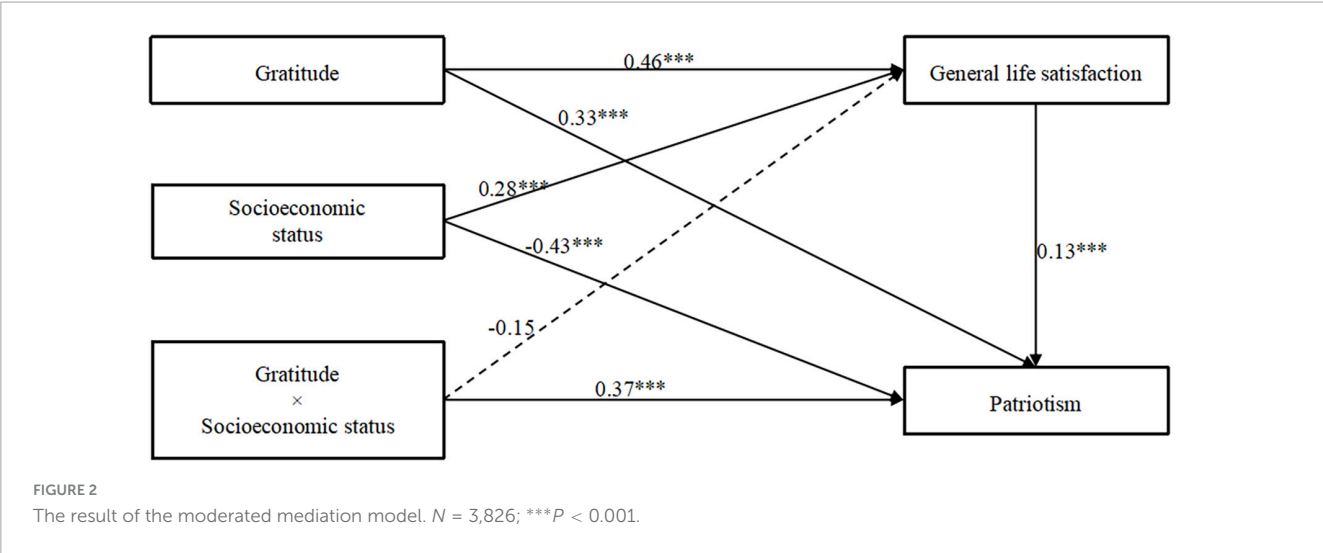
socioeconomic status was high (M+1SD), general life satisfaction did not significantly predict patriotism (β_{simple} = 0.42, $P > 0.05$). This means that although the level of patriotism for both groups slightly increased with the improvement in general life satisfaction, there is no significant difference between the two groups in the level of increase.

2.4.4 Cross-lagged analysis of gratitude and patriotism at three time points

To further elucidate the potential causal dynamics between the independent and dependent variables, this study has developed a cross-lagged model featuring gratitude (independent variable) and patriotism (dependent variable) across three distinct time points: T1, T2, and T3. The model demonstrates robust fit indices: $\chi 2$ = 84.11, df = 13, CFI = 0.96, TLI = 0.93, RMSEA (90% CI) = 0.07 [0.06, 0.09], SRMR = 0.06. Detailed results from the cross-lagged analysis of gratitude and patriotism are presented in Figure 5. Examining the longitudinal trajectory of each variable, we observe that T1 gratitude significantly predicts T2 gratitude (β = 0.40, $p < 0.001$), and this predictive relationship continues from T2 gratitude to T3 gratitude (β = 0.39, $p < 0.001$). Similarly,

T1 patriotism significantly forecasts T2 patriotism (β = 0.29, $p < 0.001$), T2 patriotism significantly forecasts T3 patriotism (β = 0.39, $p < 0.001$). When exploring the interplay between different variables over time, we find that T1 gratitude significantly forecasts T2 patriotism (β = 0.15, $p < 0.001$), and T2 gratitude continues this trend by significantly predicting T3 patriotism (β = 0.21, $p < 0.001$). Conversely, T1 patriotism significantly predicts T2 gratitude (β = 0.12, $p < 0.01$), with T2 patriotism also significantly influencing T3 gratitude (β = 0.14, $p < 0.01$).

From these findings, it is evident that gratitude and patriotism are interrelated and potentially causally linked variables. However, the primary focus of this study is to explore the impact of gratitude on patriotism and to understand the underlying mechanisms. Therefore, the following analysis and discussion will focus on the discussion of gratitude's prediction of patriotism and its intermediary mechanism.
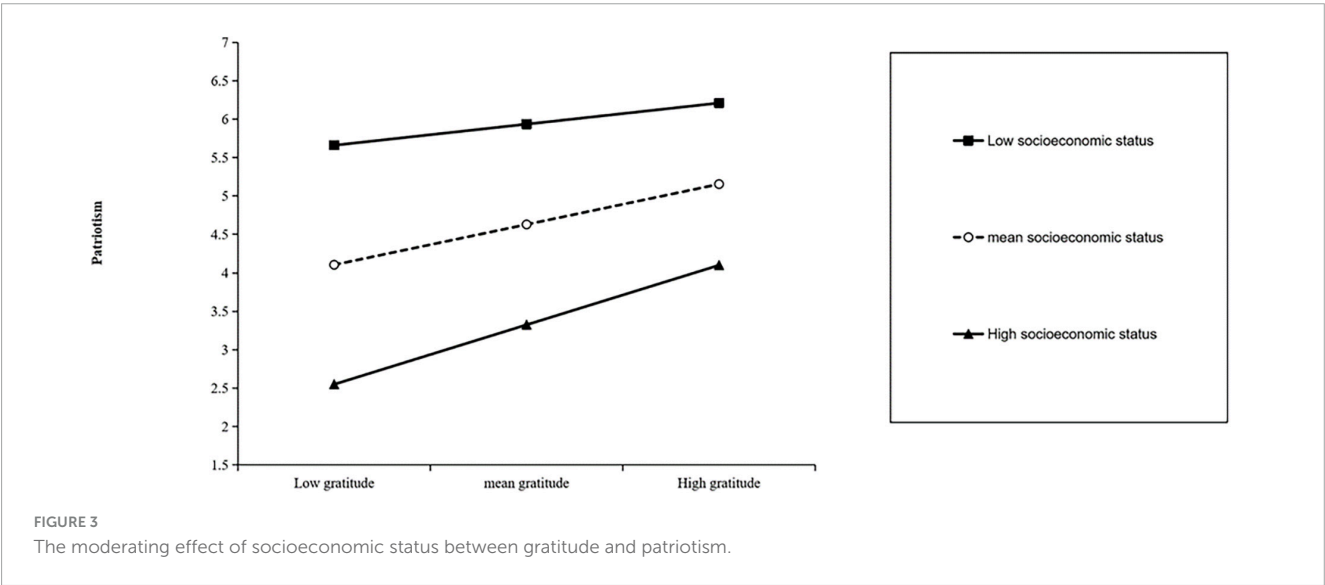
2.4.5 The mediating effects of general life satisfaction: evidence from longitudinal samples

Building upon the correlation analysis, we further investigated the temporal lag effects of gratitude, general life satisfaction, and

TABLE 4 Test of moderated mediating effects.

Variables	B	SE	t	95% CI	(Bias-corrected)
				LLCI	ULCI
Gratitude	0.33	0.04	30.31***	0.26	0.41
General Life Satisfaction (GLS)	0.13	0.02	8.48***	0.10	0.16
Socioeconomic Status (SS)	−0.43	0.10	−7.39***	−0.63	−0.23
Gratitude × SS	0.37	0.37	2.66**	0.16	0.58
R^2	0.28				
F	293.57				
	Estimate	S.E.		BootLLCI	BootLLCI
Direct effect Gratitude → Patriotism	0.33***	0.04		0.20	0.33
Indirect effect Gratitude → General life satisfaction→ Patriotism	0.06***	0.01		0.03	0.06
Total	0.39***	0.04		0.25	0.37

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

FIGURE 3
The moderating effect of socioeconomic status between gratitude and patriotism.

patriotism at three different time points, as depicted in **Figure 6**. The path coefficients reveal that gratitude levels at Time 1 positively predict gratitude levels at Time 2 ($\beta = 0.45$, $p < 0.001$) and Time 3 ($\beta = 0.31$, $p < 0.001$), gratitude levels at Time 2 positively predict gratitude levels at Time 3 ($\beta = 0.39$, $p < 0.001$). Additionally, general life satisfaction at Time 2 significantly and positively predicts general life satisfaction at Time 3 ($\beta = 0.36$, $p < 0.001$), while patriotism at Time 2 similarly predicts patriotism at Time 3 ($\beta = 0.33$, $p < 0.001$).

The gratitude at T1 has a complete mediating effect on the patriotism at T3 through the general life satisfaction at T3, while the gratitude at T1 has a partial mediating effect on the patriotism at T3 through the general life satisfaction at T2. Based on the significance of the path coefficient, possible indirect effect paths were tested. The indirect effect analysis adopts the bootstrapping test with deviation correction, reducing the statistical analysis error as much as possible.

Table 5 reveals significant indirect effects for gratitude at T1, mediated through general life satisfaction at T2, on patriotism at T2 ($\beta = 0.10$, $P < 0.001$), with a 95% CI of [0.07, 0.13]. Moreover, gratitude at T1 exhibits a significant indirect effect through general life satisfaction at T2 and patriotism at T2, leading to patriotism at T3 ($\beta = 0.04$, $P < 0.001$), with a 95% CI of [0.03, 0.05].

3 Discussion

Study 1 in our research was dedicated to exploring the complex relationship between gratitude and patriotism, particularly focusing on how socioeconomic status and general life satisfaction interact within this dynamic. The hypotheses of this study were built around the idea that gratitude positively influences patriotism. Additionally, we hypothesized that general life satisfaction plays a mediating role in the relationship between socioeconomic status
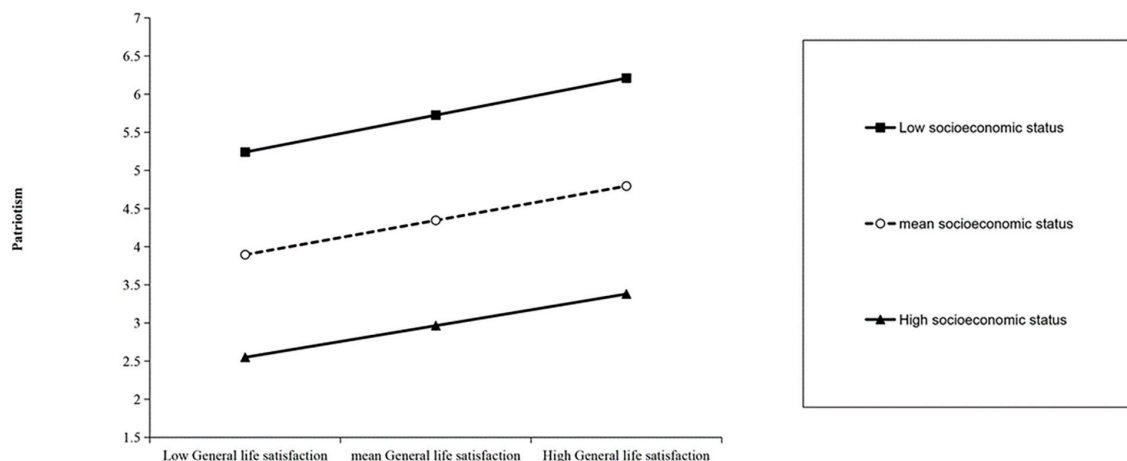
FIGURE 4
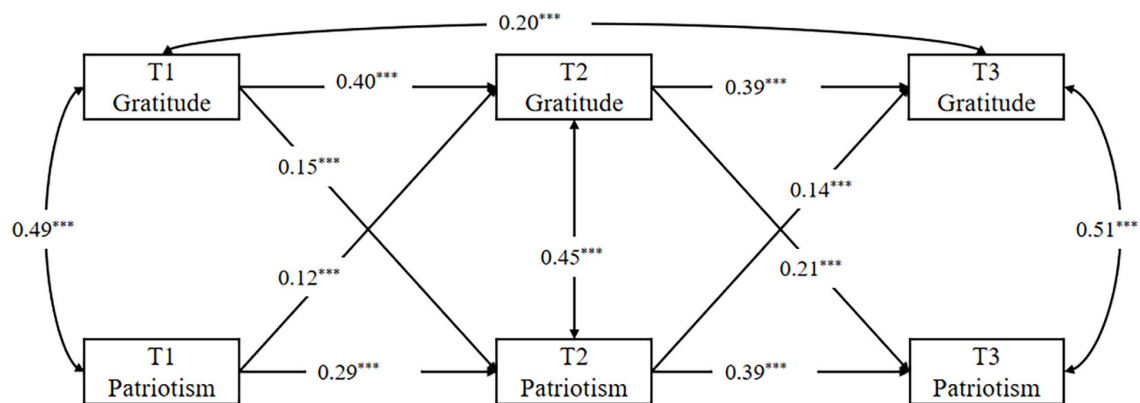The moderating effect of socioeconomic status between general life satisfaction and patriotism.

FIGURE 5
The cross-lagged model of gratitude and patriotism at T1, T2, T3. ***$p < 0.001$.

and patriotism and that socioeconomic status moderates the link between gratitude and patriotism.

Study 2 took these concepts further by examining the temporal mediation of general life satisfaction in the relationship between gratitude and patriotism. Notably, the results from this study indicated that general life satisfaction acts as a longitudinal mediator between gratitude and patriotism. This finding is significant as it highlights the enduring influence of general life satisfaction in the nexus of gratitude and patriotism over time. The presence of these significant indirect effects emphasizes the pivotal role of general life satisfaction as a mediator in this relationship.

The combination of observed indirect effects and their corresponding confidence intervals contributes to a more nuanced understanding of the relationships among gratitude, general life satisfaction, and patriotism. The findings from this study illuminate the dynamics of how positive emotions like gratitude can impact feelings of national identity, thereby enriching the existing literature in this field of research. This comprehensive approach enhances our understanding of the emotional underpinnings of patriotism and offers valuable insights into the interplay of individual emotions, socioeconomic factors, and patriotism.

3.1 The direct effect of gratitude on patriotism

Our study's findings reveal a statistically significant association between gratitude and patriotism, resonating with the Moral Affect Theory of gratitude (McCullough et al., 2001). This extends the traditional understanding of gratitude's influence, as previous literature primarily focuses on its impact on interpersonal relationships and individual wellbeing, rather than on patriotism (Hardin, 1993; Michie, 2009; DeSteno et al., 2014, 2019; Dickens and DeSteno, 2016; Rupar et al., 2021). The inclination of grateful individuals toward actions that benefit the collective mirrors a deeper connection with societal values and national identity, suggesting a novel contribution to the field. Although direct research linking gratitude to patriotism is scarce, similar studies have indicated that gratitude can enhance positive collective behaviors (Sasaki et al., 2020), which can be seen as foundational to patriotism. Furthermore, our study highlights gratitude's role in identity formation among college students, enhancing their sense of belonging and national identity (McCullough et al., 2002). While identity is a component of patriotism (Blank and Schmidt,
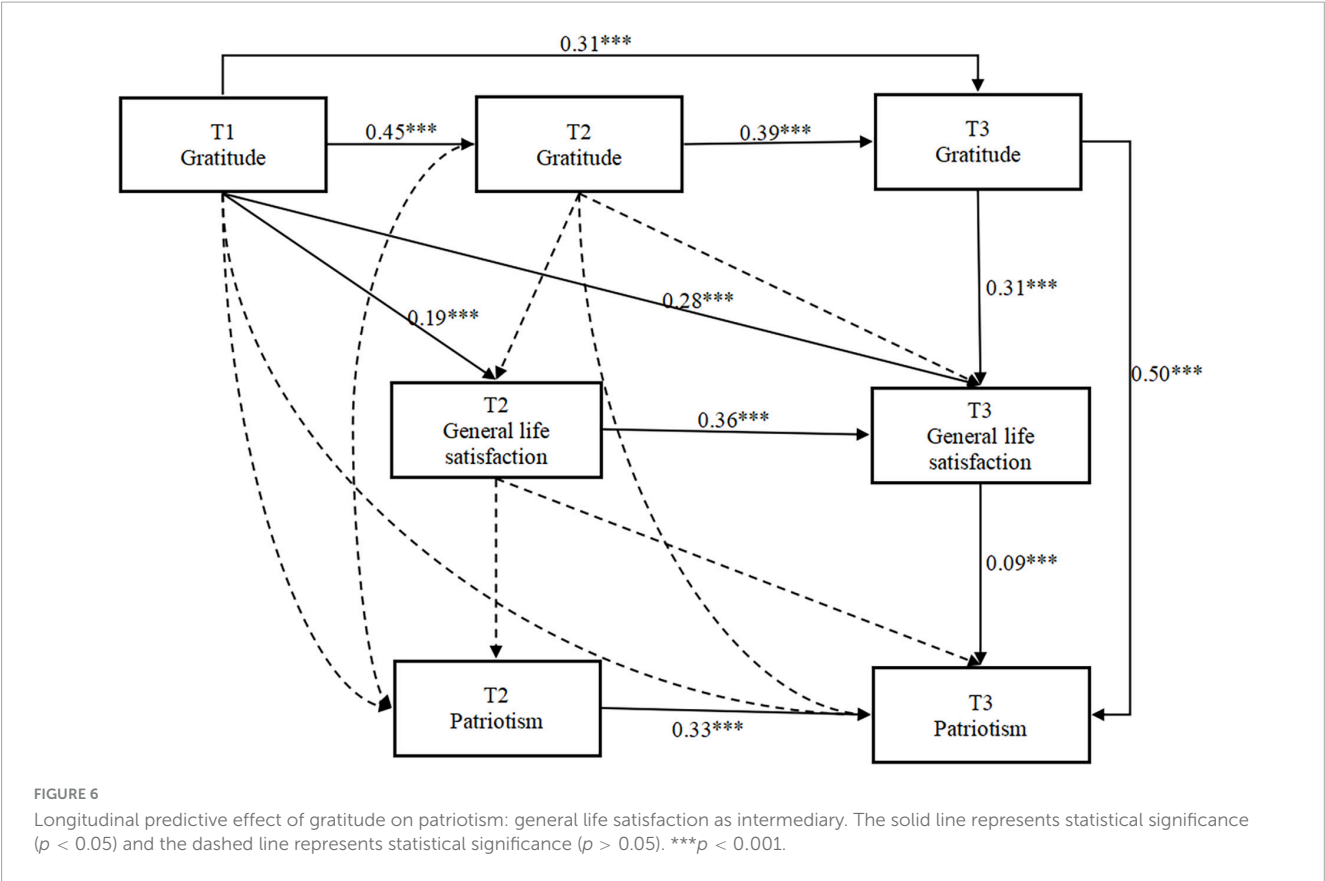
Longitudinal predictive effect of gratitude on patriotism: general life satisfaction as intermediary. The solid line represents statistical significance ($p < 0.05$) and the dashed line represents statistical significance ($p > 0.05$). ***$p < 0.001$.

TABLE 5 The mediating model: indirect effects and 95% confidence intervals.

	Estimate	S.E.	Est/S.E.	95% CI
G-T1 → GLS-T2 → P-T2	0.10***	0.01	6.91	[0.07, 0.13]
G-T1 → GLS-T2 → P-T2 → P-T3	0.04***	0.01	5.77	[0.03, 0.05]

G, gratitude; GLS, general life satisfaction; P, patriotism. ***$p < 0.001$.

2003), the literature has not extensively examined how gratitude specifically influences patriotic identity. Our findings suggest an indirect pathway through which gratitude reinforces patriotism, adding depth to the existing understanding of emotional states and national identity. Despite these contributions, it is important to critically assess this relationship, as the direct link between gratitude and patriotism, while significant, ventures into relatively uncharted territory in the field of emotional and social psychology.

3.2 Cross-sectional and longitudinal mediating role of general life satisfaction

Our study demonstrates a significant positive relationship between gratitude and general life satisfaction, both in cross-sectional and longitudinal analyses. This aligns with previous findings that gratitude enhances subjective wellbeing and life satisfaction (Fritz et al., 2019; Armenta et al., 2020). Our data

corroborate the notion that gratitude, as a positive experience, contributes to increased life satisfaction (Szczesniak et al., 2019; Zhang, 2020; Lee, 2022). This relationship is further supported by the correlation between gratitude and job satisfaction (Kim et al., 2019; Moon and Jung, 2020), where higher career satisfaction is linked to greater life satisfaction (Hagmaier et al., 2018), and individuals with higher family and personal income report elevated levels of life satisfaction (Wu, 2022).

Moreover, our results indicate that general life satisfaction positively predicts patriotism. This could be attributed to the observation that individuals with high life satisfaction often report strong cultural and ethnic identities (Vietze et al., 2019; Caqueo-Urízar et al., 2021), suggesting a symbiotic relationship between life satisfaction and identity (Dimitrova et al., 2018). Life satisfaction's significance extends to national legitimacy and political support (Chen and Shi, 2001; Tang, 2016; He et al., 2022), influenced by both institutional political characteristics (Radcliff, 2001; Skitka, 2005; Bjornskov et al., 2007) and individual values and judgments (Diener et al., 1985). Consequently, national attachment, including patriotism and nationalism, is positively correlated with national life satisfaction (Skitka, 2005; Bader, 2006; Liu et al., 2020). Drawing on Social Identity Theory (Tajfel and Turner, 1979), our study suggests that a strong and positive identification with one's social group, including the nation, is a crucial source of positive self-image. This theory posits that the formation of national/social identity is linked to positive mental health and academic outcomes (Tajfel and Turner, 1986; Cameron, 1999; Smith and Silva, 2011; Rivas-Drake et al., 2014; Reynolds et al., 2017), supporting our hypothesis that general

life satisfaction positively predicts patriotism. In summary, our findings contribute to the understanding of the relationship between individual emotional states, general life satisfaction, and national sentiment, offering insights into the complex dynamics of patriotism in the context of emotional and social psychology.

