Early Use of Alcohol: Correlation with School Violence and Social-Emotional Skills

Dayse Lorrane Gonçalves Alves[1,2] ⓘ, Francisco José Maia Pinto[2] ⓘ, Ana Carina Stelko-Pereira[1] ⓘ,
Manoelise Linhares Ferreira Gomes[2] ⓘ, Bruna Rodrigues Nunes[3] ⓘ, Steffany Rocha da Silva[4] ⓘ,
Tayane Carneiro Cruz[2] ⓘ, & Richelle Magalhães de Castro Peixoto[5] ⓘ

[1]*Universidade Federal do Paraná, Curitiba, PR, Brasil*
[2]*Universidade Estadual do Ceará, Fortaleza, CE, Brasil*
[3]*Escola de Saúde Pública do Ceará, Fortaleza, CE, Brasil*
[4]*Universidade Federal da Paraíba, João Pessoa, PB, Brasil*
[5]*Universidade Mauricio de Nassau, Aracaju, SE, Brasil*

ABSTRACT – This study aimed to analyze the association between early alcohol use in adolescence and associated factors: sociodemographic, involvement in bullying, risk behaviors at school, and social-emotional skills. It was carried out with 528 adolescents from full-time public high schools. Instruments: sociodemographic questionnaire, AUDIT, Victimization Scale among Students, Scale of Authorship of Student Violence, Risk Behavior Scale, and SENNA. In the final model, the variables with a significant association with early alcohol use by adolescents were: not having a religion ($PR = 1.28$, 95% CI [1.02, 1.60]), parental alcohol consumption ($PR = 1.55$, 95% CI [1.22, 1.97]), bullying ($PR = 1.51$, 95% CI [1.14, 1.98]), smoking at school ($PR = 1.74$, 95% CI [1.36, 2.24]), high engagement with others ($PR = 2.59$, 95% CI [1.40, 4.79]), and low emotional resilience ($PR = 2.16$, 95% CI [1.16, 4.03]), all indicating risk.

KEYWORDS: adolescent, bullying, school, consumption of alcoholic beverages, health risk behaviors, social skills

Uso Precoce do Álcool: Correlação com Violência Escolar e Competências Socioemocionais

RESUMO – Este estudo objetivou analisar a associação entre o uso precoce de álcool na adolescência e fatores associados: sociodemográficos, envolvimento em bullying, comportamentos de risco na escola e competências socioemocionais. Foi realizado com 528 adolescentes de escolas públicas de Ensino Médio de tempo integral. Instrumentos: questionário sociodemográfico, AUDIT, Escala de Vitimização entre Alunos, Escala de Autoria de Violência a Alunos, Escala de Comportamentos de Risco e o SENNA. No modelo final, as variáveis com associação significativa foram: não ter uma religião ($RP = 1,28$; IC 95% [1,02; 1,60]), consumo de álcool dos pais ($RP = 1,55$; IC 95% [1,22; 1,97]), autoria de bullying ($RP = 1,51$; IC 95% [1,14; 1,98]), fumar na escola ($RP = 1,74$; IC 95% [1,36; 2,24]), alto engajamento com outros ($RP = 2,59$; IC 95% [1,40; 4,79]) e baixa resiliência emocional ($RP = 2,16$; IC 95% [1,16; 4,03]), todas indicando risco.

PALAVRAS-CHAVE: adolescente, bullying, escolar, consumo de bebidas alcóolicas, comportamentos de risco à saúde, habilidades sociais

The harmful use of alcohol is considered a serious public health problem in most countries, due to its high prevalence and the serious social, economic, and health consequences associated with it (Global Burden of Disease, 2018; World Health Organization [WHO], 2018). Adolescents are in a situation of high vulnerability concerning the consumption of this substance, as they are more likely to emit risky behaviors and impulsive acts (Leung et al., 2019). Two characteristics of alcohol consumption in adolescence stand out: early consumption, before the age of 15; and *binge drinking*,

which is characterized by the use of five or six more drinks on the same occasion (Grüne et al., 2017; Jorge et al., 2017).

