



Peer Victimization and Mental Health Risk in Chilean Students

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Abstract

Children who exhibit mental health problems are more likely to be targets of peer victimization. However, little is known about how mental health risk interacts with other individual and school-level factors in this relationship. In the current study, we explored the associations between peer victimization and mental health in 10,532 Chilean sixth grade students attending 405 of the lower SES schools in the country. Children were screened for mental health and classroom adaptation problems using standardized parent and teacher rating scales at the beginning of the school year, and completed questionnaires on self-reported peer victimization, classroom climate, and school climate at the end of the year, as part of an ongoing national school mental health program, which includes monitoring for school violence and school climate. Data were analyzed through logistic regression and multilevel analyses, incorporating sex, absenteeism due to physical health, school attendance, and individual SES as covariates. Results showed that the odds of being victimized by peers were five times greater for students who were identified at risk for mental health problems based on parent reports, and one time greater for students identified by teachers with attention and concentration difficulties. However, multilevel analyses showed that the relative contribution of mental health risk to peer victimization significantly diminished when other individual and school-level variables were included. Particularly relevant was the contribution of individual SES, classroom climate, and absenteeism due to physical health; and of school-level SES. These findings suggest the complex nature of the influence of mental health on peer victimization and the relevance of the social context interacting with student's mental health problems.

Keywords Bullying · Peer victimization · Mental health · School climate · Chile

Introduction

Bullying is a "...multifaceted form of mistreatment, mostly seen in schools and the workplace. It is characterized by the repeated exposure of one person to physical and/or

emotional aggression including teasing, name calling, mockery, threats, harassment, taunting, hazing, social exclusion, or rumors" (Currie et al. 2010). Bullying is characterized by the perpetrators' intention to harm (Craig and Pepler 1998; Hawker and Boulton 2000; Nansel et al. 2001), but since an intention is operationally very hard to measure, the literature often depicts peer victimization as a way to measure bullying. Peer victimization is defined as repeated aggressive behavior that involves a power imbalance not only between the bully and victim, but that also extends beyond these two individuals to include supporters, as well as bystanders who may fail to intervene in the harassment (Salmivalli 2010). There are several classifications of peer victimization that includes relational, physical, verbal, and generic victimization (Hawker and Boulton 2000). Bullying and peer victimization is a common occurrence in the school context, and approximately 20–30% of students have reported being either the perpetrator or the victim of bullying (Spivak and Prothrow-Stith 2001).

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Prior research suggests that certain individuals are at an increased risk for peer victimization. The WHO Health Behaviour in School-aged Children HBSC 2016 study (Inchley et al. 2016) examined patterns across 40 countries among individuals frequently involved in fights, and the findings revealed highly consistent sex and age effects: females were involved in fewer fights than males, and the prevalence of fights peaked in elementary school students, while it declined among middle school and high school students (Inchley et al. 2016). Additionally, children who are obese (Lumeng et al. 2010), have chronic illness (Earnshaw et al. 2017; Sentenac et al. 2013), have cognitive disabilities (Villalobos-Parada et al. 2015), or identify as LGBTQ (lesbian, gay, bisexual, transgender, or queer) (Earnshaw et al. 2017; Robinson and Espelage 2011) have been shown to be at heightened risk for peer victimization. In regards to mental health, prior research suggests that children with internalizing (Hodges et al. 1999; Hodges et al. 1997; Pellegrini and Long 2002; Nansel et al. 2001; Salmivalli 2010) and externalizing problems (Lereya et al. 2015; Perry et al. 1988; Pope and Bierman 1999; Shields and Cicchetti 2001) are at heightened risk for peer victimization as they are more likely to have low peer support or demonstrate disruptive and aggressive behavior that provokes their peers.

The relationship between peer victimization and poorer mental health appears to be bi-directional, for not only are children who exhibit mental health problems more likely to be targets of peer victimization, but children who suffer from peer victimization are also more likely to develop significant psychosocial problems (Bogart et al. 2014). Specifically, children who are the victims of peer victimization have been shown to be at greater risk for anxiety, depression, insecurity, loneliness, low self-esteem (Bogart et al. 2014; Earnshaw et al. 2017; Flannery et al. 2016; Nansel et al. 2001; Stapinski et al. 2014) and suicide (Geoffroy et al. 2016). Recipients of frequent peer victimization are also more likely to experience a range of psychosomatic symptoms such as abdominal pain and headaches (Fekkes et al. 2004; Williams et al. 1996). Furthermore, these youth are also at risk for worsening physical health (Bogart et al. 2014; Boynton-Jarrett et al. 2008) as well as substance abuse (Niemelä et al. 2011), and in a recent longitudinal study following ~4200 individuals, youth who experienced more frequent peer victimization in the fifth grade were more likely to use substances (alcohol, marijuana, tobacco use) in the tenth grade (Earnshaw et al. 2017).

The relation between peer victimization and mental health risk is complex, for individual mental health may interact dynamically with other individual factors such as SES. When examining the relationship between SES and peer victimization across several countries through indirect

associations such as negative school climate or academic performance gaps, the findings suggest that low SES is associated with peer victimization (Berkowitz et al. 2017) in conjunction with victimization within the family (Leadbeater et al. 2014) or in neighborhoods (Bonnet et al. 2009). Additionally, comprehensive and systematic reviews of studies related to peer victimization and SES suggest that the risks associated with low SES backgrounds can be mitigated by targeted interventions that consider this variable as a moderator of the association between peer victimization and SES-related risk factors (Berkowitz et al. 2017; Tippet and Wolke 2014). However, due to country-related regulations on studying individual SES (Berkowitz et al. 2017), most studies are limited and are unable to study the direct effects of individual SES on peer victimization.