3.3 The moderating effect of socioeconomic status

In our cross-sectional samples, we found that socioeconomic status (SES) positively moderated the relationship between gratitude and patriotism. Interestingly, SES itself had a significant negative impact on patriotism, with individuals of lower SES exhibiting more patriotism than those of higher SES. This aligns with previous studies indicating that lower SES is associated with more prosocial behavior and patriotism (Hardin, 1993; Piff et al., 2010; Devos and Sadler, 2019; Tikhonov et al., 2019). This phenomenon might be attributed to the collectivist worldviews often held by lower-status groups, in contrast to the individualistic perspectives prevalent among higher-status groups (Iacoviello and Lorenzi-Cioldi, 2019). Additionally, individuals with lower SES might identify more strongly with national institutions and feel a deeper sense of national identification (Hierro and Rico, 2019).

However, our study also reveals that as SES increases, so does gratitude, which positively impacts patriotism. This suggests that gratitude's influence on patriotism is more pronounced among individuals with higher SES. According to Fredrickson's broaden-and-build theory (Fredrickson, 2001), gratitude expands an individual's thought-action repertoire and builds various personal resources, including social support systems, which can enhance prosocial behavior and social adaptability. The enhancement of gratitude, particularly among college students, is linked to the development of positive values and a stronger sense of belonging and identity (McCullough et al., 2002). Consequently, the negative impact of SES on patriotism diminishes with increased levels of gratitude, leading to a quicker rise in patriotism among those with higher SES.

Contrary to our expectations, the hypothesis that SES moderates the relationship between gratitude and patriotism in the second moderation path was not supported. The results indicated that this moderation path was not significant, suggesting that the increase in patriotism as life satisfaction grows is similar across different SES groups. This finding is somewhat at odds with previous research suggesting that life satisfaction has a greater positive impact on patriotism among lower SES individuals (Vayness et al., 2020). Studies have also shown a positive correlation between individual life satisfaction and national attachment (Skitka, 2005; Liu et al., 2020), reflecting an innate human need for attachment and recognition (Bader, 2006). Our findings suggest that while an increase in life satisfaction boosts patriotism, the effect does not significantly differ between high and low-SES groups. Furthermore, the lack of significant moderating effects in the longitudinal samples implies that the relationships between gratitude, life satisfaction, and patriotism remained stable over time, regardless of SES levels. This could be due to limited variation in the moderating factors or the presence of unaccounted confounding variables. The stability of these relationships over time

highlights the enduring nature of the connections between these variables, underscoring the complex interplay of emotional states, general life satisfaction, and patriotism.

3.4 Strengths and limitations

Our study makes a significant contribution to the field of patriotism research by examining the roles of general life satisfaction and gratitude within the context of social class. This approach offers a fresh perspective, highlighting how socioeconomic factors intertwine with emotional and psychological aspects to influence patriotism. Notably, our findings reveal that high levels of gratitude and general life satisfaction correlate with increased patriotism. This is particularly pronounced among individuals with low socioeconomic status, where improvements in general life satisfaction have a substantial impact on patriotism. Conversely, for those with higher socioeconomic status, an increase in gratitude levels appears to be more influential in enhancing patriotism. These insights provide valuable guidance for policymakers and educators in fostering patriotism through targeted strategies that address the specific needs and characteristics of different socioeconomic groups. These findings have practical implications, suggesting that tailored interventions focusing on enhancing general life satisfaction and gratitude could effectively foster patriotism in targeted populations.

Our study, however, is not without limitations. The reliance on perceived subjective social class, without the inclusion of objective measures, may not fully capture the nuanced relationship between social class and patriotism. Future research could benefit from incorporating both subjective and objective assessments of social class to provide a more comprehensive understanding. Additionally, the sensitive nature of patriotism as a research topic suggests that our reliance on subjective reporting may not fully reflect true attitudes. Incorporating methods to assess implicit attitudes could offer a more rounded view of patriotism. Furthermore, the generalizability of our findings is limited by the predominance of college students in our sample, indicating the need for more diverse and representative sampling in future studies.

Future research should explore the dynamics of patriotism across a broader demographic spectrum, including various age groups, professions, and cultural backgrounds. Investigating the long-term effects of gratitude and general life satisfaction on patriotism, and how these relationships evolve, would also be valuable. Our study underscores the importance of considering both emotional states and socioeconomic factors in understanding and fostering patriotism. The key takeaway is that patriotism is a multifaceted sentiment influenced by a complex interplay of individual emotions, general life satisfaction, and social class. Recognizing and addressing these diverse influences can aid in developing more effective strategies to nurture a sense of national pride and unity. In summary, while our study offers valuable insights into the factors influencing patriotism, it is important to consider these limitations when interpreting our findings. Acknowledging and addressing these limitations can pave the way for more comprehensive and robust research in the future.

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 humans were approved by the Institutional Review Board (or Ethics Committee) of Wenzhou University of Technology. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent to participate in this study was not required from the participants in accordance with the national legislation and the institutional requirements.

Author contributions

YH and GC performed material preparation, data collection, and analysis. YH and HZ wrote the first draft of the manuscript. GC provided advice on writing the final draft. HZ, QL, and WZ completed the final draft. All authors contributed to the study's conception and design, commented on previous versions of the manuscript, and read and approved the final 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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The effect of wrongdoer's status on observer punishment recommendations: the mediating role of envy and the moderating role of belief in a just world

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Our proposition postulates that the correlation between the wrongdoer's status and the punishment suggestions of onlookers is primarily influenced by group-oriented envy rather than the ascription of intentionality and is moderated by the belief in a just world. In three separate studies, 389 university students were asked to read scenarios describing a hit-and-run crime committed by either a rich or a poor individual and then report their opinions on intentionality attribution (Study 1 and Study 2), envy emotions (Study 2), punishment recommendations (all three studies), and belief in a just world (Study 3). Consistently, the findings indicated that those observing recommended harsher penalties to be imposed upon high-status perpetrators engaging in the same wrongdoing (such as hit-and-run) as their low-status equivalents. The effect of the rich receiving more severe punishment was predicted more strongly by envious emotions than by intentionality attributions to high-status wrongdoers and was only present for those observers who endorsed a lower belief in a just world.

1 Introduction

In contemporary times, the chasm between the affluent and the underprivileged has widened, escalating the schism between disparate social classes. This insurmountable class divide is conspicuous in every society worldwide. This study focuses on how attitudes of observers change when there are differences in the social status of the observed individuals and the psychological mechanisms behind it. Specifically, how do observers choose to punish individuals who violate rules when there are differences in social status, and what are the underlying psychological processes? By exploring onlooker's attitudes and punishment recommendations to the rich wrongdoers, we can understand many social issues related with the consequence of social stratification, such as social perceptions and interactions between different groups, retributive justice, social mentality, and collective action.

Previous researches has shown that we punish the rich more severely. According to the retributive justice literature, intentionality is a key factor in determining the severity of punishment for perpetrators (Jordan et al., 2018; Daumeyer et al., 2019). Novel research has unearthed that those observing the actions of wrongdoers tend to attribute a higher degree of intentionality to the actions of high-status perpetrators, in comparison to the identical actions

of those of lower status. This attribution bias often leads to recommendations for more stringent penalties to be imposed upon the former group (Kakkar et al., 2020). However, the stereotype literature also establishes that people often experience upward envy and display hostile prejudice toward high-status group members (Lange et al., 2018). For example, observers may respond with Schadenfreude to the misfortunes of high-status targets (Dasborough and Harvey, 2017). Our argument is that both intentionality attributions and group-based envy may independently influence the severity of punishments recommended for high-status wrongdoers. Furthermore, envy-related hostility is thought to stem from relative deprivation and a sense of injustice in social comparison (Van de Ven et al., 2018). For those who believe in a just world, they may view people as generally receiving what they deserve, and thus treat different wrongdoers equally (Bartholomaeus and Strelan, 2019). Therefore, we also propose that the tendency to punish high-status wrongdoers more severely is for those observers who endorsed a lower belief in a just world.

2 Conceptual framework

2.1 Observer punishment and wrongdoer status

The phenomenon of more severe punishment for high-status wrongdoers cannot be confirmed without comparing the punishment recommended by participants for high-status wrongdoers to that recommended for low-status wrongdoers who have committed an identical crime. Retributive justice research provides a paradigm of observer punishment, which focuses on the blame and punishment judgments of lay observers for an identical misbehavior by varying the level of perpetrator intention and the harm caused by the misbehavior (Jordan et al., 2018; Daumeyer et al., 2019). Previous research has demonstrated that this paradigm is useful for exposing intergroup bias by varying the identities of perpetrators (Kung et al., 2016). Those who hold negative attitudes toward the rich may conceal their hostile feelings and intentions unless the rich make a mistake. Therefore, the punishment judgments can allow biases against the rich to be expressed under the guise of justice, as punishing a wrongdoer is considered socially desirable behavior. Thus, we have chosen the paradigm of observer punishment to explore the rancor against the rich by varying the wrongdoers' status (high or low).

The severity of punishment for criminal behavior is often influenced by the perceived level of intentionality, with intentional behavior resulting in more severe punishment (Jordan et al., 2018; Daumeyer et al., 2019; Picó et al., 2020; Yao and Siegel, 2021). Research has demonstrated that observers typically assign a greater degree of intentionality to the actions of high-status individuals, compared to the actions of those of lower status, even when the wrongdoing is identical. This attribution bias frequently results in marked discrepancies in punishment recommendations (Kakkar et al., 2020). However, research on the evaluation of workplace misbehavior has found the opposite effect, with lower-status actors being evaluated more harshly than higher-status actors (Polman et al., 2013; Blue et al., 2018). The "protection effect" afforded to high-status individuals is more conspicuous in cases of minor misbehavior, but it is not apparent in incidents of severe wrongdoing (Karelaia and Keck, 2013). It is

speculated that the societal connection between the affluent and the underprivileged is less transactional than the relationship between individuals of high and low status within organizations. Moreover, in retributive justice research, punishment judgments are often driven not only by moral outrage, but also by dehumanization (Bastian et al., 2013). The Stereotype Content Model (SCM), introduced by Cuddy et al. (2018a,b,c), posits that competence and warmth are the two core dimensions of social perception, and that social stereotypes and emotions frequently stem from these dimensions. In this model, high-status individuals or groups are often stereotyped as being competent but lacking in warmth which suggests a tendency to punish the rich more severely, with a focus on the role of intentionality attribution in this tendency. Therefore, we hypothesized that intentionality attribution mediates the relationship between wrongdoer's status and onlookers' punishment.

2.2 Envious prejudice against high status groups

In SCM, high-status individuals or groups' competent-cold stereotype can trigger the emotion of envy. Envy is an ambivalent emotion characterized by feelings of resentment, hostility, and inferiority that arises from negative social comparisons with other individuals or groups. The wealthy are often viewed as an envied group (Wu et al., 2018; Cuddy et al., 2018a,b,c). Recent studies have shown that many Chinese people identify themselves as lower status than their objective status, which may lead to greater relative deprivation and, consequently, more envy towards the wealthy in Chinese society (Yu et al., 2019).

Thus, envy may be an important factor in understanding why the rich are often punished more severely than others. The SCM provides a useful framework for exploring the ambivalent stereotypes and emotions that people hold towards high-status individuals, which may ultimately shape our attitudes towards them and their behavior. In addition, understanding these dynamics in different cultural settings is important for developing a more nuanced understanding of how perceptions of status and wealth shape social interactions and attitudes.

Previous studies have provided ample evidence for the relationship between envious emotions and hostile behaviors (or intentions) (Hofer and Busch, 2011; Kim and Glomb, 2014; Van de Ven et al., 2018). For example, individuals who experience envy are often motivated to actively denigrate those who they perceive as superior (Rentzsch et al., 2015). Furthermore, envy can lead to sabotaging and attacking higher status "groups" (Cuddy et al., 2018a,b,c), with Schadenfreude, or joy in another's misfortune, often directed at high status groups in particular (Dasborough and Harvey, 2017).

Moreover, recent evidence has suggested that envious emotions more strongly and directly predict behaviors than the competent-cold stereotype, which has been considered as the basis of intentionality attribution (Cuddy et al., 2018a,b,c). These findings highlight the importance of considering envy as a potential underlying factor in hostile behaviors and attitudes towards high-status individuals or groups, and suggest that interventions targeting envy may be effective in reducing such behaviors.

The rich constitute a salient superior group, and envy is a form of harm waiting to happen in contemporary society. This assertion is supported by numerous examples of social unrest and conflict that can

be traced back to the unequal distribution of wealth and resources. The most of intergroup conflict incidents occurred in China are derived from interpersonal conflicts between the low status and high status (Wang, 2009). The case of Yao Jiaxin occurred in 2010–2011 showed the power of public opinion based on this group emotion. Yao was a 21-year-old student who accidentally struck a young poor peasant woman with his car and silenced her by stabbing her to death on the roadway. Although Yao surrendered to the police, which would usually result in no-death sentence, he was eventually executed under the pressure of public resentment against his identity of the "fu er dai," the "rich second generation" of privileged families (Wines, 2011) Like Yao case, Chinese public opinions claim to punish a rich person who signal envied group more severely once he make some misbehaviors. Most incidents of intergroup conflict arise from interpersonal conflicts between individuals of low and high status. It is argued that the more severe punishments recommended for high-status wrongdoers are manifestations of discriminatory behavior. It is suggested that observers' recommendations for more stringent penalties for high-status wrongdoers are influenced more strongly by their envious emotions towards the wrongdoers as a group than by their attributions of intentionality to the wrongdoers as individuals.

Thus we hypothesized that both intentionality attributions and group-based envy independently influence punishment severity, with group-based envy exerting a stronger effect on punishment recommendation.

2.3 The belief in a just world

Both the attribution of intentionality and the envy response to high-status wrongdoers reflect a shared motive for punishment, namely the justice motive. A higher attribution of intentionality signifies a greater degree of responsibility and moral wrongdoing on the part of the targets for their actions, resulting in a correspondingly more significant punishment proportionate to the severity of their actions. Similarly, an envious response to high-status wrongdoers can lead to a desire for justice, as observers may seek to address perceived inequalities and level the playing field between high and low-status groups (Crockett et al., 2014). The hostility associated with envy is argued to arise from feelings of relative deprivation and a sense of injustice in social comparisons (van de Ven and Zeelenberg, 2020). In situations of resentment against the rich, we propose that the judgment of wrongness in attribution of intentionality is based more on the individual's actions, while the unjust feeling involved in the envy response is based more on the group identity of the wrongdoer. However, individuals may differ in both their emotional tendency towards envy and their beliefs regarding retributive justice (Crusius and Lange, 2017; Osgood, 2017; Van de Ven et al., 2018).

The belief in a just world (BJW) is a common belief that individuals live in a world that is inherently just and that people generally receive what they deserve and deserve what they receive (Lerner, 1980). BJW serves as a psychological need to believe in a just world and shapes how people respond to issues of justice and injustice. It often motivates individuals to blame victims for their fate and cast aspersions on their character (Bartholomaeus and Strelan, 2019). However, it also compels individuals to uphold justice rationally to maintain their belief in a just world when dealing with affairs (Bartholomaeus and Strelan, 2019). Recent studies have indicated that BJW is linked to a strong inclination

towards making long-term investments and a strong aspiration to achieve socially desirable goals through socially acceptable means (Hafer et al., 2005; Hafer and Sutton, 2016). Individuals who believe in a just world tend to be more optimistic about the future and have faith that hard work and dedication will ultimately lead to success. Furthermore, they are more likely to engage in behaviors that are socially responsible and ethical, as they believe that doing so will ultimately lead to a just outcome. These findings suggest that BJW plays a significant role in shaping people's values and behaviors, particularly in their pursuit of long-term goals. Most recent research has focused on explicitly endorsed individual differences in BJW (Osgood, 2017). For individuals who strongly endorse BJW, it can serve as a psychological resource to buffer negative feelings triggered by unjust events (Bartholomaeus and Strelan, 2019). Conversely, those who weakly endorse BJW have a hostile attributional bias (Bartholomaeus and Strelan, 2019). We infer that high BJW can lead to equal punishment recommendations for different transgressors who commit identical crimes. Therefore, individuals who have a higher belief in a just world may punish high-status and low-status wrongdoers equally but more severely. So we hypothesized that the link between wrongdoers' status and the extent of punishment proposals would be contingent on the observers' belief in a just world.

2.4 Current research

The current studies are the first to systematically investigate the phenomenon of rancor directed towards affluent individuals through controlled experimental designs in China, making them particularly valuable to the field. Participants in three studies engaged in observer punishment, wherein they were presented with scenarios describing a hit-and-run crime committed by either a wealthy or impoverished individual, which bears relevance to recent incidents discussed within Chinese society. We differentiated between high status that is ascribed versus achieved (Study 2) and measured participants' attributions of intentionality (Studies 1 and 2), experience of envy (Study 2), and belief in a just world (Study 3). Our hypothesized models propose that both intentionality attributions and group-based envy independently influence punishment severity, with group-based envy exerting a stronger effect on punishment recommendation. Moreover, we anticipate that the link between wrongdoers' status and the extent of punishment proposals would be contingent on the observers' belief in a just world. The present findings offer valuable insights into the complex interplay of social factors influencing punishment outcomes in China.

3 Study 1: wrongdoer's social status and punishment recommendations

3.1 Methods

For Study 1, participants were presented with a hypothetical scenario involving illegal behavior, such as a hit-and-run incident. The purpose was to investigate the effect of the wrongdoer's social status (high vs. low) on observers' attribution of responsibility and their recommended severity of punishment. Drawing on the findings of Kakkar et al. (2020) with Western participants, we predicted that

participants would advocate harsher punishment for the high-status wrongdoer. Additionally, we posited that the connection between the perpetrator's societal status and the suggested punishments would be mediated by the degree of intentionality ascribed to the offender.

3.1.1 Participants

A convenience-based cluster sampling of 148 college students was recruited from Beijing (60.1% females). Informed consent was obtained from all participants in the study. The participants were predominantly aged between 18 and 32 years (,$M_{age} = 21.84$ years, $SD = 2.41$). We collected information about their subjective social status (MacArthur Scale), enabling us to control for potential confounding variables related to social status and its influence on punishment recommendations. The questionare is paper-based and was gathered in classroom or laboratory.

3.1.2 Procedure

Each individual participant was invited to complete an anonymous survey that pertained to their social attitudes. Prior to commencing the survey, they were acquainted with the study protocols and gave their consent. Participants were subsequently assigned to the high or low target social status group through randomization. Afterward, they reviewed a hypothetical scenario and completed a manipulation check to assess their perception of the wrongdoer's social status. Additionally, they provided intentionality attributions, punishment recommendations, and demographic information. Upon the survey's completion, participants were debriefed and given tokens as a gesture of appreciation for taking part in the study.

3.1.3 Materials, measures and procedures

The participants in this current investigation were directed to review a theoretical scenario that depicted unlawful conduct, such as a hit-and-run incident. Specifically, *X hit a person while driving through an intersection one night, but did not stop to identify himself. Two days later, the police located X and notified them that the victim was still hospitalized and there was a possibility of permanent disability. X was subsequently accused of hit-and-run.* In order to manipulate social status, we varied the target's family background (i.e., second-generation rich or second-generation migrant worker) and occupation (i.e., high-status CEO of a family business with his own car, or low-status worker in a small construction company who drove part-time for the company). These manipulations were based on research about class structure in contemporary Chinese society (Lu, 2002).

To ensure that our manipulations were successful, participants were asked to rate the target's education level, occupation status, personal income, and societal status on a 7-point scale (1 = *very low*; 7 = *very high*). The four items were combined to generate a composite measure of social status by taking the average score ($\alpha = 0.89$).

Intentionality attributions were assessed using two items: "The hit-and-run driver did this on purpose" and "The hit-and-run driver did this because of negligence." Participants rated the likelihood of each attribution on a 7-point scale (1 = *absolutely impossible*, 7 = *absolutely possible*). The second item was reverse-coded so that higher scores indicated greater attribution of intentionality. The two items were averaged to create a composite measure of intentionality attributions ($\alpha = 0.63$).

Punishment Recommendations In order to assess punishment recommendations, we focused on retributive punishment as a better

indicator of "hate rich" attitudes [corresponding to active harm in Wu et al. (2018)]. The participants were requested to indicate their level of agreement with two items (e.g., "*X should be sued for hit-and-run*" and "*He should be subject to criminal liabilities according to law*") on a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*).

Overall, these measures were used to examine the effect of the target's social status on observers' attribution of responsibility and recommended severity of punishment for the hit-and-run incident.

3.2 Results

3.2.1 Manipulation check

Target in the "rich second generation business owner" condition was judged to have higher status than that in the "second generation migrant worker" condition ($M_{high} = 4.63$, $SD_{high} = 0.83$; $M_{low} = 2.58$, $SD_{low} = 0.63$; $t(146) = 16.76$, $p < 0.001$). This finding indicated that the manipulation of social status worked as intended.

