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School climate and substance use in a sample of Chilean adolescents

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A B S T R A C T

Despite the importance of school climate for positive student health outcomes, few studies address its potential effects on substance use. This study aimed to examine whether dimensions of school climate — *respectful treatment, discrimination, rules, safety,* and *harassment* — relate to alcohol, tobacco, and marijuana use in a sample of Chilean students. The sample comprised 182,066 Year 10 students in 2,907 schools, who completed the Education Quality and Context Questionnaire as part of the SIMCE evaluation in 2017. Statistical analyses included a confirmatory factor analysis (CFA), multilevel logistic regression, and an estimate of predicted probabilities. Models were adjusted for sex and school socioeconomic level. The results showed that school climate was associated with adolescent alcohol, tobacco, and marijuana use. Negative treatment of students, discrimination, poorly defined school rules, inadequate safety, and perceived harassment were associated with an increased risk of substance use. School interventions addressing adolescent substance use should consider the influence of school climate on risky behaviors.

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Clima escolar y consumo de sustancias en una muestra de adolescentes chilenos

R E S U M E N

A pesar de la importancia del clima escolar, aún son escasas las investigaciones que analizan los efectos potenciales sobre el consumo de sustancias en adolescentes. El objetivo de este estudio es examinar si dimensiones del clima escolar: *trato respetuoso, discriminación, normas, seguridad y acoso,* se asocian con el consumo de alcohol, tabaco y marihuana en una muestra de estudiantes chilenos. La muestra está constituida por 182.066 adolescentes que han cursado segundo año de enseñanza media (décimo año de educación formal) pertenecientes a 2.907 establecimientos educativos, que han respondido el Cuestionario de Calidad y Contexto de la Educación, parte de la evaluación del SIMCE en 2017. Los análisis estadísticos incluyen análisis factorial confirmatorio (AFC), regresión logística multinivel y estimación de probabilidades predichas. Los modelos se han ajustado por sexo y nivel socioeconómico del establecimiento. Los resultados muestran que las dimensiones del clima escolar se asocian con el consumo de alcohol, tabaco y marihuana en adolescentes. Ausencia de relaciones de buen trato, presencia de discriminación, normas poco claras en el ámbito escolar, escasa seguridad y percepción de acoso, se asocian a un mayor riesgo de consumo de alcohol, tabaco y marihuana. Intervenciones en el entorno escolar dirigidas a disminuir el consumo de sustancias deberían considerar la influencia del clima escolar en estas conductas de riesgo.

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Introduction

Substance use in adolescence is a global public health issue due to its negative physical, psychological and social consequences

(World Health Organization [WHO], 2014; Thorpe et al., 2019). For example, tobacco and alcohol use have been associated with a greater risk of presenting behavioral and social adaptation problems (Mak et al., 2019), while alcohol and marijuana use can affect neurocognitive functioning, altering attention and learning processes, and verbal and nonverbal information retrieval (Bava & Tapert, 2010). In addition, evidence shows that the earlier alcohol and tobacco use begins, the greater the risk of it extending into adulthood (Montesinos & Guerri, 2014; Viner et al., 2015).

In Chile, studies conducted in 2017 found a prevalence of alcohol use of 31.1%, tobacco 19.2%, and marijuana 17.3% in adolescents from eighth grade elementary to fourth year secondary (National Service for the Prevention and Rehabilitation of Drug and Alcohol Use [SENDA], 2018). Substance use in adolescence is influenced by multiple factors (Villegas-Pantoja et al., 2014) including family, community, and school (López & Rodríguez-Arias, 2010). Although the role of the family, particularly parental monitoring and favorable attitudes to substance use, has been widely studied (Duncan et al., 1998; Saravia et al., 2014), school is also considered a fundamental context in adolescent development (Eccles & Roeser, 2011). In fact, the most critical stages of growth and maturity are experienced in formal education spaces, which is why negative school experience can affect the transition to adult life (Daily et al., 2020).

In addition, school is a significant social context for adolescents and acts as a facilitator for social interaction with peers (Bond et al., 2004). As a result, peers become their reference group (Becoña, 2000), influencing early onset and sustained substance use through peer pressure and other mechanisms (Duncan et al., 1998; Schuler et al., 2019; Villatoro et al., 2017). The study of the link between school and substance use has focused on academic performance. However, evidence also points to the importance of school climate (Eitle et al., 2017), since the characteristics of the school environment have also been associated with early onset and regular substance use and other health behaviors (Bisset et al., 2007; Dudovitz et al., 2018).