In addition to low SES, peer victimization is also related to academic problems such as dislike of school (Kochenderfer and Ladd 1996), absenteeism (Slee 1994), and poorer academic achievement (Kochenderfer and Ladd 1996). Prior research suggests that peer victimization is related to school dropout, which is also associated with a range of problems including school adaptation (Espinoza et al. 2013), lower academic performance (Ladd et al. 2017), fewer positive and significant relationships with peers and adults, and less participation in school (Orpinas and Raczyński 2015). The relationship between peer victimization and school dropout may be bi-directional, as students who are at risk of dropping out, due to reasons such as excessive absenteeism, poor academic performance, and other related factors, might be at a greater risk of peer victimization. Specifically, these individuals may be less likely to be involved in pedagogical and social activities that promote positive student to student relationships and may therefore be considered outcasts by their peers (Ladd et al. 2017).

In fact, recent research suggests that peer victimization might be more strongly associated with students' difficulties in adapting to their schools than to their mental health risk *per se*. The literature on assessment of school-age children's mental health shows that there is a close relation between mental health risk and school adaptation, particularly, adaptation to the child's classroom (Murphy et al. 2015). However, with respect to peer victimization, it might be that the indicators more closely associated from a theoretical point of view with school adaptation, such as externalizing problems—for example, aggression perceived by teachers as behavioral problems and/or hyperactivity (Lereya et al. 2015; Shields and Cicchetti 2001)—might be more closely linked to peer victimization than internalizing problems such as depression, lack of social skills or low self-confidence (Nansel et al. 2001; Pellegrini and Long 2002). In this respect, given that peer victimization is a relational construct, variables such as school absenteeism (Slee 1994), dislike of school (Kochenderfer and Ladd 1996), and less

participation in school (Orpinas and Raczyński 2015) might be more closely linked to an overall poor school adaptation, which might place students at a higher risk for peer victimization than traditional mental-health measures that are not so closely related to the school context.

Therefore, from a social-ecological perspective (Benbenishty and Astor 2005; Espelage and Swearer 2003), peer victimization appears to be related to the climate of the classroom and of the school. Classroom climate is defined as the characteristics of the environment, factors, or dynamics within a classroom that may influence the learning processes of its students (Rowe et al. 2010; Çengel and Türkoğlu 2016) while school climate deals with the quality and character of school life (Cohen et al. 2009). Several researchers have studied the positive impact of school and classroom climate in relation to peer victimization rates, but little is known about the mechanisms that drive the relationship between school and classroom climate and peer victimization (Berkowitz et al. 2017). Prior research suggests that at the classroom level, a positive classroom climate contributes to reduced peer victimization (Çengel and Türkoğlu 2016; Espelage et al. 2014; López et al. 2012), and strengthens an environment for learning and teaching (Bozkurt and Ozden 2010; Tam 2008). At the school level, a positive school climate has been related to higher student support (Cornell et al. 2015), more school participation and academic success (Wang et al. 2014), and lower peer victimization (Cornell et al. 2015). Therefore, it could be argued that to be most effective, school interventions should include comprehensive classroom and whole-school climate improvement efforts (Thapa et al. 2013) as well as to reduce peer victimization rates as a way to create a more nurturing and caring environment for learning and personal development (Berkowitz et al. 2017; López et al. 2014; Espelage et al. 2014; López et al. 2012). This broader approach towards reducing peer victimization by improving school/classroom climate implies endorsing a multiple-tier model of intervention that includes primary, secondary, and tertiary prevention (Bonnet et al. 2009).

Peer victimization is a significant problem in Latin America, and there is a particularly high prevalence of school violence in Argentina, Colombia, Chile and Mexico (Chaux 2011). Peer victimization began being studied in Chile in 1994, when Arancibia (1994) identified that 75% of students of lower SES reported perceiving violence from their peers in school. Ten years later, the Ministry of Education performed the first national study on bullying and peer victimization (MINEDUC 2005), which revealed that 87% of the students perceived aggression in their schools. Starting from the year 2006 and following a consultancy of academic experts, the national studies began distinguishing the quality and type of victimization between peers. The National Survey of School Violence (MINEDUC-UAH

2006) found that 96% of students and teachers perceived psychological aggression in school, and that 83% of students perceived physical aggression. Significant differences were found by socioeconomic level (SES), where lower SES students perceived a higher frequency of peer victimization (López et al. (2011)). In 2011, the Ministry of Education (MINEDUC 2011) found that 1 out of every 10 students reported having been a victim of repeated violence by their peers. Of these students, 23.3% reported having experienced violence on a daily basis. After nearly two decades of descriptive studies on the frequencies of school violence and specific types of peer victimization, current research on school violence in Chile has shifted towards more comprehensive studies of peer victimization that take into account cultural issues (Tijmes 2012), school and neighborhood effects (López et al. 2017), mediation effects of teacher and student relationships (Villalobos-Parada et al. (2016)), at-risk groups (Villalobos-Parada et al. 2015), and social norms (Berger and Rodkin 2012).