3.2.2 Effects of social status on intentionality attributions and punishment recommendations

Table 1 and Figure 1 depict the descriptive statistics and correlation among the wrongdoer's status, intentionality attributions, and punishment recommendations. The observer's perception of the wrongdoer and their recommended punishment were influenced by the target status group they were assigned to. Consistent with our hypothesis, participants rated significantly higher on intentionality attributions when the hit-and-run driver was described as a high ($M_{high} = 3.93$, $SD_{high} = 0.94$), as opposed to low ($M_{low} = 3.49$, $SD_{low} = 0.98$)

TABLE 1 Descriptive statistics of key variables in Study 1.

	M	*SD*	Wrongdoer's status	Intentionality attributions
Wrongdoer's status	–	–		
Intentionality attributions	3.73	0.98	0.23**	
Punishment severity	4.82	1.02	0.28**	0.21**

**$p < 0.01$.

FIGURE 1
Status differences in intentionality attributions, and punishment severity.
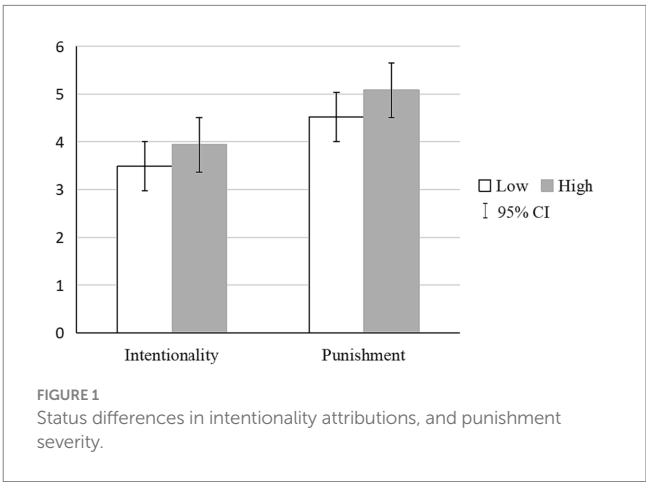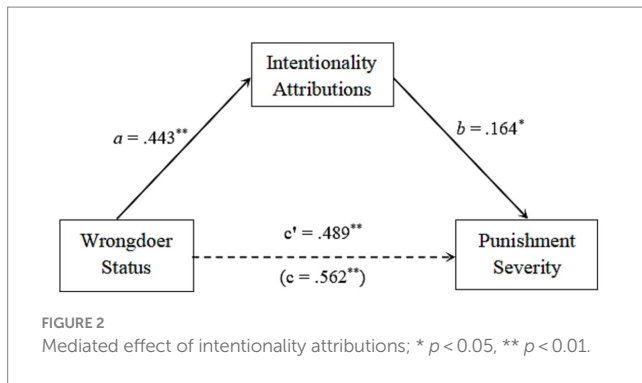
status individual (t (146) = 2.80, p = 0.006, d = 0.46). Moreover, the participants suggested a more severe punishment when the target was portrayed as a high-status (M_{high} = 5.08, SD_{high} = 0.96) individual as compared to when they were depicted as a low-status (M_{low} = 4.52, SD_{low} = 1.01) individual (t (146) = 3.47, p = 0.001, d = 0.57).

3.2.3 The mediation role of intentionality attributions

Structural equation modeling, specifically path analysis, was utilized to examine the hypothesis that intentionality attributions acted as a mediator between the wrongdoer's social status and the recommended punishment. Mediation is considered to exist if the magnitude of the indirect effect is significantly different from zero (Shrout and Bolger, 2002). In this case, The indirect effect is the impact of the wrongdoer's social status on the recommended punishment through the mediator of intentionality attributions (path a * path b in Figure 2).

To estimate the magnitude of the indirect effect, we employed the AMOS 28.0 bootstrap technique. This procedure entailed randomly generating 5,000 subsamples with replacement from the complete dataset (Stine, 1989; Efron and Tibshirani, 1993). The indirect impact in the original dataset was calculated as 0.443*0.164 = 0.073. The bootstrap procedure produced a 95% confidence interval for the indirect effect that did not include zero, ranging from 0.003 to 0.202. This finding implies that the indirect effect was significantly different from zero.

In addition, the direct effect of the wrongdoer's social status on the recommended punishment was also statistically significant (direct effect was 0.003). As a result, it appears that intentionality attributions played a partial role in mediating the association between the wrongdoer's social status and the suggested punishment. High-status wrongdoers were perceived to have more intentionality for the same transgression as opposed to low-status wrongdoers. Furthermore, we found that as participants perceived the target's transgression to be more intentional, their agreement with recommending more severe punishment also increased. The indirect impact accounted for 13% of the total effect, suggesting that the intentionality mediating process explained 13% of the effect of social status on punishment.

3.3 Discussion

Consistent with prior research (Dong et al., 2022), The findings of Study 1 revealed that participants suggested more severe punishments and associated greater intentionality with the same wrongdoing when

the perpetrator was identified as high-status, in comparison to low-status. Additionally, the outcomes showed that intentionality attributions played a partial mediating role in the relationship between social status and punishment severity, but only explained 13% of the total effect. Controlling for this mediator, the status effect on punishment recommendations was still significant. Therefore, other mechanisms (mediators) may explain why high-status wrongdoers tend to be punished more severely.

According to the Social Cognitive Model and BIAS theory, emotions may play a stronger role in shaping behavior than cognitive variables (Wu et al., 2018). Previous research has suggested that envy, as a typical affective response towards high-status individuals (characterized as high competence but low warmth), may elicit harmful behavior (Wu et al., 2018). Thus, in Study 2, we assessed participants' feelings of envy towards individuals like the target, in addition to intentionality attributions. In our study, we examined the potential mediating effects of both envy and intentionality attributions on punishment recommendations, and explored whether envy (as an affective mediator) can better explain the effect of social status on punishment severity than attributions of intentionality (as a cognitive mediator).

Another interesting question that remains to be explored is whether the evidence of hatred towards the rich found in Study 1 can be extended to high-status individuals who achieve their status through personal efforts, such as education and hard work. Some second-generation wealthy individuals are known for their extravagant lifestyle and have become targets of social hatred towards the rich. However, do people hold similar attitudes towards individuals who attain high status through their own efforts? To address this issue, Study 2 distinguished between second-generation and self-made rich individuals and compared the punishment recommendations for these two groups.

4 Study 2: mediation role of envy emotions

4.1 Methods

Study 2 extended study 1 in two ways. Firstly, we included envy emotions in our analysis to investigate the mechanisms that underlie the association between social status and punishment recommendations. We hypothesized that individuals would experience greater envy towards high-status wrongdoers, which would predict more severe punishment recommendations. Given the prominent role of emotions in shaping behavior (Jones et al., 2017; Wu et al., 2018; Radke et al., 2020), we anticipated that envy emotions would offer a more compelling explanation for the phenomenon of hatred towards the rich than intentionality attributions (as a cognitive mediator). Secondly, we conducted an exploratory analysis to distinguish between second-generation (e.g., inherited wealth) and self-made (e.g., education, occupation) high-status individuals.

4.1.1 Participants

A convenience-based cluster sampling of 116 college students was recruited from Beijing (57.8% females). Informed consent was obtained from all participants in the study. The participants were predominantly aged between 18 and 43 years (M_{age} = 21.16 years, SD = 3.15). We collected information about their subjective social

status (MacArthur Scale), enabling us to control for potential confounding variables related to social status and its influence on punishment recommendations. The questionare is paper-based and was gathered in classroom or laboratory.

4.1.2 Materials, measures and procedures

We manipulated the target status by providing different information regarding their family background, education, and occupation. In the present study, we operationalized high-status in two distinct ways. In the second-generation high status condition (ascribed), we described the target as a wealthy individual who inherited their wealth and held the CEO position in their family business. In the self-made high status condition (achieved), we described the target as a highly educated individual who had earned a master's degree from a prestigious university and was currently working as a department manager in a large corporation. In contrast, in the low-status condition, the target was described as a second-generation migrant worker who worked as a driver for a small company.

Envy emotions to measure envy emotions, we asked participants to rate, on a 6-point scale, the extent to which they experienced feelings of envy and jealousy towards individuals similar to the target described in each scenario. Envy and jealousy are typical emotions people feel towards the envied group (e.g., the rich), according to SCM and BIAS theory (Wu et al., 2018). After participants responded to the envy and jealousy items, we summed their scores on both items and calculated an average score. Higher scores on this measure indicated that participants experienced more intense envy emotions towards individuals similar to the target described in each scenario ($\alpha = 0.73$).

Punishment recommendations was assessed using the same item ($\alpha = 0.85$) from Study 1.

Perceived target status and intention attributions were using the same items as in Study 1 (αs = 0.83 and 0.73 for perceived status and intentionality, respectively).

The protocols in Study 2 were analogous to those in Study 1. Participants were assigned randomly to one of three conditions that varied by target status (second-generation high, self-made high, and low status). After reading the same hypothetical scenario used in Study 1, the participants filled out an array of measures to evaluate their perceptions of the target's status, their experience of envy emotions towards individuals similar to the target, their attributions of intentionality, their severity recommendations for punishment, and their demographic information.

4.2 Results

4.2.1 Manipulation check

Participants gave relatively high ratings on perceived social status to target in the second-generation high ($M = 4.37$, $SD = 0.57$) status and self-made high ($M = 4.63$, $SD = 0.58$) status conditions, compared to that in the low ($M = 2.70$, $SD = 0.55$) status condition ($F (2, 113) = 127.76$, $p < 0.001$, $\eta^2 = 0.69$). Bonferroni *post hoc* tests revealed that the differences in perceived status were statistically significant between each of the high-status conditions and the low-status condition ($p < 0.001$), whereas the perceived status score did not differ between the second-generation high and self-made high status groups. These

findings indicated that the manipulation of social status worked as intended.

4.2.2 Envy emotions, intentionality attributions, and punishment recommendations for wrongdoers of different status

Table 2 showcases the descriptive statistics for the wrongdoer's status, envy emotions, attributions of intentionality, and punishment recommendations. The results indicated that wrongdoer's status, envy emotions, and punishment recommendations were positively correlated with each other. Furthermore, intentionality attributions were positively correlated with punishment recommendations, but not significantly correlated with the other two variables. Importantly, the correlation between envy and punishment recommendations was found to be stronger than the correlation between attributions of intentionality and punishment recommendations.

Next, we tested status differences in envy emotions, intentionality attributions, and punishment recommendations using one-way ANOVA. Participants reported significantly more envy emotions toward the high ($M_{ascribed} = 3.36$, $SD_{ascribed} = 0.81$; $M_{achieved} = 3.24$, $SD_{achieved} = 0.90$) status group compared to that toward the low ($M_{low} = 1.65$, $SD_{low} = 0.67$) status group ($F (2, 113) = 52.46$, $p < 0.001$, $\eta^2 = 0.48$). *Post hoc* test (LSD) showed that the difference in envy emotions was significant between each of the high status condition and the low status condition ($M_{ascribed} = 3.36 > M_{low} = 1.65$, $p < 0.001$; $M_{achieved} = 3.24 > M_{low} = 1.65$, $p < 0.001$). People's envy emotions toward the two high status groups (i.e., ascribed and achieved) did not differ significantly ($M_{ascribed} = 3.36 > M_{achieved} = 3.24$, $p = 0.49$).

However, intentionality attributions toward different status groups (i.e., high and low) did not differ significantly ($M_{ascribed} = 3.90$, $SD_{ascribed} = 1.01$; $M_{achieved} = 3.69$, $SD_{achieved} = 0.98$; $M_{low} = 3.53$, $SD_{low} = 0.86$), missing variance with Welch test method (Welch $F (2, 113) = 2.15$, $p = 0.15$). *Post hoc* test (Games-Howell) showed that the status differences in intentionality attributions were not significant between each of the high status condition and the low status condition ($M_{ascribed} = 3.90 > M_{achieved} = 3.69$, $p = 0.32$; $M_{ascribed} = 3.90 > M_{low} = 3.53$, $p = 0.09$; $M_{achieved} = 3.69 > M_{low} = 3.53$, $p = 0.47$).

For punishment severity, participants endorsed more severe punishment when the wrongdoer was in the high ($M_{ascribed} = 5.19$, $SD_{ascribed} = 0.93$; $M_{achieved} = 4.91$, $SD_{achieved} = 0.99$) status condition than when the target was in the low ($M_{low} = 3.92$, $SD_{low} = 0.93$) status condition ($F (2, 113) = 21.32$, $p < 0.001$, $\eta^2 = 0.22$). *Post hoc* test (LSD) showed that the difference in punishment recommendations was significant between each of the high status condition and the low status condition ($M_{ascribed} = 5.19 > M_{low} = 3.92$, $p < 0.001$; $M_{achieved} = 4.91 > M_{low} = 3.92$, $p < 0.001$). People's punishment recommendations toward the two high status groups (i.e., ascribed and achieved) did not differ significantly ($M_{ascribed} = 5.19 > M_{achieved} = 4.91$, $p = 0.17$).

Table 2 and Figure 3 illustrate the mean scores of envy emotions, attributions of intentionality, and punishment recommendations for each status condition.

4.2.3 Testing mediated effects of envy emotions and intentionality attributions

Following Beardsley's (2017) recommendations, we utilized path analysis to examine the parallel mediator model presented in Figure 4. Since there were no significant differences in envy emotions, intentionality attributions, and punishment recommendations scores

TABLE 2 Descriptive statistics of key variables in Study 2.

	M	*SD*	Wrongdoer's status	Envy emotions	Intentionality attributions
Wrongdoer's status	–	–			
Envy emotions	2.79	1.11	0.62**		
Intentionality attributions	3.71	0.96	0.16**	0.12**	
Punishment severity	4.70	1.03	0.50**	0.50**	0.22**

**$p < 0.01$.

FIGURE 3
Status differences in envy emotions, intentionality attributions, and punishment severity.
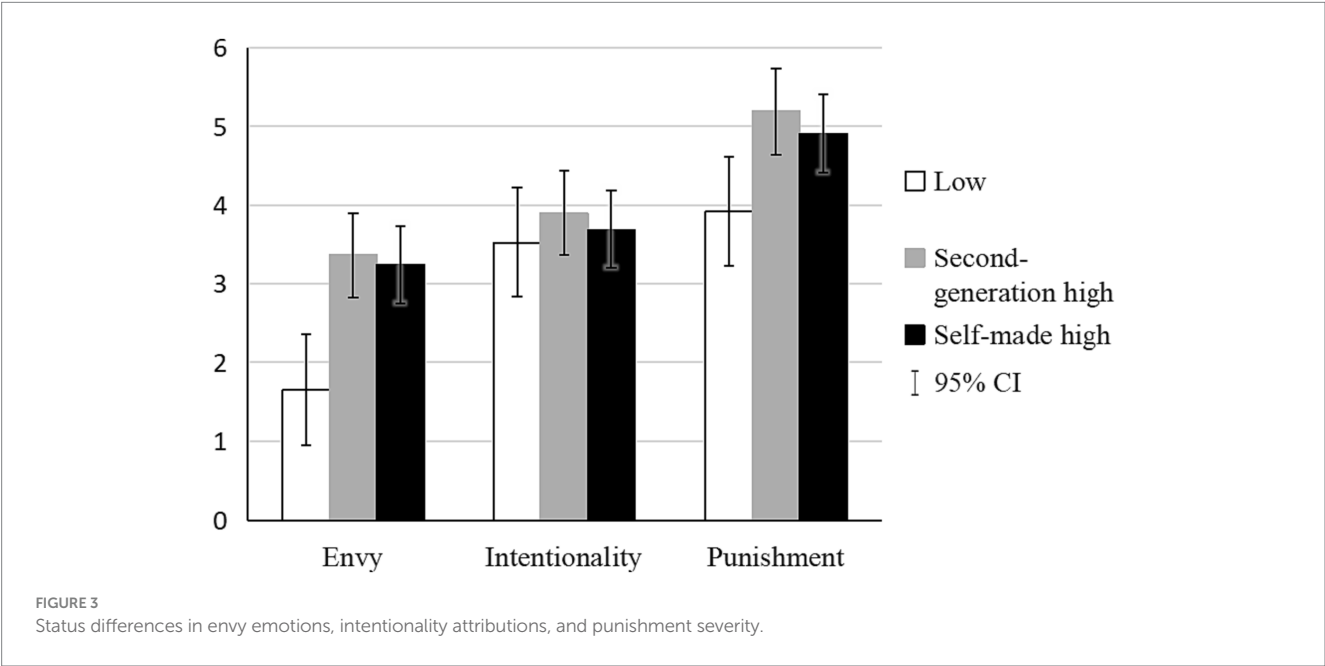
between the second-generation and self-made high status conditions, we combined these groups to create a single high status group for the mediation analysis.

Similarly to Study 1, we performed a bootstrap procedure using 5,000 random samples with replacement from the entire sample to assess the size of indirect effects in the model. As displayed in Figure 4, the overall effect of the wrongdoer's status on punishment recommendations was 0.629, and the 95% confidence interval (CI) did not encompass zero (0.424, 0.841), indicating a significant total effect. This significant total effect was distributed over three paths, including one direct and two indirect paths, in the proposed model.

The indirect effect through envy emotions was 0.842*0.277 = 0.233, and the 95% C.I. of this indirect effect excluded zero (0.072, 0.396), signifying a significant mediation effect through envy emotions. This indirect pathway explained 37% of the basic relationship between wrongdoer's status and punishment recommendations.

However, the indirect effect through intentionality attributions was 0.187*0.147 = 0.027, and the 95% C.I. of this indirect effect included zero (−0.003, 0.120), indicating a non-significant indirect effect through attributions of intentionality. This indirect pathway accounted for only 4% of the basic status-punishment linkage.

Based on the findings of the study, we can conclude that only envy emotions partially mediated the connection between status and punishment recommendations when both envy emotions and

intentionality attributions were simultaneously taken into account in the path model.

4.3 Discussion

Study 2 replicated the finding from Study 1 that high status wrongdoers were punished more severely. This study has contributed to advancing the understanding of the psychology of prejudice by highlighting the mediating role of envy emotions in the relationship between status and punishment recommendations. Specifically, people felt more envy towards the high status group, which resulted in harsher punishment for high status transgressors. Consistent with our hypothesis, envy emotions explained a larger proportion of the basic relationship between status and punishment recommendation than did intentionality attributions. In previous research on intentionality attribution and punishment recommendations, the context and status of the target were often ignored (Jordan et al., 2018; Daumeyer et al., 2019; Picó et al., 2020; Yao and Siegel, 2021). As a result, observers' recommendations for the severity of punishment were based solely on the behavioral act itself, with intentionality being seen as an integral part of the behavior. This study used a punishment paradigm and introduced contextual variables such as the wrongdoer's status. When the behavior is consistent, observers' recommendations for punishment severity are more influenced by the wrongdoer's
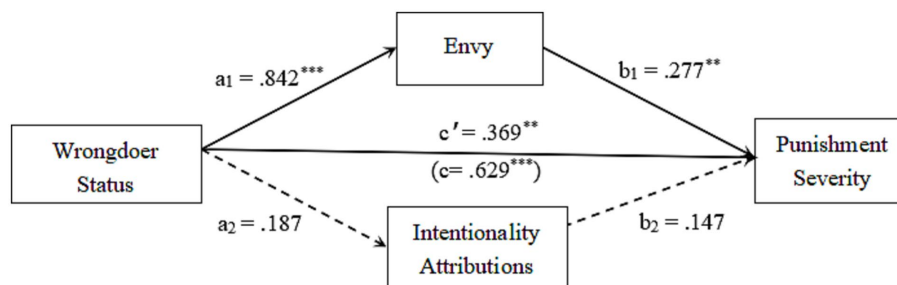
FIGURE 4
Testing mediated effects of envy emotions & intentionality attributions. ** $p < 0.01$, *** $p < 0.001$.

identity information. Study 2 introduced the emotion of jealousy, and the different status of the target led to differences in the level of jealousy, which influenced the impact of intentionality attribution on punishment severity.

Moreover, Study 2 revealed an interesting pattern: people tend to recommend more punishment on high status wrongdoers regardless of whether their social status was second-generation or self-made. This begs the question: is "hatred of the rich" a robust and universal phenomenon? Additionally, are there individual difference variables that may influence people's punitive judgments of high versus low status wrongdoers? Previous research on belief in a just world (BJW) suggests that this may be the case, as BJW functions as a psychological buffer that helps individuals maintain mental health and trust in the fairness of the world (Nudelman and Nadler, 2017).

In Study 3, we examined belief in a just world (BJW) as a moderator of the effect of status on punishment recommendations. Specifically, we hypothesized that individuals with lower levels of belief in a just world would recommend more severe punishment when the wrongdoer was of high status compared to low status. Conversely, individuals with higher levels of belief in a just world would endorse similar punishment for the identical transgression, regardless of the wrongdoer's status.

5 Study 3: moderation effect of BJW

The objective of Study 3 was to replicate prior investigations on "anti-rich sentiment" and explore the moderating function of belief in a just world (BJW) in the association between social status and punishment recommendations. Findings from an experiment utilizing hypothetical scenarios and a BJW assessment revealed that people with diminished BJW advocated for more severe punishment for high-status perpetrators. These findings provide insight into the impact of BJW on social justice and intergroup relations.