School climate refers to the way in which the school community (students, teachers, and family) experiences school life through interaction; more than an individual experience, it is a shared vision that includes qualities and characteristics such as rules, values, interpersonal relationships, teaching and learning practices, organizational structure, safety, commitment, and respect, among other dimensions (Cohen, 2009). Students' perceptions and experiences of school climate can affect their academic, emotional, and behavioral development (Wilson, 2004); hence, it is important to understand this aspect of the school context. School climate is a broad and complex construct since it has been conceptualized under different definitions and approaches (Cohen, 2009; Thapa et al., 2013). In addition, it includes several dimensions: (a) *respectful treatment;* (b) *discrimination;* (c) *rules;* (d) *safety;* and (e) *harassment.* These dimensions appear in the literature under different conceptualizations. Nevertheless, all of them exhibit characteristics fundamental to understanding school climate, particularly the impact it can have on students' behavior (Wang & Degol, 2016).

The dimension *respectful treatment* refers to students' perceptions and attitudes regarding respectful treatment among the community members towards the school and the environment. When they are positive, these relationships are characterized by mutual trust, support, respect and care (Leyton, 2014). *Discrimination* implies a treatment of a person or group as inferior for reasons that are part of their individual and/or social identity (Chilean Ministry of Education, 2014). The presence of respect in a school community is seen through the valuing of diversity regardless of ethnic origin, gender, sexual orientation, or religious belief (Wang & Degol, 2016). When that respect is violated, it has a negative impact on students. There is evidence that the experience of discrimina-

tion is a stressor that increases the risk of tobacco and marijuana use among young students belonging to ethnic minorities, since it is used to obtain short-term relief from distressing emotions (Rogers et al., 2020). In addition, experiences of discrimination based on race/ethnic group or sexual orientation increase the risk of externalizing behaviors such as drug or alcohol use and risky sexual behaviors (Martin-Storey & Benner, 2019).

On the other hand, the dimension *rules* refers to student perceptions about the existence of clear rules that are known, required and respected by everyone and the predominance of constructive conflict resolution mechanisms (Leyton, 2014). School is an important source of socialization since society has assigned it the task of disseminating behavior rules; thus, in addition to teaching skills and knowledge, school has the role of monitoring and controlling personal and social behaviors (Oetting et al., 1998). School rules and the degree to which they are perceived as appropriate has also been connected to substance use, mainly when the school environment is not concerned with managing students' inappropriate behavior, conveying prosocial norms, or the norms are absent or unclear (Lozano et al., 1986).

The dimension *safety* refers to students' perceptions and attitudes to the degree of safety and physical and psychological violence in the school, as well as the existence of action and prevention mechanism. Finally, the dimension *harassment* refers to students' attitudes to school harassment and to the factors that affect their physical or psychological integrity (Leyton, 2014). A school climate marked by high levels of violence can impede the development of adolescents, since it reduces the protection and coping factors naturally present in students' lives (Furlong et al., 1995). Several studies have reported the association between school harassment and substance use (Caravaca et al., 2017; Lambe, 2016). Young people who suffer school harassment feel ignored, excluded, discriminated against and attacked, and are more vulnerable to drug use (Romaní & Gutiérrez, 2010). In this vein, it has been found that students who attend schools with fewer safety issues are less likely to smoke tobacco than students in less safe schools (Zhang et al., 2018). It has also been observed that both aggressors and victims are at greater risk of substance use (Córdova et al., 2012). Aggressors are at greater risk of using tobacco, marijuana and alcohol, while victims of harassment are primarily at increased risk of tobacco and alcohol use (Gaete et al., 2017).

It is of theoretical and empirical relevance to study explanatory models of school climate. Few studies analyze the association of this construct with substance use in adolescents from a multilevel perspective. Therefore, this study aimed to examine the association between the dimensions of school climate — *respectful treatment, discrimination, rules, safety, and harassment* — and substance use in students in second year secondary school who completed the evaluations of the Education Quality Measurement System [SIMCE in Spanish] in 2017 in Chile. As a general hypothesis, it is suggested that perceiving low levels of respectful treatment, rules and safety, and high levels of discrimination and harassment is associated with alcohol, tobacco, and marijuana use. Considering the differences in alcohol, tobacco and marijuana use between boys and girls, sex was included as a control variable in the models (Evans-Polce et al., 2015; Gaete & Araya, 2017; Grittner et al., 2013; Matteau-Pelletier et al., 2020). Moreover, school socioeconomic environment was considered as a control variable since previous evidence has shown its association with substance use (Matteau-Pelletier et al., 2020; Mehanovic et al., 2021; Olsson & Fritzell, 2015).

Method

The quantitative methodology has a non-experimental, cross-sectional design and a correlational scope.

