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ORIGINAL PAPER

Subjective Well-being, Bullying, and School Climate Among Chilean Adolescents Over Time

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Abstract
Negative relationships among peers, such as bullying, are risk factors for children's life satisfaction (LS). This is due to their negative impact on youth development over time. LS refers to the evaluation people make of their lives and overall quality of life. Within the school context, there are several important dimensions to the development of LS among adolescents, such as peer relationships and also school climate. School satisfaction and school bonding are two dimensions of school climate which can affect the occurrence of bullying during the adolescence. Although there has been substantial research on children's LS, little research has been done in South America using longitudinal data to examine the importance of school variables that influence bullying and LS. Thus, the purpose of the study is to examine the long-term effect of school satisfaction, bonding, and bullying on adolescent LS one year after bullying victimization. Structural equation modeling was used on a sample of 555 Chilean adolescents with a mean age of 13.5 years old of which 42.9% are females. School satisfaction was negatively related to bullying perpetration, but not to bullying victimization. Conversely, school bonding was negatively associated with bullying victimization, but not with bullying perpetration. Lastly, bullying victimization was associated with lower levels of LS one year after the experience, even when controlling for age and gender. Bullying perpetration had no effect on LS. These results highlight the importance of school variables and peer relationships for adolescent LS development over time and reinforce the importance of preventative initiatives in schools.

Keywords Subjective well-being · Bullying · School climate · Chile · Adolescence

Introduction

School life and relationships with peers can affect life satisfaction (LS) during adolescence. In turn, peer relationships can be negatively affected by bullying, a behavior influenced by school climate dimensions. There are various predictors of LS of which bullying behavior and school climate are among the most substantial predictors (Casas, 2018; Oriol et al., 2017; Savahl et al., 2019; Valois et al., 2012; Varela et al., 2018). Yet, most of the studies have utilized a cross-sectional research design without considering the long-term effect on LS while examining, at the same time, bullying and school climate (Oriol et al., 2017; Savahl et al., 2019; Varela et al., 2018). Thus, this study aims to examine the impact of school climate on bullying behavior and the long-term effect on LS among Chilean adolescents.

LS represents the cognitive judgments that are made about the positive aspects of one´s life, which can be considered (global satisfaction with life) or as specific domains, such as satisfaction with one's family, school, or neighborhood (Huebner et al., 2014). Along with having positive and negative effects, LS forms a latent factor termed subjective well-being (SWB) (Busseri, 2018), which is understood as the evaluation people make of their lives, either in general terms or in relation to specific domains (Casas, 2018). SWB is considered an indicator of the quality of life (Awaworyi & Smyth, 2020). LS is the cognitive aspect of SWB, while positive and negative effects refer to emotional aspects (Alfaro et al., 2016b, a). LS is used widely in research given its stable nature compared to positive and negative effects. In sum, the relevance of including SWB is precise because

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of its subjective nature, in contrast to LS, which is focused on cognitive components and stability.

It has been reported that LS and SWB are negatively associated with risk factors and positively with protective factors during adolescence (Diener et al., 2017; Guzmán et al., 2019; Lippman et al., 2014; Steinmayr et al., 2019). The comparative data obtained through the International Survey of Children´s Well-being (ISCWeB) showed that while measurements of LS and SWB tend to yield high scores during childhood, such scores tend to decline in adolescence (Casas & González-Carrasco, 2018). Yet, few studies have examined this declining trend over time in different cultural contexts, such as Chile. On the other hand, longitudinal studies suggest that psychosocial factors like positive identity and spirituality can determine changes in well-being that predict changes in life satisfaction (Shek & Liang, 2018) and social and academic paths over time (Olsson et al., 2013). Particularly, social connectedness and academic achievement in adolescents were associated with subjective well-being at the age of 32. However, research to date has not examined the effects of peer and school variables on LS over time.

Social Ecology of Bullying and Life Satisfaction

According to the socio-ecological perspective, adolescent development is defined by the interactions of various contexts and relationships. Recent theoretical development in the context of the Bronfrenbrenner's ecology of human development has emphasized the influence of cultural values (Vélez-Agosto et al., 2017). Specifically, culture has a central role in everyday actions as part of the microsystem. Thus, cross-cultural studies should explore routine and practices among peers across different school settings. Accordingly, Chilean cultural values are essential to understand the evolution of LS over time and the effects of bullying and school climate.

Under this prism, the interaction between individual and contextual factors becomes inescapable. Studies have demonstrated the importance of understanding how factors within the school context are related to adolescent SWB (García et al., 2014; Savahl et al., 2019). For example, one study that included a sample of 647 male and female Spanish students between 13 and 18 years of age and belonging to various socioeconomic levels reported that school climate was a significant predictor of LS beyond individual protective factors and interpersonal risk factors, such as being a victim of bullying (Lázaro-Visa et al., 2019).

Within the Latin American context, Tomás et al. (2020) used structural equation modeling to measure LS for various school variables. Based on a sample of 1035 Peruvian students between 10 and 16 years of age from public and private schools in Lima, it was found that social support positively affected global LS and that school adjustment and academic performance partially mediated the association between family support and LS. A study involving 1433 students between 10 and 14 years of age from three Chilean cities found that various aspects of school life, including links with peers and teachers, were positive predictors of school satisfaction (Alfaro et al., 2016b, a). Another study, which explored the effects of school climate on SWB and the relationship with violence at school, found that interpersonal relationships, an indicator of school climate, were associated with both victimization and well-being among 2013 school children ($M = 14.97$ years, $SD = 1.86$) from 20 schools in Chile (Varela et al., 2019a, b, c). Thus, previous studies demonstrate the importance of various significant school variables for Latin American adolescents. However, all these studies relied on cross-sectional data, which limits the interpretation of the long-term effects.

