Prevalence and factors associated with risky sexual behavior among Brazilian school adolescents

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Abstract *This article evaluated the prevalence and factors associated with risky sexual behavior (RSB) among Brazilian school adolescents. This is a cross-sectional study with data collected from the National Survey of School Health, 2019 edition, with a representative sample of 7th grade of elementary school to 3rd year of high school Brazilian school adolescents. This work evaluated sociodemographic, behavioral, sexual and reproductive health, mental health, sociability characteristics, medical advice received at school, and body image. RSB was characterized as the non-use of a condom during sexual intercourse. The data were analyzed using hierarchical Poisson regression modeling. The prevalence of RSB was of 40.3%, with the lowest proportion appearing in the North region (37.4%). The highest prevalence of RSB was found among female adolescents, whose first sexual intercourse occurred at 13 years of age or under, who were victims of sexual violence, who practiced bullying, and who used illicit drugs, cigarettes, and alcohol. Those who used a condom during their first sexual intercourse showed the lowest prevalence of RSB. The high prevalence of RSB among Brazilian school adolescents, together with the knowledge of the associated factors, serves to define strategies to favor improvements in the sexual and reproductive health of these young people.*

Key words *Adolescent, Sexual behavior, Condoms*

Introduction

Risky behaviors can cause damage to both physical and mental health, as well as compromise social and family relationships. Generally interrelated and with reliable prediction among them, the exposure to violence, unsafe sexual practices, and the abusive use of alcohol, tobacco, and illicit drugs tend to be the most common risky behaviors[1,2]. Young adults and adolescents are the most prone to risky behavior, with a low sense of vulnerability and protection mechanisms. Due to the high frequency of sexually transmitted infections (STIs) and of unwanted pregnancies, risky sexual behavior (RSB) represents a serious concern in this age range[3].

The prevalence of RSB is variable worldwide, in part due to the inexistence of a uniform definition of RSB, including criteria such as early sexual activity, the non-use of a condom, and multiple partners[1,4]. In Portugal, from 2002 to 2014, 12% of all sexually active adolescents reported that they or their sexual partners did not use a condom during their last sexual intercourse[5]. By contrast, in Nigeria, 16.2% of the adolescents present risky sexual behaviors, more common among boys (22.7%) than among girls (12.9%)[6]. The prevalence in Brazil is approximately 12% among adolescents and is more evident among younger individuals[7].

It is well-known that the RSB among adolescents is heavily associated with family, school, and vulnerable socioeconomic contexts, such as not being white, not living with one or either of their parents or not having frequent parental supervision, having suffered sexual abuse as a child, belonging to less wealthy families, having mothers with a level of education up to incomplete high school or less, as well as the consumption of alcohol and illicit drugs by one of the partners[7-10]. Also important, for both sexes, are behavioral disorders in children and the minimal participation in school activities, such as distal factors[10].

Although widely recommended to prevent STIs and pregnancy, the use of condoms among young individuals is a major concern in Brazil. Only 60.7% of this population use this method in their first sexual intercourse and the factors pointed out for the non-use of condoms include a decrease in sexual pleasure, trust in their partner, not having a condom at the moment of sexual intercourse, and early sexual activity[11]. In another location, the use of the male condom during the last sexual intercourse varied from 61% in the USA to 80% in 20 European countries[1,12]. Data from 12,215 Brazilian male adolescents, aged 12 to 17 years, showed that 71.7% used a condom during the last sexual intercourse, but only 3.6% of them used double protection[13].

In Brazil, in 2020, there were 348,804 births among adolescents, aged 15 to 18 years, which represents 13% of all births during that period[14]. Nearly 2% of the adolescents become pregnant shortly after their first sexual intercourse and 77% of these pregnancies end up in abortions[15]. In addition to early pregnancy, unprotected sexual practices can lead to STIs. One study conducted in 2018 with 8,562 sexually active youth, aged 16 to 25 years, from the 26 capitals and the Federal District, showed a prevalence of STIs of 12% and an association with social and behavioral characteristics, such as the consumption of alcohol and illicit drugs, non-penetrative sexual practices, the number of partners, male homosexual relations, and a low level of education[16].