In the worldwide scenario, the prevalence of alcohol consumption in adolescence, according to the WHO, is 26.5% for subjects aged between 15 and 19 years, represented by about 155 million people (WHO, 2018). In Brazil, national surveys point to a high prevalence of alcohol use by adolescents, which varies from 20% to 26%, as well as to an increasingly precocious beginning of consumption, which takes effect, approximately, from 12 years of age (Almeida et al., 2021; Coutinho et al., 2016; Instituto Brasileiro de Geografia e Estatística [IBGE], 2021). Especially in the Northeast Region, the prevalence is approximately 16.7%, and in Fortaleza, Ceará, 14.8% (Coutinho et al., 2016).

Alcohol consumption among adolescents is multifactorial and related to psychosocial-cultural factors. Thus, sociodemographic variables, such as age, race, sex, income, parental consumption, and religion, may be associated with alcohol use by this age group (Almeida et al., 2021; Guimarães et al., 2018; Leung et al., 2019; Tael-Öeren et al., 2019). In addition, systematic literature reviews indicate that adolescents involved in bullying and/or cyberbullying are more likely to use alcohol than those not involved, with perpetrators using alcohol more than perpetrators-victims and victims (Alves et al., 2021; Horta et al., 2018). Still in the field of school violence, risk behaviors at school, such as the use of tobacco and/or illicit drugs, as well as carrying a knife or gun to protect oneself, are also related to alcohol consumption at this stage of development (Banks et al., 2017; Illie et al., 2017). Involvement in bullying and risk behaviors at school are both configured as situations of school violence.

Furthermore, social-emotional skills are also indicated in the literature as important predictors for understanding alcohol consumption in adolescence. While many approaches seek to conceptualize these competencies (Marin et al., 2017),

this study used the theoretical model of the *Big Five*, as, in recent years, researchers in Psychology and Education (Primi et al., 2019) have proposed its use for its empirical power and scope. In this sense, an analysis based on six cohorts identified that alcohol use was associated with extroversion and decreased emotional stability, agreeableness, and conscientiousness (Hakulinen & Jokela, 2018).

Alcohol use in adolescence is associated with serious social and health consequences, such as mental and behavioral disorders, traffic accidents, firearm accidents, sexual risk behaviors, neuronal alterations, poor school performance, school or work dropout, and family and community conflicts (Leung et al., 2019; WHO, 2018). That said, due to the high levels of vulnerability to the consumption of this substance and the social and health problems of this age group, it becomes relevant to investigate factors that may be related to this practice, to support programs and interventions that aim to prevent it. Furthermore, alcohol consumption by adolescents results in social and economic expenses for public health policies, which influences the sustainability of universal systems (Leung et al., 2019; WHO, 2018).

It should be noted that although the harmful use of alcohol has been discussed for decades, it is still a public health problem, especially in adolescence, due to social acceptance and fragile public policies regarding the control of the use of this substance (Leung et al., 2019; WHO, 2018). It is also added that, based on the synergistic study of the triggering factors, it will be possible to list which variables will be useful in the implementation of educational interventions and the elaboration of preventive actions against the abusive use of alcohol by adolescents. Thus, the objective of this study was to analyze the association between early alcohol use in adolescence and the following associated factors: sociodemographic variables, involvement in bullying, risk behaviors at school, and social-emotional skills.

METHOD

Design

This is a cross-sectional study, with a descriptive and analytical approach. It was carried out in twelve full-time public high schools in the city of Fortaleza, Ceará, Brazil, from April to October 2019. Full-time public schools run seven hours or more a day and offer lunch for students, full-time activities, under the responsibility of school management, and extracurricular activities, articulated with the theoretical teaching and learning process (Zapletal & Machado, 2019). The fully regulated public educational institutions in Fortaleza are of two types, namely: professional education schools and regular full-time schools. For this study, the first type of school has been coded as "professional" and the second type as "non-professional".