Participants

The participants were students who had completed their second year of secondary school (tenth year of formal education, on average the students are 15 years old at this level) in 2017 and who participated in the SIMCE assessment in Chile. This is a census for the assessment of learning outcomes applied annually in every region in Chile to students in second, fourth, sixth and eighth grade elementary and second year secondary school. Initially, individual records were obtained from 244,690 second-year secondary school students enrolled in 2,912 secondary schools around the country. The percentage of participation of schools eligible for the SIMCE evaluation at the regional level has been, on average, 99.3% ranging between 96.9% and 100% in the different regions in the country. In the original sample, the school had an average of 84.2 students (ranging from 2 to 687) who participated in the SIMCE evaluation in 2017. From the records obtained, 18% had no information on the study variables, and 7% had incomplete information.

In this study, the sample comprised 182,066 students in 2,907 schools who had complete information on Education Quality and Context Questionnaire questions relevant to the objectives of this study. In this sample, the average number of students per school is 62.6 participants, ranging from 1 to 534. The percentage of students with complete information on the study variables per school is on average 74.2%, ranging from 0 to 100%. With respect to the characterization of the analyzed sample, 50% of the respondents were boys. There was no information available on the participants' ages. However, second-year secondary school students are, on average, 15 years old. Regarding type of school funding, 57.6% of the participants came from subsidized private schools (state funding and private administration), 33.5% from municipal schools (state funding and municipal administration), and 8.9% from private schools (private funding and administration).

Instruments

As part of the SIMCE evaluation in 2017, the students responded to the Education Quality and Context Questionnaire (Education Quality Agency, 2022). This questionnaire includes a series of questions to gather students' perceptions of, and attitudes towards, their academic self-esteem, motivation, school climate, healthy life habits, and civic participation and training in the school. For this study, the questions referring to school climate and substance use are included in the section on healthy life habits.

School climate

This instrument is a self-report scale composed of 29 items that measure five factors of school climate: *respectful treatment, discrimination, rules, safety,* and *harassment. Respectful treatment* evaluates the presence of good relations and appreciation among community members. This factor comprises five items with an ordinal response scale (1 = Strongly disagree, 4 = Strongly agree), for example, "How strongly do you agree or disagree with each of the following statements? In my school everyone is treated with respect". *Discrimination* refers to an individual's experience of discrimination faced within the school in different areas of student life. It consists of 13 items with a dichotomous response scale (0 = No, 1 = Yes), for example, "Thinking about this year, 2017, have you felt discriminated against for any of the following reasons in your school? For the way you dress or do your hair". *Rules* evaluates the degree to which students perceive the rules being applied fairly, known and followed by everyone. It is made up of four items with an ordinal response scale (1 = Strongly disagree, 4 = Strongly agree), for example, "How strongly do you agree or disagree with each of the following statements? The coexistence rules are known by all the students". *Safety* evaluates the frequency with which

acts of aggression or violence observed by students occur. It consists of three items with a frequency response scale (1 = Never or almost never, 4 = Always or almost always), for example "During the last month, how often have the following situations occurred at your school? Disparaging remarks between students, such as insults, swearing, teasing, etc.". *Harassment* evaluates the frequency of the participant's own experience of harassment, through intimidation or physical, verbal, social or online abuse. It comprises four items with a frequency response scale (1 = Never or almost never, 4 = Always or almost always), for example "During this year, 2017, how often have you been intimidated or mistreated in any of the following ways by students in your school? Socially isolating you, badmouthing you or humiliating you in front of others".

The evidence of psychometric quality for the school climate scale is satisfactory: WLSMV $\chi2$ ($df = 367$) = 107227.564, $p < .001$, CFI = .944, TLI = .938, RMSEA = .040 (90%CI = 0.039 – 0.040). All the factor loads of the model are statistically significant ($p < .001$). The indicators of reliability and average variance extracted (AVE) are also satisfactory: *respectful treatment* ($\Omega = .757$, $\alpha = .751$, AVE = .530), *discrimination* ($\Omega = .746$, $\alpha = .746$, AVE = .512), *rules* ($\Omega = .776$, $\alpha = .774$, AVE = .508), *safety* ($\Omega = .770$, $\alpha = .768$, AVE = .636), and *harassment* ($\Omega = .777$, $\alpha = .776$, AVE = .649).

Substance use

Participants reported the frequency of alcohol, tobacco and marijuana use in the last month through three questions: In the last month, how often have you done the following? Smoke cigarettes. In the last month, how often have you done the following? Drink alcohol (for example, beer, wine, pisco, etc.). In the last month, how often have you done the following? Smoke marijuana. The frequency response scale for the three questions includes four options: 'Never or almost never', 'Not very often', 'Often', 'Always or almost always'. Considering that any level of substance use in the last month is risky for adolescents (WHO, 2014), the responses were dichotomized to identify who reported consuming alcohol, tobacco or marijuana in the last month compared to those who reported not having used in this period. Thus, two categories are distinguished: 'recent use' (= 1), which groups the options 'Not very often', 'Often' and 'Always or almost always', and 'no recent use' (= 0) for the option 'never or almost never'.