5.1 Methods

5.1.1 Participants

A convenience-based cluster sampling of 116 college students was recruited from Beijing (59.2% females). Informed consent was obtained from all participants in the study. The participants were predominantly aged between 19 and 36 years ($M_{age} = 22.50$ years, $SD = 2.84$). We collected information about their subjective social

status (MacArthur Scale), enabling us to control for potential confounding variables related to social status and its influence on punishment recommendations. The questionare is paper-based and was gathered in classroom or laboratory.

5.1.2 Materials, measures and procedure

In keeping with Study 1, the hypothetical hit-and-run scenario and manipulation of target status were employed.

Punishment recommendation was assessed using the same item ($\alpha = 0.85$) from Study 1.

Perceived target status was measured using the same four items ($\alpha = 0.85$) from Studies 1 and 2.

Belief in a Just world was evaluated using an eight-item BJW for others (BJW-O) subscale from the BJW scale (Lipkusa et al., 1996). A sample item was "I feel that people get what they deserve." Response options ranged from 1 (*strongly disagree*) to 6 (*strongly agree*), where higher scores reflected stronger BJW ($\alpha = 0.73$).

The procedure of Study 3 was similar to that of Study 1. Participants first read the hypothetical scenario, then filled out items on perceived status of the wrongdoer, punishment recommendations, BJW and demographic information.

5.2 Results

5.2.1 Manipulation check

Target in the "rich second generation business owner" condition was judged to have higher status than that in the "second generation manual worker" condition ($M_{high} = 4.45$, $SD_{high} = 0.59$; $M_{low} = 2.81$, $SD_{low} = 0.45$; $t\,(123) = 16.81$, $p < 0.001$). This finding indicated that the manipulation of social status worked as intended.

5.2.2 Punishment recommendations

Similar to Studies 1 and 2, participants suggested stricter penalties when the subject was portrayed as having high ($M_{high} = 4.90$, $SD_{high} = 0.92$) social status compared to when the subject was depicted as having low ($M_{low} = 4.17$, $SD_{low} = 1.07$) social status ($t\,(123) = 4.09$, $p < 0.001$, $d = 0.73$). As shonw in Table 3, wrongdoer's status, BJW scores and punishment recommendation significantly correlated with each other pairwise. Specifically, there was significant positive correlation between BJW scores and punishment recommendation ($r = 0.23$, $p = 0.007$). These outcomes suggest that individuals who possess stronger BJW are inclined to support more stringent punishments for wrongdoers.

5.2.3 Moderation effect of BJW

The present investigation examined the hypothesis of BJW's moderating impact on the association between perpetrator status and punishment recommendation. The regression technique outlined by Aiken et al. (1991) was utilized to test this hypothesis. At step 1 of the hierarchical regression model, participants' age and gender (0 = male) were entered as control variables. At step 2, main effects for wrongdoer status (0 = low, 1 = high) and BJW scores were included, and two-way interactions between social status and BJW scores were added at step 3. Table 4 presents the regression results. Multiple linear regression analysis was conducted utilizing SPSS, with punishment recommendation as the dependent variable, wrongdoer status as the independent variable, BJW as the moderator, and grade, age, and gender as control variables. The findings revealed that individuals with higher BJW scores administered comparable punishment to both high-status and low-status wrongdoers ($B = -0.861$, $t = -2.53$, $p = 0.013$, $\Delta R^2 = 0.046$). As displayed in Figure 5, the tendency to punish high status wrongdoers more severity weakened as the observer held stronger BJW. In fact, the status effect on punishment severity was only documented among people who scored low ($B = 1.17$, $p < 0.001$) and moderate ($B = 0.70$, $p < 0.001$) on the BJW scale, whereas for people who scored high on the BJW scale, the wrongdoer's status did not affect their judgment of punishment severity ($B = 0.23$, n.s.).

5.3 Discussion

The present study's results replicated those of Study 1 and Study 2, demonstrating that participants recommended more severe punishment for high status targets than for low status targets. Additional analyzes examining Belief in a Just World (BJW) unveiled a positive correlation between BJW and the severity of punishment, consistent with prior research on punitive attitudes toward offenders. Specifically, stronger beliefs in a just world were correlated with higher panel punitiveness, as reviewed in Harvey et al. (2014), indicating that observers who has high BJW may resort to stringent punishment as a strategy for justice restoration (Callan et al., 2017).

Specifically, only observers who has low BJW recommended more severe punishment for high status transgressors, while observers who has high BJW recommended punishment for the same unjust action regardless of the offender's status. This finding is in line with previous research demonstrating that BJW is a positive psychological resource that could serve to attenuate the negative impact of negative emotions (Bartholomaeus and Strelan, 2019). In line with our Study 2 finding that envy emotions lead to more severe punishment of the high status

wrongdoer, BJW may mute the envy emotions thus buffer the hatred to the rich.

In summary, these results provide insights into the influence of BJW on individuals' punitive attitudes towards wrongdoers of different social status. By demonstrating that higher BJW scores are linked to more equitable punishment recommendations for high-status and low-status wrongdoers, this study adds to the growing literature on the role of BJW in shaping responses to injustice.

6 General discussion

6.1 Contributions

The present studies contribute to the punishment literature, the stereotype content model (SCM), social status and the belief in a just world (BJW). They extend the literature on punishment by revealing the primacy of emotions in predicting punishment outcomes. By taking group-based envy into account, the present studies highlight two points that have been neglected by previous research on retributive justice. First, the process of punishment judgment is not only related to cognitive inference but also to emotional intuitions, as has been suggested by recent research on moral judgments (Hofmann et al., 2018). Indeed, the process of punishment judgment is not solely directed at the individual who committed the crime but also encompasses their group identity. Thus, blame is both cognitive and social, and is related to the public aspect of punishment, which involves expressing a judgment of blame to another person (Malle et al., 2014). At the same time, this study has expanded the punishment paradigm by adding information about the identity background of the target. During times of growing wealth inequality, feelings of resentment towards the rich may lead people to take social action to express their belief in retributive justice by punishing the rich more severely. This may be based on the expectation that many others will also impose similar punishments, reflecting intersubjective norms.

The present studies also extend the stereotype content model (SCM) by regarding active harm toward high-status groups as more severe punishment. Previous research in the SCM has typically focused on the evaluation of various groups whose information is reduced to their background label (Cuddy et al., 2018a,b,c). Recent research has begun to incorporate additional information into the evaluated group labels, such as misfortune (Dasborough and Harvey, 2017) and counter-stereotype information (Holoien and Fiske, 2013). However, until now, the SCM had not considered the effect of the misbehavior of target groups on the discriminatory behavior they receive. Our research suggests that the misbehavior of target groups may exacerbate discrimination due to the perceived cover of justice motives.

Based on the theoretical and empirical analyzes, our research offers intriguing applications for managing social mentality. Envy is detrimental, while belief in a just world is advantageous. To counteract the negative sentiment towards the wealthy, we should manage envious emotions directed at them and promote just world beliefs within our community. Firstly, the government must make sustained efforts to reduce the wealth gap, thereby alleviating the public's sense of relative deprivation. Secondly, a positive social mentality should be fostered by intensifying anti-corruption initiatives, which in turn, diminishes envy towards high-status groups. Lastly, individuals should

TABLE 3 Descriptive statistics of key variables in Study 3.

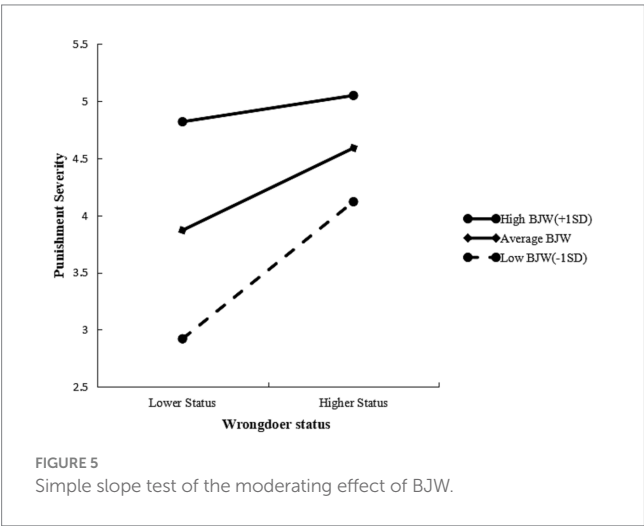|	M	SD	Wrongdoer's status	Punishment severity
Wrongdoer's status	–	–		
Punishment severity	4.59	1.06	0.39***	
BJW	3.54	0.56	0.20*	0.23**

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

TABLE 4 Testing moderated effects of BJW.

Predictor	Punishment severity			
	1st step	2nd step	3rd step	4th step
Age	−0.00***	−0.01***	−0.01***	0.00***
Gender	0.04***	0.09***	0.07***	0.01***
Grade	0.02***	0.01***	0.03***	0.07***
Wrongdoer status		0.84***	0.77***	3.76***
BJW			0.32***	1.69***
Wrongdoer status × BJW				−0.86***
Adjusted R^2	−0.03***	0.12***	0.14***	0.18***
ΔR^2	0.00***	0.15***	0.03***	0.05***

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

FIGURE 5
Simple slope test of the moderating effect of BJW.

be guided to establish long-term goals, concentrating on socially desirable objectives and methods, ultimately nurturing a belief in a just world.

Building upon previous research, this study extends our understanding on how the belief in a just world (BJW) motivated individuals to maintain justice (Bartholomaeus and Strelan, 2019). When faced with situations that threaten justice, people often take actions to maintain their BJW, such as denigrating innocent victims (Zhou and Guo, 2013). BJW can motivate individuals to act justly, as doing so further reinforces their BJW (Hafer and Sutton, 2016). Individuals with high BJW tend to exhibit equal punishment for the same misconduct by individuals of different status. However, for those with low BJW, their punitive behavior is more influenced by feelings of envy, resulting in more severe punishment for high-status individuals compared to low-status individuals.

6.2 Limitation and future directions

While these studies have several strengths, they also have some limitations that future research should address. First, only one item was used to measure intentionality attribution and punishment

severity. Second, the same crime behaviors were used to describe scenarios across all three studies. To enhance the generalizability of the current findings, future research should use more systematic and validated scales to measure the attribution of intentionality and the severity of punishment across diverse misbehavior scenarios.

Additionally, further research is needed to compare evaluations of ascribed high status targets with those of achieved high status targets, given their different levels of justice. Although the current research did not find a significant difference in the punishment received by these two groups, more investigation is necessary to fully explore this issue.

In the grand scheme of things, remedying these constraints could yield valuable revelations regarding the impact of intentionality attribution and status on punishment severity, thus deepening our comprehension of the social psychology of punishment.

7 Conclusion

The research presented in this article offers valuable insights into the psychological processes underlying the relationship between social status and punishment recommendations. By demonstrating that high-status individuals tend to receive more severe punishments than their low-status counterparts, regardless of whether their status was inherited or self-attained, the findings highlight the influence of status-based biases on people's judgments and decision-making processes.

In particular, Study 1 replicated the finding that intentionality attributions played a mediating role in participants' punishment recommendations. This suggests that people may be more inclined to attribute intentional wrongdoing to high-status individuals, possibly because they hold them to higher standards or expect them to be more aware of the consequences of their actions.

Study 2 expanded on this by revealing that envy emotions were a significant factor that partially mediated the relationship between status and punishment recommendations, while intentionality attributions did not play a mediating role in this case. This finding emphasizes the importance of emotional factors in shaping punishment decisions, particularly in situations involving social status. It suggests that people may be more likely to recommend harsher punishments for high-status wrongdoers because they feel envious of their position and success, which could lead to a desire for retribution or leveling the playing field.

Study 3 further elucidated the role of belief in a just world (BJW) in moderating the relationship between status and punishment recommendations. The observation that harsher punishment recommendations for high-status offenders were only found among those who did not endorse BJW implies that individuals who believe the world is fair may be more lenient towards high-status wrongdoers. This offers an intriguing perspective on how people's beliefs and values can influence their judgments and decisions concerning punishment for individuals of different social statuses.

In summary, this research provides important insights into the roles of social status, emotional factors, intentionality attributions, and belief in a just world in shaping punishment recommendations. These findings contribute to a deeper understanding of the psychological processes involved in evaluating the behavior of individuals with

varying social statuses and offer guidance on how to address potential biases and ensure fair treatment for all.

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 humans were approved by Research and Ethics Work Committee of the Department of Psychology, Renmin University of China. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

Author contributions

ZL and FC prepared the publishable manuscript and performed empirical analysis. YW collected the data. QW added valuable

theoretical and methodological insights based on his knowledge and expertise regarding the topic. 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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Blame framing and prior knowledge influence moral judgments for people involved in the Tulsa Race Massacre among a combined Oklahoma and UK sample

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Introduction: How an event is framed impacts how people judge the morality of those involved, but prior knowledge can influence information processing about an event, which also can impact moral judgments. The current study explored how blame framing and self-reported prior knowledge of a historical act of racial violence, labeled as Riot, Massacre, or Event, impacted individual's cumulative moral judgments regarding the groups involved in the Tulsa Race Massacre (Black Tulsans, the Tulsa Police, and White Tulsans).

Methods and results: This study was collected in two cohorts including undergraduates attending the University of Oklahoma and individuals living in the United Kingdom. Participants were randomly assigned to a blame framing condition, read a factual summary of what happened in Tulsa in 1921, and then responded to various moral judgment items about each group. Individuals without prior knowledge had higher average Likert ratings (more blame) toward Black Tulsans and lower average Likert ratings (less blame) toward White Tulsans and the Tulsa Police compared to participants with prior knowledge. This finding was largest when what participants read was framed as a Massacre rather than a Riot or Event. We also found participants with prior knowledge significantly differed in how they made moral judgments across target groups; those with prior knowledge had lower average Likert ratings (less blame) for Black Tulsans and higher average Likert ratings (more blame) for White Tulsans on items pertaining to causal responsibility, intentionality, and punishment compared to participants without prior knowledge.

Discussion: Findings suggest that the effect of blame framing on moral judgments is dependent on prior knowledge. Implications for how people interpret both historical and new events involving harmful consequences are discussed.

KEYWORDS

Tulsa Race Massacre, blame framing, prior knowledge, moral cognition, mixed-effects modeling

1 Introduction

The Tulsa Race Massacre is one of the worst acts of racial violence in American history (Halliburton, 1972). The Tulsa Race Massacre was referred to as the Tulsa Race Riot until 2018, when the name was changed by the *Oklahoma State Tulsa Race Massacre Commission* because "Massacre" more accurately represented what happened and, according to Oklahoma State Senator Kevin Matthews, was an effort to, "heal wounds of people here now" (2 News Oklahoma, 2018; Krehbiel, 2018). The eponymous reframing underscores the necessity to accurately label caused-harm in a way that is consistent with the nature of the event. To emphasize veracity and justice, it is important that the framing of historical events reflect the experiences of the people involved. The purpose of this study was to explore how the blame framing of what happened in Tulsa, and people's prior knowledge of the Tulsa Race Massacre, influenced judgment ratings about the moral behavior of the groups involved.

Our study manipulated whether a summary referred to what happened in Tulsa in 1921 as a Riot, a Massacre, or an Event. The manipulation of the name change afforded insights into how individuals make judgments of causal responsibility, blame punishment, and related moral judgments. The framing and semantics of the label, "Riot", signaled that Black Tulsans were responsible for what happened and should result in participants attributing negative moral judgments toward Black Tulsans and positive moral judgments toward White Tulsans. Conversely, framing what happened as a "Massacre" should result in participants attributing positive judgments toward Black Tulsans and negative judgments toward White Tulsans. The use of the label "Event", which is ambiguous in terms of meaning, served as a control condition of neutral responsibility. Moreover, whenever we mention predictions about White Tulsans, we expect something similar to happen regarding moral judgments toward the police.

Many people from the United States likely have some prior knowledge about, and thus, a better understanding of, the Tulsa Race Massacre, compared to people from other parts of the world. Having prior knowledge likely gives individuals a better understanding of what happened in Tulsa and who was responsible. Prior knowledge should result in more negative judgments toward White Tulsans and lower negative judgments of Black Tulsans. In contrast, not having prior knowledge might result in people having lower negative judgments of White Tulsans and more negative judgments toward Black Tulsans.

We collected and combined data for this study across two cohorts, one consisting of undergraduates from the University of Oklahoma (OU) and one sampled from the general public in the United Kingdom (UK). We collected self-reported prior knowledge regarding the events in Tulsa as a dichotomous variable (i.e., yes or no) and reasoned that most individuals from OU possessed some prior knowledge while a majority of the UK sample would not. In sum, we explored how the framing of the label, and an individual's knowledge of the events in Tulsa, influenced responses on moral judgment items (i.e., causal responsibility, blame, punishment, etc.) for the groups involved (i.e., Black Tulsans, Tulsa Police, and White Tulsans).

1.1 Blame framing

People's judgments or explicit attitudes about the moral evaluations individuals make about people (including oneself), places, things, and ideas are driven by their emotions and unique experiences rather than solely by cognitive reasoning. Cognitive neuroscience research supports the claim that reasoning is important, but preconscious emotional processes also influence moral judgments (Greene and Haidt, 2002). A moral judgment of an agent's intention to commit harm is related to how they attribute blame for the harm. Some research has shown that moral judgments of harmful consequences are more sensitive to changes in valence than intentionality (Guglielmo and Malle, 2010). The context of a scenario also can impact moral judgments for harmful consequences (Cushman, 2008; Schein, 2020) and the cognitive process by which individuals assign blame (Malle et al., 2014; Guglielmo, 2015). We were primarily interested in exploring whether the connotation of the label (i.e., Riot, Massacre, and Event) influenced how blame and related moral judgments were assigned to each group.

Research has found that subtle changes in how news events are described can influence perceptions and how people make causal attributions. For example, Knobloch-Westerwick et al. (2008) found that when an individual's or organization's actions are described using active voice, that individual or organization is perceived as having caused the event relative to when passive voice is used. In a second study, they found that the more causal responsibility participants assigned to an agent, the less support there was for that agent's view. Fausey and Boroditsky (2010) examined how agentive and non-agentive language can shape how people attribute blame and financial liability to individuals involved in accidents. They found that participants attributed greater blame and harsher punishment when using agentive language compared to non-agentive language, even when people had established knowledge and visual information about the event. Although our study does not manipulate verbalizations, but rather only the label, of the Tulsa Race Massacre, this research demonstrates how subtle changes in language can influence blame and punishment.

In contrast, different results were possible in the present study because it involved a historical account of racial violence that resulted in negative consequences. In general, participants should be motivated to control their biases and should have more positive moral judgments for Black Tulsans compared to White Tulsans. We expected this motivation would be enhanced for participants with prior knowledge. This research also suggests that those that read about what happened framed as a Massacre should make more negative judgments toward White Tulsans and less negative judgments toward Black Tulsans, compared to if what happened was framed as a Riot. Furthermore, we expected less negative judgments for Black Tulsans when what happened was framed as a Massacre and more negative judgments for Black Tulsans when what happened was framed as a Riot.

1.2 Prior knowledge

Moral judgments also may vary depending on prior knowledge about what happened. Individuals actively search for meaning and construct inferences from a story based on their prior knowledge

and unique experiences (Pressley and Afflerbach, 2012). Social and moral knowledge are guided by an individual's schema – cognitive templates or general knowledge structures – and their attitudes (e.g., likeability) toward people, places, and events, which also influence information processing (Bartlett, 1932; Narvaez, 2002; Carlston, 2010). People extract the important ideas from a story, which vary depending on one's perspective (e.g., whether one is told prior to reading a story that they are a robber or a homebuyer who is walking through a house (Anderson and Pichert, 1978). This suggests that whether an event is framed as a Massacre (which implies violence against Black Tulsans) or a Riot (which implies that both groups share blame) should have implications for what one takes from reading about the events in Tulsa, especially for those with limited to no prior knowledge.

Zaromb et al. (2014) had young and older adults recall the 10 most important events that occurred during the Civil War, World War II, and the Iraq War, as well as evaluate the emotional valence, relative importance, and their level of knowledge for each event. They found that collective memories differ depending on whether the events are experienced personally or learned from historical sources. By extension, this suggests that those with prior knowledge for the Tulsa Race Massacre should possess a stronger mental representation for what happened and should make judgments that are consistent with a collective memory for the events in Tulsa. Overall, this should result in more blame toward White Tulsans and less blame toward Black Tulsans for individuals with prior knowledge compared to those without prior knowledge.

1.3 Purpose

The present study examined whether the labeling of a historical event, together with prior knowledge about the event, influenced moral judgments (e.g., causal responsibility, blame, punishment) about the parties involved. In our analysis, we first examined the highest-ordered interactions that included either blame framing and prior knowledge. These higher order interactions were then explored in a progressive stepwise fashion. Our research questions and hypotheses included:

A Do the average Likert ratings for target groups by blame framing differ across prior knowledge (Framing x Knowledge × Target)?

Hypothesis 1: We expected to see differences in prior knowledge across blame framing whereby participants without prior knowledge make higher average Likert ratings for Black Tulsans and lower average Likert ratings for White Tulsans across blame framing compared to individuals with prior knowledge, but we expected this difference to be largest when what happened was framed as a Massacre.

B Do average Likert ratings for target groups differ across blame framing (Framing × Target)?

Hypothesis 2: Massacre is expected to result in lower average Likert ratings for Black Tulsans and higher average Likert ratings for White Tulsans compared to Riot.

C Do average Likert ratings judgments for target groups differ across individuals' prior knowledge of the Tulsa Race Massacre (Knowledge × Target)?

Hypothesis 3: Individuals with prior knowledge should have higher average Likert ratings for White Tulsans and lower average Likert ratings for Black Tulsans.