Participants

The study population consisted of adolescents in the first year of high school, aged between 13 and 19 years. This series was chosen since alcohol consumption has been evidenced in the literature, among 15-year-old adolescents (Almeida et al., 2021; Coutinho et al., 2016; IBGE, 2021), and since this age group comprises, above all, the beginning of high school. Further, bullying is usually more frequent in younger adolescents, and there is a peak of vulnerability in the transition of school stages, such as from elementary to high school (Malta et al., 2019; Mello et al., 2017).

To calculate the sample, we used the prevalence of alcohol consumption in Fortaleza, Ceará, which was identified in the *Study of Cardiovascular Risks in Adolescents* (ERICA,

acronym in Portuguese) at 15% (Coutinho et al., 2016). The sample was stratified at random, considering the type of school—trade ($n = 3,060$) and common/non-professional ($n = 2,741$); the official city division into six health regions; 3% sampling error; and a significance level of 5%. That said, the sample consisted of 498 adolescents, with 263 trade schools, and 235 common schools. However, a sample larger than necessary was obtained, due to the collective collection technique, in all first-year classes. The strategy used in data collection was chosen due to the difficulty of obtaining the signed consent form from parents or guardians. Thus, the final sample consisted of 528 adolescents, with 273 trade schools, and 255 common schools.

Measures

The outcome was defined by the early use of alcohol by adolescents and dichotomized (yes/no). The associative variables were ranked as distal, intermediate, and proximal, according to the conceptual model by Victora et al. (1997), in which the effect of each of these on the outcome is adjusted for both hierarchically more distal variables, and for the effect of those at the same level. The distal variables were related to sociodemographic factors such as sex (male/female), type of school (trade/common), race (white/non-white), religion (religious/no religion), mother's level of education (up to 8 years: low/over 8 years: high), family income (below four minimum wages: low/from four minimum wages: high) and alcohol consumption by at least one parent (yes/no).

As for the intermediate variables, they were related to the involvement in bullying and risk behavior at school. The former was investigated through two variables, namely: victimization (yes/no) and perpetration (yes/no). Risk behaviors at school were also investigated by this instrument, based on the following variables: smoking at school (yes/no), using other drugs (marijuana, cocaine, crack, or glue) at school (yes/no), carrying a weapon, such as a knife and stiletto to protect oneself or threaten others at school (yes/no), and carrying a firearm to protect oneself or threaten others at school (yes/no). Regarding the proximal variables, the following social-emotional skills were listed: self-management, engagement with others, kindness, emotional resilience, and openness to new experiences, according to the model of the Ayrton Senna Institute (Primi et al., 2016). Each competence was classified as low, emerging, capable, or very capable (Primi et al., 2016).

Instruments

Sociodemographic Questionnaire

It is a semi-structured instrument, which was built by the first two authors. It consists of 15 questions. The questions address date of birth/age, gender, type of school, neighborhood of residence, race/ethnicity, religion, mother's level of education, family income, mother's occupation, and whether she is a beneficiary of the Bolsa Família program.

AUDIT (Alcohol Use Disorder Identification Test).

Instrument developed by the World Health Organization in the 1980s, which has already been validated for Brazil by studies by Mattara et al. (2010) about the adolescent public, and Dos Santos et al. (2012) for the city of Fortaleza. This instrument involves 10 objective questions that, according to Dos Santos et al. (2012), come from three theoretical domains: frequency of alcohol consumption, dependence on alcohol consumption, and negative consequences of alcohol consumption. Response scores range from 0 to 4 points, with 40 being the maximum score on the scale. The sum of the points classifies individuals into moderate drinking (0–7), risky drinking pattern (0–15), harmful use of alcohol (16–19), and possible alcohol dependence (20–40) (Dos Santos et al., 2012; Mattara et al., 2010). To the *AUDIT*, the authors added the question: "If you consume alcohol, how old were you when you started this consumption?", to identify early consumption. According to data from the sample of this research, considering a general factor, the instrument presented a Cronbach's alpha of .87 and a McDonald's omega of .88.

