

Bullies Get Away With It, But Not Everywhere: Mental Health Sequelae of Bullying in Chinese and German Students

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Muyu Lin¹ , Dieter Wolke², Silvia Schneider¹,
and Jürgen Margraf¹

Abstract

Bullying victimization is associated with adverse mental health consequences, while bullies suffer few or no adverse consequences in Western societies. Yet the universality of these consequences across western and eastern cultures is unknown. The current study investigated retrospective bullying experience in primary and secondary schools and its effects on adult mental health (depression, anxiety, stress, lifetime suicidal behavior, positive mental health, life satisfaction, social support, self-efficacy, and sense of control) in 5,012 Chinese and 1,935 German university students. School bullying victimization was far less frequently recalled by the Chinese sample (6.2%–12.6%) than the German sample (29.3%–37.0%), but victims had similar adverse mental health in both countries. In Germany, bullies and not-involved had equally good mental health, whereas bullies in China had poor mental health comparable to victims. Bullying victimization has similar adverse effects on mental health across countries. However, compared to the German students, the prevalence of school bullying is significantly lower, and bullies are also more likely to suffer mental health problems in adulthood in Chinese students. The differences of reasons for and consequences of being bullies are discussed and may have important implications for evolutionary theories and interventions of bullying.

Keywords

bullying, peer victimization, cultural difference, mental health, descriptive survey study

Bullying is ubiquitous worldwide and has been reported in low and middle to high-income countries (Fleming & Jacobsen, 2010). Characterized by an imbalance of power between the bully and the victim, bullying refers to repetitive aggressive behavior that aims to harm others (Olweus, 1993, 2013). Individuals may be involved in bullying as bullies, victims, or bully/victims (i.e., victims who also bully others) (Haynie et al., 2001).

¹Ruhr-Universität Bochum, Bochum, Germany

²University of Warwick, Coventry, UK

Corresponding Author:

Muyu Lin, Department of Clinical Psychology and Psychotherapy, Mental Health Research & Treatment Center, Massenbergr. 9-13b, Bochum, 44787, Germany.

Email: muyu.lin@rub.de

The Long-term Mental Health Consequences of Bullying Involvement Worldwide

There is compelling evidence that being a target of bullying victimization is not only linked to negative consequences during childhood and adolescence (reviewed by Wolke & Lereya, 2015), but also results in adverse effects psychologically and physically that last into adulthood (Arseneault, 2018; Baier et al., 2019; Copeland et al., 2013; Moore et al., 2017; Takizawa et al., 2014; Zarate-Garza et al., 2017). Meanwhile, bully/victims display similar or even worse long-term outcomes than those who are solely victims in adulthood (Copeland et al., 2013; Wolke et al., 2015).

The long-term outcomes of bullies have been less well investigated. When studied separately from bully/victims, bullies appear to be as healthy as those not involved in terms of adult mental and general health (Schultze-Krumbholz et al., 2012; Wolke & Lereya, 2015), and in some cases appear even healthier except for a higher risk for antisocial personality (Copeland et al., 2013) or antisocial behavior (Lösel & Bender, 2011). These phenomena of good health status in bullies indirectly support a social evolutionary theory, which posits that bullying is an evolutionarily adaptive way to gain high status, dominance, resources, or survival opportunities (Olthof et al., 2011; Sutton et al., 1999; Volk et al., 2016). So far, our knowledge of bullying consequences is primarily based on studies carried out in western, developed, individualistic societies, where autonomy is appreciated and encouraged. In eastern, more group-oriented cultures such as China, however, bullying and its long-term health effects have been relatively less investigated.

Bullying Involvement in China

The prevalence of bullying victimization in China has been reported to range from 15.8% to 41.6% in primary and 4% to 35.4% in secondary school students; and that of bullies from 5% to 14.1% in primary and 1.5% to 18.4% in secondary school (Hu & Li, 2019; Otake et al., 2019; Zhang et al., 2016). Direct comparisons indicate lower bullying victimization rates in China compared to the USA (Xie et al., 2016), India (cyberbullying, Wright et al., 2015), Japan, Portugal, Spain, and Italy (Eslea et al., 2004). Indirect support also comes from a study on Chinese, Polish, and American students, indicating that the higher the individualism in the culture, the greater the tendency towards direct and indirect aggressive behavior (Forbes et al., 2009). Furthermore, a report on school behavior problem across 10 countries showed that Eastern Asia countries/regions such as Hong Kong, Japan, and Korea have the least problem behaviors (e.g., injure other students) than western countries such as the USA, England, Canada, and Australia (Gu et al., 2011).

The Mental Health Status of Bully Involvement in China

Despite lower prevalence, those who are pure victims or bully/victims in various regions in China suffer similar *concurrent* adverse mental health problems as have been reported in western countries, such as anxiety, depression, longlines, suicidality, and low life satisfaction (Cheng et al., 2010; Ji et al., 2003; Tang et al., 2018; Weng et al., 2017; Wu et al., 2015; Zhu & Chan, 2015). One longitudinal study in China further showed that victimization in primary school positively related to more internalizing symptoms 6 months later (Wang & Zhou, 2019). Longitudinal studies in other East Asian countries such as Vietnam (Pells et al., 2016) or Japan (Ttofi et al., 2011) also revealed similar link between adolescent victimization experiences and relatively worse psychosocial well-being (low self-efficacy, low self-esteem, poor parent and peer relations, and depression) in young adulthood or the following years. All these preliminary works suggested that victims in China may also suffer from long-term mental health consequences; still, more evidence on direct cross-cultural comparisons is required.