There is a consensus that the expanded comprehension about aspects related to adolescents' sexual and reproductive health makes it easier to provide better strategies to avoid negative outcomes. Although studies on this theme have been published in Brazil, all of them have shortcomings, such as studies with representative samples only in isolated municipalities and states[17,18]. Nationwide studies focus on the use of sociodemographic and sexual health variables in order to verify the association with RSB[7,9]. Other variables that can influence this behavior, such as self-image, aspects related to interpersonal relations, and anti-social behavior, are still rarely studied in the country.

The present study aimed to characterize the RSB among Brazilian junior high school adolescents and identify associated factors.

Methods

This study is a cross-sectional study with secondary data from the National Survey of School Health (PeNSE, in Portuguese), 2019 edition.

The population consisted of students who attended both public and private schools in Brazil. The sample calculation included all students duly registered in 7th grade of elementary school to 3rd year of high school, throughout Brazil, large regions, federal units, and capital cities, with schools with more than 20 students, excluding night schools. Considering a prevalence of 50%, maximum error of 3%, and a 95% confidence interval (95% CI), 4,242 schools were analyzed.

The data collection was carried out from April to September 2019. The questionnaire, applied via smartphones, was answered only by students present in the school on the day of data collection. The databank was assessed (http://www.ibge.gov.br) on July 27, 2022.

The dependent variable was RSB, considered to be the non-use of a condom during the last sexual intercourse. The independent variables were sociodemographic (sex, skin color, age range, lives with mother and/or father, mother's level of education, access to internet, type of school, type of municipality and region), risky behavioral practices (at some point in life: consumption of cigarettes, alcohol, and illicit drugs), characteristics of sexual and reproductive health (age during first sexual relation, use of condom during first sexual intercourse, pregnancy, sexual violence, vaccine against HPV), of mental health and sociability (close friends, suffered bullying, practiced bullying), medical advice at school (about the prevention of pregnancy, about AIDS and other STIs, about how to receive free condoms), and the body image (satisfaction in relation to one's body and perception of one's body).

The data were entered into the Microsoft Excel program and then exported to the STATA program (version 14.0 for Windows), using the survey (*svy*) model, due to the complex sample. The characteristics of the adolescents with and without RSB were compared, using the chi-squared test. The evaluation of the association between the independent and dependent variables was expressed in crude (PR_{cr}) and adjusted (PR_{ad}) prevalence ratios, with a 95% CI. For the multivariate analysis, hierarchical Poisson regression modeling was used, with the ranking of the variables in three blocks, based on previous studies[7,9,11,13,19] (Figure 1). The multivariate model included all of the variables with a p-value < 0.20 in the bivariate analysis. The distal block included sociodemographic characteristics and medical advice received at school. By contrast, the intermediary block consisted of characteristics referent to mental health and sociability, as well as the self-image of one's body. The proximal block considered sexual health and reproductive health variables and risky behaviors. The hierarchical model followed the distal-proximal direction, with the exclusion of variables through the backward elimination method. First, the distal block variables were included, and those presenting a *p-value* ≤ 0.05 remained (model 1). Next, the intermediary block variables were included, and those presenting a *p-value* ≤ 0.05, and were

adjusted to the previous level, remained (model 2). The same procedure was repeated for the proximal level. In the final model (model 3), the variables that presented a *p-value* ≤ 0.05 were considered to be associated with the outcome. As this was a complex sample, sample weights were used in the analyses.

The original study was approved by the National Research Ethics Committee and by the National Health Council (logged under protocol no. 3.249.268, from April 08, 2019).

Results

Among those who have already begun sexual activity, the prevalence of RSB in Brazil was 40.3%. Table 1 shows that the region with the highest prevalence of RSB was the Southeast (43.5%), while the lowest prevalence was found in the North (37.4%). The majority of adolescents were female (50.7%), of brown skin (43.0%), with an age range from 13 to 15 years (51.8%), and lived with mother and/or father (89.7%). In addition, most had a mother with a high school education or higher (63.4%), had access to the internet (90.4%), and attended high school (53.1%). Moreover, slightly more than half lived in the capital city (51.2%) and were from public institutions (53.8%). In the bivariate analysis, the RSB was associated with females (PR_{cr} = 1.41; 95%CI 1.22-3.21) lived with mother and/or father (PR_{cr} = 0.88; 95%CI 0.75-0.97).