Victimization Scale among Students (EVA)

A self-report instrument, developed by Stelko-Pereira (2012), with 18 items and a five-point Likert-type response scale (1 = *never* and 5 = *seven times or more*), consists of two factors: face-to-face victimization, containing 11 items that assess the occurrence of traditional bullying; and virtual victimization, with seven items on cyberbullying. These dimensions have an internal consistency index of .85 and the total test-retest precision score, within a 30-day interval, is .64. The EVA still has convergent validity with the Child Stress Scale (ESI), with significant positive correlations greater than .65 between the EVA and ESI scores (Stelko-Pereira et al., 2019). According to data from the sample of this research, considering only one general factor, the instrument obtained a Cronbach's alpha of .87 and a McDonald's omega of .88.

Student Violence Perpetration Scale (EAVA)

A self-report instrument, developed by Stelko-Pereira (2012), with 18 items and a five-point Likert-type response scale (1 = *never* and 5 = *seven times or more*), presents 11 items that investigate face-to-face perpetration of violence among students and 7 that investigate perpetration through virtual means. The set of all EAVA items showed internal consistency, with a Cronbach's alpha of .91, while face-to-face perpetration was .87, and virtual perpetration was .79. As for the test-retest precision, in 30 days, this instrument presents reasonable precision concerning face-to-face ($R = .65$, $p < .001$) and total ($R = .64$) perpetration, but insufficient precision in the virtual authorship item ($R = .09$). According

to data from this study's sample, considering only one general factor, the instrument obtained a Cronbach's alpha of .87, and a McDonald's omega of .89.

Risk Behavior Scale

The Risk Behavior Scale, a self-report instrument built by Stelko-Pereira (2012) was also used. This instrument has five items and a five-point Likert-type response scale (1 = *never* and 5 = *seven times or more*). According to data from this study, the instrument presented a Cronbach's alpha of .62 and a McDonald's omega of .67.

Social and Emotional Nationwide Assessment (SENNA 1.0)

It was designed specifically for Brazilians aged between 11 and 19 by Primi et al. (2016). The questionnaire is available in three versions to meet possible stakeholder restrictions: complete (189 items), identity items only (108 items), and self-efficacy only (56 items). The questionnaire is answered on a five-point *Likert scale* (1 = *It has nothing to do with me*, 2 = *It has a little to do with me*, 3 = *Sometimes it has and sometimes it has nothing to do with me*, 4 = *It has a lot to do with me*, and 5 = *It has everything to do with me*). In this research, the 56-item version was used. In a study by Pancorbo and Laros (2017), exploratory factor analysis indicated a six-factor structure that explained 42.7% of the common variance. In addition, the reliability coefficients of the factor scores ranged between .66 and .89, while the convergent validity coefficients with the Reduced Scale of the Big Five Personality Factors (ER5FP) had an average value of .59 (Pancorbo & Laros, 2017).

Procedures

This research was approved by the Research Ethics Committee of the State University of Ceará (UECE). Initially, applicators were trained for data collection. Afterward, the schools were contacted, with the main researcher contacting the school coordinators to schedule meetings for project presentation. At these meetings, the researcher delivered copies of the consent form from the State Department of Education and Ethics Committee's approval. If the school accepted to participate in the research, two consecutive days were arranged for data collection—one for the delivery of parental consent terms to the adolescents, and another for questionnaire application. If a given school did not accept to participate in the research, the researcher contacted the next school with the largest number of students in the region.