Sociodemographic variables

As control variables, a variable at the individual level (sex) and a variable measured at the school level (school socioeconomic status) were used. The students' sex was recognized using two response options: boy (= 0) or girl (= 1). To characterize the school socioeconomic status, the classification assigned by the Education Quality Agency (EQA) was used: low (= 0), middle low (= 1), middle (= 2), middle high (= 3), and high (= 4) (Education Quality Agency, 2017). The EQA makes this classification based on four variables: mother's education level, father's education level, total monthly household income, and school vulnerability index. The first three variables are obtained through the questionnaire applied to the student's fathers, mothers or guardians in the context of the SIMCE evaluation. The school vulnerability index is calculated by the National School and Scholarship Assistance Council [JUNAEB]. It consists of the distribution of the condition of the current vulnerability of the student population at the territorial level and in each school (JUNAEB, 2023).

Procedure

In this study, secondary data analyses are performed referring to the use of existing previously collected data to answer different research questions from those for which they were originally collected (Vartanian, 2010). In this case, data were collected dur-

ing the evaluation of learning outcomes as part of the SIMCE from students in second year secondary school in 2017. The database was requested from the EQA using a form available on the website (https://formulario.agenciaeducacion.cl/solicitud_cargar) with information about the principal investigator and details of the project. The EQA provides anonymized databases. The tests administered as part of the SIMCE evaluation were applied in group form in person in each school during school hours by external examiners trained in applying the questionnaires. The students answer the questionnaires individually using a booklet with the questions and a response sheet. The application takes place over two nationally defined days. In addition, a questionnaire was sent home with each student to be answered by the mother, father, or guardian; the teachers at the school also answered a questionnaire.

Data analysis

The data were cleaned using the statistics program SPSS, version 22. First, a descriptive analysis characterized the sample. Then, to estimate the validity of the school climate measurement, a confirmatory factor analysis (CFA) was applied with the Mplus program version 7.0 (Muthén & Muthén, 2011). The polychoric correlation matrix, recommended for modeling categorical data, was used for the CFA. The weighted least square with mean and variance adjusted (WLSMV) method was used to estimate the goodness-of-fit indices. This method made it possible to obtain robust indices, as well as appropriate estimates of the parameters and their level of error (Flora & Curran, 2004). The following goodness-of-fit indices were used to check CFA model: chi-square, comparative fit index (CFI), Tucker-Lewis index (TLI), and root mean square error of approximation (RMSEA). For the CFI and TLI indices, values greater than or equal to .90 were considered a reasonable fit (Schumacher & Lomax, 1996) while values over .95 were considered a very high fit (Schreiber et al., 2006). For the RMSEA, values below .08 were considered a reasonable fit (Browne & Cudeck, 1993) while values below .06 were considered an excellent fit (Schreiber et al., 2006). Once the factor structure of the instruments was identified, the scores of the scales were estimated using the direct sum of the items to be included in the multilevel regression (Morales Vallejo et al., 2003).

Multilevel logistic regression models were used to analyze the association between the dimensions of school climate and substance use since the variables of marijuana, tobacco, and alcohol use are dichotomous (recent use vs. no recent use). Specifically, two-level random intercept models were estimated, taking into account the hierarchical structure of the data. In this case, the students (level 1) are nested in schools (level 2). The multilevel model avoids possible biases in the estimates derived from the existing correlations between the values of the outcome variables among students who belong to the same school. The use of each substance was analyzed independently. First, the null model was estimated without independent variables to examine the variability of the outcome variable (recent substance use) between schools and provides estimates of the variance of the outcome variable at individual and school level (Steele, 2009). In addition, the variance partition coefficient (VPC) was calculated, which quantifies the proportion of residual variance of the outcome variable, in this case alcohol, tobacco and marijuana use, attributable to differences between schools (Steele, 2009). The Stata command estat icc was used to estimate the VPC. In the following models, the school climate variables were input, and then the control variables. The models fit completely, included all the dimensions of school climate, and, in addition, took into account the sex of each student and socioeconomic level of the school. The statistics program Stata version 15 (StataCorp., 2017) was used for all analyses.

Table 1
Descriptive analysis of the total score for the five dimensions of school climate

Dimension	M	Me	R	SD
Respectful treatment	13.92	14	19 (1–20)	2.83
Rules	11.18	11	12 (4–16)	2.37
Safety	5.87	6	9 (3–12)	2.04
Harassment	4.85	4	12 (4–16)	1.43
Discrimination	.83	0	13 (0–13)	1.45

Note. M = mean; Me = median; R = range; SD = standard deviation.