Table 2 reveals that the prevalence of sexual activity was of 33.8%, with the age of the initiation of sexual activity most commonly being between 14 and 17 years (64.7%). The majority reported the use of a condom in the first sexual intercourse (62.8%) and having been immunized against HPV (61.2%). The pregnancy was reported by 8.3% of the interviewees, while sexual violence was experienced by 6.3% of the adolescents. Most of them reported having received medical advice at school about how to prevent pregnancy (74.0%), about AIDS/STI (81.9%), and about how to receive condoms (63.5%). There was an association of the RSB with the fact of having begun sexual activity at 13 years of age or under (PR_{cr} = 1.73; 95%CI 1.45-3.14), having used a condom during first sexual intercourse (PR_{cr} = 0.45; 95%CI 0.32-0.61), having become pregnant (PR_{cr} = 1.56; 95%CI 1.34-1.87), and having suffered sexual violence (PR_{cr} = 1.79; 95%CI 1.45-2.63).

The consumption of alcoholic beverage was reported by slightly more than half (63.2%) of the
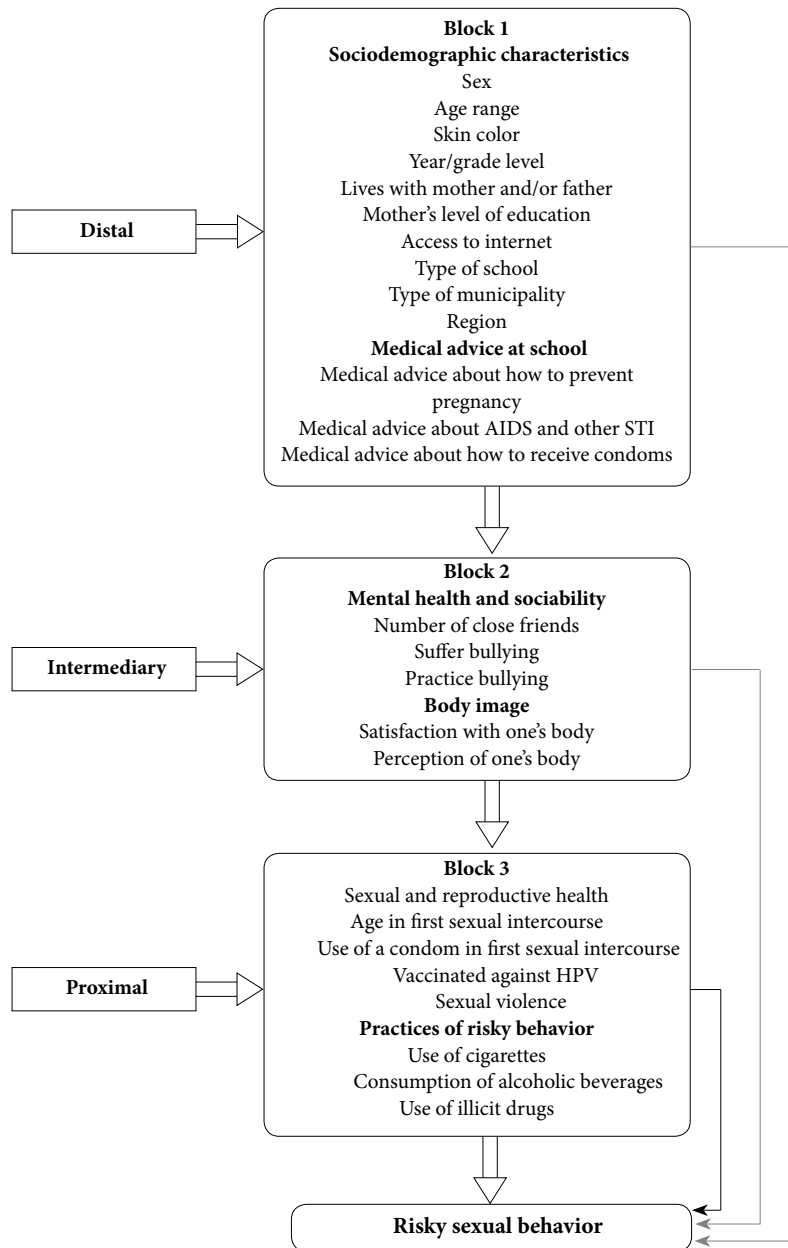
Figure 1. Hierarchized model for risky sexual behavior among adolescents.