On the first day of data collection, the applicators visited each first-year class, presented the research objectives, clarified the ethical principles of participation, and distributed the parental consent form. On the following day, only students whose parents signed the consent form and wished to participate completed the questionnaires. Students answered the instruments anonymously in their classrooms for 30 to 40 minutes. Data is available upon request to the authors.

Data Analysis

Data were analyzed using the statistical program *Statistical Package for Social Science* (SPSS), version 23.0. Apart from descriptive analyses, absolute frequencies, percentages, mean, median, and standard deviation were calculated. In the unadjusted inferential analysis, Wald's chi-square test was used, at a significance level of 5%, to relate the outcome to each of the associative variables, considering as entry criteria only those that presented the descriptive value $p < .20$. In the adjusted analysis, the control of possible confounding factors was performed using the Poisson multivariate regression technique. Among those variables statistically associated ($p < .05$) with the outcome, the Prevalence Ratio was used as a measure of the strength of association.

RESULTS

A total of 528 adolescents participated in this study, most of them female ($n = 333$; 63.1%), students from trade schools ($n = 273$; 51.9%), and mixed race ($n = 289$; 54.7%). Furthermore, ($n = 386$; 73.1%) reported that they belong to a Christian-based religion, and ($n = 272$; 51.5%) have mothers who studied up to high school. The mean age of the students was 15.34 years ($SD < .898$ years). Half of the sample belongs to families with an income of up to two minimum wages (the minimum wage in Brazil was R$998.00 as of 2019).

Regarding alcohol consumption, the sample showed considerable prevalence, with early onset ($n = 197$; 37.3%). In addition, most adolescents reported that they use it monthly or less ($n = 141$; 71%), consume six or more doses at a time ($n = 71$; 60%), and have at least one parent using it regularly ($n = 307$; 58.1%). In the unadjusted analysis, the associative variables were crossed with the outcome of early alcohol use, as shown in hierarchical Tables 1, 2, and 3.

The distal variables associated with early alcohol use, which showed $p < .20$, were: male sex ($p = .173$), being non-religious ($p = .012$), low family income ($p = .116$), and parents who consume alcohol ($p < .001$; Table 1). The intermediary variables related to early alcohol use, with $p < .20$, were: bullying perpetration ($p < .001$), smoking at school ($p < .001$), and use of other drugs at school ($p < .001$; Table 2).

Proximal variables associated with early alcohol use ($p < .20$) were: high engagement with others ($p = .096$), low emotional resilience ($p = .037$), and low openness to new experiences ($p = .159$; Table 3).

Table 1
Number and percentage of adolescents, in the unadjusted model, for the distal variables surveyed in relation to early alcohol use

Variable	Early Alcohol Use							
	Yes		No		PR	CI (95%)		p^a
	n=197	%	n=331	%		LI	UI	
Sex								
Male	80	41.0	115	59.0	1.17	.93	1.46	.173
Female	117	35.1	216	64.9	1.00			
Trade school								
No	96	37.8	158	62.2	1.03	.82	1.28	.825
Yes	101	36.9	173	63.1	1.00			
White								
No	49	40.2	73	59.8	1.10	.86	1.42	.451
Yes	148	36.5	258	63.5	1.00			
Religion								
No	146	34.8	274	65.2	1.00	1.07	1.72	.012
Yes	51	47.2	57	52.8	1.36			
Mother's level of education								
Low	66	39.1	103	60.9	1.07	.85	1.35	.567
High	131	36.5	228	63.5	1.00			
Family income								
Low	101	34.2	194	65.8	0.83	.66	1.05	.116
High	76	41.3	108	58.7	1.00			
Parents' alcohol consumption								
No	61	27.6	160	72.4	1.00	1.25	2.06	< .001
Yes	136	44.3	171	55.7	1.60			

Note. a: Wald Chi-square; *PR*: Prevalence Ratio; *CI*: Confidence Interval.