In contrast to findings from Western countries and evolutionary adaptation theories (Olthof et al., 2011), however, bullies in China may also show *concurrent* mental health problems such as depression, panic symptoms, somatic problems, suicide ideation, and psychoticism (Gu & Zhang, 2003; Hong et al., 2016; Yen et al., 2014), similar to their victims. Bullies in China also reported perceiving less support from parents and worse relationships with teachers and peers (Han et al., 2017; Otake et al., 2019). In a group-oriented society that also emphasizes interpersonal cohesion and harmony (Huang, 2016; Vignoles et al., 2016), people conform more to avoid sanctions and negative evaluations (Yamagishi et al., 2008). Bullying (especially physical bullying or explicit aggressiveness towards others) may be considered more socially deviant and thus be more socially sanctioned, especially at schools, compared to individualistic societies that encourage dominance. Thus, bullying others in China may not lead to better social status or consequences, as proposed by the evolutionary perspective. Consistent with this, children in China report stronger anti-bullying attitudes than their British counterparts (Ji et al., 2016), and bullies experience the highest peer-rejection among all children (Wang & Zhang, 2002). Even within a Chinese adolescent sample, higher endorsement of individualism was associated with more aggression, while higher endorsement of collectivism was linked to less bullying behavior (Li et al., 2010).

Aims and Hypotheses

The main objective of this study was to compare school bullying prevalence and its long-term effect on the mental health of different roles in bullying (i.e., victims, bully/victims, and bullies) between an Eastern and a Western culture. Bullying history and mental health were assessed using the same questionnaires in university students from China and Germany. Germany is a highly-developed country with a strong economy and relatively loose ties between individuals. The prevalence of bullying in Germany is comparable to other individualistic countries in the OECD (2017). Similar to the finding in other western countries reviewed above, it has been reported that more relational bullying by classmates and psychological bullying by teachers were associated with lower perceived social support, more frequent occurrence of anxiety, depression, and somatic symptoms in the ninth grade German students (Baier et al., 2019). Longitudinally, German female victims of middle school cyberbullying showed increasing externalizing problems across time (3–5 months), while male bullies reported decreases in internalizing problems (3–5 months later) and increases in externalizing problems (5 years later) (Lösel & Bender, 2011; Schultze-Krumbholz et al., 2012).

Regarding measures for mental health, the current study covered not only mental illness (internalizing problems including depression, anxiety, stress, and suicide history) but also the positive aspects of well-being. Compared to depression and anxiety, positive mental health, life satisfaction, social support, sense of control, or self-efficacy have been rarely studied in bullying related research and typically only cross-sectionally (Moore et al., 2017; Navarro et al., 2015; Otake et al., 2019). However, it is increasingly recognized that the absence of mental problems is not the same as the presence of positive mental health (Vaillant, 2012). For instance, given that bullying is characterized by asymmetric power relationships between bullies and victims (Olweus, 1993), do bullies have a higher sense of control or self-efficacy than their peers? Furthermore, bullying victimization was reported to be concurrently associated with lower self-esteem in a German school sample (Glüer & Lohaus, 2015). Accumulated victimization experiences in 3 years predicted lower self-esteem, future optimism, and school satisfaction in US pupils from rural areas (Evans et al., 2014). Would these be the cases in Chinese and German university student samples? In addition, if being bullied means being excluded more often and having fewer long-lasting friendships (Eslea et al., 2004) and *concurrently* perceived lower level

of social support (Baier et al., 2019), would being bullied also impact perceived social support in young adulthood?

Based on the cross-cultural studies on bullying prevalence (Eslea et al., 2004; Wright et al., 2015; Xie et al., 2016), we hypothesized that: (1) the prevalence of bullying would be lower in China than in Germany. Regarding the mental health consequence of bullying involvement, given that victims in China also reported mental health problems (Tang et al., 2018; Wang & Zhou, 2019; Weng et al., 2017; Wolke & Lereya, 2015), we expected that (2) victims would show similar poor mental health status across countries. Meanwhile, given the different results reported in the cross-sectional studies of bullies in China (Han et al., 2017; Hong et al., 2016; Otake et al., 2019) and Germany (Lösel & Bender, 2011; Schultze-Krumbholz et al., 2012), it was expected that (3) bullies do well in German regarding mental health whereas the health status of the bullies in China would be lower.

Method

Participants and Data Collection

All participants were recruited as part of the Bochum Optimism and Mental Health project. The project was approved by the Ethics Committee of the Faculty of Psychology at Ruhr University Bochum. All participants gave written informed consent.

