School bullying victimization and self-rated health and life satisfaction: The gendered buffering effect of educational expectations

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ABSTRACT
Ample work has established the adverse impact of school bullying victimization on health and well-being outcomes. However, few studies have explored the potential coping mechanisms. To address this shortcoming, the present study examines three questions. First, how is school bullying victimization associated with self-rated health and life satisfaction? Second, how do educational expectations moderate those associations? Third, do any observed patterns further differ for boys and girls? Using a nationally representative survey of urban areas from China collected in 2016, we found that traditional bullying victims were more likely than non-victims to report poor self-related health and life satisfaction. We observed similar patterns for cyberbullying victims. Interestingly, traditional bullying victimization fully explained the effect of cyberbullying victimization on poor self-rated health and life satisfaction among boys. The patterns for girls remained less clear. Finally, educational expectations appeared to buffer the effect of cyberbullying victimization on poor self-rated health and life satisfaction for boys only. Overall, our findings underscored the complexity of documenting health and well-being disparities by bullying victimization.

1. Introduction
School bullying continues to be an important public health concern (Williford & Zinn, 2018). Scholars have assessed two forms of school bullying victimization, including traditional bullying (Tokunaga, 2010) and cyberbullying (Li, Smith, & Cross, 2012). According to studies conducted in Mainland China, Taiwan, and Hong Kong, the rates of traditional and cyberbullying bullying victimization ranged from 2% to 66% and from 12% to 72%, respectively (Chan & Wong, 2015). Traditional bullying is often defined as the “(1) intentional negative behavior that (2) typically occurs with some repetitiveness and is (3) directed against a person who has difficulty defending himself or herself” (Olweus, 2011, p.151). Cyberbullying is often defined as traditional bullying but delivered through digital platforms (Ybarra, Boyd, Korchmaros, & Oppenheim, 2012). Although prior research establishes that traditional bullying is more common compared to cyberbullying (Smith et al., 2008), more recent studies find evidence that cyberbullying victimization is as prevalent as traditional bullying victimization (Chan & Wong, 2015), and it is not uncommon for adolescents to experience both traditional bullying and cyberbullying simultaneously (Cross, Lester, & Barnes, 2015; Smith et al., 2008; Tokunaga, 2010; Waasdorp & Bradshaw, 2015).

1.1. School bullying victimization and mental and behavioral outcomes
Research has established that school bullying victimization is detrimental to children’s and adolescents’ mental health and behavioral outcomes. For instance, compared to non-victims, youth who have experienced school bullying tend to report higher levels of internalizing symptoms, including anxiety (Moore et al., 2017; Schneider, O’donnell, Stueve, & Coulter, 2012; Wachs, 2012), depression (Chang et al., 2013; Moore et al., 2017; Murshid, 2017; Schneider et al., 2012; Wachs, 2012), feeling of loneliness (Cao et al., 2020; Pengpid & Peltzer, 2019), as well as lower levels of self-esteem (Coggan, Bennett, Hooper, & Dickinson, 2003; Tsououis, 2016). Moreover, school bullying victimization is linked to elevated rates of externalizing behavioral outcomes, such as substance use (Pengpid & Peltzer, 2019; Trofí, Bowes, Farrington, & Lösel, 2014), self-injury (Gower & Borowsky, 2013; Moore et al., 2017), suicidal behavior (Moore et al., 2017; Romo & Kelvin, 2016), and aggression (Chan & Wong, 2017).
1.2. School bullying victimization and self-rated health and life satisfaction

In light of prior well-documented research findings, we examine whether the same patterns can be established to two important, yet understudied health and well-being outcomes, including self-rated health and life satisfaction. Scholars have recently proposed that school bullying victimization is linked to adolescents' physical health (Dhabhar, 2014; Straub & Cutolo, 2018). Although there is evidence that bullying victimization is associated with poor sleep quality (Herge, La Grecia, & Chan, 2016) and physical or somatic symptoms, such as bedwetting, stomach-aches, or abdominal pain (Gini & Pozzoli, 2009), few studies have formally documented the effect of school bullying victimization on self-rated health (a global measure of physical health status). Using data from wave 5 of the Fragile Families and Child Wellbeing Study (FFCWS), Zhang and colleagues (2019) found that school bullying victimization was associated with poor self-rated health. Given prior sparse findings, more research is warranted.