After estimating the fully adjusted logistic regression models, the predicted probabilities of the use of each substance were calculated, keeping the remaining variables constant. Estimating predicted and adjusted probabilities enables visualization of the effect of continuous variables, in this study the dimensions of school climate, on dichotomous outcome variables, in this case recent substance use. For each score on the school climate scales, the predicted probability of alcohol, tobacco or marijuana use and their respective 95% confidence interval was estimated. The predicted probabilities were calculated based on the estimates obtained from the fully adjusted logistic regression models using the margin command in Stata. The school climate variable that shows the greatest association with each substance was identified. Then, the predicted probabilities of use were presented graphically in relation to the school climate variable scores with the greatest association with each substance.

Results

Descriptive analyses

The proportion of students who reported having consumed alcohol in the last month was 35%. Specifically, 20% reported having used tobacco, and 17% marijuana. Table 1 provides the descriptive analyses of the total score for the five dimensions of school climate.

Multilevel analysis

Before examining the association between the dimensions of school climate and substance use, the proportion of the total residual variance of alcohol, tobacco, and marijuana use attributable to the variation between schools was estimated. This proportion corresponds to 5.4% for recent alcohol use, whereas this proportion is 7.3% for tobacco and 8.5% for marijuana. These results indicate greater differences between schools in recent marijuana use.

Association between the dimensions of school climate and alcohol use

The results in this section correspond to those obtained in the models adjusted for the five dimensions of school climate, sex, and socioeconomic level of the school. This association was assessed with multilevel logistic regression models for each substance independently (Table 2). The figures present the probabilities of use with their respective 95% confidence interval for the scores of the school climate variable with the greatest association with each substance. In the relation between *respectful treatment* and alcohol use, the increase by one unit on the perception score of a respectful environment is associated with a 2% reduction in the risk of consuming alcohol. By contrast, an increase in the reported experience of *discrimination* is related to an increase in the risk of consuming alcohol. The existence of, and compliance with, *rules* in the school perceived by the students are inversely associated with recent alcohol use. Regarding the experience of *safety* in the school context, the data support the hypothesis that perceiving an unsafe environ-

Table 2
Association between dimensions of school climate and alcohol, tobacco, and marijuana use (*N* = 182,066)

	Alcohol OR (95% CI)	Tobacco OR (95% CI)	Marijuana OR (95% CI)
Dimension			
Respectful treatment	.98 (0.983−0.993)	.97 (0.971−0.982)	.97 (0.971−0.983)
Discrimination	1.06 (1.059−1.071)	1.09 (1.082−1.101)	1.09 (1.084−1.104)
Rules	.95 (0.948−0.958)	.95 (0.950−0.962)	.93 (0.929−0.941)
Safety	1.08 (1.075−1.088)	1.08 (1.073−1.088)	1.09 (1.088−1.104)
Harassment	1.06 (1.053−1.071)	1.07 (1.062−1.082)	1.05 (1.043−1.064)
School SES			
Low (Reference)			
Middle low	1.11 (1.062−1.166)	.79 (0.748−0.848)	.92 (0.865−0.983)
Middle	1.28 (1.221−1.348)	.67 (0.630−0.720)	.75 (0.700−0.803)
Middle high	1.63 (1.544−1.736)	.71 (0.659−0.773)	.71 (0.656−0.774)
High	2.62 (2.476−2.792)	.87 (0.802−0.943)	.61 (0.565−0.672)
Sex			
Boys (Reference)			
Girls	1.11 (1.095−1.114)	1.34 (1.314−1.383)	0.79 (0.777−0.820)
School-level variance	.10 (0.092−0.112)	.22 (0.202−0.242)	0.22 (0.204−0.247)

Note. OR = odds ratio; CI = confidence interval; SES = socioeconomic status.
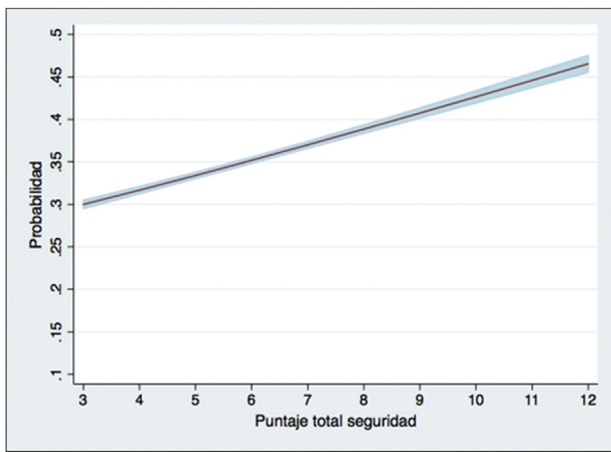