In the current study we explored the associations between peer victimization and mental health in Chilean students attending low socio-economic status schools. We hypothesized that students identified as being at mental health risk by their teachers and/or parents, would be at a greater risk of being victimized by their peers. We also hypothesized that peer victimization would be associated with other individual student factors (sex, absenteeism due to physical health problems, school attendance, and individual SES, individual perceptions of classroom and school climate) as well as with school-level factors (aggregated classroom climate, school climate, and overall school SES).

Method

Participants

10,532 sixth grade students (48.9% males) from 405 low socio-economic status schools in Chile participated in this study. The sample is purposeful since it considers the lower-SES schools. All schools were part of *the SFL* Program described above. Therefore, all schools were selected based on the JUNAEB national priority scheme described above. Starting in 2016 a middle school version of the SFL program was implemented in 422 of participating schools; of these, 405 schools had reliable data with at least 10 students answering the questionnaires per class. For these students, the psychosocial screens were to be administered in sixth and eighth grade and the intervention provided in sixth grade. In addition to the teacher and parent rating scales used in the primary school version of Skills for Life, students in 4th, 5th, 6th, 7th, and 8th grade in all SFL schools are also asked to answer questionnaires on peer victimization,

classroom climate, school climate, and subjective well-being as part of an ongoing school violence and school climate monitoring system that is part of the program. This study used only data from 6th graders ($N = 10,532$; age mean = 11.73, $SD = 0.85$, range = 10–16; expected age range for 6th grade students in Chile = 11–12 years) because this was the only cohort with data both on mental health (TOCA-RR and PSC-CL) as well as on peer victimization, classroom climate, and school climate.

Procedure

The *Skills for Life* Program (SFL, in Spanish *Programa Habilidades para la Vida*, known as *HPV*) is one of the largest school-based mental health programs in the world, screening and providing services at a national scale to more than 1,000,000 students in Chile over the past decade (Murphy et al. 2015). Of the 7596 primary schools in Chile in 2010, about half were classified by the Ministry of Education as high risk on the basis of poverty and other factors. Almost half of these schools (1637) elected to participate in SFL. The program is provided by the National Board of Assistance and School Scholarships (*Junta Nacional de Auxilio y Becas Escolares, JUNAEB*), a division of the Ministry of Education which is in charge of providing different types of resources and support for disadvantaged students, including school lunches, transportation, and health. SFL is the program of JUNAEB that is responsible for improving student mental health. Schools are selected based on JUNAEB's national prioritization scheme, which considers SES, rural and urban poverty, urban indigence, and family and students' participation in public welfare programs. All elementary schools who receive State funding and have a high concentration of students identified as priority through JUNAEB criteria are eligible for the SFL Program. In order to start the SFL Program, the municipality must first agree, authorize and co-finance the program. Once the SFL Program starts in a given school, all students are screened for mental health risk. In the original SFL program all first-grade students in participating schools are screened with standardized teacher- and parent-completed measures of psychosocial functioning and are reassessed with the same measures in third grade. Students identified as being at-risk in first grade are referred to standardized 15-session preventive intervention workshops for students, their teachers, and their parents in second grade. The mental health risk screening and preventive interventions has been running on a national scale since 2000 and has shown to have significant effects on reducing mental health problems and improving school achievement (Guzman et al. (2011); Murphy et al. 2015; Guzman et al 2016). All components of the SFL program are based on the three-tiered model recommended by the

World Health Organization (mental health promotion for all students, parents, and teachers; preventative interventions for children screened as being at risk; and referrals to community professionals for children who were already seriously impaired).

For the mental health risk instruments, all middle school students were screened in their schools with the PSC-CL and the TOCA-RR as they had been in primary school. The instruments were administered to teachers and parents by the SFL personnel working in each school. The mental health measures were administered in the beginning (March; PSC-CL) or middle (June, TOCA-RR) of sixth grade, and the measures on peer victimization, classroom climate, and school climate were administered at the end of the school year (September and October). Since the measures of peer victimization, classroom climate, school climate, and wellbeing were administered to students from 4th to 8th grade only starting the year 2016 onwards, in this sample we consider data from 6th graders in all participating schools whose parents in 2016 answered the PSC-CL and whose teachers completed the TOCA-RR, and who answered the self-reported student questionnaires on peer victimization, classroom climate, school climate, and wellbeing as part of the school violence and school climate monitoring. Of a total of 12,750 6th grade students in these 405 schools, 10,532 met this criterion and were included in the sample.

Measures

Peer victimization

The School Victimization Scale (SVS) developed by Furlong and associates (Furlong et al. 1991), modified for use in Israel (Benbenishty and Astor 2005), and later adapted to fit the Chilean context (López et al. 2014) was used. It comprises 27 items that measure perceived incidents by asking about the frequency of violent episodes at the school during the previous month, by classmates, ranging from (1) Never during this month, to (3) three or more times this month. It evaluates the physical (8 items, $\alpha = .71$), verbal (7 items, $\alpha = .73$), social (3 item, $\alpha = .75$), cyber (3 items, $\alpha = .79$), and sexual (5 items, $\alpha = .66$) dimensions of victimization (López et al. 2014).