Life satisfaction is an important general measure of subjective well-being (Diener, 1994). An extensive body of research has used life satisfaction to evaluate either children's and adolescents' overall quality of life (Pavot & Diener, 1993) or satisfaction with friends, family, and school experiences (Saha, Huebner, Hills, Malone, & Valois, 2014). Particularly, life satisfaction has been considered a main well-being outcome within the context of school bullying (Gini, Marino, Pozzoli, & Holt, 2018; Kerr, Valois, Huebner, & Drane, 2011; Valois, Kerr, & Huebner, 2012). Although there is considerable evidence that school bullying victims are more likely to report lower levels of life satisfaction (Nozaki, 2019; Weng, Chui, & Liu, 2017), most studies have employed homogenous samples of students, which limits the generalizability of their findings. The present study extends prior research by focusing on more heterogeneous groups of children and adolescents.

1.3. Educational expectations as a moderator

Despite the centrality of school bullying victimization for health and well-being consequences (Nozaki, 2019; Weng, Chui, & Liu, 2017; Zhang, De Luca, Oh, Liu, & Song, 2019), there has been surprisingly little attention to the question of what factors might buffer those relationships. Given that children and adolescents spend countless time in school, researchers have stressed that schools are in a unique position to address risks to health and well-being consequences (Masten, Herbers, Cutuli, & Lafavor, 2008).

Educational expectations might play an important role that influences the adverse effect of school bullying victimization on health and well-being. Using the stress process model (Pearlin & Bierman, 2013) as a guiding framework, we posit that educational expectations can be conceptualized as a protective resource that buffers the detrimental effect of bullying victimization on health and well-being outcomes. More specifically, the stress process model has three core components: stressors, protective moderating resources, and health outcomes (Pearlin & Bierman, 2013). Extensive evidence has established that (1) stressors are associated with deleterious health consequences, and (2) those adverse consequences are weaker for individuals who have access to protective resources (Pearlin & Bierman, 2013).

Research has established that bullying victimization is a prominent stressor, which is detrimental to adolescents' health and well-being (Priest, Kavanagh, Bécares, & King, 2019). In addition, as one of the common protective resources, coping refers to "a behavioral or cognitive response to a stressor that helps to prevent or allay the harm otherwise caused by the stressor" (Pearlin & Schooler, 1978). One form of coping is characterized by optimism (Taylor & Stanton, 2007). Based on 40 in-depth interviews with female secondary school students from rural Malawi, Frye (2012) stressed that unflagging optimism towards educational expectations was one crucial element contributing to educational success among disadvantaged youth. Being optimistic towards one's educational aspirations allowed youth to create an imagined bright future to "refine their narratives about themselves and transcend their present reality" (Frye, 2012, p.1567), and ultimately developed a powerful cognitive schema that motivated themselves towards educational success. Therefore, it is reasonable to consider educational expectations as a proxy of optimism, which represents a protective resource. A body of quantitative research has found evidence supporting this claim. For instance, prior studies have observed that adolescents' educational expectations are positively associated with academic outcomes (Andrew & Flashman, 2017; Bozick, Alexander, Entwisle, Dauber, & Kerr, 2010; Feliciano & Lanuza, 2016; Karlson, 2015).

It is reasonable to assume that the moderating role of educational expectations might be particularly relevant in the context of Chinese culture. By conducting a comparative study across mainland China, Taiwan, South Korea, the U.S., Germany, and Australia, Li and Xie (2020) observed that compared with Western societies, children's educational expectations in East-Asian societies were less dependent on family's socioeconomic characteristics, such as parent's education. Instead, given Confucian cultural traditions embedded in East Asia, both parents and children tend to hold high values on higher educational attainment (Li & Xie, 2020). The cultural difference has explained the gap of higher educational achievement between Asian Americans and their white counterparts (Li & Xie, 2020). Given the importance of higher educational attainment among East Asians, it is crucial to examine how the potential moderating role of educational expectations might further benefit Chinese children's and adolescents' health and well-being.