As previously mentioned, research evidence shows that SWB varies throughout life and is sensitive to various domains and contexts of adolescent development. In turn, it is observed that during adolescence, experiences at school have an impact on young people's evaluations of their lives. Specifically, perceived school climate, bonding, satisfaction, and bullying victimization affect adolescent life satisfaction and, ultimately, adolescent quality of life. However, it is still important to explore in greater depth the effects over time that school has on SWB during adolescence to understand more precisely what aspects of school life can optimize the positive development of youth over time. In particular, it is important to know whether being a victim or a perpetrator of bullying can adversely affect LS over time for Chilean adolescents.

Life Satisfaction and Bullying

For adolescents, school life is a significant factor in the evaluation of their lives, especially if we consider peer relationships. However, relationships with peers may also involve the experience of bullying behavior. Bullying among children and adolescents is a global public health issue, and its effects can continue into adulthood, impacting mental and general health, wealth, and social relationships (Wolke et al., 2013). Bullying refers to exposure to systematic abuse over time by one or more individuals, involving an imbalance of power, either real or perceived, between the perpetrator and the victim (Olweus, 1993; Wolke & Lereya, 2015). Bullying includes verbal harassment, physical contact, intentional exclusion of a person from a group, and cyberbullying (Copeland et al., 2013). According to the results of the 2018 National Youth

Survey, 25.2% of Chileans, aged 15 to 29, claimed to have suffered, at least once in their life, from physical or psychological violence at their place of study, and 21.1% reported being a victim of cyberbullying in the last year (National Institute of Youth, 2019).

Studies have shown that victims are at greater risk of suffering from poor psychological adjustment than are non-victims (Felix et al., 2009). One meta-analysis found causal associations between bullying and mental health problems, such as depression, anxiety, non-suicidal self-injury, and suicidal ideation and behaviors (Moore et al., 2017). Similarly, a longitudinal study on adulthood outcomes found that individuals who were bullied at 7 to 11 years of age presented higher levels of psychological distress at ages 23 to 50, including depression and suicidal tendencies (Takizawa et al., 2014). Thus, children who were bullied, especially those frequently bullied, can be at risk of negative outcomes nearly four decades after exposure with enduring impact on adjustment into adulthood (McDougall & Vaillancourt, 2015). On the other hand, bullies have reported having higher rates of behavioral problems, more sleep disorders, and lower academic performances than adolescents not involved in bullying (Hysing et al., 2019).

Savahl et al. (2019) used data from the second wave of the Children's Worlds Survey to explore the relationship between children's experiences of physical and psychological bullying victimization and their SWB. The sample involved 47,029 randomly selected children from 15 countries. Results showed that both physical and psychological bullying was significantly associated with SWB across age groups and geographic regions. In Chile, Varela et al. (2020) also found the negative effect of bullying victimization on SWB from a sample of 1914 adolescents in the country's two largest cities. Even though these results showed a significant link between bullying and SWB, a long-term effect was missing to better understand the causal linkage while also considering relevant school variables, such as school bonding and satisfaction.

Within the school context, being a victim or a bully can negatively affect school performance and LS among children and adolescents (Valois et al., 2012). Different mechanisms have been explored to explain the association between school violence and LS, including school satisfaction and climate. Varela et al. (2018) found a negative association between school climate and involvement with school violence. Also, bullying victimization was found to have an indirect effect on LS through school satisfaction, while bullying perpetration showed no indirect effect on LS. However, limited studies (Gini et al., 2018; Lázaro-Visa et al., 2019; Miranda et al., 2019) have considered different dimensions of school climate as predictors of school bullying, while also considering child and adolescent LS over time.

School Contextual Variables: A Social-Ecological Perspective

Studies focusing on the antecedents and prevention of bullying can be understood from a social-ecological perspective (Bronfrenbrenner, 1979), which provides a robust theoretical framework to delve into the influence of context-related factors on bullying involvement. Along the same line, studies on subjective adolescent well-being also underscore the role of contextual variables in the development of SWB (Uyan-Semerci et al., 2017). One significant contextual condition is the school environment, especially for children and adolescents. The school is a space in which young people interact and establish relationships with peers. Therefore, the quality of the bonds formed in this context is critical to healthy development and well-being (Alfaro et al., 2016b, a; Ryan & Deci, 2009; Varela et al., 2018). Numerous factors in the school environment can have an impact on the understanding of bullying and LS. One of the most critical current challenges is to demonstrate the interrelationships among variables related to school life in order to prevent bullying from early ages and promote LS (Espelage et al., 2013). Accordingly, school satisfaction and belonging represent two different dimensions of school life and climate (Lewno-Dumdie et al., 2020; Thapa et al., 2013; Wang & Degol, 2016), which has not been studied with bullying behavior and LS over time.