Classroom adaptation

We used a revised version of the Teacher Observation of Classroom Adaptation Checklist-Revised (TOCA-R, see Werthamer-Larsson et al. (1991)). The TOCA-R is a valid and reliable measure of children's classroom performance and behavior that has been used in studies of US youth for more than two decades. The TOCA-RR is a modified

31-item version of the TOCA-R created in the 1990s by Chilean investigators who worked with the US scale developers to translate, adapt, and validate de TOCA-R for the Chilean context (De la Barra et al. 2002; George et al. 1994; George et al. 2004). This instrument was chosen by the SFL national team in 2001 for its brevity, ease of administration, published validation studies and because it was in the public domain and could be used without cost. Conceptually, the SFL program considers the TOCA-RR a measure of mental health risk associated with school adaptation problems. According to S. Kellam (personal communication, July 11, 2005), mental health is composed of two dimensions: a) adaptation to social settings, including school, and b) personal wellbeing. In this sense, the SFL program considers the TOCA a measure of social adaptation and therefore, following Kellam (personal communication, July 11, 2005), a measure of one aspect of mental health, since adaptation to a classroom can be viewed as a child's version of adaptation for life (Vaillant 1977). Psychometrically, the TOCA-RR is a valid and reliable measure with Cronbach alpha values ranging from 0.74–0.95 on all subscales. It has 31 items subdivided into 6 subscales which originally measure aggressiveness, social contact, cognitive achievement, emotional maturity, attention, and level of activity. Items are coded on a 6-point Likert scale (1 = almost never to 6 = almost always). Positive items (such as plays with others, self-reliant, completes assignments, and pays attention) were reverse-coded so that, for all items, 1 reflects adaption and 6 reflects poor adaptation. Findings from the confirmatory factor analysis we performed on the data of this study showed that the six-dimensional model did not provide a suitable goodness of fit ($\chi^2(424) = 32416.102$, $p < .001$; CFI = .861; TLI = .838; RMSEA = .077). Follow-up analyses revealed that the dimension of emotional maturity was not psychometrically stable. Hence, we decided to eliminate this dimension for the analyses. The consequent five-dimensional model showed a better goodness of fit ($\chi^2(267) = 14567.735$, $p < .001$; CFI = .915; TLI = .896; RMSEA = .071). This model is reliable with Cronbach alpha coefficients ranging from .82 to .90 for the subscales, and .93 for the full scale.

Mental health risk

Pediatric Symptom Checklist (PSC), is a 35-item questionnaire that is completed by parents to assess overall emotional and behavioral problems in children. It is one of the most widely-used measures for psychosocial screening in children, has been translated into about three dozen languages and has been validated in samples from the US and many other countries (Bala et al. 2012; Thun-Hohenstein and Herzog 2008). Following Kellam's (personal communication, July 11, 2005) conceptual definition

of mental health as: a) adaptation to social settings, including school, and b) personal wellbeing, the SFL Program considers the PSC a measure of mental health, since it measures the personal wellbeing aspect of mental health. As with the TOCA-R, the PSC was chosen by the SFL national team in 2001 for its brevity, ease of administration, published validation studies and because it was in the public domain and could be used without cost. Psychometrically, the US version of the PSC has good internal consistency, with a Cronbach alpha of .91 (Murphy et al. 1996; Murphy and Jellinek (1988)) a test-retest reliability of $r = 0.84$ – 0.91 , and a specificity of 0.68 and sensitivity of 0.95 for detecting psychosocial impairment (Jellinek et al. 1988). The Chilean version (PSC-CL) was adapted for use with Chilean students by the same group of academic and governmental investigators who adapted the TOCA-R for use in Chile (George et al. 1994, 2004). Several changes were made as a result of translation and back translation with the final version being a 33-item measure with each item rated on a 3-point scale of 1 (never), 2 (sometimes), and 3 (always). As with the US version, a total score were computed by summing all weighted items, with higher scores indicating more mental health problems. The Chilean version has a Cronbach alpha of 0.85 (George et al. 2004) and 0.82 for this sample.

Absenteeism due to physical health problems

The PSC-CL included a question asking parents to report if their child "had an illness that made him or her miss school frequently". Answers were coded categorically.

Classroom climate

Classroom climate is a 24-item scale measuring four dimensions: physical environment; teacher-student interactions; peer relationships; and orientation towards learning and high expectations (López et al. 2017). The general consignment is "How do you usually feel in your classroom? Please, indicate with an X the answer that best reflects your answer for each phrase". We used a four-point Likert scale with 4 choices (1 = "I completely disagree", 2 = "I disagree", 3 = I agree", and 4 = "I completely agree"). We used the general summed scale ($\alpha = .93$) (López, et al., submitted)

School climate

We used Benbenishty and Astor's (2005) School Climate Scale, as adapted and validated in Chile by López et al. (2014). It comprises 18 items with a 4-point Likert scale. The scale measures clear and fair school norms (4 items, $\alpha = 0.69$), norms about school violence (3 items, $\alpha = 0.69$),

students' participation in school (3 items, $\alpha = 0.62$), and teacher social support (8 items, $\alpha = 0.89$). We used the summed scale in the analyses that follow.

Annual attendance to school

Annual attendance is the percentage of days present in school for the entire 180-day school year. Data were from the official records filed to the national department of education by schools for each student.