1.4. Gender differences

There are reasons to suspect that the buffering effect of educational expectations might differ across gender. To guide our research hypothesis, we rely on the theoretical ideas of gender socialization (Leaper & Van, 2008; McKellar, Marchand, Diemer, Malanchuk, & Ecles, 2019; Yang & Gao, 2019). Gender socialization refers to a process where an individual develops beliefs towards gender roles and expectations (Stockard, 1999). The process of gender socialization has two stages (Davidson & Gordon, 1979): (1) the social construction of gender roles, and (2) the internalization of gender role expectations. Prior studies in China have stressed that the process of gender socialization contributes to the gender gap in educational achievement in higher education (Yang & Gao, 2019). On the one hand, the characteristics embedded in the social construction of gender roles (e.g., lower career expectations from families, schools, and gender stereotypes) might be detrimental to women's educational aspirations. Parents and teachers who hold traditional gender ideologies tend to have higher expectations towards the competence of boys than that of girls (Hand, Rice, & Greenlee, 2017; Hyde, Lindberg, Linn, Ellis, & Williams, 2008; Jacobs & Bleeker, 2004) and therefore prioritize boys' education than that of girls' (Lundberg, 2005; Zhang, Haddad, Torres, & Chen, 2011).

On the other hand, the individual characteristics, such as traditional gender role norms and attitudes, embedded in the internalization of gender role expectations, might also negatively shape women's educational expectations (Cui, Xue, Connolly, & Liu, 2016). Parents and teachers are the primary sources for youth to form gender role attitudes, which can shape children's and adolescents' educational development (Lu & Bai, 2002; Wei & Chen, 2005). If parents or teachers encourage their children or students to follow the traditional gender norms, boys should pursue higher education whereas girls should focus on how to perform the traditional gender role of being a good mother and wife (Li, Wang, & Shi, 2013). Then boys and girls would likely develop different paths toward educational trajectories. Taken together, as a result of the process of gender socialization, boys are more likely to report having high educational expectations (Zhang et al., 2011). Thus, they might be better able to use educational expectations as a...
motivation to compensate for the negative effect of school bullying victimization on their health and well-being.

1.5. The present study

Using a nationally representative survey of urban areas from China collected in 2016, we examine three research questions. First, how is school bullying victimization associated with self-rated health and life satisfaction? Second, how do educational expectations moderate those associations? Third, do any observed patterns further differ for boys and girls? We hypothesize that:

Hypothesis 1:. School bullying victims are more likely to report poor self-rated health and life satisfaction.

Hypothesis 2:. Educational expectations buffer the effect of school bullying victimization on poor self-rated health and life satisfaction.

Hypothesis 3:. The buffering effect of educational expectations is stronger for boys than girls.

2. Methods

2.1. Participants

The present study employed a nationally representative survey of urban areas from China collected in 2016. We first selected the seven provinces (i.e., northeast, north, east, south, northwest, southwest, and central part of China) because they represent the geographical variations. Then the capital city of each province was selected, including Shenyang, Beijing, Lanzhou, Guiyang, Nanjing, Guangzhou, and Changsha. The schools were conveniently selected due to the availability of connections with local schools. One of each type of pre-college school was selected, which means one primary school, one middle school, one high school, and one vocational school. Within each school, one class of each grade (without Grade one to Grade three in primary school) was randomly selected. We did not sample students from Grade one to Grade three because they were not capable of reading and understanding the survey questions. Then each student within the class was surveyed with the assistance of one of our research assistants. These different sampling strategies at each stage were chosen to best balance the “representativeness,” the scientific rationale, and the available reality (Lohr, 2009). In total, 3777 questionnaires were distributed to 28 schools (4 schools per province multiply by 7 provinces). The response rate was 100%. However, 102 (2.7%) students were excluded from the analyses due to missing values. The final sample is 3675 (1772 boys and 1903 girls) adolescents.

2.2. Measures

2.2.1. Self-rated health

We measured self-rated health based on the question: “In general, how do you evaluate your overall health status?” Responses were coded as: “very poor (1),” “poor (2),” “average (3),” “good (4),” and “very good (5).” Previous research has well-documented the validity of the single item of self-rated health (Zhang et al., 2019). We then recoded responses to a dummy variable (1 = “very poor/poor” and 0 = “average/satisfied/very satisfied”) (Lacruz et al., 2016).

2.2.2. Self-rated life satisfaction

We measured self-rated life satisfaction based on the question: “In general, how do you evaluate your life satisfaction.” Responses were coded as: “very dissatisfied (1),” “dissatisfied (2),” “average (3),” “satisfied (4),” and “very satisfied (5).” Prior studies have documented the validity of the single item of self-rated life satisfaction (Jovanović & Lazić, 2018). We then recoded responses to a dummy variable (1 = “very dissatisfied/dissatisfied” and 0 = “average/satisfied/very satisfied”) (Lacruz et al., 2016).