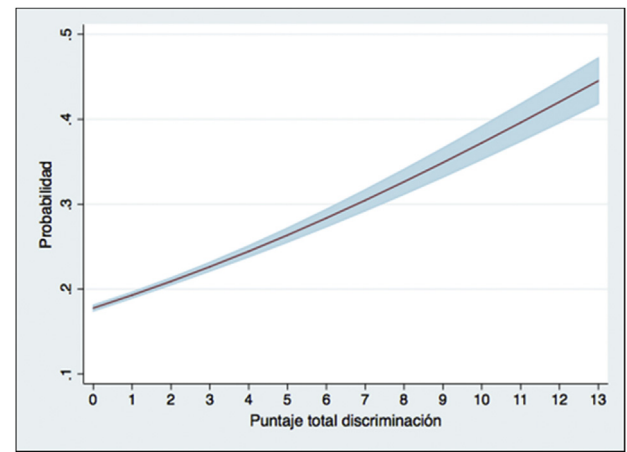**Figure 1.** Adjusted probability of alcohol use according to total safety score.

Figure 2. Adjusted probability of tobacco use according to total discrimination score.

Figure 3. Adjusted probability of marijuana use according to total discrimination score.

ment is associated with a greater risk of consuming alcohol (Figure 1). In addition, an increase in the perception of *harassment* at school is associated with a 6% increase in the risk of consuming alcohol.

Association between the dimensions of school climate and tobacco use

The association between *respectful treatment* and tobacco use is inverse, i.e., the increase by one unit on the score of this dimension is associated with a 3% reduction in the risk of consuming tobacco. However, the increase in reported *discrimination* experience is associated with a 9% increase in the risk of consuming tobacco (Figure 2). An inverse association between students' perception of school *rules* and tobacco use is observed. In the dimension of *safety* in the school context, the results confirm the initial hypothesis that perceiving an unsafe environment is associated with a greater risk of tobacco use. The increase by one unit on the scores of experiences of *harassment* is associated with a 7% increase in the risk of tobacco use.

Association between the dimensions of school climate and marijuana use

The results show that an increase in the perception of *respectful treatment* in the school context is associated with a reduction in the risk of marijuana use (Table 2). By contrast, an increase in the
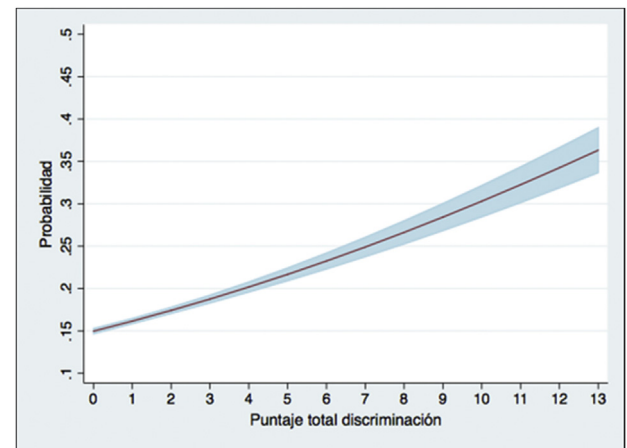
report of *discrimination* experience is associated with a greater risk of marijuana use (Figure 3). The existence of, and compliance with, school *rules* is inversely associated with the risk of using marijuana. Regarding *safety* in the school context, a decrease by one unit on the score of perception of a safe environment is associated with a 9% increase in the risk of marijuana use. Likewise, a greater percep-

tion of *harassment* at school is associated with greater marijuana use. Moreover, the results also demonstrate that adolescent girls are at greater risk of smoking tobacco and consuming alcohol than teenage boys, but at lower risk of using marijuana. Students who attend schools with a high socioeconomic level present a 2.6 times greater risk of consuming alcohol than those attending schools with a low socioeconomic level; however, they have a 40% lower risk of recent marijuana use.

Discussion

The purpose in this study was to examine the association between the dimensions of school climate and substance use in students who attended second year secondary school in Chile in 2017. School climate is associated with substance use in adolescents. When a lack of respect in relationships is perceived, discrimination occurs, school rules are unclear, safety is lacking and perceived harassment takes place, risky behaviors like substance use can emerge. It has been observed that a positive school climate (greater perceived safety, support and mutual respect and connection to the school) can reduce substance use while simultaneously promoting psychosocial well-being (Daily et al., 2020). Conversely, negative school environments (presence of risky behaviors, criminal activities, weak connection to the school, psychosocial and academic problems) can expose adolescents to risky behaviors such as criminality, violence, early sexual initiation and substance use (Andrade, 2014).