School Climate: School Satisfaction and School Belonging

School climate is an aspect of the school life of adolescents usually linked to positive relationships with peers. School climate is a multidimensional construct that involves both school satisfaction and belonging (Wang & Degol, 2016). Thus, the satisfaction that adolescents experience in their daily lives in the school environment is of growing importance for the appraisal they make of their lives (Casas et al., 2013). In this aspect, school satisfaction can be defined as a cognitive-affective appraisal that students make of their overall school life experience (Varela et al., 2018). Lawler et al. (2017) used hierarchical regression analysis to measure the influence of context-related factors on well-being, including LS in 11 countries. School satisfaction was observed to have a relationship with SWB in all the countries. Since adolescence is a particularly vulnerable life stage because of emerging emotional and behavioral difficulties (Gelhaar et al., 2007), it is necessary to ensure that developmental contexts, such as schools, provide the appropriate conditions to promote well-being and healthy developmental trajectories.

Satisfaction with school depends on several factors, including interpersonal peer relationships with the school. Peer relationships significantly influence school satisfaction (Oriol et al., 2017; Varela et al., 2018) and play a major role in adolescent psychological adjustment (Bukowski et al., 2007; Catalano et al., 2004; Schoeps et al., 2020). Other studies have also demonstrated that perceived support from teachers affects students' school satisfaction (Gutiérrez et al., 2017). In addition to interpersonal relationships, high academic performance helps students build their subjective cognitive appraisal of the quality of their school life (Suldo et al., 2014). According to the self-determination theory, which was proposed by Ryan and Deci (2000), the perception of satisfaction with the school experience contributes to a high level of internal motivation, whereas low school satisfaction is associated with risk factors such as dropping out of school and disciplinary problems (Takakura et al., 2010). Along this line, satisfaction with school can be a protective factor against bullying involvement (Álvarez-García et al., 2015; Shetgiri et al., 2012). In Chile, Varela et al. (2018) found from a sample of 802 seventh graders that school satisfaction was a mediator between being a victim of school violence and life satisfaction. However, the study did not examine this effect over time.

School Belonging

Another factor related to school climate that is key to preventing bullying and school adjustment is school belonging (Li et al., 2020; Valido et al., 2020). Feeling a connection with others (sense of belonging) is considered a basic psychological need for human beings, and it is crucial for adolescent mental health (Begen & Turner-Cobb, 2015). In particular, school belonging among adolescents can become a protective factor against bullying (Reaves et al. 2018; Varela et al., 2020).

The scientific literature has also established a variety of definitions for the construct of school belonging, the majority of these relate to feelings of being connected to the school community, which implies feeling accepted, respected, included, valued, and happy at school (Valido et al., 2020; Whiting et al., 2018). School belonging has often been linked to school connectedness, and some authors suggest that school belonging is a component of this construct that refers to beliefs about perceived bonding and quality of relationships with peers and teachers (Marraccini & Brier, 2017; Niehaus et al., 2016).

Nevertheless, school belonging has been negatively associated with several types of psychosocial distress, such as depression, social rejection, and anxiety (Shochet et al., 2011). However, positive relationships are observed between school belonging and some measures of SWB, specifically with LS (Allen & Boyle, 2018; Tian et al., 2016) although there have been few studies that link these two variables. Other studies have found a positive relationship between school connectedness and LS (Kim et al., 2019; You et al., 2008).

Regarding the relationship between school belonging and bullying, a recent meta-analysis by Reaves et al. (2018), which included an analysis of 13 studies from different countries, shows that the sense of belonging is related to lower occurrence of bullying and violent behavior at school. A sense of belonging has also been associated with fewer violations of school rules and less aggressive behavior (Smith-Adcock et al., 2013). In effect, a feeling of belonging to school decreases the probability of being a bully (Lovegrove et al., 2012). In Chile, a recent study with a sample of 815 adolescents from a metropolitan region found a moderating effect of school belonging on the association between antisocial peers and antisocial behavior (Varela et al., 2020).

Several studies demonstrate the association between school satisfaction and bonding and their effects upon bullying as school climate dimensions (e.g., Gregory et al., 2010; Steffgen et al., 2013; Varela et al., 2018). Both dimensions of school climate have negative relationships with bullying (e.g., Álvarez-García et al., 2015; Reaves et al., 2018); however, the negative effect on adolescents' LS over time remains unreported. Therefore, the purpose of this study is to examine the long-term effect of two dimensions of school climate, school satisfaction, and school bonding, on bullying behavior on LS over time among Chilean adolescents.

The Current Study

As suggested in the earlier review, there has been growing interest in research on the relationship between bullying and LS worldwide, including Latin America (Oriol et al., 2019; Varela et al., 2019a, b, c). However, previous studies have not considered the long-term effect of LS while also considering the negative effect of bullying behavior and two significant features of school climate, such as school satisfaction and school belonging. Contextual factors are also essential to help understand how to foster protective factors and reduce risk factors that perpetuate bullying among adolescents (Espelage et al., 2013).

Study Hypotheses

Hence, our study sought to test two hypotheses. First, we hypothesized that both school belonging and school satisfaction are negatively associated with bullying victimization and bullying perpetration (a). Secondly, we hypothesized that both bullying victimization and bullying perpetration

are negatively associated with student life satisfaction one year later (b).

Method

Participants and Procedures

We used a convenience sample design for the current study choosing different types of schools. In Chile, the school system is divided into groups based on their regulatory status, such as public, private-subsidized, and private-paid. We have eight years of primary education (grades 1–8) and four high school years (grades 9–12). Schools can offer primary education, high school, or both. Thus, to have a more diverse sample, we include schools for each type of regulatory status. Also, we focused only on high school students. Once the schools agreed to participate, we collected data from all students in 7th to 9th grades (year 1) in those six schools. The following year, we followed the same students in those classrooms from 7 to 10th grades, respectively.