Table 2
Number and percentage of adolescents, in the unadjusted model, for the intermediate variables surveyed concerning early use of alcohol

Variable	Early Alcohol Use							
	Yes		No		PR	CI 95%		p^a
	n=197	%	*n*=331	%		LI	UI	
Victim of bullying								
Yes	26	38.8	41	61.2	1.05	.76	1.45	.784
No	171	37.1	290	62.9	1.00			
Perpetrator of bullying								
Yes	26	59.1	18	40.9	1.67	1.27	2.20	< .001
No	171	35.3	313	64.7	1.00			
Smoking at school								
Yes	24	66.7	12	33.3	1.90	1.46	2.46	< .001
No	173	35.2	319	64.8	1.00			
Other drugs at school								
Yes	22	62.9	13	37.1	1.77	1.34	2.35	< .001
No	175	35.5	318	64.5	1.00			

Table 2
Number an

Variable	Early Alcohol Use							
	Yes		No		PR	CI 95%		p^a
	n=197	%	*n*=331	%		LI	UI	
Knife use in school to threaten or protect								
Yes	17	42.5	23	57.5	1.15	.79	1.68	.463
No	180	36.9	308	63.1	1.00			
Gun use in school to threaten or protect								
Yes	3	33.3	6	66.7	.89	.35	2.26	.809
No	194	37.4	325	62.6	1.00			

Note. a: Wald Chi-square; *PR*: Prevalence Ratio; *CI*: Confidence Interval.

Table 3
Number and percentage of adolescents, in the unadjusted model, for the primary variables surveyed concerning early use of alcohol

Variable	Early Alcohol Use							
	Yes		No		PR	CI 95%		p^a
	n=197	%	n=331	%		LI	UI	
Kindness								.242
Low	2	40.0	3	60.0	2.16	.57	8.20	
Emerging	67	41.4	95	58.6	2.23	.99	5.03	
Able	123	36.8	211	63.2	1.99	.89	4.44	
Very capable	5	18.5	22	81.5	1.00			
Self-management								.293
Low	8	50.0	8	50.0	1.87	.94	3.73	
Emerging	74	39.8	112	60.2	1.49	.89	2.50	
Able	103	36.7	178	63.3	1.37	.83	2.29	
Very capable	12	26.7	33	73.3	1.00			
Engagement with others								.096
Low	11	22.0	39	78.0	0.44	.23	.83	
Emerging	61	38.6	97	61.4	0.77	.51	1.17	
Able	111	38.0	181	62.0	0.76	.51	1.13	
Very capable	14	50.0	14	50.0	1.00			
Emotional resilience								.037
Low	26	44.8	32	55.2	1.94	1.02	3.68	
Emerging	91	42.5	123	57.5	1.84	1.02	3.34	
Able	71	32.7	146	67.3	1.42	.78	2.59	
Very capable	9	23.1	30	76.9	1.00			
Openness to new experiences								.159
Low	18	50.0	18	50.0	1.32	.81	2.13	
Emerging	39	42.4	53	57.6	1.12	.73	1.71	
Able	121	34.6	229	65.4	0.91	.62	1.33	
Very capable	19	38.0	31	62.0	1.00			

Note. a: Wald Chi-square; *PR*: Prevalence Ratio; *CI*: Confidence Interval.

Table 4 shows the results of the adjusted model, with significant Omnibus Test statistics ($p < .001$). Thus, the following variables with significant association were considered: non-religious (*PR* = 1.28, 95% CI [1.02, 1.60]), parents' alcohol consumption (*PR* = 1.55, 95% CI [1.22, 1.97]), bullying perpetration (*PR* = 1.51, 95% CI [1.14, 1.98]), smoking at school (*PR* = 1.74, 95% CI [1.36, 2.24]), high engagement with others (*PR* = 2.59, 95% CI [1.40, 4.79]),