2 Methods

2.1 Participants

Data for this experiment were collected in two cohorts, an OU sample and a UK sample. Participants in the OU sample received course credit in exchange for completing the study whereas participants in the United Kingdom sample received compensation for completing the study. The OU cohort was comprised of 190 undergraduate participants and were collected from February 2021 to March 2021 using Qualtrics. From the 190 responses, six were dropped due to incomplete cases or selecting not to allow the experimenters to use their data, resulting in 184 (108 Females, 74 Males, and 2 Prefer not to answer; majority were aged 18–24) total responses. Responses from 347 participants living in the United Kingdom were collected in August 2021 using SurveyMonkey. Out of 347 completed cases, 225 were removed due to incomplete cases, selecting not to allow the experimenters to use their data, and/ or completing the study quicker than 5 min or slower than 90 min. This resulted in a sample of 122 (67 Female, 54 Male, 1 Prefer not to answer; over half were less than 45 years of age) for final analyses. Ethnicity was only recorded in the United Kingdom sample (Asian/ Asian British = 14 (11%), Black/African/Caribbean/Black British = 6 (5%), Mixed/Multiple ethnicities = 6 (5%), White = 94 (77%), Prefer not to answer = 1 (<1%), Other = 1 (<1%)). The combined dataset resulted in a total of 306 participants. The study protocol was approved by the University of Oklahoma's Institutional Review Board and all participants received informed consent before beginning the study. All methods were performed under the relevant guidelines and regulations.

2.2 Experimental design

This study included a one-way between-subjects experimental design with three levels of framing condition. Participants were randomly assigned to only one framing condition. Data collection occurred across two cohorts.

2.3 Materials

This study consisted of a summary article and a series of judgment items. A factual summary of the Tulsa Race Massacre was used as the article stimulus. The authors developed and adapted the stimulus from Ellsworth (2001, 2010) into an 827-word factual summary. The summary differed in the blame framing the participants received:

Riot, Massacre, or Event. The title of the article summary included the manipulated blame framing and the label was presented a total of nine times within the summary (see Supplementary information). Nine judgment items related to various dimensions of moral cognition including causal responsibility, blame, and punishment (e.g., rate the degree of blame attributable to each group, see Supplementary information for full list of judgment items), were developed for the study. These judgment items were adapted from previous articles testing for how culpability and intentionality are associated with judgments of blame and punishment (see Alicke, 2000; Knobe, 2003; Cushman, 2008). Participants in Oklahoma completed the study on Qualtrics and participants in the United Kingdom completed the study on SurveyMonkey.

2.4 Procedure

Participants in both study cohorts completed the study online and were instructed to read a summary article and respond to judgment items about what they read. After reading the summary, participants answered nine judgment items, all items presented in the same order. Participants also completed demographic items before being debriefed on the nature of the study and the history of the Tulsa Race Massacre. Finally, participants completed items on whether they had prior knowledge of the Tulsa Race Massacre (Yes or No) and whether to allow the researchers to use their data (Yes or No).

Both cohorts completed the study in a conceptually identical manner but differed in three ways. First, the OU sample instructed participants they would have 6.5 min to read the article and included a countdown timer that automatically advanced the study once the timer ended. This was done to try to control participants' learning of the material. The UK sample did not have these time constraints (due to software limitations) and participants could advance when ready. Second, the UK sample included a condensed set of judgment items compared to the OU sample. The current analysis included only those judgment items that were in both samples. Third, participants in the UK sample received payment through SurveyMonkey for completing the study while participants in the OU study received course credit.

3 Results

Data were prepared for a mixed-effects regression analysis. Fixed-effect predictors included: the blame framing participants were assigned to, the judgment items, target group, whether the participant had prior knowledge of the event, and the participant's cohort. The participant was included as a random effect. The predictors of interest included the assigned blame framing, which was coded as a 3-level factor (Riot, Massacre, Event), the judgment items (e.g., rate the degree of blame attributable to each group's behavior), and the target group (Black Tulsans, Police Officers, and White Tulsans), as well as prior knowledge, which was coded as a dichotomous factor (Yes/No). All models controlled for the participant's cohort.

3.1 Descriptive statistics

Most participants in the OU cohort ($n = 184$) had prior knowledge about the Tulsa Race Massacre before taking the study ($n = 137$, 74%)

whereas few participants in the UK cohort ($n = 122$) had prior knowledge ($n = 33$, 27%). When collapsed across cohorts, there was a relatively similar number of participants with prior knowledge and no prior knowledge across blame framing. No significant difference in the proportions of sample size at each factor level of cohort, blame framing, and prior knowledge were observed.

3.2 Mixed-effects models

Mixed effect models were employed in order to control for Type-1 error; further correction for Type-1 errors was made when parceling these interactions. Mixed-effects models explored differences in the Likert rating (1–7) participants attributed across nine judgment items, target group, blame framing, and participant's prior knowledge. The primary dependent variable for the mixed-effects results described is the average Likert rating participants assigned across all items. Higher Likert ratings indicated more negative judgments (i.e., degree of causal responsibility, blame, punishment) attributed to a target group across other factors while lower Likert ratings indicated less negative judgments.

We explored the relationship between these variables in our full model by first examining the highest-order interaction effects containing blame framing and/or prior knowledge and then subsequently explored these relationships in reduced models. Up to all 4-way interactions were included in the model (see Supplementary information for full model ANOVA table):

$$\text{Average Judgment} \sim \begin{pmatrix} \text{Framing} + \text{Knowledge} \\ + \text{Target} + \text{Item} \end{pmatrix} \\ 4 + \text{Cohort} + (1|\text{Subject}).$$

Interactions were explored in a hierarchical fashion: the highest order interaction was explored, and then separate models were trained within conditions of the highest order interaction. Multiple comparison tests employed false discovery rate (FDR) correction (Benjamini and Hochberg, 1995).

3.2.1 Blame framing × prior knowledge × target group

Results for our full model found a three-way interaction for Blame Framing × Prior Knowledge × Target Group ($F(4, 7,800) = 3.46$, $p = 0.01$) indicating the average Likert rating for target groups differed by blame framing and prior knowledge. This effect appeared to be driven by those without prior knowledge, who had higher average Likert ratings (i.e., more blame) for Black Tulsans ($t(299) = 2.23$, $p < 0.05$) and lower average Likert ratings for White Tulsans ($t(299) = -3.06$, $p < 0.005$) and the Police ($t(299) = -3.22$, $p < 0.005$; see Figure 1). However, these trends were moderated by the blame framing a participant was assigned. For example, individuals with prior knowledge in the Riot framing yielded higher average Likert ratings for Black Tulsans compared to the Event and Massacre framing ($t(167) = 2.04$, $p < 0.05$), while for those without knowledge the Massacre framing yielded a significantly higher average Likert rating than the Event and Riot framing ($t(133) = 2.06$, $p < 0.05$). Similar discrepancies were observed when participants were assigning ratings to the Police; when participants possessed prior knowledge the Event framing received significantly higher ratings than the Massacre and
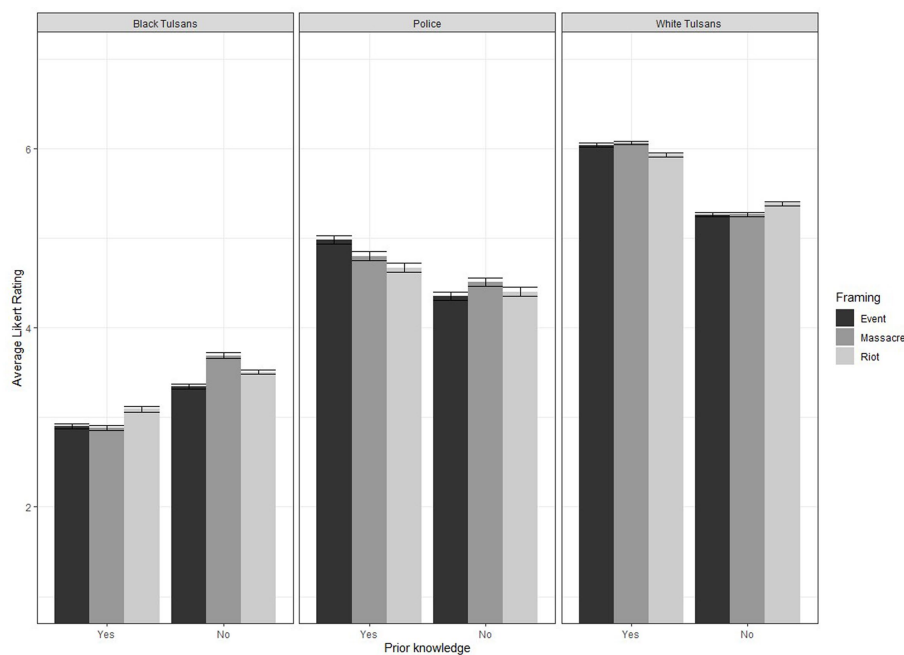
FIGURE 1
Three-way interaction of framing × prior knowledge × target group on average Likert rating. Black bars indicate average Likert ratings for Event blame framing, dark gray bars indicate average Likert ratings for Massacre blame framing, and light gray bars indicate average Likert ratings for Riot blame framing. Error bars indicate standard error of the mean.

Riot conditions ($t(167) = 2.70$, $p < 0.01$), while no significant differences were observed across conditions when participants did not have prior knowledge. Finally, no significant differences were observed across conditions, within prior knowledge groups, for the White Tulsans. This finding provides support for our hypothesis that participants without prior knowledge will make more negative judgments for Black Tulsans and less negative judgments for White Tulsans across framing compared to individuals with prior knowledge. This finding also was largest in the Massacre framing.
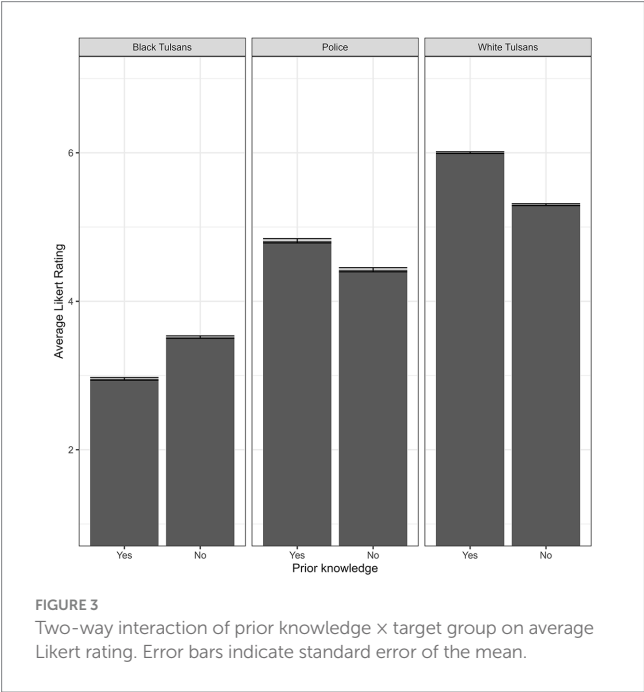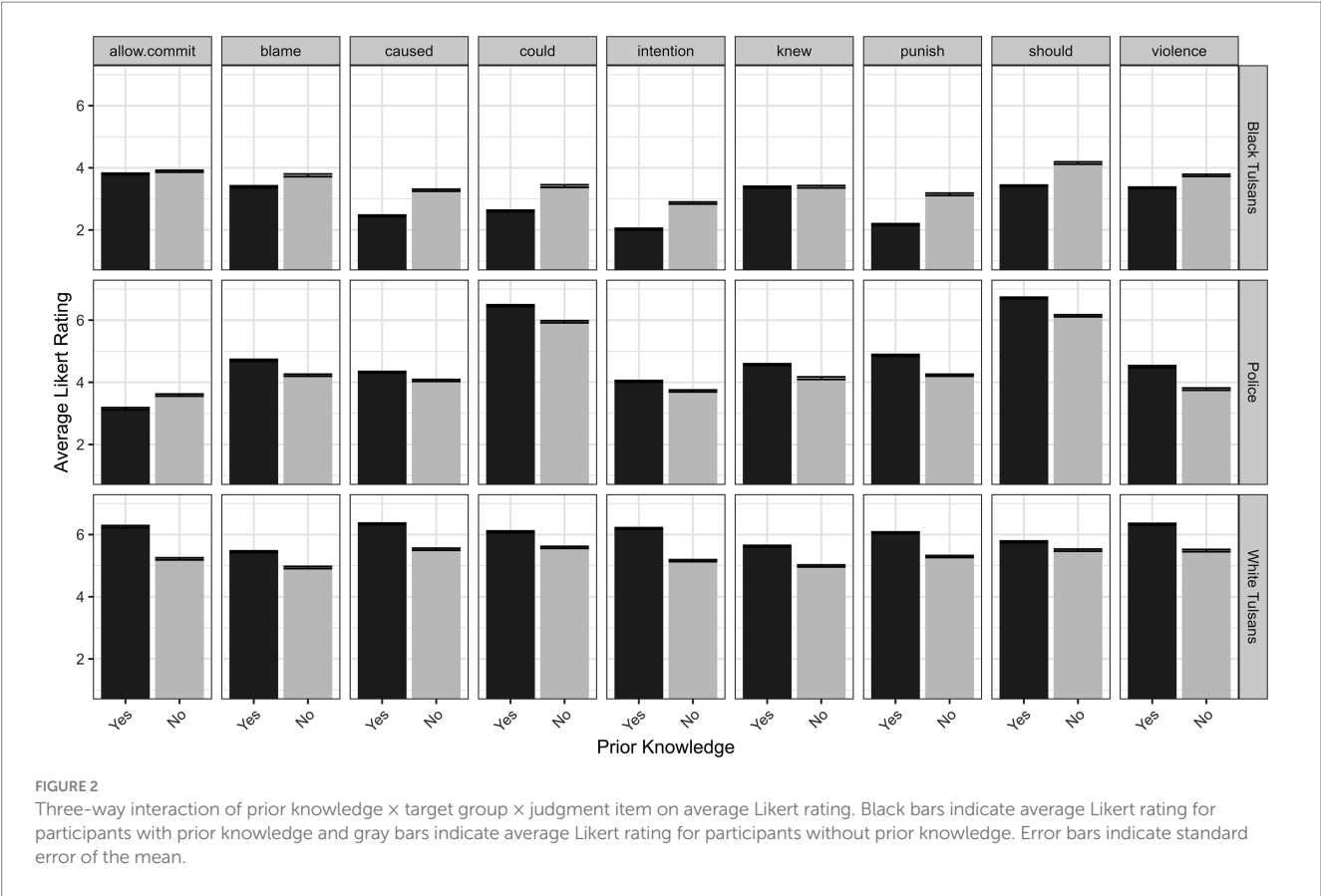
3.2.2 Prior knowledge × target group × judgment item

A significant effect between Prior Knowledge × Target Group × Judgment Item ($F(16, 7,800) = 3.98$, $p < 0.005$) was also observed indicating that average ratings for judgment items differed across target group and prior knowledge. Accordingly, target differences were explored within each judgment item across prior knowledge groups. For Black Tulsans, five of the nine items displayed significant prior knowledge differences in which participants with prior knowledge had lower average Likert ratings of causal responsibility ($\beta_{PK=NO} = 0.93$, $t(301) = 4.71$, $q < 0.005$), intentionality ($\beta_{PK=NO} = 0.93$, $t(301) = 4.90$, $q < 0.005$), punishment ($\beta_{PK=NO} = 1.00$, $t(301) = 4.74$, $q < 0.005$), should have prevented ($\beta_{PK=NO} = 0.90$, $t(301) = 3.50$, $q < 0.005$), and could have prevented ($\beta_{PK=NO} = 0.92$, $t(301) = 3.96$, $q < 0.005$), compared to participants without prior knowledge. For White Tulsans, seven out of the nine items displayed significant prior knowledge differences in which participants with prior knowledge had higher average Likert ratings for violence committed ($\beta_{PK=NO} = -0.60$, $t(301) = -3.63$, $q < 0.005$), causal responsibility ($\beta_{PK=NO} = -0.66$, $t(301) = -4.07$, $q < 0.005$), intentionality ($\beta_{PK=NO} = -0.95$, $t(301) = -4.82$, $q < 0.005$), punishment ($\beta_{PK=NO} = -0.71$, $t(301) = -3.40$, $q < 0.05$), allowed rather

than committed what happened ($\beta_{PK=NO} = -0.57$, $t(301) = -2.76$, $q < 0.05$), knew what would happen ($\beta_{PK=NO} = -0.64$, $t(301) = -2.91$, $q < 0.05$), and could have prevented what happened ($\beta_{PK=NO} = -0.40$, $t(301) = -2.24$, $q < 0.05$), compared to participants without prior knowledge. For Police, three of the nine items displayed significant prior knowledge differences in which participants with prior knowledge had higher average Likert ratings for violence committed ($\beta_{PK=NO} = -0.62$, $t(301) = -3.00$, $q < 0.05$), punishment ($\beta_{PK=NO} = -0.70$, $t(301) = -3.01$, $q < 0.05$), and should have prevented what happened ($\beta_{PK=NO} = -0.30$, $t(301) = -2.10$, $q < 0.05$), compared to participants without prior knowledge (see Figure 2).

We further examined this relationship by exploring two-way interactions between prior knowledge and the target group. We found a significant two-way interaction, ($F(2, 7,800) = 117$, $p < 0.05$). Pairwise comparisons further examined differences between prior knowledge within each target group. Individuals with prior knowledge made significantly higher average Likert ratings for White Tulsans ($\beta_{PK=NO} = -0.61$, $t(301) = -4.90$, $q < 0.001$), and Tulsa Police ($\beta_{PK=NO} = -0.35$, $t(301) = -3.13$, $q < 0.005$); average Likert ratings were significantly lower for Black Tulsans ($\beta_{PK=NO} = 0.64$, $t(301) = 4.58$, $q < 0.001$) compared to individuals without prior knowledge (see Figure 3).

4 Discussion

The purpose of this study was to examine the effect that blame framing and prior knowledge has on an individual's moral judgments for the groups involved in the Tulsa Race Massacre. Participants were randomly assigned to a blame framing condition (Event, Massacre, or Riot), read a summary of the events that took place in Tulsa in 1921,

FIGURE 2
Three-way interaction of prior knowledge × target group × judgment item on average Likert rating. Black bars indicate average Likert rating for participants with prior knowledge and gray bars indicate average Likert rating for participants without prior knowledge. Error bars indicate standard error of the mean.

FIGURE 3
Two-way interaction of prior knowledge × target group on average Likert rating. Error bars indicate standard error of the mean.

and then made moral judgments (including causal responsibility, blame, and punishment) about the groups involved (Black Tulsans, Tulsa Police, White Tulsans). We used an Oklahoma and international sample to examine how participants made moral judgments about the groups involved in this historical act of racial violence. We analyzed

our data using mixed effects models, including fixed and random effects, to control individual variation in attributional patterns and to explore moral judgments across the cohort samples.

We found support for our main hypothesis showing a significant interaction between blame framing, prior knowledge, and target groups. Participants with prior knowledge attributed less negative judgments toward Black Tulsans and more negative judgments toward White Tulsans compared to participants without prior knowledge; these differences were larger in the Massacre framing relative to the Riot framing but were not statistically supported when using FDR corrections. Moreover, participants with prior knowledge showed greater variation in their average judgments to the target groups across blame framing compared to participants without knowledge. This interaction suggests that how people make moral judgments about the target groups across blame framing depends on their prior knowledge. Whereas the hypothesis that framing and target group interact on average Likert rating was not statistically supported, this interaction was potentially masked by prior knowledge.

Our results also showed a significant interaction for prior knowledge, target groups, and the judgment items on average Likert ratings. Participants with prior knowledge made less negative judgments for Black Tulsans on items involving the degree of causal responsibility, intentionality, punishment, should have prevented what happened, and could have prevented what happened, compared to participants without prior knowledge. Participants with prior knowledge had higher average Likert ratings for White Tulsans on items involving the degree of violence, intentionality, and allowing versus committing what happened, compared to participants without prior knowledge. This suggests that having prior knowledge affords

individuals a different representation of what transpired and allows them to make moral judgments in a manner that is more consistent with what really happened. We also found participants with prior knowledge made significantly higher average Likert ratings for White Tulsans and Tulsa Police, and lower average Likert ratings for Black Tulsans, compared to individuals without prior knowledge. This supported our hypothesis that judgments for target groups differ by prior knowledge. These findings suggest that how participants morally judged the behavior of the target groups involved in the Tulsa Race Massacre depended on whether participants had prior knowledge. The fact that moral judgments for target groups was driven by participants' prior knowledge has implications for how an individual's understanding of an event influences their judgments about who caused harmful consequences, who is blameworthy, and who deserves punishment. Having adequate prior knowledge is relevant for learning and understanding harmful consequences, which, in the case of our study, impacted moral judgments.

Our analyses found that the effect of blame framing on moral judgments for target groups depended on participant's prior knowledge for the Tulsa Race Massacre. Our study also has the added benefit of examining how people make moral judgments about a historical act of racial violence while also informing participants about the Tulsa Race Massacre. Nonetheless, this study has limitations that must be considered. First, we measured prior knowledge of the Tulsa Race Massacre as a dichotomous variable rather than in a continuous manner, and we did not collect details on the sources and accuracy of information acquired. Nevertheless, this single self-reported item clearly captures something relevant about an individual's subjective knowledge for the Tulsa Race Massacre. However, if we had collected greater information on when, what, and how participants acquired knowledge about the Tulsa Race Massacre, we could have further explored whether there were differences in moral judgments for participants who had recently learned about the Tulsa Race Massacre in the media (e.g., HBO's Watchmen) compared to those that acquired the knowledge in their primary or secondary education.