Chinese participants were recruited from five universities in China in 2015, which locate in five different cities, including Beijing, Shanghai, Nanjing, Tangshan, and Guiyang. Students received emails regarding the paper-pencil survey (in Guiyang) or online survey (in the other four cities) within the first month of their study in their senior year. In total 5,916 students participated in the surveys (response rate: 74.7%), 5,912 of them (age: 21.5 ± 1.2 years; range: 17–31; female: 3,301 [55.8%]; from low affluent family: 3,369 [60.3%], from medium affluent family: 1,666 [29.8%], from high affluent family: 556 [9.9%]) completed the bullying inventory.

German student participants were recruited from a University in Bochum, Germany. They were recruited by email invitations with an enclosed link to the online questionnaire in October 2015, 2016, and 2017. A total of 1,900 students completed the survey (age at survey: 21.3 ± 3.5 years; range: 16 to 35; female: 1,145 [60.3%]; grade at survey: freshman year: 1,154 [59.6%], sophomore year: 103 [5.3%], junior year: 53 [2.7%], senior year and after: 503 [26.0%]; from low affluent family: 233 [12.3%], from medium affluent family: 798 [42.0%], from high affluent family: 484 [25.5%]). Response rate is unavailable due to data protection regulation of the university.

Measures

All self-report instruments were developed from English or German original versions using translation-back-translation, as suggested by Brislin (1970). Translators were native speakers proficient in the other language and trained psychologists (e.g., Chinese native speakers who studied and taught German literature or psychology at a university). All scales were developed, validated, and tested for measurement equivalence and invariance across cultures in previous studies (Bieda et al., 2017; Lin et al., 2019; Scholten et al., 2017).

Bullying history. The Retrospective Bullying Questionnaire (modified from Wolke & Sapouna, 2008) assessed engagement in and victimization of direct, relational, and cyberbullying. In order to avoid potential translation bias of the term “bullying” in Chinese (qifu) and German (Mobbing), the bullying questionnaire first provided the definition of bullying behaviors by Wolke and Sapouna (2008) as follows:

“We would like to ask you some questions about bullying now. Bullying refers to the act of repeatedly harming others by directly getting at them. Over and over again some people experience: (1) being threatened or blackmailed or having their things stolen; (2) being insulted or called nasty names; (3) being subject to ridicule and having nasty tricks played on them by others (in person or via text messages or websites or social media); and/or (4) being hit, shoved around or beaten up. The recipients feel unable to defend themselves against bullying.”

Following this definition, participants responded to six questions. Three questions asked about victimization: “How often did these things happen to you in this school (e.g., perpetrated by your classmates or other children)?” The other three asked about bullying behavior: “How often did you do these things to others in this school?” In both questions, “this school” referred to primary school, secondary school, and current university, respectively. For each question, participants responded using a 5-point scale: *never* (1), *once or twice* (2), *occasionally* (3), *about once a week* (4), to *several times a week* (5). Participants who checked *occasionally* or higher were categorized as “victims” or “bullies” respectively. Those who were classified as both victims and bullies were categorized as “bully/victims.” All other participants were categorized as “not-involved.” In order to capture the “repetitive” nature of bullying, the cut-off of *occasionally* has been used repeatedly in previous studies (Wolke & Sapouna, 2008).

The bullying questionnaire was test-retested in 196 German students over a 1-year interval. The test-retest reliability for victimization was $r = .80, p < .001$ (primary school) and $r = .81, p < .001$ (secondary school); for bullying perpetration it was $r = .54$ (primary school), $p < .001$ and $r = .57, p < .001$ (secondary school). Similar results were reported by Zhang et al. (1999), who found a good 2-weeks test-retest reliability for victimization (0.77–0.78) and a modest one for perpetration (0.55–0.65) in 266 Chinese primary school students and 95 Chinese junior high school students.

Depression, anxiety, and stress scale (DASS21). The DASS21 assesses symptoms of depression, anxiety, and stress (seven items for each subscale) over the past week (Henry & Crawford, 2005). Sum scores are obtained for three subscales: stress (e.g., “I found it hard to wind down”), anxiety (e.g., “I was aware of dryness of my mouth”), and depression (e.g., “I couldn’t seem to experience any positive feeling at all”). Participants rate each item on a 4-point Likert scale from *did not apply to me at all* (0) to *applied to me very much or most of the time* (3). Higher sum scores on each sub-scale indicate greater levels of symptoms. Cronbach’s alpha was 0.93 (Germany) and 0.96 (China).

Suicidal behaviors questionnaire-revised (SBQ-R). The SBQ-R is a brief self-report measure for assessing suicidal behavior (Osman et al., 2001). As recommended by Osman et al. (2001) we used only Item 1 (“Have you ever thought about or attempted to kill yourself”) to measure lifetime suicide history. Participants indicate agreement on a 6-point scale: *never* (1), *just a brief passing thought* (2), *had a plan but did not try* (3), *had a plan and wanted to do* (4), *attempted to kill myself but did not want to die* (5), and *attempted to kill myself and really hoped to die* (6).

Positive mental health scale (PMH). The PMH assesses positive aspects of emotional well-being and health with nine items rated on 4-point Likert scales ranging from *do not agree* (0) to *agree* (3) (Lukat et al., 2016). An example item would be “I am often carefree and in good spirits.” Higher sum scores indicate better general well-being. Cronbach’s alpha was 0.92 (Germany) and 0.93 (China).

