

*IS LIFE WORTH LIVING? RELATIONSHIP WITH ALCOHOL, CIGARETTES AND OTHER DRUGS AMONG ADOLESCENTS**¿VALE LA PENA VIVIR? RELACIÓN CON ALCOHOL, CIGARROS Y OTRAS DROGAS ENTRE ADOLESCENTES**A VIDA VALE A PENA SER VIVIDA? RELAÇÃO COM ÁLCOOL, CIGARRO E OUTRAS DROGAS ENTRE ADOLESCENTES*<sup>1</sup>Lucas Marques Santos<sup>1</sup>Universidade Federal da Bahia, Salvador, Bahia, Brazil. ORCID: <https://orcid.org/0000-0002-1483-786X>**Autor correspondente****Lucas Marques Santos**Avenida Siqueira Campos. Vitória da Conquista – Bahia – Brazil. CEP 45028010. contato +55(77) 991306545, E-mail [lucas.marques.bra@gmail.com](mailto:lucas.marques.bra@gmail.com)**Submission:** 19-09-2025**Approval:** 05-12-2025**ABSTRACT**

**Objective:** This study aimed to evaluate whether adolescents' perception that life is worth living is associated with gender, sociodemographic variables, alcohol consumption, smoking, and other drug use. The study used data from the National Survey of School Health (PeNSE 2019). **Method:** Data from 158,261 school-aged adolescents between 13 and 18 years old were analyzed. Chi-square values and odds ratios of the variables were calculated in relation to the perception that life is not worth living. **Results:** 19.4% of adolescents reported that life is not worth living. Variables such as not being white, being female (OR 2.4; 95% CI: 2.33–2.46), experimenting with alcohol (OR 2.19; 95% CI: 2.13–2.26), using illicit drugs (OR 2.14; 95% CI: 2.07–2.22), and smoking cigarettes (OR 2.22; 95% CI: 2.15–2.28) increased the likelihood of considering that life is not worth living. **Conclusion:** The findings reinforce the relationship between the use of alcohol, cigarettes, and other drugs and poorer mental health among Brazilian adolescents. **Keywords:** Mental Health; Adolescent Health; Alcohol Consumption; Illicit Drugs; Sex.

**RESUMEN**

**Objetivo:** El objetivo de este estudio fue evaluar si la percepción de los adolescentes sobre la importancia de vivir una vida se relaciona con el género, las variables sociodemográficas y el consumo de alcohol, cigarrillos y otras drogas. Se utilizaron datos de la Encuesta Nacional de Salud Escolar (PeNSE 2019). **Método:** Se analizaron datos de 158.261 estudiantes adolescentes de 13 a 18 años. Se calcularon los valores de chi-cuadrado y las razones de momios de las variables con la percepción de que la vida no merece la pena. **Resultados:** El 19,4 % de los adolescentes respondió que la vida no merece la pena. Variables como la raza no blanca, la raza femenina (OR 2,4; IC del 95 %: 2,33 - 2,46), la experimentación con alcohol (OR 2,19; IC del 95 %: 2,13 - 2,26), el consumo de drogas ilícitas (OR 2,14; IC del 95 %: 2,07 - 2,22) y el tabaquismo (OR 2,22; IC del 95 %: 2,15 - 2,28) aumentaron la probabilidad de considerar que la vida no vale la pena. **Conclusión:** Estos resultados refuerzan la relación entre el consumo de alcohol, cigarrillos y otras drogas y una peor salud mental en adolescentes brasileños.

**Palabras clave:** Salud Mental; Salud Adolescente; Consumo de Alcohol; Drogas Ilícitas; Sexo.

**RESUMO**

**O objetivo** deste estudo foi avaliar se a percepção dos adolescentes sobre a vida valer a pena ser vivida está relacionada com o sexo, variáveis sociodemográficas, consumo de álcool, cigarros e outras drogas. Utilizou-se dados da Pesquisa Nacional de Saúde do Escolar (PeNSE 2019). **Método:** Foram analisados os dados de 158.261 adolescentes escolares com idade entre 13 e 18 anos. Calculou-se os valores do qui-quadrado e *odds ratios* das variáveis com a percepção que a vida não vale a pena ser vivida. **Resultados:** 19,4% dos adolescentes responderam que a vida não vale a pena ser vivida. Variáveis como não ser branco, ser mulher (OR 2,4; IC95%: 2,33 - 2,46), experimentação de álcool (OR 2,19; IC95%: 2,13 - 2,26), utilização de drogas ilícitas (OR 2,14; IC95%: 2,07 - 2,22) e ter fumado cigarro (OR 2,22; IC95%: 2,15 - 2,28) aumentaram as chances de considerar que a vida não vale a pena ser vivida. **Conclusão:** Os resultados reforçam a relação entre o uso de álcool, cigarros e outras drogas com pior saúde mental de adolescentes brasileiros.

