



Effects of Psychosocial Adversity on School Maladjustment: A Follow-up of Primary School Students

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ABSTRACT

School maladjustment (SM) is understood as a set of behavioral, social, and emotional difficulties that prevent students from meeting the expectations of their school context. Its appearance during the first years of schooling is linked to school failure and dropout, violent behaviors, mental health problems, and maladaptive trajectories that persist for the rest of an individual's life. The goal of this study was to identify psychosocial adversity variables capable of predicting the appearance of SM during the first three years of school. By collecting data on school maladjustment, adverse childhood experiences and psychosocial dysfunction, a longitudinal follow-up process was applied to a cohort of 26,108 Chilean students (50.7% female) from the start of their schooling (6.3 years of age in 1st grade) until two years later (8.4 year age mean in 3rd grade). Through binary logistic regressions, the results obtained show that mother's adolescent pregnancy, biological father's absence, mental pathology in a relative, psychosocial dysfunction, and teacher's negative perception of students' academic and behavioral performance predict the appearance of SM after three years in the school system. The article discusses these results and their implications for the development of preventive programs aimed at reducing SM and mental health problems during childhood.

El efecto de la adversidad psicosocial en la desadaptación escolar: un seguimiento de los alumnos de educación primaria

RESUMEN

La inadaptación escolar (IE) se entiende como un conjunto de dificultades de comportamiento, sociales y emocionales que impiden que los estudiantes cumplan con las expectativas de su contexto escolar. Su aparición durante los primeros años de escolaridad está relacionada con el fracaso y el abandono escolar, los comportamientos violentos, los problemas de salud mental y las trayectorias de mala adaptación que persisten durante el resto de la vida del individuo. El objetivo de este estudio fue identificar variables de adversidad psicosocial capaces de predecir la aparición de inadaptación escolar durante los primeros tres años de escolarización. Al recopilar datos sobre el desajuste escolar, las experiencias adversas en la infancia y la disfunción psicosocial, se aplicó un proceso de seguimiento longitudinal a una cohorte de 26,108 estudiantes chilenos (50.7% mujeres) desde el inicio de sus estudios (6.3 años de edad en primer grado) hasta dos años más tarde (8.4 años de edad en tercer grado). A través de regresiones logísticas binarias, los resultados obtenidos muestran que el embarazo adolescente de la madre, la ausencia biológica del padre, la patología mental en un familiar, la disfunción psicosocial y la percepción negativa del profesor del desempeño académico y del comportamiento de los estudiantes predicen la aparición de inadaptación escolar después de tres años en el sistema escolar. El artículo analiza estos resultados y sus implicaciones para el desarrollo de programas preventivos dirigidos a reducir los problemas de inadaptación escolar y de salud mental durante la infancia.

Successfully adapting to the school environment is one of the central tasks to be completed during childhood. The school is a fundamental context for achieving cognitive, affective, and social development during this stage, whose importance is only surpassed by that of the family (Bronfenbrenner & Morris, 1998; Ministerio

de Salud de Chile, 2019). It has been demonstrated that when children manage to successfully adapt to school they display better psychosocial adjustment in other contexts and their subjective well-being increases (Gutiérrez & Gonçalves, 2013; Viñas Poch, González Carrasco, García Moreno, Malo Cerrato, & Casas Aznar, 2015).

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Traditionally, school adjustment (SA) has been linked to students' academic performance, and has thus been measured through academic achievement (Cava, Povedano, Buelga, & Musitu, 2015). Nevertheless, there is consensus nowadays that the SA process also involves aspects such as motivation, school integration, classroom participation, attitudes towards teachers, the observation of rules and norms of behavior, and social-emotional competences (Buyse, Verschueren, Verachtert, & Van Damme, 2009; Domitrovich, Durlak, Staley, & Weissberg, 2017; Ladd & Troop-Gordon, 2003; Perry & Weinstein, 1998; Pianta, Steinberg, & Rollins, 1995), along with the successful completion of the developmental tasks present at school (Eccles & Roeser, 2003; Luthar & Cicchetti, 2000). In fact, SA is built upon the basis of competences such as social and problem-solving skills, decision-making skills, self-regulation, self-efficacy, and skills linked to academic achievement, among others (Fabian, 2006; Margetts, 2009).