Source: Authors.

interviewees, with the least frequent consumption being the use of tobacco (21.5%) and of illicit drugs (12.8%). Most of the students (64.2%) reported being happy with their self-perception of their body, with nearly half (49.7%) reporting their perception of body weight as being normal. As regards bullying, the victimization was more frequent (39.5%) than the practice (12.2%). In the bivariate analysis, RSB proved to be associated with the consumption of alcohol (PR_{cr} = 1.48; 95%CI 1.21-1.69), tobacco (PR_{cr} = 1.64; 95%CI 1.47-1.89), and illicit drugs (PR_{cr} = 1.61; 95%CI 1.43-1.92), in addition to the practice of bullying (PR_{cr} = 1.36; 95%CI 1.11-1.68) and victimization due to bullying (PR_{cr} = 1.30; 95%CI 1.04-1.57) (Table 3).

Table 1. Association of sociodemographic characteristics, school characteristics, and risky sexual behavior. PeNSE, Brazil, 2019.

Variable	All	RSB[a]	PRcr (95%CI)[b]	p-value
	%	%		
Sex (n = 159,245)[c]				
Male	49.0	36.5	1	
Female	50.7	45.3	1.41 (1.22-3.21)	0.001
Skin color (n = 159,231)[d]				
White	37.9	39.1	1	
Black	10.5	42.4	1.30 (0.96-2.11)	0.245
Yellow	3.5	42.8	1.32 (0.98-2.05)	0.218
Brown	43.0	40.9	1.17 (0.87-1.94)	0.530
Indigenous	3.0	38.8	0.93 (0.76-2.03)	0.313
Age range (in years) (n = 136,603)[e]				
12 por less	15.8	-		
13 to 15	50.8	38.0	1	
16 or 17	28.0	41.1	1.21 (0.86-2.56)	0.406
18 or over	5.1	43.9	1.28 (0.67-2.68)	0.319
Live with mother and/or father (n = 159,219)[f]				
Yes	89.7	39.4	0.88 (0.75-0.97)	0.031
No	10.1	44.5	1	
Mother's level of education (n = 159,215)[g]				
Did not study	2.8	39.2	1	
Elementary	16.2	42.6	1.22 (0.93-2.58)	0.438
High school	24.3	42.0	1.20 (0.89-2.19)	0.318
Higher education	39.1	39.8	1.02 (0.88-2.34)	0.287
Access to the internet (n = 159,218)				
Yes	90.4	40.4	1.17 (0.78-2.45)	0.531
No	9.6	39.7	1	
Year/grade (n = 159,224)				
6th/7th grade	6.6	38.3	0.91 (0.78-1.45)	0.289
8th grade	19.5	39.4	0.94 (0.82-1.88)	0.743
9th grade	20.8	38.0	0.89 (0.79-1.53)	0.452
1st year of high school	21.3	39.5	0.93 (0.85-1.87)	0.389
2nd/3rd year of high school	31.8	40.9	1	
Type of municipality (n = 159,245)				
Capital	51.2	41.8	1.23 (0.88-2.89)	0.345
Non capital	48.8	38.7	1	
Type of school (n = 159.245)				
Public	53.8	41.6	1.27 (0.95-2.70)	0.117
Private	46.2	37.8	1	
Region (n = 165,568)				
Midwest	13.8	38.5	0.94 (0.67-1.45)	0.327
Northeast	35.1	41.9	1. 18 (0.84-1.44)	0.381
North	22.4	37.4	0.90 (0.75-1.37)	0.489
Southeast	18.0	43.5	1.23 (0.97-1.56)	0.245
South	10.7	39.4	1	

[a] RSB: risky sexual behavior; [b] PR$_{cr}$ (95%CI): crude prevalence ratio (95% confidence interval); [c] Did not answer: 0.3%; [d] Did not answer: 2.1%; [e] Did not answer: 0.3%; [f] Did not answer: 0.2%; [g] Did not know: 17.4%/Did not answer: 0.2%.