**Palavras-chaves:** Saúde Mental; Saúde do Adolescente; Consumo de Álcool; Drogas Ilícitas; Sexo.



## INTRODUCTION

The rate of adolescents reporting some level of mental distress has increased over the last decade, accompanied by a growing demand for health services due to psychological suffering and intentional self-harm in North America <sup>(1)</sup>. Suicide is already one of the leading causes of death among U.S. adolescents (12 to 18 years of age) <sup>(2)</sup>, and the percentage of young people with depressive symptoms or diagnosed depression has risen exponentially in recent decades <sup>(3)</sup>. On a global scale, the prevalence of suicide attempts among a sample of adolescents from 38 countries in Africa, the Americas, and Asia was approximately 10%, with adolescents who had experienced some type of physical aggression being 1.71 times more likely to attempt suicide <sup>(4)</sup>.

In the Brazilian context, data from the National School Health Survey (PeNSE) indicate that 21.4% of adolescents reported that life is not worth living, and 17.7% rated their mental health negatively in 2019 <sup>(5)</sup>. A temporal analysis between 1997 and 2016 reported a total of 14,852 adolescent deaths by suicide in Brazil, rising from a mortality rate of 1.95 in 1997 (per 100,000 inhabitants) to 2.65 in 2016 <sup>(6)</sup>. Given the relevance of the topic, there is a scientific effort to investigate and report possible variables related to better or worse mental health outcomes. Variables such as high temperatures <sup>(7)</sup>, teachers' mental health <sup>(8)</sup>, adverse childhood experiences <sup>(9)</sup>, body image <sup>(10–12)</sup>, and bullying

<sup>(13,14)</sup> have already been associated with negative psychological health outcomes, either in the general population or specifically among adolescents and young adults.

Poor mental health outcomes do not appear to be homogeneous across sexes. Female adolescents have a higher risk of attempting suicide compared to males, although males have higher suicide mortality <sup>(15)</sup>. Regarding internalizing symptoms, female adolescents are more likely to exhibit elevated depressive symptoms <sup>(16)</sup>, as well as anxiety symptoms <sup>(17)</sup> and social anxiety <sup>(18)</sup>. The Brazilian scenario is similar: the prevalence of adolescents who felt very worried, sad most days, irritated and nervous almost always, or who negatively self-evaluated their mental health was higher among girls <sup>(5)</sup>. Beyond sex, differences in adolescent mental health levels are also observed when considering race/ethnicity. Belonging to racial minority groups has been associated with poorer mental health conditions <sup>(19,20)</sup>.

Adolescent behaviors related to alcohol consumption, cigarette smoking, and illicit drug use may also be associated with poorer mental health indicators <sup>(21–23)</sup>. Adolescents who have tried alcoholic beverages tend to report lower well-being <sup>(24)</sup>, lower life satisfaction <sup>(21)</sup>, and a higher risk for suicide <sup>(25)</sup>. Similar findings are observed for illicit drug use. Brazilian adolescents who had used illicit drugs were more likely to report feeling lonely and having sleep problems <sup>(26)</sup>. Illicit drug use has also been associated with higher depressive symptoms <sup>(27)</sup>



and lower life satisfaction <sup>(28)</sup>. Cigarette experimentation is also a concerning variable, as it increased the likelihood that adolescents felt lonely, had no friends, and experienced sleep problems <sup>(29)</sup>.

Given the importance of the topic, since the first edition of the National School Health Survey (PeNSE), in addition to questionnaires on adolescents' general health, a specific module on mental health has been included. PeNSE is a survey conducted in partnership between the Brazilian Institute of Geography and Statistics (IBGE) and the Ministry of Health <sup>(5)</sup>. Data from the 2012 and 2015 editions of PeNSE report that the use of alcohol, cigarettes, and other drugs was associated with poorer outcomes in the mental health module <sup>(26,29)</sup>. However, no study has evaluated these same variables using data from the most recent edition of PeNSE, conducted in 2019. In addition to the absence of studies using the 2019 data, the mental health questionnaire was modified to include a new question: "In the last 30 days, how often did you feel that life is not worth living?"