2.2.3. Bullying victimization

We measured bullying victimization based on the question: “In the last academic year, have your classmates or peers done any of the following behaviors to you?” (Ba et al., 2019), including “called nickname, made fun of, or insulted in a hurtful way (1)” (verbal bullying), “threat you with harm (2)” (verbal bullying), “kick, hit, push, or spit at you (3)” (physical bullying), “deliberately destroy your things (4)” (physical bullying), “spread rumors about your and encourage others to dislike you (5)” (relational bullying), “exclude you from group activities on purpose (6)” (relational bullying), “spread bad news or rumors about you on the internet or social media (7)” (cyberbullying), “purposely post your private information/photos/videos on the internet or social media (8)” (cyberbullying), “threat or insult you by sending a message from phone/WeChat/ QQ (9)” (cyberbullying), and “deliberately exclude you from online communication or game (10)” (cyberbullying). We created traditional bullying based on the first six behaviors and cyberbullying based on the last four behaviors following the existing literature (Ba et al., 2019). Responses of each question included “never (1),” “rarely (2),” “sometimes (3),” and “frequently (4).” We averaged items such that higher scores indicated more frequent traditional bullying and cyberbullying victimization.

2.2.4. Educational expectations

Similar to prior research (Andrew & Flashman, 2017; Fishman, 2019), we assessed educational expectations based on the question: “What is the plan about your future?” The responses included “go to college,” “(go to work) make money,” “I don’t know,” and “Other.” We recoded the responses into a dummy variable (1 = “go to college” and 0 = “other”).

We controlled for the following variables based on the existing literature (Han, Fu, Liu, & Guo, 2018; Nozaki, 2019; Zhang, De Luca, Oh, Liu, & Song, 2019). Race/ethnicity was recoded as “Han people” and “other ethnic minority groups.” Boarding school was coded as “yes (boarding school)” and “no (non-boarding school).” School type was recoded as “primary school,” “middle school,” “high school,” and “vocational school.” Living arrangement was recoded as “living with parents,” “living with one parent,” and “others.” Father’s education and mother’s education were coded as “less than middle school,” “middle school,” “high school,” “college (Da Zhan),” “Bachelor’s degree,” and “above Bachelor’s degree.” The family’s socioeconomic status was re-coded as “very low,” “low,” “average,” “high,” and “very high.” Geographic location was assessed as the name of the cities: “Beijing,” “Lanzhou,” “Guangdong,” “Guiyang,” “Changsha,” “Nanjing,” and “Shenyang.”

Table 1 reported descriptive statistics of selected variables used in the analyses. Among our four focal variables, 3.21% of respondents reported “very poor/poor” in self-rated health (3.78% for boys vs. 2.68% for girls). Likewise, 3.13% of respondents reported “very dissatisfied/dissatisfied” in self-rated life satisfaction (3.95% for boys vs. 3.26% for girls). From a scale of 1–4, the mean of traditional bullying victimization was 1.35 (1.42 for boys vs. 1.27 for girls). Similarly, the mean of cyberbullying was 1.15 (1.20 for boys vs. 1.11 for girls). In addition, 82.42% of respondents reported planning for college (79.35% for boys vs. 85.29% for girls).

Based on our selected control variables, 91.76% of respondents were Han people (92.44% for boys vs. 91.12% for girls). 18.18% of them attended to boarding school (16.48% for boys vs. 19.76% for girls). The majority (37.77%) were in primary school (i.e., grades 4–6), followed by middle school (27.76%), high school (26.91%), and vocational school (7.56%). Similar patterns had also been observed for boys and girls. 73.28% of respondents were living with parents (72.23% for boys and 74.25% for girls) compared to those living with one parent, and others. The majority of respondents’ parents had middle and higher


school levels of education (middle school: 31.25% for fathers vs. 30.01% for mothers and high school: 24.24% for fathers vs. 22.29% for mothers). Similar patterns remained the same for the parents of the boys and girls. Over 50% of respondents reported average as their family’s socioeconomic status, followed by above average (26.39%), below average (10.99%), high (4.57%), and low (3.84%). Similar patterns had also been reported for boys and girls. Finally, a higher percentage of respondent were from Changsha (i.e., 21.44%) compared with the other six geographic locations. Similar patterns have also been observed for boys and girls (22.35% vs. 20.60%).