Satisfaction with life scale (SWLS). The SWLS measures general life satisfaction with five items rated on 7-point Likert scales ranging from *strongly disagree* (1) to *strongly agree* (7)

Table 1. Prevalence of Involvement in Bullying Roles (With % in Total Sample) in China ($n = 5,912$) and Germany ($n = 1,900$).

Role	Primary school (%) [adj. residual]		Secondary school (%) [adj. residual]	
	China	Germany	China	Germany
Not-involved	4,970 (84.1) [16.6]	1,264 (66.5) [-16.6]	5,398 (91.5) [33.3]	1,120 (58.9) [-33.3]
Victims	600 (10.1) [-16.6]	479 (25.2) [16.6]	270 (4.6) [-32.5]	599 (31.5) [32.5]
Bullies	194 (3.3) [-1.6]	77 (4.1) [1.6]	135 (2.3) [-3.7]	73 (3.8) [3.7]
Bully-victims	148 (2.5) [-3.8]	80 (4.2) [3.8]	97 (1.6) [-9.6]	108 (5.7) [9.6]

Note. China and Germany differed significantly in the distribution of the primary school bullying groups, $\chi^2(3) = 287.683$, $p < .001$, Cramer's $V = 0.198$, $p < .001$; and secondary school bullying group $\chi^2(3) = 1,161.61$, $p < .001$, Cramer's $V = 0.393$, $p < .001$. adj. residual = adjusted standardized residuals of the cell.

(Diener et al., 1985). An example item would be "In most ways my life is close to my ideal." Higher sum scores indicate higher life satisfaction. Cronbach's alpha was 0.88 (Germany) and 0.91 (China).

Brief form of perceived social support questionnaire (F-SozU K-6). The F-SozU K-6 assesses perceived social support with six items rated on 5-point Likert scales ranging from *not true at all* (1) to *totally true* (5) (Kliem et al., 2015; Lin et al., 2019). One example of an item is "I know a very close person whose help I can always count on." Higher sum scores indicate higher level of perceived social support. Cronbach's alpha was 0.87 (Germany) and 0.89 (China).

Sense of control ratings. Sense of control was assessed with two questions: "Do you experience important areas of your life, such as work, free time, and family, to be uncontrollable, meaning that you cannot, or barely can, influence them?" and "Do you experience these important areas of your life as unpredictable?" Participants gave their answers using 5-point Likert scales ranging from *not at all* (0) to *very strong* (4). Higher sum scores indicate higher sense of control.

General self-efficacy scale (GSE). The short version of the GSE assesses a general sense of one's ability when facing unexpected situations with a 10-item 4-point Likert scale ranging from *not agree* (1) to *totally agree* (4) (Schwarzer & Jerusalem, 1995). One example of an item is "I am confident that I could deal efficiently with unexpected events." Higher sum scores indicate higher self-efficacy. Cronbach's alpha was 0.88 (Germany) and 0.93 (China).

Results

Prevalence of Bullying Involvement in China and Germany

SPSS (version 24) was used for all analyses. The number and proportion of students involved in bullying are shown in Table 1. The differences in bullying prevalence between countries were examined with Chi square test. In both primary and secondary school, China and Germany differed significantly in the distribution of the bullying groups (primary school: $\chi^2(3) = 287.683$, $p < .001$, Cramer's $V = 0.198$, $p < .001$; secondary school: $\chi^2(3) = 1161.61$, $p < .001$, Cramer's $V = 0.393$, $p < .001$). Specifically, in China more students reported being not involved in bullying than in Germany, while in Germany more students were victims or bully/victims in both school periods, p 's $< .00625$, or bullies from the secondary school, $p = .0002$; which was in line with our first hypothesis. No differences were found in the proportions of bullies in primary school in Germany and China, $p = .109$. Moreover, the proportions of victims and bully/victims

in China decreased from primary to secondary school, while in Germany, the relative frequency increased.

Bullying Group Differences in Mental Health Measures

Results of Pearson correlation analyses across all outcome variables are shown in Online Supplemental Material A (Table SA1).

Bullying role group differences within each country and each school periods were compared separately within each country and each school periods using four separated one-way MANCOVAs with DASS-stress, DASS-anxiety, and DASS-depression subscales, PMH, life satisfaction, social support, control, and self-efficacy as outcome variables, and four Kruskal Wallis H tests for suicidality. Bullying group (not-involved, victim, bully, and bully/victim groups) in primary or secondary school from the Chinese or German sample was the between-group factor. As perpetration and victimization at the current university may affect concurrent mental health, they were treated as covariates in all F -tests. Multivariate test of all four MANCOVAs were significant, $F_s > 4.2$, $p < .001$, $\eta_{\text{partial}}^2 > .01$. The univariate effects for each dependent variable are presented in Table 2. Specifically, the effect of the bullying group from both school periods was significant for all outcome measures. The pairwise comparison results (Bonferroni corrected) are summarized in Figure 1 with the detailed results presented in Online Supplemental Material (Table SA2). In the following sections, the results were summarized for the groups involved in bullying: victims, bully/victims, and bullies compared to those not-involved.