Given this scenario, the aim of this study was to assess whether adolescents' perception that life is not worth living is related to sex, sociodemographic variables, and the consumption of alcohol, cigarettes, and other drugs. The study was guided by the following hypotheses: h1. Female adolescents will be more likely to consider that life is not worth living; h2. Adolescents who identify as White will be less likely to consider that life is not worth living; h3.

Experimentation with alcoholic beverages, cigarettes, or other drugs will be associated with higher odds of considering that life is not worth living.

## METHOD

### *Study Design*

This research used data from PeNSE 2019. PeNSE is a cross-sectional study with Brazilian school adolescents. Data were collected in schools from all Brazilian states, plus the Federal District. The questionnaire was self-administered and completed using mobile digital devices <sup>(30)</sup>.

### *Participants*

The initial sample consisted of 165,838 adolescents who agreed to participate in PeNSE 2019. From this initial sample, 7,577 "misses" were excluded (adolescents who did not answer the question about whether life is worth living or who presented some error in the questionnaire). The final sample of the study included data from 158,261 adolescents. Most participants were between 13 and 17 years old; however, some respondents were younger than 13 or older than 18 years. PeNSE 2019 included adolescents enrolled from the 7th grade of elementary school to the 3rd grade of high school <sup>(30)</sup>.

Schools and classrooms were randomly selected from all five regions of Brazil (North, Northeast, Center-West, South, and Southeast).



Schools could be either public or private and located in rural or urban areas.

### *Study Variables*

The sociodemographic variables used in the study were not modified and are presented in

the results exactly as asked in PeNSE 2019. However, some variables related to “drug use,” “alcohol consumption,” “cigarette use,” and “life is worth living” were recoded to improve clarity and allow for statistical analyses. The recoding procedures are described in Table 1.

**Table 1** - List of study variables and how they were coded in the research.

Question	Variable	Response coding
In the last 30 days, how often have you felt that life is not worth living?	Life is worth living.	No = Never + Rarely + Sometimes Yes = Most of the time + Always
Have you ever smoked a cigarette, even just a puff or two?	He smoked a cigarette.	No Yes
Have you ever tried a hookah (water pipe)?	Smoked hookah	No Yes
Have you ever tried an electronic cigarette (e-cigarette)?	Electronic cigarette	No Yes
Have you ever had a drink or a shot of alcohol in your life?	Alcoholic beverage	No Yes
In your life, how many times have you drunk so much that you became truly drunk?	Drunk	Never = never in a lifetime 1 to 5 times = 1 or 2 times + 3 to 5 More than 5 = 6 to 9 + 10 or more times
Have you ever used any drugs in your life, such as: marijuana, cocaine, crack, glue, loló, lança-perfume, ecstasy, oxi, MDMA, skunk, or others?	Drug Use	No Yes
In the last 30 days, how many days did you use marijuana?	Use marijuana.	Never = never in a lifetime 1 to 5 times = 1 or 2 times + 3 to 5 More than 5 = 6 to 9 + 10 or more times
In the last 30 days, how many days did you use crack?	Use crack.	Never = never in a lifetime 1 to 5 times = 1 or 2 times + 3 to 5 More than 5 = 6 to 9 + 10 or more times

### *Data Analysis Procedures*

Two statistical software packages were used for data analysis. Descriptive statistics, as

well as confidence intervals for proportions, were performed using STATA 18. For inferential



statistics, IBM SPSS Statistics 25 was used. To assess whether there were differences between the study variables, Pearson's chi-square test was applied. Values of  $p$  lower than 0.05 were considered significant. Since the  $p$ -value is highly sensitive to sample size—and the study included nearly 160,000 adolescents—odds ratios were also calculated as a measure of effect size.

## RESULTS

As shown in Table 2, the sample consisted predominantly of students aged 13 to 17 years (78.65%), with a similar distribution between sexes (49.13% male and 50.87%

female). More than 70% of the sample identified as White (38.7%) or Brown/Mixed race (43.96%). Most adolescents attended schools located in urban areas (94.88%), either public (51.18%) or private (48.82%), and were enrolled in either middle school (55.54%) or high school (44.46%). Additionally, 88.9% of students lived with their mother, while 63% lived with their father. The region with the highest proportion of respondents was the Northeast (35.07%), whereas the South had the smallest proportion (10.76%). Other sample characteristics, as well as their proportions and confidence intervals, are presented in Table 2.