Individual SES

Individual SES was also taken from the official data for each student submitted by each school to the department of education. The variable we used is "SINAE"; acronym for the *Sistema Nacional de Asignación con Equidad* (National Equity Allocation System) developed by the National Board of Assistance and School Scholarships (*Junta Nacional de Auxilio y Becas Escolares, JUNAEB*). This score is based on a set of criteria that allows identifying different groups within the population of students of elementary and high schools that received public funding, according to their level of personal vulnerability. Students identified as "vulnerable" are classified into three priorities. The first priority groups students with the greatest socio-economic risk; the second priority groups students with lesser socioeconomic risk but greater socio-educational risks (associated problems of school performance, attendance or dropout); and the lowest priority group is made up of students with the same level of socio-economic vulnerability as the second priority but who do not present socio-educational risk. Students with no vulnerability are given the highest score (JUNAEB, 2016). Individual SES was codified to an ordinal scale, so high scores in this variable mean higher SES. Child sex was also taken from official school records.

Data Analyses

Data were analyzed using SPSS 23 and Stata 12. We analyzed how mental health risk detected during the first half of the year contributes to peer victimization self-reported at the end of the school year, taking into consideration the relative contribution of individual (sex, individual SES) and school-level factors (classroom climate, school climate, school SES). For this purpose, data were analyzed twofold. We first performed a logistic regression in order to predict if and how much being identified as at-risk for mental health in 6th grade, increased the odds of being victimized by peers. We computed peer victimization as a categorical variable (0 = did not report peer victimization, 1 = reported being victimized one or more times during the past month). We later performed a multilevel analysis with the individual (sex,

individual SES, mental health measures, physical health, school attendance, individual self-report of classroom climate, individual self-report of school climate) and school-level variables (school-level SES, aggregated school-level classroom climate, aggregated school-level school climate). Model 1 analyzes the contribution of the dimensions of mental health as adaptation to the classroom reported by teachers (TOCA-RR) and the unidimensional measure of mental health risk as personal wellbeing reported by parents (PSC-CL), to peer victimization. Model 2 includes the other individual-level variables. Model 3 includes the school-level variables. For this analysis, the dependent variable of peer victimization was computed as a continuous variable, as the sum of the frequency of every type of victimization. Pairwise deletion for missing data was used in all regression analyses.

Results

Table 1 shows the mean values or frequencies as well as the intercorrelations between the independent variable (peer victimization) and predictor variable. Descriptively, 74.8% of students reported being victimized by their peers one or more times during the last month, and 7.4% reported having an illness that made him/her miss school frequently. In the TOCA-RR, the dimension of attention and concentration showed the highest mean (3.15, $SD = 1.33$). All of the mental health risk and classroom adaptation measures (TOCA-RR dimensions and PSC-CL) showed significant correlations with the other variables considered in this study.

Table 2 presents the results of the logistic regression analyses. Findings showed that the dimension of aggressiveness reported by teachers, as well as parent-reported mental health risk, increased the probability of being victimized by peers. Specifically, the odds of being victimized by peers was 4.5 times greater for students reported by their parents with higher mental health risk (PCS), and 1.1 times greater for students reported by their teachers as behaving more aggressively than their peers (TOCA-RR). Physical health that implies missing school regularly due to illness did not increase the chances of being victimized by peers. In this model, sex, annual school attendance and individual SES did not predict peer victimization in sixth grade students. Finally, for the two school context-related measures, only classroom climate was found to negatively predict peer victimization; specifically, the odds of being victimized by other students decreased by approximately half for those students who perceived a positive classroom ($OR = -0.48$).

Table 3 shows the results from the multilevel analyses. Although the intraclass correlation (ICC) was below two digits (7.3%, $Rho = 0.73$, $\chi^2 = 316.21$, $p < .001$), indicating

Table 1 Mean values (and standard deviations), frequencies and intercorrelations for peer victimization and predictor variables

Measure	Mean(SD) or frequency	1	2	3	4	5	6	7	8	9	10	11	12
1. Peer victimization (%) ^a	74.8	—											
2. Mental health risk teachers—Aggressiveness dimension	2.11 (1.09)	0.092**	—										
3. Mental health risk teachers—Social contact dimension	2.40 (1.08)	0.046**	0.229**	—									
4. Mental health risk teachers—Cognitive achievement dimension	2.83 (1.29)	0.075**	0.435**	0.500**	—								
5. Mental health risk teachers—Level of activity dimension	2.36 (1.34)	0.072**	0.693**	0.022*	0.365**	—							
6. Mental health risk teachers—Attention and concentration dimension	3.15 (1.33)	0.090**	0.514**	0.404**	0.867**	0.475**	—						
7. Mental health risk reported by parents (PSC-CL)	1.71 (0.24)	0.200**	0.228**	0.088**	0.204**	0.161**	0.228**	—					
8. Physical health (%)	7.4	0.025**	0.012	0.047**	0.045**	0.000	0.040**	0.087**	—				
9. Classroom climate	1.97 (0.52)	-0.184**	-0.089**	-0.122**	-0.081**	-0.042**	-0.080**	-0.192**	-0.019*	—			
10. School climate	2.07 (0.51)	-0.136**	-0.099**	-0.110**	-0.100**	-0.061**	-0.101**	-0.168**	-0.025**	0.714**	—		
11. Percentage Attendance	90.84 (11.08)	-0.016	-0.088**	-0.105**	-0.108**	-0.032**	-0.104**	-0.066**	-0.080**	0.049**	0.043**	—	
12. Low individual SES	2.13 (1.21)	0.009	0.124**	0.063**	0.116**	0.077**	0.125**	0.062**	0.008	-0.002	-0.016	0.023*	—
13. Gender (% males)	48.6	0.006	-0.146**	-0.039**	-0.151**	-0.241**	-0.179**	0.069**	0.011	-0.022*	0.018	0.026**	-0.003