When difficulties emerge for meeting the expectations of the school context, school maladjustment (SM) is expressed through behaviors that prevent the child from adapting to his/her environment, which include aggressive behavior, oppositional defiance, low performance, or low social contact, to name but a few (Darney, Reinke, Herman, Stormont, & Ialongo, 2013; Kellam et al., 2014; Margetts, 2005).

If present during primary school, SM impacts children's psychosocial development. The situation is particularly complex when SM appears during the first years of school, because this is a period of critical normative transition. The results of this transition can have an enduring influence on a child's learning skills, self-esteem, and well-being. When SM appears during this stage of life, it persists throughout the schooling process, including secondary education. The early identification of students at risk of SM, together with interventions before it occurs and becomes cemented in later years of schooling, can help prevent school adjustment problems (Margetts, 2009), school failure and dropout, and even unemployment in adulthood (Hill, Lochman, Coie, Greenberg, & Conduct Problems Prevention Research Group, 2004; Petras et al., 2008).

In addition, a link has been identified between SM and mental health problems in childhood. SM during the first years of school is a risk factor for developing violent and antisocial behavior (Bennett & Offord, 2001; Campbell, Shaw, & Gilliom, 2000; Kellam et al., 2008), while it also predicts the appearance of attention deficit hyperactivity disorder, tobacco use, and behavioral disorders in adolescence (Racz, King, Wu, Witkiewitz, & McMahon, 2013). SM is a strong predictor of negative outcomes in secondary school, such as requiring specialized school services, entering peer groups with antisocial behaviors, and displaying a high behavioral disorder risk (Reinke, Herman, Petras, & Ialongo, 2008). It has also been linked to violent experiences at school, either as a victim (Perren & Alsaker, 2006), an aggressor, or an active observer (Roeser & Eccles, 1998; Rojas Andrades & Leiva Bahamondes, 2015).

In general, several factors underlie adjustment problems in childhood. They can be due to intrinsic factors of the adaptive task, insufficient individual ability to adapt to one's environment, or characteristics of the environment where the person develops. These factors generally appear together; thus, it is necessary to examine their interactions and the processes that lead to adjustment failure (Jenkins, 2008). Recent studies suggest some variables that may affect the development of SM, such as low self-control and cognitive impulsivity in the first years of the school stage (Walters, 2018), destructive conflicts between parents (Coe, Davies, & Sturge-Apple, 2017), authoritarian parental style (Montoya-Castilla, Prado-Gascó, Villanueva-Badenes, & González-Barrón, 2016), and parental negligence (Lim & Lee, 2017).

On the other hand, adverse childhood experiences (ACEs) have been studied as variables that affect opportunity and lifetime health (CDC, 2019). They concern a series of adverse events or circumstances that occur during childhood and lie beyond a child's control, causing stress, harm, and discomfort (Anderson et al., 2018).

These adversities are characterized by altering healthy development (Burgermeister, 2007), posing more difficult adaptive challenges (Jenkins, 2008). Extreme exposure to them has influences on mental health and behavior and could manifest through drug use or depression (Woerner, Overstreet, Amstadter, & Sartor, 2018). Thus, the more adversities an individual must deal with, the more prone he or she will be to display adaptive and mental health difficulties (Appleyard, Egeland, van Dulmen, & Sroufe, 2005; Hughes et al., 2017; Merrick et al., 2017; Rutter, 2001).

The ACEs study described three types of adversities: abuse, household challenges, and neglect (Edwards, Holden, Anda, & Felitti, 2003; Felitti et al., 1998). Current research has expanded the concept of ACEs to capture a broader range of adversities across several groups, including additional types of adversities at community-level (Cronholm et al., 2015; Finkelhor, Shattuck, Turner, & Hamby, 2013).