Data were collected in 2018, from June to September (Period 1), and in 2019, between May and September (Period 2) from six urban schools in Santiago, Chile. The interviewers attended each school on different days for a maximum of two weeks, based on the availability of each educational center. Surveys were self-administered during school hours using paper and pencil under the supervision of a trained psychologist. Before completing the surveys, parental and student consent forms were obtained following ethical protocols approved by the principal author's university.

The initial sample was composed of 791 students from 31 classrooms in six schools. In Period 1, four students failed to complete the bully and victim measures, which reduced the sample to 787 students. Of the 787 students surveyed in Period 1, 552 (44% female, $M_{age} = 13.50$ years, SD = 1.16) also responded to the survey in Period 2, including an attrition rate of 29.9%. The main reason for attrition in Period 2 was that participants were not present on the day the survey was administered, and only a few (less than 10%) had left the school permanently.

Measures

Demographic Variables

We used age-based, self-reported information of the participants, creating a continuous variable. Gender was used as a dummy variable because non-binary genders were very low (1.8%). These decisions were based on inconsistent results shown in research about the perceptions of LS and SWB concerning gender and age. For example, a more marked decrease in SWB has been found among girls in early adolescence in a year after the follow-up, independent of the scale used to measure SWB (González-Carrasco et al., 2017). Within the school context, girls have reported higher levels of school satisfaction than boys, while high school students showed lower levels of school satisfaction than elementary school students. Associations between risk factors and adolescent problems were stronger for girls and older students (Gini et al., 2018).

Life Satisfaction (SLSS)

One of the SWB measures we used was a version of Huebner's Students' Life Satisfaction Scale (SLSS), validated for children and young people in Chile (Alfaro et al., 2016). Previous studies showing lower descriptive results for this measure (e.g., M:2.81; SD:0.59; Varela et al., 2019a, b, c). The SLSS, adapted from Casas and Rees (2014), is based on four items that rate student self-satisfaction with their lives, to evaluate their lives in a general context-free manner. The instrument has a 5-point Likert scale (0 = strongly disagree, 4 = strongly agree; α:0.79), with questions about the level of agreement with statements about satisfaction with life. Examples of items are: "I like my life," "I have what I want in life." Higher scores indicate greater LS, during Period 2 of the study (2019). In the present study, acceptable levels of reliability were achieved ($\alpha = 0.79$).

Bullying Perpetration

A subscale of the Illinois Bullying Scale (IBS; Espelage & Holt, 2001) was used to determine whether students displayed aggressive behaviors toward others in school, such as teasing, spreading rumors, and excluding other students. The IBS measure has been used previously with urban adolescents in Chile with positive psychometric attributes (e.g., Berger & Caravita, 2016; Varela et al., 2020; Varela et al., 2019a, b, c). Previous studies show similar descriptive results (e.g., $M = 1.50$, SD = 0.74; Varela et al., 2020). The IBS is composed of nine items related to aggressive behaviors (e.g., "I upset other students for the fun of it" and "In a group, I tease other students"). Students indicated how often they engaged in the specified behaviors during the last 30 days using a 4-point frequency scale (1 = never; 4 = almost always; $\alpha = 0.81$). Higher scores indicate more self-reported aggressive behavior towards others, during Period 1 of the study (2018). In the present study, an acceptable level of reliability was achieved ($\alpha = 0.81$).

Bullying Victimization

This measure assesses whether a respondent has been a victim of bullying and is composed of four items of the IBS Victim Subscale (Espelage & Holt, 2001). Previous studies show similar descriptive results (e.g., $M = 1.92$; SD = 0.99; Varela et al., 2020) for this measure in the current sample. The victim measure uses a four-point frequency scale (1 = never; 4 = almost always; $\alpha = 0.83$) and asks students about aggressive behavior in the school directed towards them (e.g., "I got hit and pushed by other students"; "Other students picked on me") during the last 30 days. Higher scores indicate more frequent aggressive behavior directed towards them during Period 1 of the study (in 2018). In the present study, an acceptable level of reliability was achieved ($\alpha = 0.83$).

School Bonding

This measure is based on the National Chilean Survey on Violence in School Settings, conducted in 2006 by the Chilean Ministry of Education. This measure asks about students' feelings of connection and proximity towards their school and its members. This measure is composed of three items ("I feel proud of my school," "I would like to stay at this school next year," and "I feel part of my school" and use the same 5-point Likert scale (1 = completely disagree; 5 = completely agree; α: 0.82). Previous studies show marginal lower descriptive results compared to the current sample (e.g., $M = 3.07$, SD = 0.33; Varela et al., 2019a, b, c). Higher scores indicate higher school bonding during Period 1 of the study (in 2018). In the present study, an acceptable level of reliability was achieved ($\alpha = 0.82$).