Table 4
Final result of early alcohol use Poisson regression

Variable	PR	CI 95% [LI, UI]		p[a]
DISTAL				
Religion				
No	1.28	1.02	1.60	.034
Yes	1.00			
Parents' alcohol consumption				
Yes	1.55	1.22	1.97	< .001
No	1.00			
INTERMEDIATE				
Perpetrator of Bullying				
Yes	1.51	1.14	1.98	.003
No	1.00			
Smoking at school				
Yes	1.74	1.36	2.24	< .001
No	1.00			
PROXIMAL				
Engagement with others				.017
Very capable	2.59	1.40	4.79	.002
Able	1.95	1.20	3.17	.007
Emerging	1.74	1.06	2.85	.029
Low	1.00			
Emotional resilience				.006
Low	2.16	1.16	4.03	.015
Emerging	1.93	1.09	3.43	.024
Able	1.41	.79	2.52	.238
Very capable	1.00			

Note. a: Poisson multivariate regression; *PR*: Prevalence Ratio; *CI*: Confidence Interval.

and low emotional resilience (*PR* = 2.16, 95% CI [1.16, 4.03]), with an indication of risk for all variables.

It is also noteworthy that the variables related to social-emotional skills were the ones most associated with the outcome. Adolescents with high engagement with others were 2.59 times more likely to use alcohol early compared to those with low engagement, while those with low emotional resilience were 2.16 times more likely to use alcohol early than adolescents who achieved high resilience.

DISCUSSION

The profile of sampled students was similar to that found in previous Brazilian studies (Almeida et al., 2021; Jorge et al., 2017). It was observed that mothers of adolescents had a high level of education (> 8 years of study), which can be configured as a protective factor against alcohol use in adolescence (Jorge et al., 2017). This context is probably related to the expansion of access to basic education in recent years.

Although males are generally associated with both early and harmful alcohol consumption (Leung et al., 2019; WHO, 2018), the present study found no significant difference between men and women, which corroborates the data from

Coutinho et al. (2016). However, it is noteworthy that some studies (Jalling et al., 2017; Romo-Avilés et al., 2018) found a change in the profile of alcohol consumption, especially concerning adolescents and young people. This shows that alcohol use among women is increasing to the point that, in some contexts, it is slightly more prevalent than among men. The difference in consumption may be decreasing due to the remodeling of social norms involving gender roles, through which women have occupied spaces that were previously allowed only to men.

In the final model, the religion variable was associated with the early use of alcohol by adolescents. Studies show

that having a religion is a protective factor against the use of alcohol and other drugs (Baena et al., 2019; Guimarães et al., 2018). This may be due to the strict moral rules of most religions, especially those of Christian origin, which may consider alcohol abuse a sin. Religion can also help adolescents deal with their conflicts and questions about life, facilitate social interaction, and teach values and social responsibility (Baena et al., 2019). These scenarios can increase an individual's self-control over the consumption of alcohol and other drugs.

The consumption by one of the parents was also associated with the early use of alcohol in adolescence (Grüne et al., 2017; Yurasek et al., 2019), justified, perhaps, by genetic heritability and/or by the style of upbringing. In this context, cognitions about alcohol begin to be formed in the family environment, and parents' alcohol consumption is a decisive factor in the formation of these cognitions, which will be reflected in the subjects' relationship with alcohol in adolescence (Voogt et al., 2017). In addition, it is noticed that the first doses of alcohol are often offered by the parents, and they are also the ones who teach positive rules regarding consumption (Yurasek et al., 2019). The behaviors of parents or caregivers are models for the behavior of children. Thus, if one of these reference figures uses alcohol, the teenager will tend to see this consumption positively and will be able to reproduce it.

Added to this was the role of authorship in bullying, which was also associated with the early use of alcohol in adolescence, in agreement with what was found in the literature (Alves et al., 2021; Horta et al., 2018). In a systematic review, Alves et al. (2021) highlighted that perpetrators are more likely to make harmful and heavy use of alcohol, including when compared to victims and perpetrator-victims. These adolescents may use alcohol early since they are more impulsive and show externalizing problems, such as antisocial behavior and drug use (Alves et al., 2021). Alcohol can be an inadequate way of coping with stress arising from the school environment, intra-family violence, and/or anxious and aggressive behaviors.