The mental health of victims. As presented in Figure 1 and Online Supplemental Material, *in China and Germany*, victims of primary and secondary school bullying reported worse mental health on all measures compared to not-involved (all absolute mean differences [MDs] > 0.28 , standardized errors [SEs] > 0.76 , p 's $\leq .006$) except for sense of control in Chinese secondary school victims ($MD = 0.19$, $SE = 0.11$, $p = .536$). These results supported our second hypothesis.

Moreover, victims of primary school bullying in China reported less self-efficacy ($MD = -1.66$, $SE = 0.42$, $p = .001$) and perceived less social support ($MD = -0.99$, $SE = 0.35$, $p = .028$) than bullies and less satisfaction than bully/victims ($MD = -1.87$, $SE = 0.63$, $p = .017$). Victims of secondary school bullying in China also reported more suicidal behaviors than bullies ($MD = 0.45$, $SE = 0.11$, $p < .001$). Meanwhile, in Germany, victims in secondary school also reported having more mental symptoms (anxiety, stress, and depression, $MDs > 2.6$, $SEs < 0.64$, p 's $< .001$) and lower level of PMH ($MD = -2.93$, $SE = 0.73$, $p < .001$), and self-efficacy ($MD = -2.52$, $SE = 0.62$, $p < .001$) than bullies.

The mental health of bully/victims. Similar to the victim groups, bully/victims in both countries also reported having more depression, anxiety, and stress symptoms (except for German primary school bully/victims), more past suicidal behavior (again for German primary school bully/victims), less positive mental health, and life satisfaction when compared to those not-involved, $|MDs| > 0.52$, $SEs > 0.17$, p 's $\leq .021$. Bully/victims in Germany (regardless of school periods) further reported perceiving less life satisfaction and social support than the not-involved group ($MDs > 0.57$, $SEs > 0.15$, p 's $\leq .041$), while bully/victims from primary school bullying in China showed lower sense of control than the not-involved peers ($MD = 0.57$, $SE = 0.15$, $p = .001$). Furthermore, only in Germany, bully/victims from secondary school bullying showed more anxiety ($MD = -2.32$, $SE = 0.63$, $p = .001$) and depressive symptoms ($MD = -2.54$, $SE = 0.77$, $p = .006$) and lower level of positive mental health ($MD = 2.38$, $SE = 0.88$, $p = .042$) than bullies.

Table 2. Mean Mental Health and Positive Mental Health Scores of Those Not Involved in Bullying and Bullying Victims, Bully/Victims and Bullies During Primary or Secondary School in China and in Germany (Controlled for Concurrent Bullying at University).

Variable	Not-involv.		Victim		Bully		Bully/vict.		F (df1, df2)	η^2 part.
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)				
China (primary school)										
Stress	2.91 (3.68)	4.6 (4.30)	4.91 (4.34)	6.07 (4.81)	30.45 (3, 5,824)	0.015***				
Anxiety	2.51 (3.46)	4.16 (3.95)	4.33 (4.28)	5.82 (4.99)	31.52 (3, 5,824)	0.016***				
Depression	2.09 (3.42)	3.59 (4.00)	4.24 (4.56)	5.02 (5.16)	25.62 (3, 5,824)	0.013***				
PMH	20.81 (4.85)	18.69 (4.96)	18.99 (5.41)	18.31 (5.74)	27.39 (3, 5,824)	0.014***				
SWLS	23.74 (6.67)	21.04 (6.78)	21.44 (6.68)	22.14 (6.72)	23.72 (3, 5,824)	0.012***				
Social support	24.71 (4.13)	23.01 (4.25)	23.57 (4.38)	22.84 (4.69)	19.76 (3, 5,824)	0.010***				
Sense of control	6.49 (1.73)	6.18 (1.58)	6.18 (1.8)	5.84 (1.67)	9.45 (3, 5,824)	0.005***				
Self-efficacy	29.66 (4.93)	27.73 (4.88)	29.22 (5.59)	28.04 (5.81)	20.94 (3, 5,824)	0.011***				
Suicidality	2.34 (0.95)	2.74 (1.29)	2.78 (1.38)	2.97 (1.87)	128.81 (3) ^a	***				
Germany (primary school)										
Stress	7.03 (4.75)	8.55 (5.13)	7.62 (4.95)	8.07 (5.00)	8.08 (3, 1,718)	0.014***				
Anxiety	3.74 (3.81)	5.21 (4.66)	4.5 (3.87)	5.38 (4.86)	13.09 (3, 1,718)	0.022***				
Depression	4.81 (4.65)	6.47 (5.64)	5.49 (4.92)	7.29 (5.62)	12.29 (3, 1,718)	0.021***				
PMH	18.32 (5.46)	16.04 (6.23)	17.44 (6.9)	15.74 (6.36)	14.71 (3, 1,718)	0.025***				
SWLS	24.95 (5.89)	22.95 (6.35)	23.37 (6.92)	21.49 (6.36)	12.85 (3, 1,718)	0.022***				
Social support	25.82 (4.14)	24.00 (5.30)	24.72 (5.12)	23.79 (5.72)	16.56 (3, 1,718)	0.028***				
Sense of control	7.88 (1.81)	7.37 (2.09)	7.84 (1.97)	7.41 (1.66)	7.07 (3, 1,718)	0.012***				
Self-efficacy	28.6 (4.63)	27.36 (5.47)	29.06 (5.02)	28.48 (5.24)	5.42 (3, 1,718)	0.009***				
Suicidality	1.76 (1.02)	2.30 (1.34)	2.13 (1.17)	2.29 (1.10)	34.26 (3) ^a	***				