School Satisfaction

To measure school satisfaction, we used the subscale School Satisfaction (SS) from the Brief Adolescents' Subjective Well-Being in School Scale (Tian et al., 2015). The SS measures students' self-reported levels of satisfaction with different aspects of school such as school life, physical spaces, relationships with teachers and classmates, and schoolwork. We used a version validated previously in Chile (Benavente et al., 2018), based on a 6-point Likert scale (1 = strongly disagree; 6 = strongly agree; $\alpha = 0.76$) with seven items. Examples of the items are "The teachers' instructional methods and quality are good," "I have good relationships with my teachers," and "I perform well in school." Higher scores indicate higher school satisfaction during Period 1 of the study (in 2018). Previous studies show similar descriptive results compared to the current sample (e.g., $M = 4.55$; SD = 1.25; Benavente et al., 2018). In the present study, an acceptable level of reliability was achieved ($\alpha = 0.76$).

Analytic Techniques

Structural Equation Model (SEM) was conducted using Mplus 8.0 software with an ML estimator (Muthén & Muthén, 2010) and using the default treatment full information maximum likelihood (FIML; e.g., Enders, 2001) for the missing data. We estimated a longitudinal SEM model. First, a model that includes male and female participants was estimated. Then, a model with only the male gender was estimated, and finally, a model with only the female gender. The models were assessed based on the Chi-square (χ^2), comparative fit index (CFI), Tucker-Lewis Index (TLI), an estimated root mean square error of approximation (RMSEA), and with a 90% confidence level. As a reference to the fit indices of the models, we followed the guidelines of Hu and Bentler (1999) for CFI and TLI values. By convention, values of 0.90 or higher were considered acceptable values of fit (Wolfe et al., 2004). For the RMSEA value, we relied on Kline (2011) in which 0.05 indicates a close fit.

Results

Table 1 describes the means and standard deviations, range, and number of respondents in this study. The school variables were at a high average for school bonding and school satisfaction, while the bullying variables had low averages for both victims and bullies. The average was high with respect to LS. The inter-item correlation matrix that our analyses were based on was large (a 29×29 table). The correlations between the mean items for school bonding, school satisfaction, bully, victim, and LS are presented. In addition, we included age and gender. As expected, school variables positively correlated with each other, school bonding with school satisfaction ($r = 0.55$, $p < 0.001$). As well, the variables involved in bullying correlated positively with each other and bully with victim ($r = 0.45$, $p < 0.001$), while school variables correlated negatively with bullying variables, school bonding with bully ($r = 0.19$, $p < 0.001$), school bonding with victim ($r = 0.20$, $p < 0.001$), school satisfaction with bully ($r = 0.19$, $p < 0.001$), and school satisfaction with victim ($r = 0.13$, $p < 0.01$). LS correlated positively with school and victim variables, with school bonding ($r = 0.09$, $p < 0.05$), with school satisfaction ($r = 0.11$, $p < 0.05$), and with victim ($r = 0.12$, $p < 0.01$), but not with bully ($r = 0.01$, $p > 0.05$). Finally, age correlated negatively with school variables, with school bonding ($r = 0.25$, $p < 0.001$), with school satisfaction ($r = 0.18$, $p < 0.001$), and with LS

Table 1 Descriptives and psychometric properties

Variables	*M*	SD	Minimum	Maximum	*N*	*α*	
Age	13.51	1.16	11	17	530		
Gender	.47	.53	1	2	552		
School Bonding	3.96	.92	1	5	552	.82	
School Satisfaction	4.92	.71	1	6	529	.76	
Bully	1.44	.45	1	4	542	.81	
Victim	1.62	.68	1	4	546	.83	
SLSS	3.02	.83	0	4	534	.79	
Zero-Order Correlations							
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Age (1)	–						
Gender (2)	.01	–					
School Bonding (3)	.25***	.13**	–				
School Satisfaction (4)	.18***	.06	.55***	–			
Bully (5)	.01	.08*	.19***	.19***	–		
Victim (6)	.03	.05	.20***	.13**	.45***	–	
SLSS (7)	.09*	.12**	.09*	.11*	.01	.12**	–

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

($r = 0.09$, $p < 0.05$), while gender only correlated negatively with school bonding ($r = 0.13$, $p < 0.01$), bully ($r = 0.08$, $p < 0.05$), and LS ($r = 12$, $p < 0.01$).

The structural models are shown in Figs. 1 and 2, and in Table 2. The resulting original model shows a good fit: χ^2 (365) = 794.92, $p = 0.000$; CFI = 0.91; TLI = 0.90; and RMSEA = 0.047, 90% CI [0.043, 0.052] adjusted for age and sex. In particular, LS was significantly associated with victim ($\beta = 0.23$, $p < 0.001$) but not with bully perpetration ($\beta = 0.09$, n/s). Victimization was significantly associated with school bonding ($\beta = 0.31$, $p < 0.001$) but not with school satisfaction ($\beta = 0.02$, n/s). Bullying perpetration was significantly associated with school satisfaction ($\beta = 0.22$, $p < 0.01$) but not with school bonding ($\beta = 0.07$, n/s).