Some examples of adversities during childhood include the presence of psychopathology in a relative and suffering from a chronic disease (Kessler et al., 2010; Stein, Ramchandani, & Murray, 2008), being the child of an adolescent mother (Jenkins, Shapka, & Sorenson, 2006; Moffitt & E-Risk Study Team, 2002), or not living with one's biological father (Ezpeleta, Granero, de la Osa, & Domenech, 2008; Jenkins, 2008).

In the school context, it is also possible to identify adverse situations linked to maladaptive difficulties (Perry, Donohue, & Weinstein, 2007; Perry & Weinstein, 1998). Among these, much attention has been paid to teachers' low expectations and negative perception of children's achievements and their relationships with students, which are linked to lower classroom adaptation and school achievement (Friedrich, Flunger, Nagengast, Jonkmann, & Trautwein, 2015; Jiménez & López-Zafra, 2010, 2013; Rubie-Davies, 2006), in contrast with high expectations, which are associated with better student participation and satisfaction at school (Hafen, Ruzek, Gregory, Allen, & Mikami, 2015; Klem & Connell, 2004; Marks, 2000).

Regarding the relationship between adverse childhood experiences and mental health in the Chilean context, it is essential to consider that in children and adolescents from developing countries these vulnerabilities are higher, which may hinder their adequate psychosocial-emotional growth (Jenkins, Madigan, & Arseneault, 2015).

Studying the Chilean child population is essential due to the high rates of mental health problems present in the country. National studies indicate that more than a third of children and adolescents have a psychiatric disorder (Vicente et al., 2012; Vicente, Saldivia, & Pihán, 2016); it also allows knowing the reality of a Latin American country, considering that most of the research is focused on developed countries.

Considering this situation, the present study was conducted in order to identify adversities with the capacity to predict the emergence of SM in primary education through the follow-up of a cohort of Chilean students, from the start of their schooling (6 years of age) until two years later (8 years of age). This research focuses on the type of student in vulnerable schools, where the incidence of mental health problems is higher compared to less exposed populations.

The knowledge about these variables is critical because it generates updated evidence about the association between SM and adverse childhood experiences in the young Chilean population.

Method

Procedure

The population included in this study comprises primary school students participating in the Chilean Skills for Life I [HpV I] public program. This program carries out promotional and preventive mental health actions for students, their families, and the school

community in all the country, while also performing a universal screening of psychosocial risk, including the detection of SM (Vargas & Peña, 2016).

In this national program, questions about psychosocial dysfunction and psychosocial adversity are answered by parents, while the head teacher explains SM. These measures are evaluated in the 1st and 3rd grade, through universal screening.

In 1st and 3rd grade, SM measure allows identifying children who are at risk of presenting SM from those who do not have this difficulty, using cut-off scores and clinical criteria (Guzman et al., 2015; Leiva et al., 2015; Murphy et al., 2015).

For this study, data collection took place between 2013 and 2015. Universal screening included 30,763 children (year 2013), but only those who did not present school difficulties in the 1st grade were considered ($N = 26,108$), in order to identify variables capable of predicting the emergence of SM two years later (year 2015).

The variables measured in 1st grade allowed identifying those who would participate in the study and knowing if they were exposed to adverse childhood experiences. Then, in 3rd grade it was observed whether the psychosocial adversity measured in 1st grade predicted or not the appearance of SM in a population that initially was healthy.

Participants

In this study, 26,108 parents and 1,927 teachers from 1,418 schools that implemented the HPV program throughout the country evaluated 26,108 first and third-grade students; 50.7% of student were women, and the general average age was 8.39 years in third grade ($SD = 0.573$).

All participants met the inclusion criteria of not displaying indicators of SM in the first grade and not having participated in a preventive intervention during the second grade.