^aCorresponds to the percentage of students who reported being victimized one or more times during the past month

** $p < 0.01$; * $p < 0.05$

Table 2 Summary of logistic regression analysis predicting peer victimization

Variable	<i>B</i>	SE	OR	95% CI	Wald statistic	<i>p</i>
Mental health risk reported by teachers—Aggressiveness	0.07	0.03	1.07	[1.00. 1.14]	4.33	0.037
Mental health risk reported by teachers—Social contact	0.00	0.03	1.00	[0.95. 1.05]	0.01	0.929
Mental health risk reported by teachers—Cognitive achievement	−0.03	0.04	0.97	[0.90. 1.05]	0.48	0.486
Mental health risk reported by teachers—Level of activity	0.04	0.03	1.04	[0.98. 1.09]	1.75	0.186
Mental health risk reported by teachers—Attention and concentration	0.06	0.04	1.06	[0.98. 1.14]	2.21	0.137
Mental health risk reported by parents (PSC-CL)	1.49	0.11	4.46	[3.61. 5.51]	190.99	<0.001
Absenteeism due to physical health	0.14	0.10	1.15	[0.95. 1.39]	2.12	0.146
Classroom climate	−0.72	0.07	0.48	[0.42. 0.56]	109.48	<0.001
School climate	−0.04	0.07	0.96	[0.84. 1.10]	0.33	0.564
Annual attendance to school	0.00	0.00	1.00	[0.99. 1.00]	0.42	0.518
Low individual SES	−0.01	0.02	0.99	[0.96. 1.03]	0.11	0.735
Gender	0.05	0.05	1.05	[0.95. 1.16]	1.00	0.317

CI confidence interval for odds ratio (OR).

a low between-school variance, it was significant, which is why we decided to pursue the multilevel analyses (Rabe-Hesketh and Skrondal (2012)). The results from Model 1 show that, when including only the mental health risk factors and their dimensions, only the dimension of aggressiveness reported by teachers significantly contributed in predicting peer victimization ($\beta = 1.05$, $t = 2.30$, $p < .05$). For every one unit of increase in aggressiveness, student peer victimization rose approximately one unit. When including other individual variables as covariates (see Model 2 of Table 3), aggressiveness lost significance, as all the mental health dimensions. By looking at the standard coefficients in model 2 we can see that, in this model, the significant predictors of peer victimization were absenteeism due to physical health ($\beta = 4.60$, $t = 2.16$, $p < .05$), school climate ($\beta = -3.75$, $t = -2.89$, $p < .01$), individual SES ($\beta = 1.16$, $t = 3.28$, $p < .001$), and annual school attendance ($\beta = -0.06$, $t = -2.04$, $p < .05$). For every one unit of increase in missing school frequently due to physical health, student peer victimization rose approximately 4.6 times. Moreover, every one unit of decrease in student's individual perception of school climate increased the probability of being victimized by peers ~3.8 times. For every one unit increase in student's individual SES, we would expect an increase of approximately 1.2 units in peer victimization. Annual school attendance also showed a specific contribution: every one unit of decrease of annual attendance increased the probability of being victimized by peers by almost one unit.

Findings from the two-level model (Model 3 of Table 3) show that, when considering the aggregated scores of classroom climate, school climate and SES aggregated at the school level, students' individual attention and concentration reported by teachers was significant ($\beta = -1.16$, $t = -1.98$, $p < .05$). The other individual variables that

remained significant were students' individual absenteeism due physical health ($\beta = 4.56$, $t = 2.09$, $p < .05$), and their individual annual attendance ($\beta = -0.06$, $t = -1.99$, $p < .05$). This model revealed that, at the school level, the school's aggregated SES was a significant predictor of peer victimization ($\beta = 7.27$, $t = 2.01$, $p < .05$). For every one unit of decrease in attention and concentration, the probability of being victimized by peers rose by 1.2. For absenteeism due to physical health, for every one unit, we would expect an increase of 4.6 units in peer victimization; and for every one unit of increase of annual school attendance, the probability of being victimized by peers decreased almost 1 unit. At the school level, given that high scores in SES mean a lower SES background, for every unit of increase in a school's lower SES, we would expect an increase of 7.3 units in peer victimization.