When estimating the model by gender, we found that both the male and female models presented a good fit: Male χ^2 (341) = 576.07, $p = 0.000$; CFI = 0.91; TLI = 0.90; and RMSEA = 0.049, 90% CI [0.042, 0.056]; Female χ^2 (338) = 504.79, $p = 0.000$; CFI = 0.92; TLI = 0.91; and RMSEA = 0.046, 90% CI [0.038, 0.054], both adjusted for age. The male model presents results similar to those obtained in the original model, maintaining the significance in their paths. In the male model, LS was found to be significantly associated with victim ($\beta = 0.26$, $p < 0.01$) but not with bully ($\beta = 0.11$, n/s). Victim was significantly associated with school bonding ($\beta = 0.35$, $p < 0.01$) but not with school satisfaction ($\beta = 0.06$, n/s). Bully perpetration was significantly associated with school satisfaction ($\beta = 0.32$,

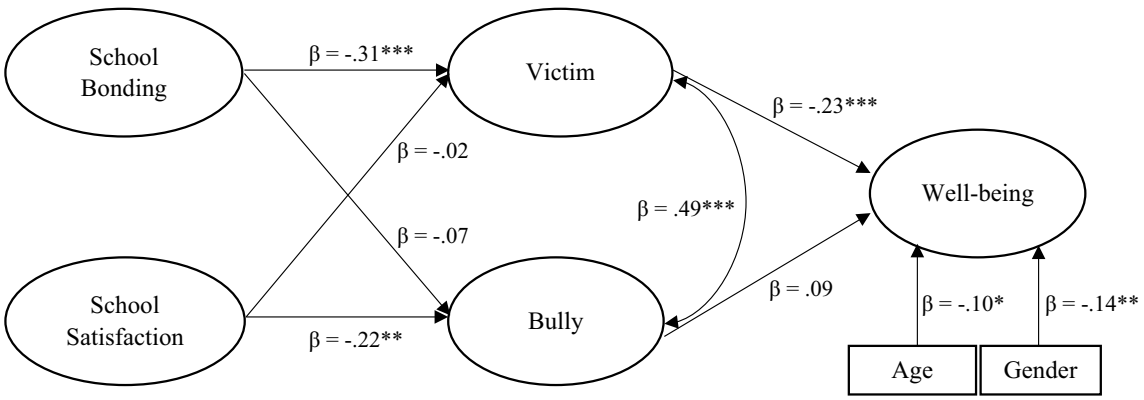

Fig. 1 Original Structural Model. *Note*: *$p < .05$; **$p < .01$; ***$p < .001$

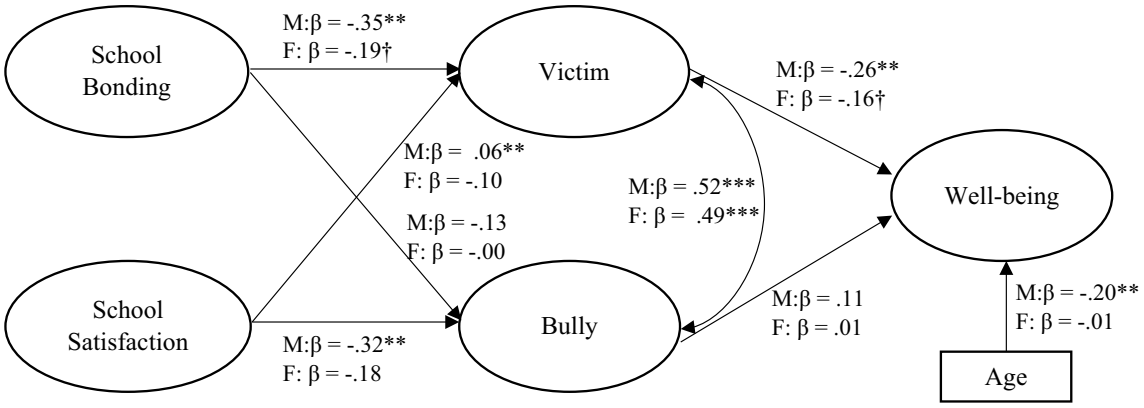

Fig. 2 Structural Model with Results According to Gender. Note: *$p < .05$; **$p < .01$; ***$p < .001$. M: Male; F: Female

Table 2 Standardized and no Standardized Coefficients from Structural Models: Original, Male, and Female

Variables	*β*	*B*	SE	*95%* CI	R^2	
Original Model						
Well-being						.07
Victim	.23***	.27***	.06	.34	.11	
Bully	.09	.14	.06	.04	.21	
Victim						.08
School Bonding	.31***	.30***	.07	.45	.16	
School Satisfaction	.02	.04	.08	.13	.17	
Bully						.07
School Bonding	.07	.05	.08	.22	.08	
School Satisfaction	.22**	.24*	.08	.37	.06	
Male Model						
Well-being						.09
Victim	.26**	.29**	.08	.42	.10	
Bully	.11	.17	.09	.06	.28	
Victim						.10
School Bonding	.35**	.36**	.11	.56	.13	
School Satisfaction	.06	.08	.12	.17	.28	
Bully						.18
School Bonding	.13	.09	.11	.35	.09	
School Satisfaction	.32**	.32*	.12	.55	.10	
Female Model						
Well-being						.03
Victim	.16†	.25†	.10	.35	.03	
Bully	.01	.01	.10	.19	.20	
Victim						.07
School Bonding	.19†	.14†	.11	.40	03	
School Satisfaction	.10	.12	.11	.32	.12	
Bully						.03
School Bonding	.00	.00	.11	.22	.22	
School Satisfaction	.18	.19	.11	.40	.05	

†$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

$p < 0.01$) but not with school bonding ($\beta = 0.13$, n/s). On the other hand, the female model presents differences with the original model and with the male model. In this model, LS was marginally associated with victim ($\beta = 0.16$, $p < 0.10$), being also marginal between school bonding and victim ($\beta = 0.19$, $p < 0.10$). Furthermore, no effect was found between school satisfaction and bully ($\beta = 0.18$, n/s) unlike the original model and the male model.