(continued)

Table 2. (continued)

Variable	Not-involv.		Victim		Bully		Bully/vict.		F (df1, df2)	η^2 part.
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)		
Chinese (secondary school)										
Stress	2.98 (3.68)	5.78 (4.83)	5.6 (4.45)	6.71 (5.14)	28.89 (3, 5,823)	0.015***				
Anxiety	2.59 (3.47)	5.08 (4.50)	5.09 (4.52)	6.36 (5.19)	22.62 (3, 5,823)	0.012***				
Depression	2.16 (3.43)	4.66 (4.69)	4.94 (4.70)	5.56 (5.44)	21.75 (3, 5,823)	0.011***				
PMH	20.70 (4.86)	18.22 (5.14)	18.03 (5.62)	17.36 (5.75)	17.69 (3, 5,823)	0.009***				
SWLS	23.56 (6.66)	20.99 (6.97)	21.74 (7.41)	20.20 (7.59)	7.84 (3, 5,823)	0.004***				
Social support	24.63 (4.12)	22.91 (4.64)	22.60 (4.68)	21.91 (4.91)	7.16 (3, 5,823)	0.004***				
Sense of control	6.46 (1.72)	6.20 (1.68)	6.04 (1.79)	6.13 (1.61)	2.13 (3, 5,823)	0.001				
Self-efficacy	29.54 (4.96)	28.03 (5.23)	28.5 (5.44)	27.27 (5.57)	4.92 (3, 5,823)	0.003**				
Suicidality	2.36 (0.95)	3.15 (1.75)	2.69 (1.42)	3.11 (1.85)	121.86 (3) ^a	***				
Germany (secondary school)										
Stress	6.62 (4.56)	9.07 (5.19)	6.30 (4.71)	8.29 (4.59)	27.31 (3, 1,718)	0.046***				
Anxiety	3.53 (3.58)	5.51 (4.83)	2.77 (2.77)	5.17 (4.25)	28.68 (3, 1,718)	0.048***				
Depression	4.52 (4.44)	6.85 (5.67)	4.07 (4.32)	6.75 (5.34)	25.19 (3, 1,718)	0.042***				
PMH	18.73 (5.22)	15.6 (6.21)	18.8 (5.58)	16.19 (6.93)	30.53 (3, 1,718)	0.051***				
SWLS	25.3 (5.69)	22.52 (6.44)	24.89 (6.21)	22.36 (6.6)	20.73 (3, 1,718)	0.035***				
Social support	26.07 (4)	23.81 (5.27)	25.09 (5.05)	24.62 (4.94)	25.11 (3, 1,718)	0.042***				
Sense of control	7.94 (1.76)	7.40 (2.09)	8.00 (1.78)	7.29 (1.87)	9.93 (3, 1,718)	0.017***				
Self-efficacy	28.89 (4.46)	27.04 (5.37)	29.86 (4.83)	28.12 (5.56)	15.28 (3, 1,718)	0.026***				
Suicidality	1.7 (0.98)	2.34 (1.31)	1.81 (1.11)	2.28 (1.16)	57.34 (3) ^a	***				

Note. The F values refer to the univariate test results of each outcome measures. PMH = positive mental health scale; SWLS = satisfaction with life scale.

^aSuicidality was test with Kruskal Wallis H test, the K-W H value rather than F value was reported here.

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

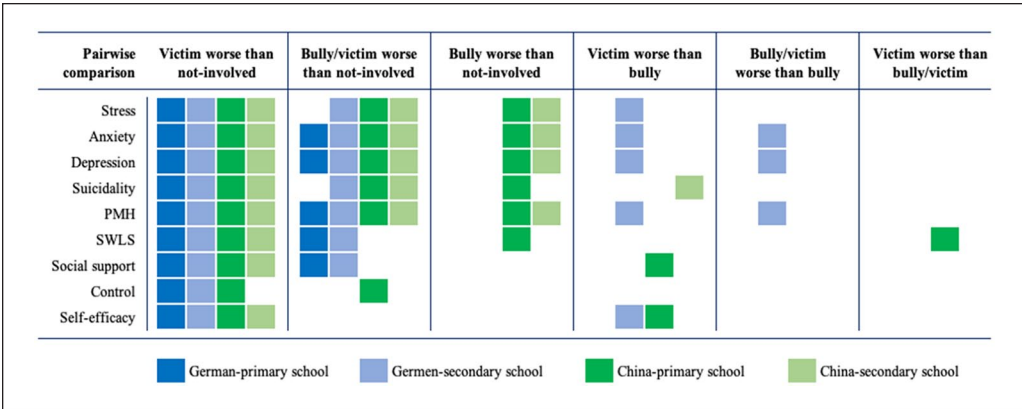


Figure 1. Summary of the findings of pairwise comparisons among the four bullying groups at primary or secondary school in Germany and China.