In general, the literature points out that students, regardless of the type of involvement in bullying, are more likely to use alcohol than students who are not involved in it (Alves et al., 2021). However, among the roles played in bullying, the association between perpetration and alcohol use is the one with the most robust evidence. The relationship between victimization and substance use is controversial, since some studies indicate an association, while others point out that these variables are not related (Alves et al., 2021; Horta et al., 2018). This may explain the fact that, in this study, no association was found between alcohol use and being a victim of bullying.

Smoking at school was also part of the final model. The association between smoking and alcohol consumption in adolescence is demonstrated by the literature (Banks et al., 2017; Oliveira et al., 2019). Due to greater impulsiveness

at this stage of life, adolescents are more vulnerable to exposure to several risky behaviors at once. In this study, there is the aggravating factor that tobacco use is carried out within the environment of full-time schools, which should be protective environments concerning risk behaviors (Zapletal & Machado, 2019).

Furthermore, engagement with others and low emotional resilience were associated with alcohol consumption in adolescence, a result similar to that found in a study by Hakulinen and Jokela (2018). It is noteworthy that these variables were the ones most associated with early alcohol consumption. Thus, extroverted students who have low emotional resilience are the most vulnerable and, therefore, need preventive health intervention.

Greater engagement with others indicates that individuals are more open and stimulated to meet and dialogue with other people, and to express opinions assertively (Primi et al., 2019). In the case of bullying perpetrators, however, it is not enough to just develop engagement with others if they have low emotional resilience—which refers to high levels of neuroticism and the tendency to experience negative emotions, such as anxiety, fear, and depression, with greater intensity and irritability (Primi et al., 2019). Thus, to face these emotional states, these individuals can learn to use alcohol to feel relaxed and/or escape. In addition, students with low emotional resilience may also use alcohol to be more outgoing. Further, they may even be extroverted but lack the skills to deal with emotions and frustrations healthly.

It is noteworthy that this is one of the first studies carried out in the context of full-time high schools, a model that is being valued and implemented throughout Brazil. The increase in workload is justified by the following situations: implementation of integral education, as there would be more time to work on all aspects involved in learning; social protection of children and adolescents, as these individuals would have less time and opportunity to expose themselves to risky situations, such as crimes and drug use; and access to the main daily meals (Zapletal & Machado, 2019). However, studying both shifts can leave these students more exposed to situations of violence in the school environment, as demonstrated in the present study. Thus, these school models must implement preventive programs for risk behaviors.

The results of this study can contribute to the development of these programs and foster government campaigns focused on interdisciplinary and intersectoral work. These campaigns would aim to prevent early and harmful alcohol consumption among adolescents. Thus, there should be an opportunity to raise awareness about coping with school violence, especially concerning bullying and smoking as consequences of alcohol use, in addition to learning social-emotional skills in an integrated way.

The study has limitations since it has a cross-sectional design. This design does not allow for inferring a causal relationship between the variables. However, it is a pioneer in investigating its subjects in full-time high schools and

presents a broad model, with individual, psychological, and social variables, which help to understand the early use of alcohol in adolescence. It is therefore recommended that the verified associations be tested in longitudinal study designs, to be more certain about the relationships that deal with predictors of this problem. Given the above, the early use of alcohol in adolescence is a complex and multi-factorial phenomenon and comprises individual, family, school, and social factors, with potential risk factors being not having a religion, parental alcohol consumption, bullying, smoking in school, high engagement with others, and low emotional resilience.

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Research data is available upon request to the corresponding author.

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Corresponding author
Dayse Lorrane Gonçalves Alves
Email: dayse.goncalves@uece.br