Measures

School maladjustment. The SM was measured using the Teacher Observation of Classroom Adaptation-Re-Revised [TOCA-RR] (George et al., 1995; George et al., 2004), which is the version of the Teacher Observation of Classroom Adaptation-Revised " (TOCA-R) adapted for Chile (Werthamer-Larsson, Kellam, & Wheeler, 1991).

TOCA-RR questionnaire maintains the psychometric properties of the original instrument. This includes six areas or dimensions through which problems in students' school adjustment can be observed in the classroom: (1) social contact (Cronbach's alpha = .886), (2) authority acceptance (Cronbach's alpha = .910), (3) emotional maturity (Cronbach's alpha = .762), (4) cognitive achievements for learning (Cronbach's alpha = .913), (5) attention and concentration (Cronbach's alpha = .912), and (6) activity level (Cronbach's alpha = .849). This instrument has been used as a criterion for the entrance of children into preventive programs at school and has shown high reliability, having an excellent internal consistency (Racz et al., 2013).

This instrument is completed by the child's teacher, who rates behavior using a Likert-type scale of observed frequency with scores ranging from 1 = *almost never* to 6 = *almost always*. Some examples of questions are: "Hurt others physically," "Pay attention" or "Have many friends."

Children who display SM are identified based on their scores on each dimension and following clinical criteria (Guzman et al., 2015; Leiva et al., 2015; Murphy et al., 2015). This measure was applied in 1st and 3rd grade.

Adverse childhood experiences. Eight variables were measured. Four of them are family-related: (1) mother's adolescent pregnancy, (2) biological father's absence, (3) mentally ill household member, and (4) insufficient family participation in support networks; two

are individual-related: (5) chronic disease that causes children to miss school for long periods and (6) psychosocial dysfunction; and two are school-related: (7) teachers' negative perception of a child's behavior and (8) teachers' negative perception of a child's academic performance.

The first five variables were obtained from a questionnaire administered to participants' parents which included five closed questions on the presence/absence of adversities.

Also two school variables were assessed using an appendix of the TOCA-RR questionnaire that explores teachers' global perception in terms of students' academic performance and behavior in class through two items (George et al., 2004): (1) "How would you rate the child's progress as a student?" and (2) "How would you rate a child's overall behavior in class?". The teacher responds through a Likert scale ranging from 1 (*positive perception*) to 6 (*negative perception*). In this study, ratings of 4, 5, and 6 were interpreted as indicators of a negative perception.

Psychosocial dysfunction. Psychosocial dysfunction was measured using the Pediatric Symptom Checklist (PSC; Jellinek & Murphy, 1988; Jellinek, Murphy, & Burns, 1986). In the United States, the PSC is one of the most widely used and validated screening instruments in different subpopulations.

In the Chilean version (George et al., 1995; George et al., 2004), cognitive, emotional, and behavioral problems of the child observed in his/her home are evaluated. It is made up of 33 questions that are answered by a child's parents and/or guardians.

Examples of these questions are "He/she complains of pain," "He/she has little energy", and "He/she is irritable and angry." A total score is obtained that determines the presence of psychosocial risk through a cutoff point. Regarding its reliability, the PSC presents a Cronbach's alpha of .85 for the infant population, as it has a specificity of .68 and a sensitivity of .95 (Jellinek et al., 1988). In the Chilean version, the value of Cronbach's alpha was .853

Statistical Analyses

In order to test whether the variables studied predicted the appearance of SM in 3rd grade, binary logistic regression, through the odds ratio (*OR*), was used to examine the intensity of the link between SM and psychosocial factors, while the Wald test was employed to assess the significance of the parameters. The first step was to perform a univariate logistic regression analysis to calculate the unadjusted predictive value of each variable regarding the occurrence of SM in 3rd grade. Afterwards, a multivariate logistic regression analysis was conducted to generate a predictive model of the occurrence of SM using the predictive values of the variables adjusted for the other variables studied. Predictive models were calculated using the enter method selection.