Discussion

Why are attention/concentration and aggressiveness related to peer victimization? Although there is evidence of significant relationships between child attentional disorders and peer victimization (Bacchini et al. 2008; Cardoos and Hinshaw 2011; Wiener and Mak (2009)) as well as between child aggressiveness as trait and peer victimization (Khatri et al. 2000), the exact mechanisms through which this relation occurs are not clear. On the one hand, difficulties in the modulation of attentional processes have been found to be a strong predictor for externalizing problems and behavioral difficulties in school-age children (Moffitt and Caspi (2001)), since lack of attention negatively influences self-control, which in turn limits the cognitive decision making-processes in social relations (Bacchini et al. 2008). These temperamental variables might in turn be the result of

Table 3 Multilevel model results predicting peer victimization from individual and school level variables using full maximum likelihood estimation (N = 10,532 individuals from 405 schools)

Predictors	Peer victimization					
	Model 1		Model 2		Model 3	
	β (SE)	<i>t</i>	β (SE)	<i>t</i>	β (SE)	<i>t</i>
<i>Individual-level</i>						
Mental health risk (teachers)—Aggressiveness dimension	1.05* (0.45)	2.30	0.73 (0.43)	1.70	0.40 (0.46)	0.87
Mental health risk (teachers)—Social contact dimension	-0.25 (0.38)	-0.66	-0.51 (0.35)	-1.47	-0.37 (0.34)	-1.08
Mental health risk (teachers)—Cognitive achievement dimension	0.95 (0.60)	1.59	0.51 (0.55)	0.93	0.55 (0.55)	1.00
Mental health risk (teachers)—Level of activity dimension	0.05 (0.38)	-0.15	-0.15 (0.36)	-0.42	0.21 (0.39)	0.56
Mental health risk (teachers)—Attention and concentration dimension	-0.78 (0.61)	-1.26	-0.49 (0.57)	-0.86	-1.16* (0.58)	-1.98
Mental health risk reported by parents (PSC-CL)	3.32 (1.75)	1.89	-0.84 (1.70)	-0.50	-0.23 (1.70)	-0.14
Absenteeism due to physical health			4.60* (2.16)	2.13	4.56* (2.18)	2.09
Male			0.03 (0.90)	0.04	-0.15 (0.93)	-0.17
Annual school attendance			-0.06* (0.03)	-2.04	-0.06* (0.03)	-1.99
Classroom climate			-1.81 (1.13)	-1.60	-8.14 (10.76)	-0.76
School climate			-3.75** (1.29)	-2.89	2.98 (8.86)	0.34
Individual SES			1.16** (0.35)	3.28	-5.88 (3.62)	-1.62
<i>School-level</i>						
Classroom climate (aggregate)					4.31 (10.79)	0.40
School climate (aggregate)					-4.63 (8.88)	-0.52
SES (aggregate)					7.27* (3.62)	2.01
Intercept	-0.88 (3.08)	-0.29	22.02 (4.77)***	4.88	21.82 (4.78)***	xx
Between-school variance	0.04	0.20	0.21			
Within-school variance	0.03	0.02	0.00			
Between-school explained variance	4%	20%	21%			
Within-school explained variance	3%	2%	0%			
Within-school explained variance change	—	-1%	-2%			

* $p < .05$. ** $p < .01$. *** $p < .001$.

specific socioemotional difficulties and social skills that have been shown detrimental in children with ADHD (Nansel et al. 2001). However, having close and rich friends has shown to protect children, particular girls, with ADHD from being victimized by their peers (Cardoos and Hinshaw 2011). Hence, these findings call for studies which take into consideration both the intra as well as inter-subjective domains of peer relationships. However, in this study, we only depicted teacher-reported attention difficulties such as “does the child... concentrates/ pays attention in class / gets easily distracted / persists in classroom tasks” (and not clinically diagnosed ADHD) and did not measure the quality of friendships. Therefore, future studies should

consider these limitations. On the other hand, aggressiveness as an individual trait is closely related to children’s aggressive behavior reported by peers or other significant adults (Lereya et al. 2015; Shields and Cicchetti 2001), which in turn is one of the characteristics of peer victimization and bullying. Khatri et al. (2000), for example, have found that peer nominations of aggression and victimization predicted children’s self-reported externalizing problems, specifically, of self-reported aggression. However, we did not measure self-reported aggression but rather teacher-reported aggressiveness in the context of adaptation to the classroom context.

Therefore, although the results from this study support previous literature on the association between mental health and peer victimization, the findings should be cautiously considered. We did not test the theorized bidirectional nature of the relation between peer victimization and poor mental health (Bogart et al. 2014) since our sample of students had been screened for mental health risk half a year before the questionnaires on peer victimization were administered. Therefore, there is a need for longitudinal studies to inform and better understand this association.

In addition to examining the relationship between an individual's health and peer victimization, the multilevel analyses also suggest that mental health risk interacts with other personal characteristics of students. When evaluating the joint contribution of the mental health risk factors with individual-level elements such as sex, absenteeism due to physical health issues, low school attendance, and low individual SES, the association between mental health and peer victimization changed, in the sense that the predicting dimension became attention/concentration and not aggressiveness. Other individual characteristics predicting peer victimization were absenteeism due to physical health problems, and student's individual SES. This finding suggests that individual SES might be a confounding variable.

By obtaining information about students' individual SES, as assessed by a highly complex system developed by the Chilean division of school assistance of the Ministry of Education (JUNAEB), we were able to explore and provide evidence of a direct association between individual SES and peer victimization. This finding supports and expands previous literature to suggest that SES may not only be a mediating or moderating factor of peer victimization (Berkowitz et al. 2017; Tippett and Wolke 2014), but may also be a better predictor of peer victimization than mental health. Although this sample was purposefully focused on students attending low-SES schools given the focalized strategy of the SFL Program, both individual and school SES proved to be significant predictors of peer victimization. This suggests that even in the context of high poverty, the social and cultural capital that stems from each student's family background appears to partly explain peer victimization. Particularly relevant are the findings that, when including only individual-level variables, classroom climate is a significant predictor of peer victimization; but that, when adding the school-level variables, classroom climate loses significance and only school SES remains a significant predictor of SES. This finding suggests that schools with a higher concentration of students from low SES backgrounds may have serious difficulties in dealing with classroom climate, which protects students from being victimized by their peers. This is highly relevant for inclusive national policies such as those currently being implemented in Chile (Law number 20,845) that seek to forego school practices

that create SES segregation practices by forbidding student selectivity processes based on academic achievement and student behavior.