2.3. Analytical strategy

We used logistic regression to fit models for our two dichotomous measures, including poor self-rated health and life satisfaction. In Tables 2 and 3, we tested the direct effect of bullying victimization on each of the two health and well-being outcomes. For these models, in addition to odds ratio (OR), we also reported average marginal effects (AME), which provided a discrete change in the outcome (i.e., the predicted probability) with other covariate values averaged across the population (Chai & Maroto, 2020). Next, in Tables 4–6, we examined whether the associations between bullying victimization and poor self-rated health and life satisfaction differed across educational expectations, and further for boys and girls.

3. Results

3.1. School bullying victimization and self-rated health and life satisfaction

Table 2 presented logistic regression models predicting the probability of reporting poor self-rated health. Among boys, Model 1a showed that, compared to non-traditional bullying victimization, every one-point increase in traditional bullying scale was associated with a 3.4 (p < .001) percentage point increase in the probability of reporting poor self-rated health. Similarly, compared to non-cyberbullying victimization, every one-point increase in cyberbullying bullying scale was associated with a 3.2 (p < .001) percentage point increase in the probability of reporting poor self-rated health. Among girls, Model 2a showed that, compared to non-traditional bullying victimization, every one-point increase in traditional bullying scale was associated with a 2.7 (p < .001) percentage point increase in the probability of reporting poor self-rated health. Similarly, compared to non-cyberbullying victimization, every one-point increase in cyberbullying bullying scale was associated with a 2.9 (p < .001) percentage point increase in the probability of reporting poor self-rated health.

Among girls, Model 2a showed that, compared to non-traditional bullying victimization, every one-point increase in traditional bullying scale was associated with a 2.7 (p < .001) percentage point increase in the probability of reporting poor self-rated health. Similarly, compared to non-cyberbullying victimization, every one-point increase in cyberbullying bullying scale was associated with a 2.9 (p < .001) percentage point increase in the probability of reporting poor self-rated health. Among boys, Model 1a showed that, compared to non-traditional bullying victimization, every one-point increase in traditional bullying scale was associated with a 3.4 (p < .001) percentage point increase in the probability of reporting poor self-rated health.
bullying and cyberbullying victimization, Model 1c indicated that the effect of cyberbullying victimization on poor self-rated life satisfaction became statistically insignificant. In contrast, the significant effect of traditional bullying victimization remained, suggesting that every one-point increase in traditional bullying scale was still associated with a 2.7 (p < .001) percentage point increase in the probability of reporting poor self-rated life satisfaction.

Among girls, Model 2a showed that, compared to non-traditional bullying victimization, every one-point increase in traditional bullying scale was associated with a 2.3 (p < .001) percentage point increase in the probability of reporting poor self-rated life satisfaction. Likewise, compared to non-cyberbullying victimization, every one-point increase in cyberbullying scale was also associated with a 2.3 (p < .001) percentage point increase in the probability of reporting poor self-reported life satisfaction (as shown in Model 2b). However, after accounting for both traditional bullying and cyberbullying victimization, Model 2c indicated that the effect of cyberbullying victimization on poor self-rated life satisfaction became statistically insignificant. In contrast, the significant effect of traditional bullying victimization remained, suggesting that every one-point increase in traditional bullying scale was still associated with a 1.5 (p < .05) percentage point increase in the probability of reporting poor self-rated life satisfaction. Taken together, our finding partially supported hypothesis 1.

3.2. The gendered buffering effect of educational expectations

Table 4 presented logistic regression models predicting the moderating effect of educational expectations on the relationship between bullying victimization and poor self-rated health and life satisfaction. And, whether those associations further differed for boys and girls. Given that the current the American Sociological Review (ASR) editors stress that: “don’t use the coefficient on the interaction term to conclude the significance of statistical interaction in categorical models such as logit, probit, Poisson, and so on” (Mustillo, Lizardo, & McVeigh, 2018, p.1282), we therefore tested interaction effects between bullying victimization and planning for college using the predicted probability metric (Mize, 2019).