Ethical Considerations

In this study, researchers worked with databases provided by the Skills for Life I [HpV I] national program. The HpV I program informs all participating students, parents, and teachers of the criteria and methodology used. Participation is voluntary. Parents are informed of the administration of the questionnaires and the use of the information collected. They give their consent for their children to participate in the program and for that teachers answers questions about their children.

Students found to display psychosocial risk in the global detection phase are referred to a preventive intervention carried out in the same program or to a specialist if needed. In each of its actions, the program guarantees the anonymity and confidentiality of participant information. With respect to the data used in this study, all personal identification information was removed. Teachers and parents' responses were matched through an ID number.

This study was approved by the ethics committee of the Faculty of Social Sciences of the University of Chile, institution to which the corresponding author belongs.

Ethical approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Results

Descriptive Results

Three years after the first measurement, it was observed that 12.4% of the 26,108 students who started school without SM displayed maladaptive behaviors in 3rd grade. The percentage of male and female students with such behaviors was similar.

With respect to the frequency of the psychosocial adversity variables, the most commonly observed ones in the total sample were low family participation in support networks (47%) and biological father's absence from the home (26.6%), while the least frequent ones were teachers' negative perception of students' academic and behavioral performance (4.9% and 3.1% respectively).

Comparing the group of students who displayed SM with the group without SM in 3rd grade, the frequency of all variables was observed to increase in the group with SM except for low participation in support networks (Table 1).

Univariate Analysis

All the independent variables other than low family participation in support networks were significant for predicting SM in 3rd grade. Teachers' negative perception of the student's academic and behavioral performance variables had the highest predictive values, with odds ratios of 2.07 and 3.68, respectively. The variable with the lowest predictive value was chronic disease of the child ($OR = 1.17$), followed by mentally ill household member ($OR = 1.29$). Regarding psychosocial dysfunction, the values obtained show that

its presence in 1st grade increased the likelihood of maladaptive behaviors in 3rd grade by 2.42 times, whereas, the absence of the biological father did so by 1.33 times and the mother's adolescent pregnancy by 1.31 times (Table 2).

Multivariate Analysis

A general multivariate model was obtained where all the psychosocial variables studied were included (Table 3). In it, all the variables except for chronic disease of the child and low family participation in support networks had significant predictive values. Furthermore, comparing the odds ratios of the univariate analysis with those of the multivariate analysis shows that all predictive values are reduced when adjusted for the other variables; even more so, the variable chronic disease of the child becomes non-significant.

A new multivariate analysis was performed, but without including the non-significant variables in the model, which yielded the final corrected predictive model (Table 4). The model revealed that, when all these adversity variables appeared together, they increased the likelihood of SM in 3rd grade, with negative perception of behavioral performance and psychosocial dysfunction reaching the highest values ($OR = 3.11$ and $OR = 2.10$, respectively).

The omnibus test of model coefficients revealed a chi-squared significance below .05, which indicates that the variables included in the model help explain modifications in the dependent variable. With respect to other goodness of fit tests, the log-likelihood obtained surpasses 1, reaching 14,173.640, while Cox-Snell R^2 and Nagelkerke R^2 show that the model explains 4.9% and 9.4% of the variation of the independent variable, respectively. The classification table reveals that the model is able to correctly classify 88.1% of the cases analyzed.

Although this effect size is low, for its interpretation the observational design used in this research must be considered that favors ecological validity over internal validity. Thus, although the effect size does not reach the optimal statistical values, in terms of the real world effects that oscillates between 5 and 10% are good indicators of the explanation of social adversities of the appearance of maladaptive school behavior.