Note. Only significant pairwise comparisons are listed. PMH = positive mental health scale; SWLS = satisfaction with life scale.

The mental health of bullies. Only in China, pure bullies from both school periods reported having more depression, anxiety, and stress symptoms, more past suicidal behavior (primary school bully group), less positive mental health, and life satisfaction (primary school bully group) when compared to those not-involved (MDs > 0.33, SEs > 0.78, p 's ≤ .005). In contrast, bullies from Germany did not show any differences to the non-involved groups. These results supported our second hypothesis.

Discussion

The current study investigated the relationship between bullying experiences in childhood and adolescence and adult mental health outcomes in China and Germany. Victims of primary or secondary school bullying, regardless of country, suffered from pronounced mental health problems and lower positive mental health in early adulthood. There were, however, two major differences between the two countries. First, the victimization rate in China was much lower than in Germany. Second, while bullies in Germany were as healthy as non-involved peers, bullies in China displayed worse mental health than non-involved and similar to their victims. Overall, the results regarding the mental health of victims and bullies from the German sample are in line with findings from other Western societies in that victims but not bullies report poorer mental health outcomes (Copeland et al., 2013; Moore et al., 2017; Takizawa et al., 2014). In contrast, the findings of the mental health of bullies in China are at odds with those in Western societies.).

Bullying Prevalence Rate

A major cross-cultural difference was the much lower victimization rate in China. Far fewer Chinese university students reported that they had been victims or bully/victims in primary or secondary school compared to German students. The rates found in the current study are well within the range reported by Cheng et al. (2010), Eslea et al. (2004), and Wolke et al. (2001). A possible explanation is the difference in values between the two cultures. Chinese culture emphasizes interpersonal peace (Huang, 2016). Although an emphasis on interpersonal harmony is not necessarily equal to real harmony relationships (Liu et al., 2019), direct bullying

behavior (especially physical bullying and explicit verbal bullying) is still seen as a violation of social harmony. It receives more disapproval in China (Ji et al., 2003) than in more individualistic countries such as Germany. This explanation is consistent with previous findings in Chinese adolescents, where higher endorsement of individualism was associated with more aggression, while higher endorsement of collectivism was linked to less bullying behavior (Li et al., 2010).

Moreover, school bullying was more likely to occur in primary school than in secondary school in China, which is consistent with other large-scale surveys in China (Han et al., 2017). In contrast, the German victimization rate increased from 25.1% in primary school to 32.6% in secondary school. This difference between the two countries may be due to the cultural influences discussed above, but could also be a consequence of the different school systems. In Germany, primary school usually lasts 4 years while secondary school (especially for those who aim to go to university) takes 8 to 9 years. In China, both school levels last 6 years.

Meanwhile, victimization has been reported to reduce academic performance (Moore et al., 2017). Given that academic achievement is highly prioritized in China, a child or adolescent with a good grade in school (who is more likely to attend university later) generally receives more attention and resources from teachers and the general environment and thus may be relatively protected from being victimized (Han et al., 2017). Thus, the university student samples may have been biased by including fewer or more resilient victims of bullying. The bullying rate from our samples may not reflect the whole picture of bullying in school periods.

The Mental Health of Victims

Victims in both countries reported more past suicidal behavior and experienced more stress, anxiety, and depression symptoms compared to those not-involved in early adulthood. These results provide further support that bullying victimization has long-lasting negative consequences (Copeland et al., 2013; Moore et al., 2017; Takizawa et al., 2014). Moreover, victims in both countries also perceived lower levels of life satisfaction, general positive mental health, social support, and self-efficacy than their not-involved peers, whereas the sense of control was not consistently affected in victims. These positive factors, such as general positive mental health, social support, and self-efficacy, may act as protection or adjustment factors to cope with the adverse outcomes of victimization (Cluver et al., 2010). The current study adds that the negative associations of childhood bullying are twofold: increased mental health problems and fewer potential coping and support resources.

The Mental Health of Bullies

The second difference was found concerning the mental health status of bullies. In line with many other studies conducted in Germany and other Western countries (Lösel & Bender, 2011; Schultze-Krumbholz et al., 2012; Wolke & Lereya, 2015), German bullies were as healthy and well-adjusted as their not-involved peers. Moreover, German bullies during secondary school even showed better well-being status than victims and bully/victims in terms of anxiety, depression, and positive mental health. On the contrary, Chinese bullies appeared to be as “impaired” as their victims. They displayed more mental health symptoms and less positive health when compared to those not-involved. These results are in line with some cross-sectional data that reported both bullying victimization and perpetration are associated with worse mental health status (i.e., more murderous ideation and behaviors, Su et al., 2019; less perceived social support from or poor relationship with parents and teacher is associated with both more bullying victimization and perpetration, Otake et al., 2019).