We collected data from a UK sample with the assumption that a large proportion of participants would not have prior knowledge about the Tulsa Race Massacre. However, there are likely differences between the two cohorts we did not account for in terms of factors such as age, education, and prior experiences with people of color, as well as, cultural factors such as perceptions regarding Black Lives Matter (BLM) and Diversity, Equity, and Inclusion (DEI). Although we did not seek to directly explore how individual and cultural factors impact how participants make moral judgments about the Tulsa Race Massacre, we may have confounded differences across prior knowledge. Research avenues that more directly examine how these factors influence moral judgments about social groups in various contexts would provide substantial benefits in better understanding how cultural and psychological processes influence moral judgments.

Second, our study did not find an effect of framing alone, suggesting that our manipulation may have been too subtle to produce a measurable effect on participants' moral judgments. In line with previous research, a framing effect was observed, but it was limited to participants with prior knowledge. This is consistent with a recent meta-analysis showing that valence framing does impact moral judgments, albeit the magnitude of this effect is small (Cohen's $d = 0.22$, McDonald et al., 2021). Our stimuli included a historical summary of the Tulsa Race Massacre without including any information about a groups' desire to behave in a particular manner.

If we had included additional language that aligned the caused harm with White Tulsan's desires to commit the act, then we might have seen larger effects of framing. Finally, although our study randomly assigned participants to framing conditions, it may have benefited by incorporating additional methodology to control for additional sources of variability (i.e., pre-post design, repeated measures, or modeling techniques). Despite these limitations, our study found evidence that blame framing and prior knowledge together influence participant's moral judgments for the Tulsa Race Massacre.

Future research should examine how people understand and make moral judgments about the groups involved in historical events. Conducting experiments to examine how labels influence moral judgments may be informative to institutions that need to decide how to label specific events, such as truth commissions (see Mosby and Millions, 2021). This study should encourage future researchers to examine knowledge with greater granularity. Conducting additional research to address these issues would not only be informative regarding how people understand and make judgments about well-known, historical events involving harmful consequences, but also about events yet to come.

5 Conclusion

This study explored the effects of blame framing on moral judgments for groups involved in the Tulsa Race Massacre; it also explored the effects of prior knowledge about the Tulsa Race Massacre among undergraduates at OU and people living in the UK. Results suggest that (a) responses to moral judgment items concerning each target group depended on participants' prior knowledge, and (b) the effect of framing for judgments toward target groups differed by prior knowledge.

Data availability statement

The datasets presented in this study can be found in online repositories. The names of the repository/repositories and accession number(s) can be found at: https://github.com/adrose/durhamTulsaProj.

Ethics statement

The studies involving humans were approved by University of Oklahoma, Institutional Review Board. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

Author contributions

JD: conceptualization, methodology, writing – original draft preparation, and analysis. AR: analysis, writing – review and editing. SG: conceptualization, supervision, writing – reviewing and editing. All authors contributed to the article and approved the submitted version.

Funding

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.2024.1251238/full#supplementary-material

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Collective action against corruption in Western and non-Western countries: cross-cultural implications of the Axiological-Identitary Collective Action Model

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People sometimes protest government corruption, yet our current understanding of why they do so is culturally constrained. Can we separate *pancultural* factors influencing people's willingness to protest government corruption from factors *culturally specific* to each socioecological context? Surprisingly little cross-cultural data exist on this important question. To fill this gap, we performed a cross-cultural test of the Axiological-Identitary Collective Action Model (AICAM) regarding the intention to protest against corruption. As a collective action framework, AICAM integrates three classical antecedents of collective action (injustice, efficacy, identity) with axiological variables (ideology and morality). A total sample of 2,316 participants from six countries (Nigeria, Russia, India, Spain, United States, Germany) in a multilevel analysis of AICAM predictions showed that the positive relationship of the intention to protest corruption with moral obligation, system-based anger, and national identification can be considered pancultural. In contrast, the relationships between system justification and perceived efficacy are culturally specific. System justification negatively predicted the intention to participate only in countries with high levels of wealth, while perceived efficacy positively predicted it only in countries perceived as less corrupt. These findings highlight the importance of accounting features of socioecology and separating pancultural from culture-specific effects in understanding collective action.

KEYWORDS

collective action, system justification, perceived efficacy, national identification, moral obligation, protest against political corruption

Introduction

People often worry or suffer from common issues that compel them to engage in collective action to achieve specific goals. Political corruption can be considered such a problem: People might attempt to address political corruption through collective action. It is noteworthy that corruption existed in most ancient city-states and continues to be present in modern democratic states today. According to the widely used definition proposed by Transparency International, *corruption* is the abuse of entrusted power for personal gain. Corruption can be considered as an illegal behavior or crime (i.e., 'illegal use of power'). As such, it generally involves the violation of social norms by, among others, being dishonest (see, e.g., Vilanova et al., 2022). In turn, corruption negatively affects almost all spheres of society and therefore has serious political and socio-economic consequences (from disruption of the mechanism of market competition and unfair redistribution of vital goods to a decrease in trust in society). In this work, we focus on *political* forms of corruption: The abuse of entrusted power by politicians and that may be attributed to both politicians and the political system itself by citizens (Amundsen, 2006).

Hopes to fight corruption are often pinned on civil society through the so-called strengthening democratic accountability of political institutes or democratic practices such as voting. However, attempts to reduce or contain corruption through these mechanisms often fail. Although in theory voters may 'punish' corruption by voting against those perceived to be corrupt, empirical research shows that political corruption reduces voting behavior in general (Caillier, 2010). Indeed, part of the reason corruptions persists is that citizens often refuse to use their right to participate in collective action against corruption, which can lead to the persistence of even deeply corrupt systems (Bauhr, 2017). For instance, cross-national comparative research demonstrates that less than half of citizens engaged in protest within the five past years (Kwak, 2022).

What differentiates those who protest political corruption from those who do not? In the present project, across different national settings, we aim to better understand how the drivers of collective action against political corruption works.

Conceptualization of collective action

The role of corruption in political engagement is complicated, presenting a notable paradox. On the one hand, it increases the level of protest activity approval. On the other hand, it leads to voter disappointment discouraging people from actually *taking* action in group contexts (Kostadinova, 2009; Školník, 2022). Given this complexity, it is important to directly address what we mean by the term *collective action*. At a broad level, collective action involves a behavior that is done by an individual jointly with other people as *representatives* of a group (Wright et al., 1990). This implies that any person performing an individual action as a representative of their group with group goals in mind could be involved in collective action (van Zomeren and Iyer, 2009). Nevertheless, these 'individual' collective actions (such as protest voting) have been defined separately from other collective behaviors as they may have different determinants (Otjes et al., 2020). In this work, we conceptualize

collective action as involvement in clear protest behaviors (Olson, 1971; Lichbach, 1994).

We do not consider behaviors such as voting in our work due to their ambiguous conceptual relationship to collective action targeted at political corruption. Voting behaviors are multifaceted and thus not always clearly related to collective actions aimed at widespread, systemic corruption. Further, it may be a false assumption (as in some of the countries in the present work) that citizens perceive the democratic voting system as fully functioning. As a result, it is more scientifically appropriate to focus on targeted protests as outcomes for collective actions related to political corruption. Our investigation employs the Axiological-Identitary Collective Action Model (AICAM; see Sabucedo et al., 2019) to examine the intention to participate in anti-corruption protests in varying levels of wealth and perceived corruption in six countries (Nigeria, Russia, India, Spain, United States, Germany).[1] Since attitudes toward corruption as all attitudes regarding injustices and dishonesty have moral roots, we believe that AICAM can be especially useful for this scope. We now turn our attention to this model.

AICAM: understanding the call to collective action

Sociologist Gamson (1992) identified three factors that facilitate, justify, and legitimize collective action: injustice, efficacy, and identity. Subsequently, these factors formed the basis of the Social Identity Model of Collective Action (SIMCA), which received meta-analytical support (see van Zomeren et al., 2008). As suggested by this model, if relative deprivation is the cognitive aspect of perceived injustice, then *anger* is its emotional side (so-called affective injustice), which is according to this meta-analysis better than the cognitive side in predicting participation in collective action. Another basic condition for collective action is *perceived efficacy:* an assessment of whether collective action will allow people to move toward their goal. Finally, *social identity* (and in particular politicized identity) is the component without which no collective action is possible. Social identity strengthens the perception of injustice and belief in the ability of the group to achieve change. In contrast, the Encapsulation Model of the Social Identity of Collective Action (EMSICA), developed as a variation of the SIMCA model, suggested that emotions of moral outrage shape new social identity that in the combination with collective efficacy beliefs may be led by social injustice. In other words, EMSICA considers social identity not in the form of a pre-existing group membership but forming by current shared beliefs and views (Thomas et al., 2012).

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1 We chose countries that embody distinct characteristics in three key dimensions: cultural orientation (individualistic vs. collectivistic), political regime (democratic vs. authoritarian), and economic status (developing vs. developed). This selection method ensures a comprehensive analysis across varied global contexts. Additionally, the choice of these countries aligns with the Inglehart-Welzel Cultural World Map, where each country represents a unique zone on the map. Notably, India is included as a significant outlier, offering a unique perspective from the West and South Asia zone.

AICAM does not abandon these validated classical antecedents of collective action but suggests a more comprehensive picture, which includes both perceived factors (perceived injustice, perceived efficacy) and internal motives (ideology, moral obligation, social identity). Indeed, AICAM combines utilitarian and moral explanations for collective action and suggests an explanation of the socio-psychological mechanism of collective action that, in general, is not so much connected with the evaluation of reality but more rooted deeply in mindsets (e.g., values). This enhancement improves the simpler previous explanation, which suggests: (1) protesters must identify with a social group, (2) be aware that their group has suffered injustice, and (3) believe that their collective efforts can lead to social change. Although such findings doubtlessly are of predictive value, an understanding of the consequences of ideological factors is clearly lacking (Jost et al., 2017). As people do not always rationally weigh all consequences, it is crucial to include factors predicting why people engage even in likely unsuccessful collective action despite the expectable costs.

Advantages of the axiological–identitary path

The point is that *ideology* guides the interpretation of a given situation, providing criteria for evaluating what is (un)fair and who should be blamed. In addition, taking ideology and the values it offers into account in the context of collective action also requires considering the will power to act in accordance with the goals that the ideology deems to be fair and right. That is, it is important to take into account *moral obligation* to act according to what you believe in, thereby overcoming the costs associated with achieving the goals set (Sabucedo et al., 2019). This may be especially relevant for the motivation to participate in protests in non-democratic societies, due to the risk of reprisals (Ayanian et al., 2021). Thus, another advantage of AICAM is that the model differentiates beliefs or convictions from the moral obligation to act in accordance with them. The level of feeling obliged will vary between people who may hold the same beliefs and situations. For a truly comprehensive understanding of the motivations of protesters, it is important not only to understand who they are (*their identity*), but also what they stand for, as well as how far they are willing to go to achieve their goal (*their axiology*; Jost et al., 2017; Sabucedo et al., 2019; Agostini and van Zomeren, 2021).

Ideology

In previous testing of AICAM, the ideology construct was operationalized as ideological self-placement (left or right). Of course, ideology is more complicated than "left or right," but ideological self-placement reflects the main aspects of ideology (political values, party identification, and political attitudes and opinions; Sabucedo et al., 2019). In this study, we decided to consider *system justification* instead of ideological self-placement. Collective action itself can be defined as any joint effort to challenge or maintain the status quo regardless of their group status (Solak et al., 2021). At the same time, in the most general terms, according to System Justification Theory, people are motivated to maintain the status quo, i.e., system justification is to defend, justify, accept, rationalize, and support the social, political, and economic systems in which they live and work (Jost et al., 2017). This motivation is rooted in (1) the existential need to reduce threat

and anxiety; (2) the epistemic need to see social reality as coherent, structured, and ordered, and (3) the relational need to see it in harmony with other people (Jost, 2015; Friesen et al., 2019). An important consequence of system justification is the so-called 'palliative effect' when system justification (1) increases subjective well-being, positive affect, life satisfaction, subjective sense of security and (2) reduces cognitive dissonance, moral outrage, anger, frustration, helplessness (Solak et al., 2021).

Considering system justification also can be useful because it does not involve any certain political views, but rather just measures attitudes toward current system. This is important because ideological placement does not play the same role in all societies. We suggest that in non-democratic states the potential for collective actions such as protest may be predicted more precisely by assessing how individuals justify the system, as there may not be defined political beliefs in countries where a political pluralistic system does not exist. Moreover, recent studies found that both left- and right-wing authoritarianism strongly connect with attitudes related to bolstering the status-quo such as dogmatism and prejudice (Conway et al., 2020). Therefore, at least for our aim, system justification may be more helpful for predicting collective action: System justification, by restraining the awakening of the dynamics of a sense of injustice (see Gaucher and Jost, 2011), can act as a key factor undermining the protest against unfair social phenomena, such as corruption. Indeed, a negative relationship has already been found between system justification and the perception of nation-level corruption, which was explained by the fact that, to some extent, corruption can be perceived by people as not being a threat (see Tan et al., 2016).

Importantly, System Justification Theory also suggests that believing a system is just may also make it *more* likely for people to protest. There is reason to believe that system justification is positively related to perceived efficacy, since a certain level of faith in the system is necessary to believe that the system will respond to individual efforts to "reform it from within," and this should encourage rather than discourage political activity (Cichocka and Jost, 2014). This relationship can be quite stable. It has been shown that system justification is positively associated with perceived efficacy in both high-status and low-status groups (Osborne et al., 2019). In addition, system-based emotions should predict whether collective action is likely and what form it will take; decreased anger at the system can mediate the relationship between system justification and collective action (Jost et al., 2017). Finally, in a sense, a moral obligation is a consequence of the very existence of a certain belief system (Sabucedo et al., 2019; Dono et al., 2021), and since system justification refers to the achievement of desired goals, it is reasonable to assume that it reduces the intention to act for their achievement, i.e., prevents the actualization of the moral obligation. On the other hand, as argued above, it is important from the point of view of System Justification Theory to recognize that the decision to participate in the protest is an inherently ideological decision, since it includes, among other things, a critical assessment of the (il)legitimacy of the existing regime (Badaan et al., 2018). Thus, system justification can undermine the intention to protest even among political activists with a firmly shaped politicized identity (Jost et al., 2017).

Identity

According to AICAM, ideology and identity are distal antecedents of collective action, which are related to each other bidirectionally,

since group identity becomes more rooted due to sharing attitudes and values, whereas ideology is strengthened by the acting of groups maintaining certain ideas (Sabucedo et al., 2019). Similarly, like utilizing system justification instead of ideological self-placement, we decided to use *national identification* instead of other politicized identities, because it may better reflect attitudes toward corruption in most countries. Indeed, in the most general terms, national identity describes belonging to a political community that has institutions, rights, and obligations for all its members (Milfont et al., 2020), which may be significant for people to consider the fight against corruption in their country as part of their national identity. Thus, to the extent that national identification is central and meaningful to people, their intention to engage in collective action can represent a significant effort to strengthen the position of their nation (Stathi et al., 2019), especially considering that political corruption affects the whole society, not just any particular group.

Moreover, national identification can be deeply involved in all other factors of the intention to participate, since relevant social identity is the psychological basis for the implementation of any collective action (van Zomeren et al., 2011). Also, national identification can act as a predictor of justifying belief systems (Vargas-Salfate et al., 2018). Thus, while the role of system justification in relation to the perceived efficacy in the intention to protest against corruption in a country is more complex, a more or less straightforward overall picture emerges for the role of national identification.

Current study

In this study, we cross-culturally test the AICAM predictions regarding collective action against corruption. First, AICAM proposes two distal (national identification, system justification) and three proximal (system-based anger, moral obligation, perceived efficacy) antecedents of the intention to participate in protests against corruption. Our scope is to understand how this model works without being tied to certain political views (left or right), so we replaced the variable ideology with a system-level factor. Hence, we suggest a framework that involves epistemic, existential, and relational needs incorporating condemnation or affirmation of the political status quo. The suggested conceptual model is displayed on Figure 1.

According to the previous literature, all components of the model should be positively related to collective action, except for system justification, which should show a negative relationship (H1). In this study, we aim to test to what extent these predictions hold in different countries with varying level of wealth and corruption, since these pancultural expectations may not take into account the socio-cultural contexts of different societies. Some differences between countries previously have been found. For example, national identification is higher in less developed countries, whereas system justification is higher in more developed countries (Vargas-Salfate et al., 2018; see also Caricati and Lorenzi-Cioldi, 2012). It is not entirely clear what the implications of this might be for participating in protests. Second, what are the implications of the interplay of country characteristics and individual differences in motivation regarding the intention to engage in collective action? These elements could explain the peculiarities of the role of system justification and perceived efficacy in collective action, as mentioned above.

Regarding country characteristics and AICAM, we were interested in the wealth of the country and the level of perceived corruption, which are reflected in the level of GDP *per capita* (GDP) and the Corruption Perceptions Index (CPI). First, rich countries have more developed democratic institutions that can keep levels of corruption in check (e.g., Inglehart and Welzel, 2005).[2] Second, a country's wealth strengthens system justification (see Caricati and Lorenzi-Cioldi, 2012). Finally, cross-level interaction has shown that system justification is negatively related to collective action in more individualistic countries only (see De Cristofaro et al., 2022), whereas individualism is known to be positively associated with the wealth of the country and the level of democracy (e.g., Hofstede, 2001). In addition, it is assumed that the CPI score of countries may arise from a cycle of self-fulfilling prophecies regarding opportunities for economic development, and itself significantly affects the perception of corruption by their inhabitants (Warren and Laufer, 2009). In other words, if a country emerges as having a high CPI score (which stands for low corruption) it will subsequently be seen as less corrupted which in turn will cause greater economic development and vice versa. Also, for protesters who are subject to repression (that is more common in non-democratic societies), perceived efficacy may not be the typical driver to protest (Ayanian et al., 2021).

Thus, we expected that these nations' characteristics interact with system justification and perceived efficacy in such a way that system justification negatively predicts the intention to participate in the protest, whereas perceived efficacy positively predicts it but only in rich countries (H2). That is, the motivation to justify the system can only be observed in rich and democratic countries, when it is possible to believe in the strength and effectiveness of institutions that counteract corruption, the same belief can be relevant for the perceived efficacy that, if necessary, inhabitants of rich democracies can easily achieve their goal. In addition, both the negative association for system justification and the positive association for perceived efficacy in the overall model will be weakened by the level of perceived corruption in the country (H3),[3] since the perception of the inhabitants of their country as deeply corrupt can undermine both faith in the legitimacy of the system in general, and faith in their own strength to change something. However, they may be comforted by the belief in a just world, i.e., the expectation that, since the world is just, everything will turn out well in the long run and, therefore, no immediate action is required to eliminate the injustice of the system (see

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2   While acknowledging the potential for corruption in both democratic and autocratic systems, it is critical to emphasize the mechanisms in democracies that are designed to combat corruption. Democratic accountability, one of the key facets of democratic governance, allows for checks and balances on the actions of public officials. This transparency and accountability can often deter corrupt practices and provide means for prosecution when corruption is detected (Doorenspleet, 2019). Therefore, while not being immune to corruption, democracies possess inherent structures to counteract and reduce corruption, reinforcing the relevance of exploring this relationship in our study.

3   In our statistical model, this suggests a reverse direction of the moderator's effect; because—as noted above—higher CPI scores stand for less perception of corruption in the country.
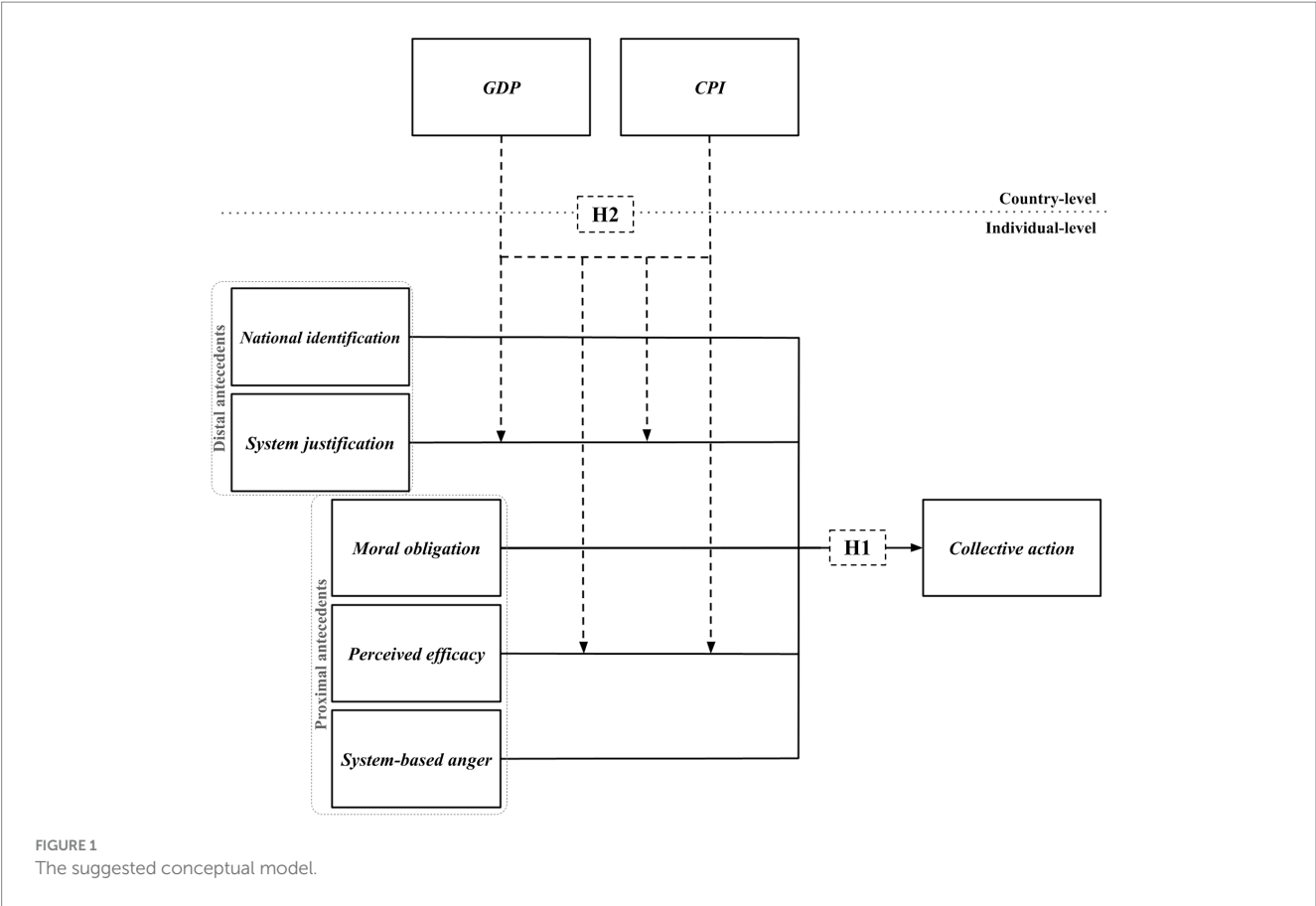
FIGURE 1
The suggested conceptual model.