Table 1. Frequency of Psychosocial Adversity Variables

Psychosocial Adversity	Total	SM 3rd grade	
		SM	No SM
Adolescent pregnancy of the mother	2,188 (8.4%)	322 (10.0%)	1,866 (8.2%)
Biological father absence	6,949 (26.6%)	979 (30.3%)	5,970 (26.1%)
Chronic disease of the child	3,083 (11.8%)	416 (12.9%)	2,667 (11.7%)
Mentally ill household member	2,223 (8.5%)	325 (10.1%)	1,898 (8.3%)
Low family participation in support networks	12,263 (47.0%)	1,470 (45.5%)	10,793 (47.2%)
Psychosocial dysfunction	1,998 (7.7%)	453 (14.0%)	1,545 (6.8%)
Teachers' negative perception academic	1,289 (4.9%)	282 (8.7%)	1,007 (4.4%)
Teachers' negative perception behavioral	797 (3.1%)	262 (8.1%)	535 (2.3%)

Table 2. Univariate Logistic Regression

	<i>b</i>	W (<i>df</i> = 1)	OR adjusted	CI 95%	
				Lower limits	Upper limits
Adolescent pregnancy of the mother	0.273	18.039***	1.314	1.158	1.490
Biological father absence	0.288	44.489***	1.334	1.226	1.452
Chronic disease of the child	0.131	7.915**	1.175	1.050	1.315
Mentally ill household member	0.261	16.712***	1.299	1.146	1.472
Low family participation in support networks	0.005	0.015	0.902	0.926	1.091
Psychosocial dysfunction	0.886	230.859***	2.425	2.163	2.718
Teachers' negative perception academic	0.731	108.390***	2.077	1.810	2.383
Teachers' negative perception behavioral	1.304	280.093***	3.684	3.162	4.291

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

Table 3. Multivariate Logistic Regression. Predictive Model

	<i>b</i>	W (<i>df</i> = 1)	OR adjusted	CI 95%	
				Lower limits	Upper limits
Adolescent pregnancy of the mother	0.159	5.379*	1.172	1.025	1.341
Biological father absence	0.192	17.363***	1.212	1.107	1.327
Chronic disease of the child	0.057	0.858	1.059	0.938	1.195
Mentally ill household member	0.139	4.123*	1.149	1.005	1.314
Low family participation in support networks	-0.002	0.002	0.998	0.915	1.088
Psychosocial disfunction	0.738	143.989***	2.092	1.855	2.361
Teacher's negative perception academic	0.427	23.757***	1.533	1.291	1.821
Teacher's negative perception behavioral	1.137	151.662***	3.116	2.601	3.734

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

Table 4. Multivariate Logistic Regression. Corrected Predictive Model

	<i>b</i>	W (<i>df</i> = 1)	OR Adjusted	CI 95%	
				Lower limits	Upper limits
Adolescent pregnancy of the mother	0.158	5.337*	1.171	1.024	1.340
Biological father absence	0.191	17.236***	1.211	1.106	1.325
Mentally ill household member	0.145	4.496*	1.156	1.011	1.321
Psychosocial disfunction	0.745	148.916***	2.107	1.869	2.375
Teacher's negative perception_academic	0.427	23.76***	1.533	1.291	1.820
Teacher's negative perception_behavioral	1.137	152.6***	3.117	2.603	3.733

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

Discussion

The results of the present study, carried out with a national sample of Chilean primary school students, reveal that certain psychosocial adversity variables increase the likelihood of SM after three years of schooling in children who started their formal education without any maladaptive indicators.

Specifically, the adolescent pregnancy of the mother, the absence from home of the biological father, a mental pathology in a relative, teachers' negative perception of the student's academic and behavioral performance, and psychosocial dysfunction are adverse childhood experiences (CDC, 2019), which can be identified as risk factors of SM, both individually and acting together. That is, exposure to these adversities would influence children's future mental health (Woerner et al., 2018).

Likewise, adverse childhood experiences that prior studies linked to adaptive difficulties in childhood – chronic disease of the child and low family participation in support networks– were found to be non-significant in the sample studied. This prompts the question of whether some of the risk factors that have traditionally been studied at this specific age continue their known effect nowadays. Specifically for the variables mentioned, their behavior may be explained with reference to medical advancements that have made chronic diseases in childhood less disabling. On the other hand, the situation observed may be due to the increasing isolation of modern families because of the rise in workload and women's participation in the workforce.