By following Mize (2019) methodological approach, Models 1a-2b in Table 5 indicated predicted probability of reporting poor self-rated health and life satisfaction by bullying victimization and educational expectations for boys and girls separately. Among boys, Model 1a indicated that every one-point increase in the traditional bullying scale was associated with a 9.9 (p < .001) percentage point increase in the probability of reporting poor self-rated health for boys who reported no educational expectations. The effect of traditional bullying victimization on poor self-rated health was only marginally statistically significant for those who had educational expectations (p < .10). Together, educational expectations buffered the adverse effect of traditional bullying victimization on poor self-rated health for boys. That is, the effect of traditional bullying victimization on poor self-rated health was weaker for boys who had educational expectations (AME = −0.078, p < .001). We then turned our attention to cyberbullying victimization. The results suggested that the effect of cyberbullying victimization on poor self-rated health was weaker for those who had educational expectations (AME = −0.024, p < .05). However, as Model 1b indicated, educational expectations did not moderate the association between bullying victimization and poor self-rated health for girls.

Model 2a indicated that, among boys, every one-point increase in traditional bullying scale was associated with an 8.3 (p < .001) percentage point increase in the probability of reporting poor self-rated life satisfaction for those who had no educational expectations. The effect of traditional bullying victimization on poor self-rated life satisfaction was statistically insignificant for those who had educational expectations (AME = 0.013 and p > .05). Together, educational expectations buffered the adverse effect of traditional bullying victimization on poor self-rated life satisfaction for boys. That is, the effect of traditional bullying victimization on poor self-rated life satisfaction was weaker for boys.

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Logistic regression models predicting the probability of reporting poor self-rated health.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>Model 1a</td>
</tr>
<tr>
<td>O.R.</td>
<td>AME</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.005</td>
</tr>
<tr>
<td>Pseudo²</td>
<td>0.167</td>
</tr>
<tr>
<td>Traditional</td>
<td>2.850***</td>
</tr>
<tr>
<td>(0.422)</td>
<td></td>
</tr>
<tr>
<td>Cyber</td>
<td>2.576***</td>
</tr>
<tr>
<td>(0.409)</td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>0.005</td>
</tr>
<tr>
<td>Pseudo²</td>
<td>0.167</td>
</tr>
</tbody>
</table>

Note: All models include full control variables. Standard errors are reported in parenthesis.

***p < .001; **p < .01; *p < .05; +<0.10.

<table>
<thead>
<tr>
<th>Table 3</th>
<th>Logistic regression models predicting the probability of reporting poor self-rated life satisfaction.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>Model 1a</td>
</tr>
<tr>
<td>O.R.</td>
<td>AME</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.006</td>
</tr>
<tr>
<td>Pseudo²</td>
<td>0.226</td>
</tr>
<tr>
<td>Traditional</td>
<td>2.888***</td>
</tr>
<tr>
<td>(0.440)</td>
<td></td>
</tr>
<tr>
<td>Cyber</td>
<td>2.778***</td>
</tr>
<tr>
<td>(0.449)</td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>0.006</td>
</tr>
<tr>
<td>Pseudo²</td>
<td>0.226</td>
</tr>
</tbody>
</table>

Note: All models include full control variables. Standard errors are reported in parenthesis.

***p < .001; **p < .01; *p < .05; +<0.10.
Table 4
Logistic regression models predicting poor self-rated health and life satisfaction by educational expectations and gender.