**Table 2** - Sociodemographic Variables of the Sample: Proportion and Respective Confidence Intervals.

Variables	N	Percentage	IC95%	
			Lower	Upper
Location				
Urban	151.095	94,88%	94,77%	94,98%
Rural	8.150	5,12%	5,01%	5,23%
Administration				
Public	81.496	51,18%	50,93%	51,42%
Private	77.749	48,82%	48,58%	49,07%
Sex				
Men	78.011	49,13	48,88%	49,37%
Woman	80.788	50,87	50,63%	51,12%
Race/Color				
White	60.297	38,70%	38,46%	38,94%
Black	16.737	10,74%	10,59%	10,90%
Asian	5.515	3,54%	3,45%	3,63%
Brown	68.497	43,96%	43,72%	44,21%
Indigenous	4.760	3,06%	2,98%	3,14%

Age				
< 13 years	25.642	16,15%	15,97%	16,33%
13 to 15 years	82.389	51,88%	51,63%	52,12%
16 or 17 years	42.509	26,77%	26,55%	26,98%
≥ 18 years	8.276	5,21%	5,1%	5,32%
Lives with Father				
Yes	78.601	63%	62,7%	63,3%
No	46.190	37%	36,7%	37,3%
Lives with mother				
Yes	110.950	88,9%	88,7%	89,1%
No	13.885	11,1%	10,9%	11,3%
Educational Attainment				
Primary/Middle School	88.398	55,54%	55,29%	55,78%
High School	70.770	44,46%	44,22%	44,71%
Region				
North	37.138	22,39%	22,2%	22,6%
Northeast	58.166	35,07%	34,84%	35,3%
Southeast	29.765	17,95%	17,76%	18,13%
South	17.852	10,76%	10,62%	10,91%
Central-West	22.917	13,82%	13,65%	13,99%

Table 3 describes the proportion of students who reported that life is not worth living, crossed with sociodemographic variables (along with their respective odds ratios, confidence intervals, and chi-square p-values). Overall, 19.4% of students stated that they felt life was not worth living. Attending a rural school or a private institution decreased the odds of considering that life is not worth living. Being

female increased the odds by 2.4 times (95% CI: 2.33–2.46). Adolescents who did not live with their father or mother had 1.57 (95% CI: 1.53–1.61) and 1.49 (95% CI: 1.44–1.54) higher odds, respectively, of reporting that life is not worth living. The group least likely to consider life not worth living were White adolescents (17.1%). All results reported in Table 3 were statistically significant.



**Table 3** - Percentage of adolescents who reported that life is not worth living, by sex, color, and sociodemographic variables. Chi-square values and odds ratios of the relationship.

Variables	Life is not worth living	OD	X <sup>2</sup>	IC95%		<i>p</i>
				Lower	Upper	
Total	19,4%			19,22	19,61	
Location						
Urban	19,5%	1	18,98			
Rural	17,5%	0,88		0,83	0,93	<0,001
Administration						
Public	22,5%	1	1.000			
Private	16,2%	0,67		0,65	0,68	<0,001
Sex						
Men	12,7%	1	4.361,74			
Woman	25,9%	2,4		2,33	2,46	<0,001
Race/Color						
White	17,1%	1	380,27			
Black	22,3%	1,39		1,33	1,44	<0,001
Asian	22,3%	1,39		1,30	1,47	<0,001
Brown	20,2%	1,22		1,19	1,26	<0,001
Indigenous	23%	1,44		1,34	1,55	<0,001
Age						
< 13 years	15,3%	1	339,89			
13 to 15 years	20%	1,38		1,34	1,44	<0,001
16 or 17 years	20,6%	1,44		1,38	1,50	<0,001
≥ 18 years	19,7%	1,36		1,27	1,45	<0,001
Lives with Father						
Yes	18,7%	1	462,7			



No	25,5%	1,49		1,44	1,54	<0,001
Lives with mother						
Yes	16,7%	1				
No	24%	1,57	1.243,02	1,53	1,61	<0,001
Educational Attainment						
Primary	18,7%	1	72,87			
High School	20,4%	1,11		1,09	1,14	<0,001
Region						
North	21,3%	1	161,20			
Northeast	18,9%	0,86		0,83	0,89	<0,001
Southeast	19%	0,86		0,83	0,9	<0,001
South	17,1%	0,76		0,72	0,8	<0,001
Central-West	20%	0,92		0,88	0,96	<0,001

According to Table 4, smoking cigarettes, hookah, or electronic cigarettes increased the odds of considering life not worth living by 2.22 (95% CI: 2.15–2.28), 1.77 (95% CI: 1.72–1.83), and 1.62 (95% CI: 1.57–1.68) times, respectively. Alcohol use (OR = 2.19; 95% CI: 2.13–2.26) or the use of any illicit drug (OR = 2.14; 95% CI: 2.07–2.22), as well as a higher

number of drunkenness episodes, were also associated with greater odds of reporting that life is not worth living. The higher the frequency of consumption of drugs such as marijuana and crack, the greater the likelihood of reporting that life is not worth living. All results reported in Table 4 were statistically significant at  $p < 0.01$ .