The results show that of all the analyzed dimensions, discrimination has the greatest impact, because the greater the experience of discrimination reported by the students, the greater the likelihood of using all the substances analyzed, especially tobacco and marijuana (Martin-Storey & Benner, 2019; Rogers et al., 2020). Experience of discrimination affects adolescents because it can be suffered as a cumulative process of experiences, the different aspects of which make a student can feel victimized, which in turn can have negative consequences for being more vulnerable and receptive to substance use (Brody et al., 2012).

For adolescents, the social world and connection with others prevail over other areas; therefore, it is important for them to feel socially accepted, mainly by their peers (Orcasita & Uribe, 2010). The school context is a space that allows social interactions to emerge and develop, which is why it can promote or limit healthy relations among the community actors. An investigation in the United States found that Afro-descendant adolescents experience discrimination in different environments, but school is the main place where they face the experience of racial discrimination (Gale, 2020). These results reveal that the school is a significant social environment, in which discrimination can be suffered with the consequent repercussions for the adolescents' development.

Discrimination has an impact on young people in different areas of their lives, and one is in health behaviors, such as substance use. It has been observed that people who have been victims of discrimination can present affective and behavioral problems as well as substance use and abuse (Stepanova et al., 2019). Frequent experience of discrimination exhausts coping resources and increases evasive strategies like substance use, since they offer temporary relief from the stress brought about by the discrimination (Brody et al., 2012). In addition, discrimination experience can reduce an individual's self-control resources, the negative consequences of which can include participation in unhealthy behaviors like substance use (Pascoe & Smart, 2009).

Previous studies have reported that adolescents in the LGBTIQ + community who have been discriminated against and stigmatized have much higher rates of cigarette, alcohol, marijuana and other illicit drug use compared to their heterosexual peers (Coulter et al., 2016; Eisenberg et al., 2020). It has also been found that experience of racial discrimination perpetrated by both teachers and classmates is related to greater alcohol and marijuana use (Jelsma & Varner, 2020).

Schools providing an inclusive and supportive social climate produce better academic and social adjustment, reducing stress levels and increasing well-being, which leads to lower levels of depression and health problems, including substance use (Ravens-Sieberer et al., 2009). In addition, a study conducted with students in the LGBTIQ + community revealed an inverse association between the support of the school community and the use of alcohol, cigarettes, medicines and other substances, which shows that a social climate of support and which values diversity is considered a protective factor against substance use, particularly in adolescents (Eisenberg et al., 2020). Other findings also point to the importance of intervention in this area, since those schools that are culturally receptive and implement active coping strategies against discrimination (like social and emotional learning, harassment prevention, intergroup contact) can reduce biases and prejudices and thus contribute to greater well-being in students (Losinski et al., 2019).

Discrimination has harmful consequences that affect a person's physical and psychological health, since it acts as an acute and chronic stressor, more so when experienced systematically (Stepanova et al., 2019). In the literature, the deleterious effects of discrimination on people's well-being and mental health have been reported and include depression, distress, anxiety, post-traumatic stress, lower life satisfaction, low self-esteem, and negative self-perception (Pascoe & Smart, 2009). In addition, discrimination can be potentially traumatic for adolescents since it affects how they feel about and view themselves (Basáñez et al., 2013).

On the other hand, a school environment organized with clear rules and regulations, known and shared by the community, also has an important and protective effect against substance use (Lozano et al., 1986); as the perception of the existence of school rules increases, alcohol, tobacco and marijuana use decreases. This shows that openly socialized formal and prescribed aspects in the school context are also necessary, since they promote a sense of belonging and identification with the environment (Lozano et al., 1986). Furthermore, favorable school climates with clear school rules have been associated with lower depressive symptomatology and can reduce the risk of becoming involved in harmful activities like drug use (LaRusso et al., 2008). There is also evidence that schools where rules are applied effectively and with better disciplinary management have lower rates of victimization and student delinquency (Gottfredson et al., 2005).

A school environment perceived as unsafe by students is associated with a greater risk of substance use. When students perceive their school environment as unsafe due to violence, intimidation, and harassment, the likelihood of alcohol, tobacco and marijuana use increases (Caravaca et al., 2017; Lambe, 2016). Of all the school climate dimensions, harassment has been the most studied and the one most school interventions target. It is the most visible problem and one that has consequences not only for the victim but also for the perpetrator (Doumas et al., 2017; Zhang et al., 2018). Being a victim of harassment can have a negative impact on a young person's self-esteem, increase their emotional vulnerability and their risk of resorting to substance use as a possible escape route (Córdova et al., 2012).