<table>
<thead>
<tr>
<th></th>
<th>Boys</th>
<th>Girls</th>
<th>Full sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Poor SR health</td>
<td>Poor SR life satisfaction</td>
<td>Poor SR health</td>
</tr>
<tr>
<td></td>
<td>O.R.</td>
<td>O.R.</td>
<td>O.R.</td>
</tr>
<tr>
<td>Boys (=1)</td>
<td>0.285</td>
<td>0.444</td>
<td>0.310</td>
</tr>
<tr>
<td></td>
<td>(0.245)</td>
<td>(0.394)</td>
<td>(0.240)</td>
</tr>
<tr>
<td>Traditional</td>
<td>3.907**</td>
<td>2.430**</td>
<td>2.856***</td>
</tr>
<tr>
<td></td>
<td>(1.217)</td>
<td>(0.529)</td>
<td>(0.827)</td>
</tr>
<tr>
<td>Cyber</td>
<td>0.198</td>
<td>2.035**</td>
<td>1.440</td>
</tr>
<tr>
<td></td>
<td>(0.298)</td>
<td>(0.619)</td>
<td>(0.339)</td>
</tr>
<tr>
<td>Educational expectations (1 = yes)</td>
<td>2.055</td>
<td>1.908</td>
<td>1.027</td>
</tr>
<tr>
<td></td>
<td>(1.554)</td>
<td>(1.252)</td>
<td>(0.716)</td>
</tr>
<tr>
<td>Traditional × educational expectations</td>
<td>0.466*</td>
<td>0.562+</td>
<td>1.168</td>
</tr>
<tr>
<td></td>
<td>(0.148)</td>
<td>(0.176)</td>
<td>(0.467)</td>
</tr>
<tr>
<td>Cyber × educational expectations</td>
<td>0.375**</td>
<td>0.378*</td>
<td>1.171</td>
</tr>
<tr>
<td></td>
<td>(0.140)</td>
<td>(0.150)</td>
<td>(0.542)</td>
</tr>
<tr>
<td>Boys × traditional</td>
<td>1.693</td>
<td>1.957+</td>
<td>1.518</td>
</tr>
<tr>
<td></td>
<td>(0.607)</td>
<td>(0.676)</td>
<td>(0.553)</td>
</tr>
<tr>
<td>Boys × cyber</td>
<td>4.447</td>
<td>6.142*</td>
<td>4.217</td>
</tr>
<tr>
<td></td>
<td>(4.567)</td>
<td>(0.570)</td>
<td>(0.420)</td>
</tr>
<tr>
<td>Educational expectations × boys</td>
<td>0.530</td>
<td>0.473</td>
<td>0.310*</td>
</tr>
<tr>
<td></td>
<td>(0.256)</td>
<td>(0.238)</td>
<td>(0.172)</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.004</td>
<td>0.005</td>
<td>0.008</td>
</tr>
<tr>
<td></td>
<td>0.003</td>
<td>0.003</td>
<td>0.005</td>
</tr>
<tr>
<td>Pseudo R²</td>
<td>0.194</td>
<td>0.197</td>
<td>0.201</td>
</tr>
<tr>
<td></td>
<td>0.185</td>
<td>0.185</td>
<td>1.34</td>
</tr>
<tr>
<td></td>
<td>0.146</td>
<td>0.148</td>
<td>0.167</td>
</tr>
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</table>

Note: All models include full control variables.

***p < .001; **p < .01; *p < .05; +<0.10.
sequences (Moore et al., 2017; Pengpid & Peltzer, 2019), other aspects of health and well-being outcomes such as self-rated health and life satisfaction have been understudied. Our study showed that, compared to non-victims, traditional bullying victims were more likely to report poor self-rated health and life satisfaction. Similar patterns had also been observed for the association between cyberbullying victimization and poor self-rated health and life satisfaction. These results are consistent with what prior studies have found that school bullying victimization is detrimental to children’s and adolescents’ health (Nozaki, 2019; Zhang, De Luca, Oh, Liu, & Song, 2019).

However, after taking into account both traditional bullying and cyberbullying victimization simultaneously, the associations between bullying victimization and poor self-rated health and life satisfaction changed dramatically. More specifically, among boys, the adverse effect of cyberbullying victimization on poor self-rated health became statistically insignificant, while the effect of traditional bullying remained statistically significant. A similar pattern had also been observed for the association between bullying victimization and poor self-rated life satisfaction. Among girls, the patterns appeared to be less clear. Most existing literature has examined the effect of school bullying victimization on health and well-being outcomes using either only one form of health and well-being outcomes such as self-rated health and life satisfaction have been understudied. Our study showed that, compared to non-victims, traditional bullying victims were more likely to report poor self-rated health and life satisfaction. Similar patterns had also been observed for the association between cyberbullying victimization and poor self-rated health and life satisfaction. These results are consistent with what prior studies have found that school bullying victimization is detrimental to children’s and adolescents’ health (Nozaki, 2019; Zhang, De Luca, Oh, Liu, & Song, 2019).

Table 6 presented the predicted probability of reporting poor self-rated health and life satisfaction by bullying victimization and educational expectations and gender. Model 1a showed that although the interaction between traditional bullying victimization and educational expectations was statistically significant for boys (AME = −0.030, p < .01) and that interaction was not statistically significant for girls (AME = −0.018, p > .05), the three-way interaction with gender was not statistically significant (AME = −0.012, p > .05). Similar patterns had also been observed for poor self-rated life satisfaction (as shown in Model 2a).