TABLE 1 Description of the samples from six countries (N = 2,316).

	Year	Language	CPI	GDP	N	% of men	M_age (SD), range	% of students
Nigeria	2019	English	26	2229.9	247	73	29.6 (7.7), 18–59	41
Russia	2018	Russian	28	11287.4	402	42	26.8 (9.4), 16–65	39
India	2019	English	41	2100.8	417	82	28.1 (7.5), 17–64	37
Spain	2018	Spanish	58	30349.8	441	51	31.5 (10.0), 17–69	41
USA	2018	English	71	63064.4	409	49	35.1 (12.0), 18–71	29
Germany	2018	German	80	47950.2	400	45	28.2 (9.8), 18–75	48

CPI, Corruption Perceptions Index; GDP, GDP *per capita*, current US$.

Stroebe, 2013). The current empirical study tested these hypotheses in the context of six countries that differ quite widely in terms of wealth and levels of perceived corruption. Doing so allowed us to importantly tease apart pancultural effects from culture-specific effects.

Method

Participants

The total sample consisted of 2,316 participants from six countries (Nigeria, Russia, India, Spain, United States, Germany), among which there were 44% women and 56% men aged 16 to 75 ($M = 29.9$, $SD = 10.0$); 39% of them were students. A description of participants by country is available in Table 1.

Procedure

Data was collected online in 2018 (for Russia, Spain, USA, Germany) and 2019 (for Nigeria, India) using the Amazon MTurk platform (for Spain, USA) and Clickworker (for Nigeria, India, Russia, Germany). Such platforms with crowdsourced subject pools are recognized as suitable for conducting cross-cultural research (see, e.g., Paolacci et al., 2010; Aguinis et al., 2021). Participants were remunerated approximately 1 US$ for completing the questionnaire; they had to fill out a questionnaire and read the instructions, which included basic information about the research problem, information about confidentiality, as well as contact details of the researchers.

Power analysis

To determine the required sample size for linear mixed models, a statistical power analysis was performed in R using the sjstats package

(Lüdecke et al., 2021). This study focused on an effect size of $r = 0.10$, which according to Cohen's cutoffs refers to a small effect size, with alpha = 0.05 and power = 0.80 recommended. In total, the minimum required number of recruited participants, according to the results of the calculations, was 787 people, 131 people per country.

Measures

The questionnaire was presented to participants from each country in the respective state language (see Table 1). The measures that had not previously been translated from English into Russian, Spanish, and German were translated and adapted by native speakers and tested in subsequent statistical analyses to determine reliability (internal consistency) and factor structure. Moreover, we tested measurement invariance with the alignment method, when effect sizes of approximate invariance include a sufficiently high R^2 value this indicates a high degree of measurement invariance (see Asparouhov and Muthén, 2014). Average R^2 values for loadings and intercepts in the results were higher than 0.90, showing that the measurement model had a sufficient level of metric and scalar invariance for our cross-cultural comparisons. In addition, each questionnaire also contained questions about sociodemographic characteristics (gender, age, student status). All measures had a 7-point Likert scale for response (from 1 = *strongly disagree* to 7 = *strongly agree*).

Dependent variable

Collective action

Two items were aimed at assessing the intention to participate in anti-corruption protests ($\alpha_{\text{Nigeria}} = 0.82$; $\alpha_{\text{Russia}} = 0.91$; $\alpha_{\text{India}} = 0.79$; $\alpha_{\text{Spain}} = 0.81$; $\alpha_{\text{USA}} = 0.86$; $\alpha_{\text{Germany}} = 0.83$; adapted from Tausch et al., 2011). Example: "I am ready to support protests (e.g., rallies, marches) against corruption in […]" (M_{Nigeria} [SD] = 5.70 [1.47]; M_{Russia} [SD] = 4.54 [1.77]; M_{India} [SD] = 5.66 [1.47]; M_{Spain} [SD] = 5.47 [1.40]; M_{USA} [SD] = 4.41 [1.71]; M_{Germany} [SD] = 4.13 [1.49]).

Independent variables

National identification

Two items were aimed at assessing national identification ($\alpha_{\text{Nigeria}} = 0.79$; $\alpha_{\text{Russia}} = 0.74$; $\alpha_{\text{India}} = 0.86$; $\alpha_{\text{Spain}} = 0.82$; $\alpha_{\text{USA}} = 0.92$; $\alpha_{\text{Germany}} = 0.88$; Verkuyten and Yildiz, 2007; Grigoryev et al., 2022). Example: "I feel like a part of […] society" (M_{Nigeria} [SD] = 6.25 [1.28]; M_{Russia} [SD] = 4.84 [1.55]; M_{India} [SD] = 6.31 [1.41]; M_{Spain} [SD] = 5.74 [1.51]; M_{USA} [SD] = 5.46 [2.01]; M_{Germany} [SD] = 4.29 [1.52]).

System justification

Eight items were aimed at assessing system justification ($\omega_{\text{Nigeria}} = 0.83$; $\omega_{\text{Russia}} = 0.90$; $\omega_{\text{India}} = 0.81$; $\omega_{\text{Spain}} = 0.86$; $\omega_{\text{USA}} = 0.92$; $\omega_{\text{Germany}} = 0.89$; Ullrich and Cohrs, 2007; Jost, 2015; Grigoryev et al., 2022). Example: "Most policies serve the greater good" (M_{Nigeria} [SD] = 3.63 [0.97]; M_{Russia} [SD] = 2.46 [1.15]; M_{India} [SD] = 4.35 [1.19]; M_{Spain} [SD] = 3.27 [0.98]; M_{USA} [SD] = 4.08 [1.18]; M_{Germany} [SD] = 3.85 [1.04]).

Moral obligation

Five items were aimed at assessing moral obligation ($\omega_{\text{Nigeria}} = 0.84$; $\omega_{\text{Russia}} = 0.92$; $\omega_{\text{India}} = 0.89$; $\omega_{\text{Spain}} = 0.92$; $\omega_{\text{USA}} = 0.91$; $\omega_{\text{Germany}} = 0.92$;

Sabucedo et al., 2018). Example: "To mobilize against corruption in […] constitutes a moral obligation to oneself" (M_{Nigeria} [SD] = 5.42 [1.18]; M_{Russia} [SD] = 4.11 [1.54]; M_{India} [SD] = 5.33 [1.19]; M_{Spain} [SD] = 4.69 [1.46]; M_{USA} [SD] = 4.36 [1.39]; M_{Germany} [SD] = 3.71 [1.31]).

Perceived efficacy

Two items were aimed at assessing perceived efficacy ($\alpha_{\text{Nigeria}} = 0.74$; $\alpha_{\text{Russia}} = 0.80$; $\alpha_{\text{India}} = 0.84$; $\alpha_{\text{Spain}} = 0.88$; $\alpha_{\text{USA}} = 0.86$; $\alpha_{\text{Germany}} = 0.86$; adapted from Tausch et al., 2011; Shuman et al., 2016). Example: "I can contribute to the collective actions that affect society as a whole" (M_{Nigeria} [SD] = 5.14 [1.53]; M_{Russia} [SD] = 4.02 [1.53]; M_{India} [SD] = 5.05 [1.52]; M_{Spain} [SD] = 4.46 [1.54]; M_{USA} [SD] = 4.50 [1.40]; M_{Germany} [SD] = 5.69 [1.46]).

System-based anger

Two items were aimed at assessing system-based anger ($\alpha_{\text{Nigeria}} = 0.87$; $\alpha_{\text{Russia}} = 0.92$; $\alpha_{\text{India}} = 0.85$; $\alpha_{\text{Spain}} = 0.81$; $\alpha_{\text{USA}} = 0.91$; $\alpha_{\text{Germany}} = 0.82$; adapted from Tausch et al., 2011; Jost et al., 2012). Example: "I feel anger when I think about the current state of affairs in […]" (M_{Nigeria} [SD] = 5.75 [1.55]; M_{Russia} [SD] = 4.79 [1.86]; M_{India} [SD] = 4.98 [1.78]; M_{Spain} [SD] = 5.26 [1.41]; M_{USA} [SD] = 4.55 [1.72]; M_{Germany} [SD] = 3.76 [1.26]).

Additional variables

GDP

Estimated Gross Domestic Product *per capita* in current US dollars was retrieved from World Bank for the corresponding year.[4]

CPI

Corruption Perceptions Index (from 0 = *the highest level of corruption* to 100 = *the lowest level of corruption*), compiled on the basis of expert assessments and public opinion polls about the perception of the level of corruption in the public sector, was retrieved from Transparency International for the corresponding year.[5]

Data analysis

To analyze the relationships between individual-level variables, we first conducted a multilevel correlation analysis. Subsequently, we performed a process known as ipsatization on the means of each country. Ipsatization involves adjusting the data by transforming scores on multiple scales so that the mean of these scores is the same for all countries. This method helps to control for any systematic differences or biases in responding that may occur between different countries, thereby enabling a more accurate cross-country comparison (Fischer, 2004). By implementing ipsatization, we effectively control for these cultural biases and ensure that the observed differences between countries are attributable to genuine variations in the phenomena being measured, rather than artifacts of disparate response styles. After ipsatizing the means, we rescaled them within a range from 0.01 to 1, with 1 representing the maximum and 0.01

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4 See https://www.worldbank.org/.

5 See https://www.transparency.org/.

TABLE 2 Results of multilevel correlation analysis of the individual level focal variables ($N = 2,316$, $k = 6$).

	1	2	3	4	5
1. Collective action	–				
2. National identification	0.17	–			
3. System justification	−0.13	0.14	–		
4. Moral obligation	0.66	0.13	−0.07	–	
5. Perceived efficacy	0.26	0.18	0.22	0.28	–
6. System-based anger	0.44	0.04	−0.25	0.37	0.15

All the correlation coefficients are significant at $p < 0.001$, except for the relationship between national identification and system-based anger, $r = 0.04$ [0.01, 0.08], $p = 0.049$.

TABLE 3 Comparison of the ipsatized means of the individual level focal variables across samples ($N = 2,316$).

	Nigeria ($N = 247$)	Russia ($N = 402$)	India ($N = 417$)	Spain ($N = 441$)	USA ($N = 409$)	Germany ($N = 400$)	F(df1, df2)	ω^2
Collective action	0.65 (0.20)$_a$	0.66 (0.25)$_a$	0.65 (0.20)$_a$	0.69 (0.19)$_a$	0.58 (0.24)$_b$	0.59 (0.21)$_b$	17.4(5, 2,310)*	0.03
National identification	0.73 (0.18)$_{ab}$	0.70 (0.22)$_b$	0.74 (0.20)$_a$	0.73 (0.21)$_{ab}$	0.73 (0.28)$_{ab}$	0.61 (0.21)$_c$	20.9(5, 2,310)*	0.04
System justification	0.36 (0.14)$_c$	0.37 (0.16)$_c$	0.47 (0.17)$_b$	0.38 (0.14)$_c$	0.53 (0.16)$_a$	0.55 (0.15)$_a$	112.3(5, 2,310)*	0.19
Moral obligation	0.62 (0.16)$_a$	0.60 (0.21)$_a$	0.61 (0.17)$_a$	0.58 (0.20)$_a$	0.57 (0.19)$_a$	0.53 (0.18)$_b$	10.6(5, 2,310)*	0.02
Perceived efficacy	0.58 (0.21)$_b$	0.59 (0.21)$_b$	0.57 (0.21)$_b$	0.55 (0.21)$_b$	0.59 (0.20)$_b$	0.80 (0.20)$_a$	81.4(5, 2,310)*	0.15
System-based anger	0.66 (0.22)$_a$	0.69 (0.26)$_a$	0.56 (0.25)$_{bc}$	0.66 (0.20)$_a$	0.60 (0.24)$_b$	0.53 (0.17)$_c$	31.7(5, 2,310)*	0.06

Significant differences at the $p < 0.05$ level, adjusted for Tukey's multiple comparisons, are denoted by differing Latin letters. *$p < 0.001$.

representing the minimum. This rescaling helps avoid negative scores and provide a common scale of comparison across different measures. The One-way ANOVA was then utilized to compare these newly adjusted means.

For the final step, we tested our primary hypotheses about cross-level interaction through mixed models. In these models, all individual level independent variables were centered cluster-wise to isolate the effects of individual variables within each country cluster (Enders and Tofighi, 2007), while additional country variables were log-transformed to stabilize variance and normalize the distribution (Osborne, 2002). This comprehensive analysis strategy allowed us to robustly examine the relationships between our variables of interest across different cultural contexts.

Results

The data contained no missing values or outliers. All the scales had satisfactory indicators of internal consistency, the reliability MacDonald's ω ranged from 0.81 to 0.92 and Cronbach's α ranged from 0.74 to 0.92, which generally indicates a sufficient reliability of the measurements. The results of the multilevel correlation analysis of individual level focal variables across the entire sample are available in Table 2. All the relationships supported the AICAM predictions. Overall, the intention to participate in anti-corruption protests was more strongly associated with proximal antecedents (moral obligation [0.66], system-based anger [0.44], perceived efficacy [0.26]) than with distal antecedents (national identification [0.17], system justification [−0.13]). Among the antecedents, moral obligation was positively associated with system-based anger (0.37), perceived efficacy (0.28), and national identification (0.13), as well as weakly negatively with system justification (−0.07). At the same time, system justification was negatively associated with system-based

anger (−0.25) and positively with perceived efficacy (0.22), while national identification was positively associated with all the antecedents (from 0.04 to 0.18).

The results of an ANOVA for relative comparison of the ipsatized mean values of individual level focal variables across samples are available in Table 3. The largest percent of variance in values of centered means were observed for system justification (0.19) and perceived efficacy (0.15). At the same time, the largest mean value of system justification was observed in samples from rich and perceived as less corrupt countries (Germany and United States). The Germany sample stood out from other samples with a wide margin in terms of perceived efficacy.

The results of mixed models predicting the intention to participate in anti-corruption protests are available in Table 4. Model 1 showed that about 17% of the variance in the intention to participate is predicted by the country where the sample was taken from. Model 2, with the addition of individual level focal variables, showed that about 42% of the variance in the intention to participate is associated with them. The intention to participate can be predicted by male gender, younger age, greater national identification, moral obligation, perceived efficacy and system-based anger, as well as by less system justification. The addition of country level predictors (GDP and CPI) to Model 3 improved this individual level prediction by 6% of the variance, without changing the nature of the predictor associations.

Finally, the subsequent addition of cross-level interactions further improved Model 4, bringing the total share of explained variance in the intention to participate in anti-corruption protests to 59%. The addition of cross-level interactions to the prediction model also showed that, according to a simple slope analysis in this improved model, system justification emerged as a negative predictor of the intention to participate in protest only in countries with high levels of wealth (B [95% CI] = −0.188 [−0.263, −0.113], $p < 0.001$). At the same time, perceived efficacy positively

TABLE 4 Results of mixed models for six samples ($N = 2,316$, $k = 6$).

	Model			
	Null (Step 1)	Individual level predictors (Step 2)	Individual and country level predictors (Step 3)	Cross-level interactions (Step 4)
Individual level				
Intercept	4.985 (0.287)***	4.900 (0.283)***	7.673 (2.055)*	7.673 (2.055)*
Gender (1 = men)		0.119 (0.049)*	0.117 (0.049)*	0.117 (0.049)*
Age		−0.009 (0.003)**	−0.009 (0.003)**	−0.009 (0.003)**
Student (1 = yes)		0.043 (0.053)	0.043 (0.053)	0.044 (0.053)
National identification		0.095 (0.015)***	0.095 (0.015)***	0.097 (0.015)***
System justification		−0.095 (0.023)***	−0.095 (0.023)***	0.132 (0.210)
Moral obligation		0.625 (0.019)***	0.625 (0.019)***	0.618 (0.019)***
Perceived efficacy		0.079 (0.017)***	0.079 (0.017)***	−0.220 (0.147)
System-based anger		0.195 (0.016)***	0.195 (0.016)***	0.193 (0.016)***
Country level				
GDP			−0.434 (0.283)	−0.434 (0.283)
CPI			0.350 (0.896)	0.351 (0.896)
Cross-level interactions				
System justification × GDP				−0.072 (0.025)**
System justification × CPI				0.118 (0.082)
Perceived efficacy × GDP				−0.017 (0.019)
Perceived efficacy × CPI				0.121 (0.059)*
Variance components				
Within-country (L1) variance (σ^2)	2.440	1.234	1.234	1.228
Intercept (L2) variance (τ_{00})	0.487	0.469	0.317	0.317
Additional information				
ICC	0.17	0.28	0.20	0.21
AIC	8669.4	7103.1	7101.7	7093.4
R^2_m		0.42	0.48	0.49
R^2_c	0.17	0.58	0.59	0.59

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

predicted the intention to participate in protest only in countries perceived as less corrupt (B [95% CI] = 0.129 [0.072, 0.186], $p < 0.001$).

Discussion

The current study offered a novel cross-cultural test of AICAM in the context of protest against corruption in various countries. Our study allowed us to test the degree that these predictions were pancultural (across the samples studied) versus culture-specific. The results showed that for the six countries considered, the positive association of the intention to participate with moral obligation, system-based anger, and national identification can be considered pancultural (and attributed to individual differences of the protesters), while the association with the system justification and perceived efficacy is culturally specific (i.e., dependent on interaction with the characteristics of the country context).

Moderation of socioecological context

System justification negatively predicted the intention to engage in collective action only in countries with high levels of wealth, while perceived efficacy positively predicted the intention to engage in collective action only in countries perceived as less corrupt. These findings are convergent to some of those reported earlier (see Sabucedo et al., 2019; Ayanian et al., 2021; De Cristofaro et al., 2022). They add new insights regarding the role of socioecology in collective action. In wealthier, individualistic societies, a higher system justification seems to deter collective action. This might be explained by a higher need to maintain the status quo in these societies where the system is perceived as more beneficial (De Cristofaro et al., 2022). Moreover, system justification may be associated with lower perceptions of corruption among individuals in these societies, as they may downplay societal flaws in order to defend the current system (Tan et al., 2016). On the other hand, in less corrupt societies, individuals with a high perceived efficacy are more likely to engage in collective action, confident in

their potential to effect change. In the more corrupt contexts, such faith might be eroded, impacting citizens' participation in collective action. In addition, our results add understanding about how national identification and system justification, as another operationalization of identity and ideology within AICAM, predict collective action. Thus, this research (1) allowed us to incorporate socioecological perspectives in the theoretical framework of collective action; (2) enriched our understanding about how national identification and system justification predict collective action against corruption; and (3) generated new conclusions via revision of AICAM – specifically, adding another operationalization of identity and ideology.

Our results highlight that system justification is sensitive to specific country context. Social change is more likely to be accepted by citizens of a given country when it is sanctioned by the system and therefore imbued with the legitimacy of the overarching social system (Gaucher and Jost, 2011). However, some types of societies (e.g., post-communist) are characterized by lower levels of system justification (see Cichocka and Jost, 2014). When the current system fails to satisfy existential, epistemic, and relational needs, people in such societies may take some comfort in perceiving it as predictably malicious and unjust. Low levels of system justification seem to be associated with the perception of the system as sanctioning in a completely random or meaningless manner. When this is accompanied by subjective states that are symptoms of social anomie and political alienation, it suggests that existential, epistemic and relational needs are completely frustrated. Perceived efficacy and protests against corruption in democratic societies with a high level of system justification, at the same time, seem to foster the so-called 'free rider effect', where the majority of the population will just expect other fellow citizens to fight corruption effectively. A non-negligible percentage of this majority may be even less willing to face the costs of collective action (Bauhr, 2017).