Discussion

Our study contributes to an understanding of the longitudinal relationship of adolescent life satisfaction (LS) and bullying in the school climate context, within the broader Chilean context. The aim was to examine the long-term effect of some dimensions of school climate and bullying on adolescent LS. Negative associations were found between school bonding and bullying victimization, and between school satisfaction and bullying perpetration. Also, a negative effect between being a victim of bullying and LS was found, which remained at least one year later, while more bullying showed no association with LS. Adolescents who are more bullied feel less connectedness and proximity to their school and its members. Also, they have less satisfaction with their lives, even after one year. On the other hand, adolescents who bully show less satisfaction with their school, teachers, classmates, and schoolwork, and they are not satisfied with their lives.

Regarding our first hypothesis, we found distinct effects of school climate on bullying and victimization. An expected finding was the negative relationship between school satisfaction and bullying others, which was consistent with our hypothesis and previous studies (Álvarez-García et al., 2015; Hilooğlu & Cenkseven-Önder, 2010; Shetgiri et al., 2012). Adolescents who value school and consider it interesting and relevant are less likely to engage in problematic behavior. On the other hand, it appears that school non-conformity is likely to increase the risk of peer aggression. Finding ways to enhance student satisfaction with school is an important strategy for bullying prevention (O'Brennan et al., 2014; Tzani-Pepelasi et al., 2019). School bonding, however, was not found to have a significant effect on bullying behavior. Although other studies have found an effect of low school attachment on aggressive behaviors in school (Brookmeyer et al., 2006; Catalano et al., 2004; Harel-Fisch et al., 2011), the present study did not find such association. A possible explanation is that school satisfaction and school bonding are different dimensions of school climate that require further examination; though school bonding is negatively correlated with bullying (see Table 1). Keeping in mind that bullies are also victims (Haynie et al., 2001), school bonding can still be an important determinant for bullying. In general, the percentage of students at risk that engage in bullying is rather small; however, they demand for a more intensive school support (Turcotte Benedict et al., 2015). Therefore, instead of meeting out expulsion for students at risk, our results highlight the need to better understand school satisfaction for aggressive students to prevent violent behaviors and to increase their school engagement.

Both school engagement and school satisfaction support positive peer relationships in the school and therefore can have an impact on students at risk. Thus, future studies can explore peer dynamics within the classroom context to recognize other significant variables. For instance, study popularity and social influence among peers is also relevant for studying bullying behavior as a significant predictor (Rodkin & Berger, 2008). A recent study in Chile with 978 fifth to seventh graders evidenced the importance of perceived popularity in bullying dynamics. Additionally, Machiavellianism, referring to what extent a person feels that others can be manipulated and deceived (Berger & Caravita, 2016), was significantly associated with bullying behavior. Future studies can explore whether school bonding and school satisfaction ameliorate this negative peer effect.

Additionally, we found a negative association between school bonding and bullying victimization. In general, research showed that students who are victims of bullying report less bonding to their school (Cunningham, 2007; Haynie et al., 2001; Wei & Williams, 2004). Some authors have suggested that students who are victims of bullying consider their school environment to be less supportive, with fewer feelings of attachment to their school (Morrison & Vaandering, 2012). A possible explanation of our results is consistent with the social development model of Catalano et al. (2004), which states that establishing a strong bond with a context of socialization inhibits behaviors that are inconsistent with the norms of that context. It can be hypothesized that those who do not feel attached to their school do not adhere to the social norms that guide their behavior in school. They are likely to be influenced by their peer groups who do not adhere to the social norms and are likely to reject individuals who do not adhere to their group norms. According to the same model, strong school bonding promotes the development of social competence. On the contrary, weak bonding to school would not provide individuals with opportunities to develop social skills, such as assertiveness, and they may become victims of bullying as a result. Another explanation is that by feeling less attached, students may be less involved in school activities and therefore have fewer support networks. A recent law in Chile was implemented to promote equal rights to access to school for everyone (Act N° 20.845). However, this new law does not provide additional support to the school to support all students. A qualitative study in Chile (Agencia de Calidad de la

Educación, 2015) revealed a lack of teacher support in order to strengthen the focus on socio-emotional development and academic achievement of students. As a result, students tend to become less bonded to school and are more likely to become victims of bullying.

Negative effects of bullying victimization have been reported in several studies (Goswami, 2012; Savahl et al., 2019; Valois et al., 2012; Varela et al., 2018; Varela et al., 2019a, b, c). For example, Moore et al. (2017) review of 165 articles found negative outcomes of bullying victimization, such as depressive symptoms, anxiety, suicidal ideation, drug use, and poor general health. Other studies have shown that these effects can last into adulthood, negatively affecting different dimensions of well-being (Copeland et al., 2013; Takizawa et al., 2014; Wolke et al., 2013). Accordingly, consistent with our hypothesis, our results confirm what has been reported in previous studies in that LS is dependent on the school environment and peer bonding (Leria-Dulčič & Salgado-Roa, 2019). Nevertheless, contrary to previous findings (Estévez et al., 2009; Valois et al., 2012; Wilkins-Shurmer et al., 2003), no associations were found between bullying perpetration and LS in our study. These associations have not been found in previous studies with Chilean samples (Varela et al., 2018), which seems to suggest that there may be cultural factors mediating this relationship. A potential explanation could be that bullies normalize violent behavior and therefore develop positive attitudes toward violence (Kocatürk & Türk-Kurtça, 2020), and consequently it does not affect their life satisfaction. Previous studies found that Chilean adolescents either normalized bullying or denied its existence (Agencia de Calidad de la Educación, 2015, 2017), a phenomenon that could explain why life satisfaction was unaffected. Future studies are necessary to clarify the effect of bullying others on LS.