In terms of cyberbullying victimization, Model 1b showed that the interaction between cyberbullying victimization and educational expectations was statistically significant for boys (AME = −0.029, p < .01), that interaction was not statistically significant for girls (AME = 0.004, p > .05), and the three-way interaction with gender was marginally statistically significant (AME = −0.033, p < .10). Similar patterns had also been observed for poor self-rated life satisfaction (as shown in Model 2b). Taken together, our finding partially supported hypothesis 3.

4. Discussion

Our findings contribute to prior research on the association between school bullying victimization and health in two ways: First, although a large body of research has established that school bullying victimization is associated with adverse mental health and behavioral consequences (Moore et al., 2017; Pengpid & Peltzer, 2019), other aspects of health and well-being outcomes such as self-rated health and life satisfaction have been understudied. Our study showed that, compared to non-victims, traditional bullying victims were more likely to report poor self-rated health and life satisfaction. Similar patterns had also been observed for the association between cyberbullying victimization and poor self-rated health and life satisfaction. These results are consistent with what prior studies have found that school bullying victimization is detrimental to children’s and adolescents’ health (Nozaki, 2019; Zhang, De Luca, Oh, Liu, & Song, 2019).

Second, using the stress process model (Pearlin & Bierman, 2013) as a guiding framework, this study is the first that discovered educational expectations as a powerful protective resource that buffered the effect of bullying victimization on adverse health and well-being consequences for boys. Our results indicated that the adverse effect of traditional bullying victimization on poor self-rated health and life satisfaction was weaker for boys who had educational expectations. Interestingly, although cyberbullying was not directly associated with...
poor self-rated health (as shown in Model 1c, Table 2) and life satisfaction (as shown in Model 1c, Table 2), educational expectations still appeared to buffer those associations (Models 1a and 2a, Table 5). These patterns suggested that without testing the moderating effect of educational expectations, we would falsely conclude that a statistically insignificant effect of cyberbullying on poor self-rated health and life satisfaction for boys, though conditional effects appeared to exist.

By contrast, educational expectations did not buffer the associations between bullying victimization and health and well-being outcomes for girls. These patterns align with the prediction of the ideas of gender socialization (Stockard, 1999), which emphasize the important roles embedded in the social construction of gender roles and the internalization of gender role expectations. By conducting three-way interactions, we found that only the interactions between cyberbullying and poor self-rated health and life satisfaction further differed for boys and girls. Given that adolescent girls tend to report lower educational expectations attributed to their perceptions of barriers faced in schools and at workplaces (Andres, Adamuti-Trache, Yoon, Pidgeon, & Thomsen, 2007; Eccles & Wigfield, 2002; Lent et al., 2001; Mello, 2008), as well as parents’ gendered stereotypes (Lundberg, 2005; Zhang et al., 2011), educational expectations might play a less important factor to influence detrimental health and well-being consequences for girls than boys.

Despite its contributions, our study included two major limitations. First, the dataset employed in the present study was cross-sectional, which limited potential causality. Second, due to the dataset limitation, we were unable to examine self-rated mental health consequences among school bullying victims.

5. Conclusion

School bullying continues to be an important public health and education concern (Williford & Zinn, 2018). To provide effective strategies towards reducing the detrimental effect of school bullying victimization on children’s and adolescent’s health and well-being, prior research has primarily focused on the mediating effects of school-related characteristics such as school connectedness (Liu, Carney, Kim, Hazler, & Guo, 2020) and school satisfaction (Oriol, Miranda, & Unanue, 2020). Little is known about what moderating mechanism that might buffer the adverse association between bullying victimization and health and well-being among youth. Our study discovered the protective effect of educational expectations. This finding has important policy implications. First, teachers and school administrators should encourage students to hold high educational expectations by promoting college for all ethos (Domina, Conley, & Farkas, 2011) to improve students’ health and well-being. Second, although there is some preliminary evidence that Chinese traditional gender norms have weakened dramatically due to the one-child policy (Xiao & Feng, 2010; Zhang, 2006), our statistically insignificant effect of educational expectations for girls reported in our study might suggest otherwise. To improve girls’ educational expectations, parents and teachers should make more efforts to promote gender equality. To sum, although our study has provided valuable empirical evidence on the gendered buffering effect of educational expectations on the association between bullying victimization and self-rated health and life satisfaction. Future studies should explore other health outcomes such as mental health and other potential protective resources to improve health and well-being disparities by school bullying victimization.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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References