This pattern may again be due to the strong anti-interpersonal conflict culture in China (Huang, 2016; Ji et al., 2003), where bullying may be considered as socially deviant and thus will be socially sanctioned. Thus, bullying others may not lead to better social status or consequences, as suggested by the evolutionary theory (Olthof et al., 2011; Sutton et al., 1999; Volk et al., 2016). For example, in China, less perceived social support from or poor relationships with parents and teachers is associated with both more bullying victimization and perpetration (Otake et al., 2019). Considering the disapproval from the social environment (Ji et al., 2016; Wang & Zhang, 2002), bullies in China may also experience mental problems and perceive less social support.

Furthermore, those who choose to display bullying behavior may have mental health problems that precede bullying. For example, bullying perpetration has been associated with psychoticism in China (Gu & Zhang, 2003) whereas in Western societies, bullies are more often extraverted (Mynard & Joseph, 1997), high socially-skilled (Sutton et al., 1999), and socially dominant (Olthof et al., 2011). These results indicate that the reasons why some children become bullies may differ in individualistic versus collectivistic societies, and that different interventions to prevent bullying may be necessary in different types of societies.

Other Relevant Findings

Further findings are noteworthy. First, bully/victims did not show worse mental health status than victims in the current study. This is only partly consistent with previous findings that bully/victims are similar to victims or may fair even worse (Arseneault, 2018; Copeland et al., 2013). However, the effect sizes between the bully/victim and the non-involved group were similar to and sometimes even larger than the effect sizes observed between the victim and the non-involved group. Therefore, the relatively small sample sizes of the bully/victim groups may be responsible for the fact that fewer significant differences were observed in Germany. Future studies with a larger sample of bully/victim will be more suited to examine this issue.

Second, bullies reported higher self-efficacy than victims, suggesting that the experience of domination may have boosted bullies' confidence and self-efficacy. Inversely, it could also be that higher self-efficacy or dominant tendency primes someone to act as a bullying perpetrator. Again, more research is needed for clarifying the cause-consequence-relationships between those positive traits and bullying.

Third, the timing of when German children were involved in bullying appears to have differential effects on their mental health status at university. In Germany, victims and bully/victims from secondary school bullying, but not from primary school bullying, displayed even worse mental health status (especially on anxiety, depression, and PMH) than the bully group (Table 2 and Figure 1). There are several possible explanations: (1) the secondary school period is much closer to their current selves at university; or (2) adolescents value peer relationship more (Richards et al., 1998), therefore what happened during this period may leave a much more pronounced mark on their mental health status than experiences during primary school.

Limitations

The study has several strengths including the use of the same, mostly measurement-invariant scales, large sample size, and test-re-test of the retrospective bullying measure. There are also limitations. First, bullying history was measured using self-reported retrospective questions. Thus, the perpetration rate in both countries may be underestimated and perhaps even more so in a collectivistic context. The memories of bullying during early school periods may be biased. However, the test-retest reliability is high, and the patterns of findings are consistent with those of prospective bullying studies (Moore et al., 2017). Second, our survey on bullying history did

not explicitly include relationship bullying (e.g., social exclusion). Some research has indicated that social exclusion is a common form of bullying in China (6%–16% of all bullying behaviors e.g., Cheng et al., 2010) and in Germany (23% e.g., Scheithauer et al., 2006), thus the prevalence rate reported in our study may be underestimated. Third, mental health problems have been pointed out as both precursors and outcomes of school bullying (Arseneault, 2018; Chu et al., 2019). Our retrospective design was unable to control for mental health status before bullying happened. However, dozens of longitudinal studies have shown that the effects of bullying are pervasive over and above pre-existing mental health problems (Moore et al., 2017). Fourth, China and Germany differ in many aspects rather than just individualism and collectivism. The school system, religion, economic status, development level, and history may also contribute to the differences observed in our study. Future studies may measure the level of individualism and bullying to ascertain this link.

Conclusion

In conclusion, this study finds that the adverse effects of being bullied are culturally invariant across individualistic and collectivistic societies such as Germany and China, as indicated by retrospective accounts of university students. In contrast, the motivation and reasons to bully seem to differ between these student samples such that bullies are at odds with a group and harmony-based society such as China while they reap awards in an individualistic society such as Germany. Thus, bullies in Chinese students are also at risk of exclusion and mental health problems. These differences in cultural orientation are likely to explain the lower prevalence of bullying involvement in our Chinese samples overall. An implication could be that the explanatory power of evolutionary resource control theories for bullying behavior may apply to societies that encourage dominance and getting ahead as an individual. In contrast, in East-Asian cultures, individuals who value harmony enjoy high esteem as well as better social status. Thus, bullies are sanctioned too. Interventions that are well tested in Western cultures may therefore need to be tailored when trying to reduce bullying perpetration in collectivistic societies. While we need to be cautious not to overgeneralize our university student samples to the general population, if confirmed by additional research, these results may have important implications for intervention efforts and future research on what leads children in collectivistic societies to bully others.

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ORCID iD

Muyu Lin  <https://orcid.org/0000-0002-3803-5749>

Supplemental Material

Supplemental material for this article is available online.

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