A respectful, safe and organized environment can affect psychosocial well-being by influencing health behaviors such as the willingness to use substances. Establishing bonds in the school context, effective support, and mutual respect of teachers, parents, and classmates positively impacts well-being and helps to better cope with the demands of school. In addition, it reduces students' health problems and dissatisfaction with life (Gutiérrez et al., 2021;

Ravens-Sieberer et al., 2009), which is why creating a collaborative environment is essential; school is the best place for students to begin healthy practices, by avoiding involvement in risky behaviors (García de Jesús & Ferriani, 2008).

The dimensions analyzed can be considered a protective factor against the risk of alcohol, tobacco and marijuana use, providing an opportunity to promote healthy behaviors and intervene to prevent unhealthy activities. Being familiar with each of these dimensions and how they are exhibited in schools contributes to an integrative view, while direct and focused lines of action can be implemented simultaneously. Substance use can affect different aspects of an adolescent's life; therefore, it is necessary to address the topic from a comprehensive perspective, as far as possible with openness and flexibility. When intervening with young people, it is optimal and necessary to be detached from a judging and individualizing approach that makes the student the center of the problem, as this limits the intervention and does not contribute to the young person's development (Rojas-Jara, 2016). As has been seen, substance use is multidimensional and multifaceted; hence, prevention must not only concentrate on the substance use or the school, but rather on the context in which the adolescents are placed, including family, peers, and community, because the environment as a whole can act as a protective factor against risky behaviors.

The results of this study also demonstrate that adolescent girls are at greater risk of using alcohol and tobacco than teenage boys, but at lower risk of using marijuana. These results align with previous studies, which have found a larger proportion of girls than boys report alcohol use (Pan American Health Organization, 2015). The greater risk of marijuana use in boys is also consistent with previous results (Matteau-Pelletier et al., 2020). These differences in substance use have been partly explained by socialization processes in roles and social norms expected of boys and girls (Schulte et al., 2009) and in attitudes to substance use derived from these roles (Simons-Morton et al., 2001). The school socioeconomic context is associated with substance use, and the results are consistent with previous studies, which have highlighted a greater risk of alcohol use in schools with lower levels of social vulnerability (Andrade, 2013) and, on the other hand, of greater tobacco and marijuana use in schools with greater social vulnerability (Moore & Littlecott, 2015; Ryabov, 2015). These associations could be explained partly by characteristics of the students' family environment, which can influence the predominant attitudes and social norms related to substance use at school (Bifulco et al., 2011), and by how schools vary their organization and how they operate, depending on the socioeconomic baggage of the students' families (Eccles & Roeser, 2011).

The strength of this study lies in the execution of the confirmatory factor analysis, performed with the dimensions of school climate, which provides the results with support and validity. Given that the Education Quality and Context Questionnaire has not been validated previously, this analysis was performed to explore the dimensions and later to use the scores to execute the multilevel logistic regression. The CFA yielded adequate goodness-of-fit indices and a suitable internal consistency. In addition, it is observed that the items contribute to the constructs studied and present factor structures commensurate with the dimensions that the instrument measures. Another strength is the sample size, composed of students from all over Chile who belong to the three types of schools, since the SIMCE evaluation takes place nationally with a high degree of participation from the schools in each region. In addition, a multilevel analysis was performed according to the nested nature of the data and considering the dependence on observations.

In relation to the results of this study, the findings must be interpreted with caution since they come from cross-sectional data. Another limitation is related to the use of self-report instruments for data collection: participants answered them as part of the SIMCE evaluations. This context can influence the levels of substance use reported by the students, limiting the possibility of obtaining more accurate results. The questions on the Education Quality and Context Questionnaire used in this study may have some limitations. Specifically, the questions on substance use investigate this behavior in the last month, whereas the questions on discrimination and harassment investigate experiences in the past year. This difference in the time frame of the questions can affect the accuracy of the information the participants provide. Moreover, the data provided for the analysis do not have information on the participants' ages. Although all the participants are in the same grade (second year secondary school), controlling for age makes it possible to capture the differences in substance use explained by this variable.

Although the aim of this study is centered on the role of school climate, it would have been beneficial to take into account the influence of peers and family in the analyses. However, logistic regression models could not be adjusted for these variables because this information was unavailable. The results of this study demonstrate that the dimensions of school climate are relevant and influence the development of adolescents, their personal and social formation, and their health. A good climate allows students to feel safe and perceive school as a protected environment where they can use individual resources, learn to relate to others, value differences and diversities, resolve conflicts, and care for the environment (Ministry of Education of Chile, 2014). This study reflects the importance of considering school climate as a relevant aspect of adolescents' development. School climate has a role not only in adolescents' academic performance, but also in risky behaviors like substance use. It is expected that this study can contribute to future investigations, considering the broader context with which students interact, including peers, family, and teachers. This will help to understand the complexities of the interactions and their far-reaching repercussions for adolescents' development and health.

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