Particularly, psychosocial dysfunction and teachers' negative perception of the student's behavior have remarkably high predictive values. The results of psychosocial dysfunction are not surprising considering its predictive value with respect to the appearance of mental health problems in childhood. For this reason, the international literature has identified it as an effective screening element (Hacker, Williams, Myagmarjav, Cabral, & Murphy, 2009; Navon, Nelson, Pagano, & Murphy, 2001; Vogels, Crone, Hoekstra, & Reijneveld, 2009). In this and other studies (Perry et al., 2007; Perry & Weinstein, 1998), psychosocial dysfunction emerges as an adverse condition with a powerful effect on children's ability to respond with effectiveness to the demands posed by the school context.

In this study, teachers' perceptions of students, and especially their negative view of student behavior, have a strong influence on children's school adaptation trajectory, increasing by approximately three times a student's likelihood to develop SM in primary school, which makes it the adversity variable with the largest effect.

At this stage, a teacher is often the adult who spends the most time engaged in constant interaction with a child; therefore, his figure gains unparalleled relevance. The effect of teachers' perceptions and expectations regarding their students is well-known (Friedrich et al., 2015; Hafen et al., 2015; Jiménez & López-Zafra, 2013; Klem & Connell, 2004; Marks, 2000; Rubie-Davies, 2006); however, acknowledging that their effect is stronger than that of certain extensively researched risk factors, such as the psychopathology of a relative or psychosocial dysfunction, stresses the importance of teachers as a direct determinant of students' academic success probabilities.

Given that in school it is possible to identify adverse situations linked to maladaptive difficulties (Perry et al., 2007; Perry & Weinstein, 1998), the findings of this research make it possible to define guidelines and orientations for the design of interventions aimed at preventing SM and school failure trajectories, thus improving educational standards – a major necessity for developing countries such as Chile.

In addition, this research provides strong evidence linking SM during the first years of school with mental health problems later in life; therefore, the implementation of SM prevention programs should have a positive impact on the reduction of mental health problems in childhood, adolescence, and even in adulthood. Preventing SM results in a better qualified and healthier population, two outcomes that should generate public and governmental interest.

The fact that, in this group of students, the effect of adverse childhood experiences appears once they have completed a continuous trajectory in the school system and not upon entry allows us to conclude that certain characteristics of the functioning of the school system act as an ecological niche that fosters these school trajectories: students who face adverse childhood experiences and who start their schooling process without any difficulties but who, after three years, develop behaviors that keep them from functioning adaptively in this context. Implementing interventions that target

certain characteristics of the school system may address the need to prevent SM in a timely fashion.

Therefore, it is necessary to generate an ecological view of human development, adaptation, and mental health processes that supports solid preventive interventions whose successful implementation can be guaranteed through a theoretically consistent change model.

Projections

This study was carried out considering adverse childhood experiences that prior research has linked to the presence of SM and mental health risks, but which undoubtedly only comprise a fraction of all the psychosocial elements that can act as protective or risk factors during childhood. Therefore, these results only provide a partial view of the phenomenon. Studying SM by incorporating other variables, such as self-esteem, family climate, academic performance, or class attendance, among others, could suggest future research possibilities involving a broader range of protective and risk factors, and may also make it possible to conduct studies with more sophisticated analysis techniques capable of revealing the mechanisms of SM trajectories. For instance, hierarchical or nested linear models could be used in order to estimate the impact of individual risk factors in wider contexts (Dodge & Pettit, 2003).

Similarly, future research could involve more extensive, rigorous, and controlled longitudinal studies capable of examining the trajectory followed by SM and its relation with mental health from childhood to adolescence, but considering the particular characteristics of the psychosocial context of developing countries. In addition, studying the role of teachers and school adjustment/maladjustment in more detail could provide more conclusive information for implementing preventive strategies that assign a key role to teachers as potential receivers and agents of such interventions.

Conflict of Interest

The authors of this article declare no conflict of interest.

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