However, perceived efficacy is positively related with the intention to engage in collective action only in countries that are perceived to be less corrupt. This finding is especially important given that belief in the potential for a protest movement to effect change is a crucial factor legitimizing social protests in the eyes of the non-participating majority, who, despite not participating, are affected by the same social issues (Jiménez-Moya et al., 2019). Indeed, we assume that when (most) non-activists agree with and legitimize social protest, they can act as passive supporters who further the protesters' goals (e.g., by voting for a political party that will take into account the demands of society, or by influencing attitudes of politicians to a certain social problem). In contrast to the characteristics of collective action in democratic countries, protesters within repressive undemocratic societies are not driven by political efficacy in the first place (Ayanian et al., 2021). Indeed, as noted earlier, in those cases the moral obligation may be more significant, which emphasizes that people can participate in collective actions regardless of their effectiveness of actions and/or adverse consequences that entailed participation, i.e., this is a kind of heroism when feeling duty is more important than high personal costs (Vilas and Sabucedo, 2012). In other words, a moral obligation that encompasses five components: (1) the sense of obligation itself; (2) autonomy; (3) personal satisfaction (if the behavior is consistent with the obligation); (4) discomfort (in case the behavior does not correspond to the obligation); (5) sacrifice (Sabucedo et al., 2018), which are important aspects of the individual differences of the

protesters, motivates them to participate in collective action more than anything else.

Limitations and further directions

Like all studies, the current is not without limitations. First, the surveyed study participants are not random probability samples of the populations of their countries of residence. While we controlled for many of the differences in our analyses, nonetheless, the generalizability of our findings is difficult to assess. However, as suggested by Stroebe et al. (2018) and Coppock et al. (2018), cross-cultural data are still useful even when samples are not fully representative. Stroebe et al. (2018) highlight the primacy of a robust theoretical framework over sample representativeness, indicating that meaningful findings can be derived even from less representative samples if they align with strong theoretical underpinnings. Coppock et al. (2018) further challenge the notion that only representative samples yield generalizable results, showing that non-representative samples can also provide consistent, valuable insights. This collective perspective underscores that the generalizability of research findings hinges more on theoretical and empirical robustness than on the demographic makeup of the sample, thereby supporting the relevance of our study despite its sampling limitations. In addition, many of the challenges inherent in non-representative samples would make cross-cultural *similarities* more *difficult* to discover. In our case, that makes our findings concerning the pancultural validity of many of our model's conclusions even more impressive.

Another limitation of our study is that it did not consider the distinction between normative and non-normative collective action. Distinguishing between normative collective actions (i.e., those that conform to the norms of the existing social system, such as political participation or peaceful protest) and non-normative collective actions (i.e., those accompanied by, for example, violence), in some cases may require some specificity (Adam-Troian et al., 2021; see also, e.g., Tausch et al., 2011; Shuman et al., 2016). For example, national identification, among all other variables, positively predicted the intention to engage in normative collective action, but negatively predicted the intention to engage in non-normative collective action (see Stathi et al., 2019). These authors concluded that national identification is a factor that, on the one hand, motivates people to mobilize, but, on the other hand, prevents the negative and destructive side of collective action.

Corruption can refer to both (1) actions to obtain fair treatment (i.e., 'need corruption,' e.g., to get what is legally required) and (2) actions undertaken in order to obtain special illicit advantages that persist even in societies with well-established institutions of democratic accountability (i.e., 'greed corruption,' e.g., to get what is not legally allowed). In the case of need corruption, when individuals are forced to involve in corruption for the reason of limited access to public goods (e.g., education, healthcare), the motivation to participate in collective action may differ from greed corruption within which people also benefit to some extent (Bauhr, 2017). For instance, in the need condition, people are more likely to evaluate it as such and, in turn, protest against it. In other words, it is likely that each of these forms of corruption has its own motivational dynamics behind collective action and system justification, which might yield different forms of protests.

The question remains about the role of other macrosocial indicators, in which countries differ. For example, the implications of the level of social inequality in a society for collective action against corruption in a country, as well as its interaction with individual differences in supporting inequality, need to be explored. Indeed, the ideological endorsement of inequality at the individual level through social dominance orientation increases corrupt intent (see Vilanova et al., 2022). The role of higher-order factors, particularly during significant economic upheavals, is an area warranting exploration. Economic crises and soaring unemployment rates can often amplify or alter the effects of individual variables, leading to an upsurge in collective action. Thus, an interesting avenue for future research would be to examine the interplay between individual and societal-level variables in periods of economic stability and crisis, to gain a more nuanced understanding of the triggers for collective mobilization.

In a world where countries are becoming increasingly culturally diverse due to immigration, the effect of this heterogeneity on collective action is another vital area to explore. For instance, it has been observed that immigrant groups with strong national identification may exhibit less support for collective action (Mähönen and Jasinskaja-Lahti, 2015), potentially due to their additional ethnic identities, leading them to perceive national issues, such as corruption, as less personally relevant.

A separate body of literature suggests that individuals might tolerate corruption or organized crimes when the guilty party embodies the group's values (e.g., Travaglino and Abrams, 2019). This might be particularly relevant in autocratic states where propaganda and various forms of control effectively color the state as embodying national values. In contrast, democratic states, due to their inherent pluralism, might be less effective in this aspect, potentially explaining the relatively small effects of national identity observed in our study. These complexities surrounding the context-specific acceptance of corruption offer a rich avenue for future research.

Conclusion

The findings together demonstrate that while we can identify pancultural similarities, each context of collective action is nonetheless unique in some way. As it turns out, believing that they can change the situation is not always necessary, and the influence of such a belief is culturally constrained. However, there is nonetheless a thread across cultural contexts—a common view of the situation, an experience of dissatisfaction, deprivation, negative emotions (most often anger), and a feeling of moral obligation to participate in defending their position (despite the possible costs and negative consequences). Thus, in general our work reveals that while some variables can be considered as context-dependent, moral obligation in particular can be considered as a superior proximal predictor of collective action over perceived efficacy across the cultures we studied.

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

Ethical approval was not required for the studies involving humans because this study was conducted in compliance with the ethical standards of COPE and APA. The procedure was in line with Russian regulations; as per university and national Russian regulations, no ethics clearance was required for this type of survey research (if it did not include medical data). The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

DG: Conceptualization, Data curation, Funding acquisition, Investigation, Methodology, Supervision, Writing – original draft. AG: Formal analysis, Project administration, Software, Validation, Visualization, Writing – original draft, Writing – review & editing. LC: Supervision, Writing – original draft, Writing – review & editing. AZ: Writing – original draft, Writing – review & editing. JS: Conceptualization, Methodology, Supervision, Writing – review & editing. MD: Conceptualization, Methodology, Writing – review & editing. AB: Conceptualization, Data curation, Methodology, Resources, Writing – original draft. KB: Supervision, Writing – review & editing.

Funding

Acknowledgments

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.2024.1269552/full#supplementary-material

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Navigating the complexities of morality and culture: a critical commentary on the special topics issue "culture and morality: the things we value"

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KEYWORDS

culture, morality, dynamics, methodological diversity, globalization

This commentary delves into the intricacies of morality within cultural contexts, as explored in the special topics issue "Culture and Morality: The Things We Value" (Wu et al., 2025). It critiques the deterministic perspective of culture on morality, advocating for a more dynamic understanding that incorporates personal agency and power dynamics. Next, it makes a summary and categorizes the 12 articles, published in this special issue, into two themes (e.g., cultural influence on moral behavior, and cultural differences in moral judgments). It also suggests the implications for our understanding of morality within cultural contexts and concludes by underscoring the need for future research to address identified gaps and biases, particularly regarding cultural representation, methodological diversity, intersectionality, power dynamics, and the impact of globalization on moral values. Lastly, it questions the current research agenda and suggests areas for further exploration, such as moral ecology, moral education, methodological rigorousness, and moral identifications in globalization. In conclusion, while the special issue provides valuable insights into the field of culture and morality, it also deserves a more nuanced and critical examination of the interplay between morality and culture.

Cultural determinism and beyond

The editorial sets the stage for the special issue by outlining the importance of studying morality as a form of social norms that guides human behavior. It emphasizes the variation in moral standards across cultures and the rewards and punishments associated with moral actions. The editorial's contribution lies in its recognition of the importance of cultural context in understanding morality. This is an insightful framework for considering how moral values are shaped and how they influence behavior. By highlighting the role of cultural expectations in moral actions, the editorial opens up a dialogue on the complex relationship between culture and morality.

However, there are also some challenges to the editorial's assumptions and omissions.

Firstly, the universality of moral values vs. cultural relativism. The editorial seems to suggest universality in the importance of morality, yet it fails to sufficiently address the debate between universal moral values and cultural relativism. This commentary argues for a more nuanced understanding that acknowledges the existence of both universal and culturally specific moral values. The special issue could have benefited from an exploration of how universal values, such as human rights, interact with culturally specific values.

Secondly, the role of power dynamics. The editorial does not adequately consider the role of power dynamics in shaping moral narratives. Power structures within and across cultures can significantly influence what is considered moral. For example, dominant groups may impose their moral values on marginalized groups, leading to an unequal

distribution of moral authority. This commentary calls for a more critical examination of power in the construction of moral values.

Thirdly, the impact of globalization. Globalization's impact on moral standards is another area where the editorial falls short. As cultures interact and influence each other on a global scale, the special issue could have benefited from an exploration of how these interactions affect moral values. Globalization can lead to the diffusion of moral values, creating new forms of cultural hybridity and moral complexity.

All in all, it seems that the editorial's approach to morality and culture is somewhat deterministic, suggesting a direct correlation between cultural expectations and moral behavior. It overlooks the dynamic and negotiated nature of moral values within cultural contexts. Maybe more effort could be put into accounting for the agency of individuals in interpreting and acting upon moral values, which can vary significantly even within the same cultural group.

Summary of the 12 articles

The 12 articles in the special issue can be succinctly categorized into two overarching themes: the influence of culture on moral behavior and wellbeing, and the role of cultural differences in shaping moral judgments and social interactions.

The first set of articles provides a comprehensive look at how cultural factors influence moral behavior and wellbeing. Zhou et al. (2023) offer valuable insights into the Chinese context, highlighting the role of collectivism and red culture in shaping subjective wellbeing. Tanaka et al. (2024) extend this discussion by comparing the motivations behind social support provision between European Americans and Japanese individuals, revealing the nuanced ways in which cultural values shape our responses to others' needs. Wu et al. (2023) contribute to this set by examining the detrimental effects of stereotype threat on the motivation of generationally poor individuals to escape poverty, underscoring the real-world implications of psychological research on morality and social mobility. Zhang et al. (2023) delve into the realm of affective forecasting, exploring how subjective socioeconomic status moderates the influence of basic psychological needs satisfaction on the accuracy of predictions about future feelings. Eriksson et al. (2023) provide a historical perspective by examining changes in the appropriateness ratings of everyday behaviors over the past 50 years in the United States, shedding light on the dynamic nature of social norms and their underlying values. Lastly, Taku and Arai (2023) explore the complex interplay between value importance, value congruence, and mental health outcomes, particularly passive suicide ideation, during the COVID-19 pandemic, demonstrating the protective role of certain values in times of crisis.

The second set of articles focuses on the role of cultural differences in shaping moral judgments and social interactions. Chen-Xia et al. (2023) provide a comparative analysis of how individuals from different cultural backgrounds perceive and react to social norm transgressions, highlighting the influence of individualism and collectivism on moral judgments. Zhu et al. (2023) contribute to our understanding of unethical behavior by examining how group-based competition can influence it, with a particular focus on the role of collective efficacy in curbing

such behavior. Lin et al. (2024) offer a fascinating exploration of how envy and belief in a just world can mediate and moderate the punishment recommendations for high-status vs. low-status wrongdoers, respectively. Durham et al. (2024) investigate the impact of blame framing and prior knowledge on moral judgments related to historical events, specifically the Tulsa Race Massacre. Their work underscores the importance of context and individual differences in how we process and judge historical moral atrocities. Grigoryev et al. (2024) take a cross-cultural approach to understanding collective action against corruption, revealing both pancultural and culture-specific factors that influence people's willingness to protest government corruption. Finally, Hu et al. (2024) explore the relationship between gratitude and patriotism among college students, with a focus on the mediating role of general life satisfaction and the moderating role of socioeconomic status, adding a dimension of positive psychology to the study of morality.

These articles collectively contribute to a richer understanding of the multifaceted nature of morality within cultural contexts. They highlight the complexity of moral behavior and the importance of considering cultural factors when examining wellbeing, social support, and moral judgments. While the articles provide valuable insights, they also point to the need for further research that can address the gaps and biases identified in the commentary, particularly in terms of cultural representation and methodological diversity.

Critique and future directions

The special issue has made significant strides in advancing our understanding of morality within cultural contexts, but it also reveals the need for a more inclusive, dynamic, and reflexive approach to this complex field. A critical examination of the articles uncovers several areas that warrant further attention.

One of the most striking observations is the lack of consistency in how the concept of morality is applied across the articles. This inconsistency not only raises questions about the fundamental understanding of morality within the special issue but also echoes this commentary's earlier critiques regarding the need to move beyond potentially simplistic or culturally deterministic perspectives (as suggested in the critique of the editorial's deterministic perspective) and to acknowledge the inherent complexity and variability of moral behavior across different cultural contexts. It highlights the challenges faced when attempting to apply potentially static or culturally-bound (particularly Western) frameworks to capture diverse moral phenomena cross-culturally (e.g., using seemingly universal terms like "justice" or "fairness" based on Western philosophical traditions, without fully accounting for how their specific meanings, implications, and applications can vary substantially depending on local cultural norms, social structures, and historical contexts). Therefore, future research should not seek a single, rigid, universal definition of morality, but rather strive for a more unified approach to defining and measuring it. This approach should accommodate the dynamic and negotiated nature of moral values emphasized earlier in our critique of the editorial's potentially static viewpoint and necessitates integrating diverse perspectives.

This might involve developing new theoretical frameworks or adopting a meta-theoretical approach that explicitly incorporates both culturally specific nuances and potential universal dimensions (addressing the universalism vs. relativism debate), thereby helping to move beyond the previously noted reliance on predominantly Western theoretical frameworks.

Regarding the insufficient attention paid to power dynamics and the broader context of globalization, furthermore, there is a noticeable gap across the special issue in considering the moral implications of larger economic systems and political structures. This points to a significant area for future exploration: the 'ecological system of morality,' where moral values and behaviors are understood not only as influenced by cultural norms but also as deeply embedded within, and interacting with, these macro-level societal forces. To develop a more comprehensive understanding of the multifaceted nature of morality, and in response to the call for a more dynamic and contextualized approach highlighted in the critique of the editorial, it is urgent to explore the intersection of morality with these broader societal forces. For example, how do economic inequalities influence moral judgments about wealth distribution? How do political ideologies affect perceptions of fairness and justice? By addressing such questions, researchers can develop a picture of morality that goes beyond the individual or purely cultural level, offering new insights into how power structures and global processes actively shape contemporary moral landscapes.

The special issue's reliance on predominantly Western theoretical frameworks, which, as highlighted by the reviewer and pertinent to our earlier discussion on power dynamics and globalization, is likely intertwined with historical and ongoing global power imbalances, risks overshadowing the diverse moral perspectives present globally. While these established (often Western-derived) theories provide a foundation for understanding morality, their dominance means they may not fully capture the nuances of local cultural phenomena, particularly outside of WEIRD (Western, Educated, Industrialized, Rich, Democratic) contexts. Addressing this limitation requires more than simply applying existing models more broadly; it necessitates a critical examination of how power structures may have shaped the very theoretical lenses we employ. It is essential, as the original text suggests, to recognize potential universal values and principles underlying moral judgments across cultures, alongside the core virtues found in various religions and wisdom traditions worldwide (e.g., the widespread presence of reciprocity principles akin to the Golden Rule in diverse traditions ranging from Confucianism ("己所不欲，勿施于人") and Hinduism (Mahabharata) to Abrahamic religions and Greek philosophy, alongside broadly shared values concerning justice/fairness, compassion/care, and truthfulness found across numerous ethical systems globally). However, the pursuit of this common moral ground must be conducted through genuinely inclusive global scholarship, rather than assuming universality based on Western-centric perspectives (e.g., Sundararajan, 2020). Therefore, to develop a more nuanced understanding of morality and culture, future research should actively embrace the diversity of moral values and principles across cultures, intentionally incorporating local knowledge and indigenous methodologies not just as novel data points for existing theories, but as valuable sources of theoretical insight in their own right.

Consequently, going beyond the limitations imposed by Western-centric theories, as discussed above, and simultaneously exploring potential universal elements of morality that may transcend cultural boundaries, offers a path toward fostering a more inclusive and accurate representation of global moral diversity. This dualistic approach—attentive to both cultural specificity and potential commonalities, and critically aware of historical power influences on knowledge production— will undoubtedly enrich our understanding of morality. It facilitates a more comprehensive exploration of the dynamic and reciprocal relationship between morality and culture across the globe, and the complexity of the morality-culture interplay was possibly underestimated in the editorial's initial framing. As the original text highlights, this interaction is multifaceted, involving the negotiation of moral meanings within social contexts and the evolution of cultural values through individual and collective moral engagements. Understanding this interplay requires recognizing the agency of individuals—a factor potentially downplayed by deterministic views—and acknowledging the diversity within cultures as people navigate and actively contribute to the moral landscape of their societies.

In terms of practical implications, the articles in the special issue offer valuable insights that could potentially contribute to shaping moral education and informing policy decisions, an aim encouraged by the editorial itself. However, fully realizing this potential requires going beyond the descriptive findings toward a more explicit discussion on how these findings can be effectively applied in these areas. Future research, building upon a more nuanced understanding of the interplay between culture, morality, power dynamics, and globalization as advocated throughout this commentary, should systematically consider the practical implications of its findings. This includes providing concrete recommendations for integrating insights into educational curricula, public policy, and social interventions. For example, taking the findings from the special issue: if gratitude fosters patriotism (see Hu et al., 2024), how can educational programs be designed to cultivate gratitude in culturally sensitive and contextually appropriate ways? If collective action against corruption is influenced by moral obligation (see Grigoryev et al., 2024), what policies—mindful of existing power structures and cultural norms—can be implemented to effectively strengthen this sense of obligation across diverse populations? Addressing the "how" of application necessitates the same sensitivity to context and complexity urged for the research itself.

While the articles in the special issue employ a variety of methodologies, there is still room—and indeed, a pressing need— for greater methodological diversity and rigorousness. This need arises directly from the challenges highlighted earlier, particularly the call to understand morality as a dynamic, context-dependent, and multifaceted phenomenon. Future research should more frequently consider employing:

Mixed-methods approaches: To capture both the breadth and depth of moral experiences, integrating quantitative findings with rich qualitative insights into cultural nuances

and subjective meanings—essential for navigating the complexity discussed previously.

Longitudinal studies: To track the dynamic evolution of moral values and behaviors over time within individuals and cultures, moving beyond the static snapshots that cross-sectional studies often provide and addressing the critique of potentially deterministic or overly stable views of culture's influence.

Experimental designs: To establish causal relationships and test specific hypotheses about moral judgment and behavior under controlled conditions, allowing for a more rigorous examination of the factors shaping morality.

Additionally, the strategic use of big data and advanced analytical techniques could offer powerful new insights into the large-scale dynamics of moral behavior and cultural norms, potentially shedding light on the broad impacts of globalization and the functioning of the 'moral ecosystem' at societal levels. Embracing a wider methodological toolkit is crucial for developing a more robust, comprehensive, and globally relevant understanding of moral behavior.

Finally, drawing together the threads of critique concerning power dynamics, the impact of globalization, the limitations of Western-centric frameworks, and the need for a more complex, contextualized understanding, it becomes unequivocally essential to integrate intersectionality, power dynamics, and globalization into the study of morality and culture. Ignoring these intersecting factors, especially the pervasive influence of power which, as noted earlier, is intrinsically linked to the dominance of certain theoretical perspectives, risks producing incomplete or even distorted accounts of moral life. Future research must therefore actively examine how these factors interact to shape moral values, experiences, and behaviors. For example:

How do intersecting social identities such as gender, race, and class co-construct different moral realities and influence judgments about social justice within specific cultural and historical contexts?

How do power imbalances—operating at interpersonal, institutional, and global levels as highlighted in our critique—affect moral decision-making, particularly in intercultural interactions or situations marked by inequality?

By systematically incorporating these broader, interacting factors, researchers can move toward developing the truly nuanced, critically informed, and globally relevant understanding of the complexities of morality that this commentary advocates for—an understanding that acknowledges both the diversity within cultures and the overarching structures that shape our interconnected world.

In conclusion, the special issue has provided a valuable contribution to the field of morality and culture, but it also highlights the need for a more inclusive, dynamic, and reflexive approach to studying morality across cultures. By addressing the challenges and gaps identified in this commentary, future research can build upon the foundation laid by the special issue to develop a more comprehensive understanding of the complexities of morality and culture. This commentary has aimed to provide such a perspective, offering both critique and direction for future research. By considering the implications of the research findings for school and moral education, as encouraged by the editorial, we can work toward fostering a more just and equitable society that values the diversity of moral perspectives and cultural experiences.

Author contributions

TX: Writing – original draft, Writing – review & editing. MW: Writing – review & editing.

Funding

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.

Generative AI statement

The author(s) declare that Gen AI was used in the creation of this manuscript. The author(s) used the Google Gemini 2.5 Pro tool to get inspiration and revise the language.

Publisher's note

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