As expected by socio-ecological theories of school violence (Benbenishty and Astor 2005; Espelage and Swearer 2003) we found that, both in the logistic as well as in the multilevel regression models, classroom climate was a significant predictor of peer victimization, which supports the claim that school context is a powerful influence on peer victimization (Benbenishty and Astor 2005). Therefore, these findings suggest that after parsing out the specific contributions of each variable, classroom climate may be a better predictor of peer victimization than school climate. These findings are consistent with previous research showing that at the classroom level, a positive classroom climate contributes to reduced peer victimization (Çengel and Türkoğlu 2016; Espelage et al. 2014; López et al. 2012). This study advances knowledge by tapping into some of the mechanisms through which this association operates (Berkowitz et al. 2017). It seems that it is a student's individual assessment of the classroom climate, and not the averaged, aggregated or school-level evaluation of classroom climate, what makes a difference with respect to peer victimization. This is a very important finding since it draws attention, firstly, on the strength of the proximal nature of classroom climate in terms of direct, face-to-face interactions as opposed to the more distal nature of school climate. Second, on the heterogeneous nature of each student's appraisal of their classroom climate within one given classroom, and of the impact these differences have in their school lives.

The findings from this study have significant implications for educational reform as they suggest that an improved classroom climate may reduce peer victimization among students. Our findings emphasize the importance of school interventions that include comprehensive classroom and school climate improvement efforts (Thapa et al. 2013). They also provide evidence for whole school community approaches to reduce peer victimization rates that seek to create a nurturing and caring environment for learning and personal development (Berkowitz et al. 2017; Espelage et al. 2014; López et al. 2012). This broader approach towards reducing peer victimization through the improvement of classroom climate implies moving beyond the individual-child-at-risk approach (Bonnet et al. 2009).

Limitations and Future Research Directions

A limitation of this study is the cross-sectional nature of the data. Even though the mental health measures were collected during the first half of the school year and the dependent variable at the end of the school year, longitudinal studies with a greater time span are needed to better

understand the complex dynamics of individual and school-related factors in the construction of peer victimization as a social phenomenon. An additional limitation is the purposeful nature of the sample, which does not allow generalizing these findings to the general population.

In spite of the above, this study contributes to the existing literature by providing evidence in favor of social-ecological theories of school violence which pose that individual factors associated with a greater risk of peer victimization, such as mental health risk in elementary school students, are embedded in social contexts. Although mental health does have a direct association with peer victimization when measured alone, it loses its relative contribution when other individual and school level factors become associated with peer victimization. A clear example is the change in the relative contributions of the mental health risk dimensions when individual and school-level SES were incorporated in the analyses.

It is widely accepted that mental health is not independent from poverty (Jellinek et al. 1999; Lepièce et al. 2015; McLaughlin et al. 2012; Rutter 2003). In this study, we found that the dimensions of mental health that were more strongly correlated with low individual SES, i.e. -attention/concentration and aggressiveness as reported by teachers ($r = .125$ and $.124$, respectively)-, were exactly the same dimensions that contributed to predicting students' peer victimization behaviors. These findings call for more in-depth studies that take into the consideration the complexities of mental health in its relation to peer and other forms of victimization and school violence. Last, this study is an example of how research embedded in public policy programs may provide access to data systematically collected at the school level. In developing countries such as Chile, there is a need for providing evidence-based research that can shed light into best intervention practices at the school level. Hence, the availability of this type of data can be beneficial both to research as well as for informing national policies and practices.

Author Contributions VL: designed and coordinated the study, performed data analyses, and wrote the main part of paper. MM: collaborated with the design and data interpretation, wrote part of the introduction, edited several drafts of the paper, and collaborated with the discussion. CL: wrote part of the introduction and edited multiple drafts of the paper. JT: collaborated with data analyses and data interpretation, and edited the final drafts of the paper and resubmissions; BV: assisted with data analyses. PA: wrote part of the introduction and collaborated in the final version of the manuscript. CC: wrote part of the introduction and collaborated in the final version of the manuscript. MB: wrote part of the introduction and collaborated in the final version of the manuscript.

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of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. IRB approval was obtained from Pontificia Universidad Católica de Valparaíso.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Informed Consent Informed consent was obtained from all individual participants included in the study. The informed consent statement was given to all parents of all sixth grade students in each of the participating schools, guaranteeing voluntary participation, confidentiality of all information and safeguard of student's health as well as their physical and psychological integrity. Additionally, students signed a similar informed assent for the peer victimization, classroom climate, and school climate measures reported by them. Last, at the start of the school year, the parents of all sixth grade students in each SFL school were asked to give informed consent for screening and intervention in mental health as part of the SFL school mental health program available for all students. Students' responses were anonymous and the identity of schools participating in this study was kept confidential. The de-identified database was provided by the national SFL Program to the first author, with a prior written Memo of Understanding that guaranteed confidentiality and ethical use of the information.

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