**Table 4** - Percentage of adolescents who reported that life is not worth living, by alcohol use, cigarette smoking, and illicit drug use. Chi-square values and odds ratios of the relationship.

Variables	Life is not worth living	OD	X <sup>2</sup>	IC95%		p
				Lower	Upper	
Smoked cigarettes						



No	17,1%	1	2.840,02			
Yes	31,4%	2,22		2,15	2,28	<0,001
Used hookah						
No	18%	1	1.427,73			
Yes	28%	1,77		1,72	1,83	<0,001
Electronic cigarette						
No	18,7%	1	876,23			
Yes	27,2%	1,62		1,57	1,68	<0,001
Alcoholic Beverage						
No	12,9%	1	2.562,11			
Yes	24,4%	2,19		2,13	2,26	<0,001
Been Drunk						
No	20,1%	1	987,14			
1 to 5 times	28,6%	1,61		1,55	1,66	<0,001
6 or more	31,5%	1,82		1,74	1,92	<0,001
Used drugs						
No	18,4%	1				
Yes	32,6%	2,14		2,07	2,22	<0,001
Used cannabis						
No	30,9%	1	31,92			
1 to 5 times	35,3%	1,22		1,13	1,31	<0,001
6 or more	34,6%	1,18		1,06	1,32	<0,05
Used crack						
No	32,1%	1	39,21			
1 to 5 times	44,2%	1,67		1,35	2,07	<0,001
6 or more	45,9%	1,79		1,35	2,38	<0,001



## DISCUSSION

All of the study's hypotheses were supported by the results. Female adolescents (Hypothesis 1), non-White adolescents (Hypothesis 2), and those who used alcohol, cigarettes, or other drugs (Hypothesis 3) had higher odds of considering that life is not worth living. Although this was not one of the study's original aims, the data on family composition drew attention, as adolescents who did not live with one of their parents were found to be at greater risk of considering that life is not worth living. These findings are discussed in more detail below.

Being female increased the odds of considering that life is not worth living by 2.4 times when compared to being male. This result is consistent with findings from PeNSE 2015, in which female adolescents also presented worse mental health indicators <sup>(31,32)</sup>. In a cross-sectional study conducted during the 2019 pandemic, Brazilian female adolescents showed a higher prevalence ratio for poor mental health indicators, such as anxiety and depressive symptoms, compared with male adolescents <sup>(33)</sup>. Brazilian adolescent girls have also been found to report higher depressive symptoms than boys <sup>(34)</sup>. One possible explanation for these findings relates to the multiple social roles attributed to women, as well as the inherent hormonal changes characteristic of this developmental period, which can affect mood more intensely <sup>(35)</sup>.

Adolescents who did not live with their mother or father had higher odds of considering that life is not worth living. These findings are consistent with international literature showing that adolescents in single-parent households (living only with the mother or father) exhibit greater likelihood of depressive symptoms, suicidal ideation <sup>(36)</sup>, and mental health problems <sup>(37)</sup>. German adolescents living in single-parent families also reported lower life satisfaction <sup>(38)</sup>. In Brazil, no studies were found specifically examining the relationship between family structure (living with only one parent) and adolescent mental health. Despite this gap, similar national data exist, such as poorer mental health outcomes among adolescents whose parents are divorced <sup>(39)</sup>.

Being a non-White adolescent increased the odds of considering that life is not worth living. This result aligns with international findings <sup>(19,20,40)</sup>. Male adolescents who identified as Indigenous or Asian showed higher risks of reporting a common mental disorder compared with White adolescents <sup>(41)</sup>. U.S. White adolescents exhibited lower depressive symptoms than Black, Asian, and Hispanic adolescents <sup>(20)</sup>. A possible explanation is that minority groups (not necessarily numerical minorities) tend to show poorer mental health indicators <sup>(19)</sup>, and in Brazil, "non-White" groups constitute a socioeconomic minority. Additionally, in an international context, Black youth in the United States receive less adequate



mental health support services, which may also contribute to their poorer outcomes <sup>(40)</sup>.