As previously noted, our results showed gender differences, with partially significant associations found between school bonding and victimization and between victimization and LS for females. Gender differences in LS have been previously found (Liu et al., 2016), but the results have been inconsistent (Chen et al., 2020). On the other hand, gender has been found to moderate the association between relational victimization and self-rated health but not physical victimization and health (Zhang et al., 2019). Future studies in the association between types of victimization and health are needed. For Chilean male and female students, males are more likely to report physical victimization whereas females tend to experience more episodes of psychological victimization (INJUV, 2019) which are likely to negatively affect their health and LS. Furthermore, the psychological and emotional impact of bullying victimization differs by gender; to illustrate, females are more likely than males to show psychological harm such as low self-esteem when they are victims of relational aggression.

Implications for School Mental Health Practices

School mental health practitioners need to take into consideration the characteristics of the adolescent stage of development, which are marked by changes at social, psychological, and biological levels that are shaped by the environment (Blakemore & Mills, 2014; Foulkes & Blakemore, 2018). When intervening in school, practitioners need to consider the changes in affective social processing that occur in adolescence (Crone & Dahl, 2012), which has an impact on development trajectories in education, health, social, and economic success (Dahl et al., 2018).

Our study shows how adolescent LS is affected by various aspects of their school experiences. This study points to the importance of considering the effects of the school experience on LS during adolescence. In line with a socio-ecological vision of development, these findings highlight the importance of considering the relationships between individuals and their contexts when selecting school mental health interventions. Additionally, an important aspect to consider in Chile is that there appears to be normalization of violence among young people and schools have not adequately addressed violence in school. Consequently, teachers are overburdened spending a considerable amount of their time not only on students' learning outcomes but also their socio-emotional development (Agencia de Calidad de la Educación, 2015).

Taking the above into account, we suggest that school-based interventions should focus not only on preventing bullying but also on promoting students' sense of belonging and satisfaction with their school. Recent research with Chilean samples indicates that some forms of student participation in school activities are associated with greater satisfaction with the school (González et al., 2020), thus increasing the opportunities for student participation in school-based activities could be a way to increase their satisfaction with their school. Along with this, it is relevant to think about interventions that integrate the school community with different stakeholders. One possibility is developing competencies in teachers to promote students' socio-emotional skills and interventions that aim to improve the organizational structure to promote student learning and socio-emotional competence. Multiple, contextual interventions, which aim to train teachers in classroom management and instructional methods, teach students social-emotional skills, and provide developmentally-appropriate parenting training to parents have been shown to be effective in increasing students' sense of school bonding (Hawkins et al., 2001).

One framework that may be helpful is the three-tiered intervention model that has been used widely in health and

psychosocial interventions (Guzmán et al., 2015; Leiva et al., 2016; Murphy et al., 2015). At the primary or universal level, the strategies include providing supports to all students and staff. At the secondary or selective level, the focus is on groups that require more attention. At the tertiary or focused level, the interventions are aimed at providing specialized supports. Examples of interventions at these levels are the SWPBIS implemented in the USA (Childs et al., 2016) and in Chile (Varela et al., 2018), and the Skills for Life Program (Lara et al., 2012; Rojas-Andrade et al., 2017).

Based on our study, interventions could be considered at the primary level, aimed at favoring school ties and satisfaction with the school for not only all students but also for school staff. At the secondary level, the focus of intervention must be preventing vulnerable adolescents from being victims of bullying by increasing their bonds with the school. It is imperative to establish a climate of security and trust so that students feel confident in turning to adults when they are victims of bullying their peers. In the case of bullies, it is important to intervene in a safe and non-punitive manner and increase their satisfaction with their school. Finally, at the tertiary level, it would be relevant to focus on providing support for students with low LS, as well as students who, despite receiving intervention at a second level, continue to bully their peers.

Study Limitations

Several limitations of this study need to be mentioned. One is using self-reports by the students. Future studies should include reports from school administrators and teachers, which can increase the validity of the findings. Another limitation was focusing on a specific stage of development, so the results need to view cautiously when generalizing to other age groups. Also, we used a convenience sample which may limit the interpretation and the scope of our findings. To compensate for this limitation, we applied a sampling design that collected data from private, semi-private, and public schools, increasing diversity in our sample. The use of a prospective model in two waves represents another limitation. Future studies might consider at least three measurements over time. Also, the school climate only relied on two aspects. Future studies need to delve into other aspects of school climate, such as safety and how they affect bullying and adolescent health and psychosocial well-being. Lastly, the time frame used to measure bullying victimization is another limitation. We used the IBS scale to measure bullying behavior, which asks about this behavior within the past 30 days. Even though this is a well-recognized scale, it only captures bullying behavior that occurred within 30 days. By not considering the entire school year, students who are victims multiple times during the year are excluded. Future studies might apply this measure multiples times during the school year. Despite these limitations, our study contributes to a better understanding of LS and bullying among adolescents by highlighting the importance of school climate over time. In particular, positive school relationships, including school bonding and satisfaction, are associated with lower levels of bullying among adolescents, which can affect LS over time.

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