Cigarette use was the variable that most increased the odds of adolescents reporting that life is not worth living (2.22 times). Data from PeNSE 2012 and 2015 had already shown that adolescents who smoked cigarettes in the previous 30 days were more likely to feel lonely, to have fewer than one close friend, and to experience sleep problems <sup>(26,29)</sup>. In PeNSE 2012 and 2015, the mental health questionnaire did not yet include the item “I feel that life is worth living,” which makes comparisons with variables such as “feeling lonely” and “insomnia” appropriate, since these are all components of a broader construct: mental health. This association between mental health and cigarette use is also reported worldwide, with adolescent smokers presenting higher depressive symptoms <sup>(42)</sup>. In addition to conventional cigarettes, smoking waterpipe (hookah) or electronic cigarettes also increased the odds of considering that life is not worth living. These findings align with international literature showing that the use of electronic cigarettes among adolescents is associated with greater mental health problems <sup>(43)</sup>.

Having consumed alcohol increased the odds of adolescents reporting that life is not worth living by 2.19 times. This result was expected in the Brazilian context. In PeNSE 2015, alcohol consumption increased the likelihood of poorer mental health among adolescents <sup>(26)</sup>, a pattern also reported in 2012

<sup>(29)</sup>. These findings may be explained by the fact that adolescents who consume alcohol tend to have lower levels of well-being <sup>(24)</sup> and lower life satisfaction <sup>(21)</sup>. High alcohol consumption also emerged as a concerning variable. Having been drunk more than six times increased the odds of considering that life is not worth living by 1.82 times. This relationship is consistent with existing literature, as heavy alcohol use has been associated with suicide attempts <sup>(25)</sup>, coping with depressive symptoms <sup>(44)</sup>, and anxiety <sup>(45)</sup>. One possible explanation is the motivation behind alcohol use: studies show that one of the main reasons adolescents consume alcohol is as a coping strategy for depressive and anxious symptoms <sup>(44)</sup>, and excessive use has been positively related to coping motives in the context of depression <sup>(46)</sup>.

Adolescents who reported having experimented with any illicit drug had 2.14 times higher odds of considering that life is not worth living. This result is similar to that found in PeNSE 2012 <sup>(29)</sup> and 2015 <sup>(26)</sup> regarding variables related to worse mental health. The association between illicit substance use and poorer mental health outcomes is also documented in samples outside Brazil <sup>(27,47,48)</sup>. Illicit drug use among adolescents has been linked to higher depressive symptoms in U.S. <sup>(27)</sup> and Finnish adolescents <sup>(48)</sup>. Beyond depressive symptoms, drug use has also been associated with higher odds of suicide attempts <sup>(47)</sup>.

When analyzing the type of drug used, adolescents who reported not having used

marijuana in the previous 30 days had lower odds of considering that life is not worth living. This was expected, given that marijuana use among adolescents is associated with poorer mental health outcomes, such as self-harm<sup>(23)</sup>, suicide<sup>(22)</sup>, and lower life satisfaction<sup>(28)</sup>. Crack cocaine use, in turn, increased the odds of considering that life is not worth living even more strongly than marijuana. This relationship between illicit drug use and considering that life is not worth living may be explained by the fact that a life perceived as meaningless can be experienced as monotonous or empty, increasing the likelihood of engaging in this type of substance use<sup>(49)</sup>.

Despite the relevant findings, this study has some limitations. It did not explore whether the relationships identified between the variables are similar across gender, race/ethnicity, and age. Future studies should further investigate these potential interactions—for example, whether the relationship between alcohol consumption and the perception that life is not worth living is comparable across different genders, racial/ethnic groups, or age ranges. The study also relied on only one mental health question from the questionnaire: “In the past 30 days, how often have you felt that life is not worth living?” Future research may benefit from exploring the other items or the full mental health scale.

## CONCLUSION

As hypothesized, female adolescents, non-White adolescents, and those who consumed alcohol, cigarettes, or illicit drugs were more likely to consider that life is not worth living. These findings are consistent with national and international studies and may support the development of public policies targeting alcohol, cigarette, and illicit drug use. The association identified in this study between living with only one parent and a higher likelihood of perceiving that life is not worth living has been scarcely explored in the Brazilian literature. Therefore, future studies examining this relationship in national samples would be highly valuable.

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Nothing to declare

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