Source: Authors.

The ranked analysis is shown in Table 4. In model 1, females (PR$_{ad}$ = 1.39; 95%CI 1.12-2.01) presented the highest prevalence of RSB, as well as the practice of bullying (PR$_{ad}$ = 1.31; 95%CI

Table 2. Association of sexual and reproductive characteristics and risky sexual behavior. PeNSE, Brazil, 2019.

Variable	All	RSB[a]	PRcr (95%CI)[b]	p-value
	%	%		
Initiation of sexual act (n = 133,294)c				
Yes	33.8	40.3	-	-
No	65.7	-	-	
Age at 1st sexual intercourse (years) (n = 45,084)[d]				
13 or under	33.4	53.0	1.73 (1.45-3.14)	0.001
14-17	64.7	37.2	1.07 (0.78-1.34)	0.312
18 or over	1.4	36.0	1	
Use of condom (first sexual intercourse) (n = 45,084)[e]				
Yes	62.8	21.9	0.45 (0.32-0.61)	0.001
No	36.9	72.0	1	
Pregnancy (n = 19,376)[f]				
Yes	8.3	59.8	1.56 (1.34-1.87)	0.019
No	91.3	44.5	1	
Medical advice about how to prevent pregnancy (n = 133,270)[g]				
Yes	74.0	39.3	0.85 (0.68-1.99)	0.431
No	25.5	43.8	1	
Medical advice about AIDS and other STI (n = 133,261)[h]				
Yes	81.9	40.6	0.88 (0.70-2.04)	0.273
No	17.6	43.0	1	
Medical advice about how to receive condoms (n = 133,255)[i]				
Yes	63.5	40.8	1.12 (0.56-2.31)	0.286
No	36.0	39.1	1	
Vaccine against HPV (n=158,488)[j]				
Yes	61.2	38.6	0.76 (0.55-1.01)	0.234
No	15.2	42.6	1	
Did not know	23.0	42.4	0.96 (0.85-1.09)	0.387
Sexual violence (n=132,948)[k]				
Yes	6.3	50.1	1.79 (1.45-2.63)	< 0.001
No	93.0	39.2	1	

[a] RSB: risky sexual behavior; [b] PR$_{cr}$ (95%CI): crude prevalence ratio (95% confidence interval); [c] Did not answer: 0.5%; [d] Did not answer: 0.5%; [e] Did not answer: 0.3%; [f] Did not answer: 0.4%; [g] Did not know: 0.5%; [h] Did not answer 0.5%; [i] Did not answer: 0.6%; [j] Did not answer: 4.5%; [k] Did not answer: 0.7%.

Source: Authors.

1.10-1.63) (model 2). In the final model (model 3), after adjustments, there was a greater prevalence of RSB among those aged 13 years or under during their first sexual intercourse (PR$_{ad}$ = 1.70; 95%CI 1.51-3.63), who were victims of sexual violence (PR$_{ad}$ = 1.64; 95%CI 1.20-1.91), and who used illicit drugs (PR$_{ad}$ = 1.55; 95%CI 1.24-1.89), tobacco (PR$_{ad}$ = 1.54; 95%CI 1.28-1.81), and alcoholic beverages (PR$_{ad}$ = 1.40; 95%CI 1.19-1.75). By contrast, the adolescents who used a condom during their first sexual intercourse (PR$_{ad}$ = 0.48; 95%CI 0.19-0.61) showed a lower prevalence of RSB.

Discussion

This study demonstrated a national prevalence of RSB in 40.3% of the adolescents, with lower proportions in the Midwest and North regions of the country. Moreover, our study observed a greater prevalence of RSB among female adolescents who experienced their first sexual intercourse at 13 years of age or under, who were victims of sexual violence, who practiced bullying, and who consumed illicit drugs, cigarettes, and alcoholic beverages. By contrast, a lower prevalence of RSB was observed among those who used a condom in their first sexual intercourse.

Table 3. Association of behavioral practices, sociability, perception of one's body, and risky sexual behavior. PeNSE, Brazil, 2019.

Variable	All	RSB[a]	PR$_{cr}$ (95%CI)[b]	p-value
	%	%		
Number of close friends (n = 159,034)[c]				
None	3.3	46.8	1.24 (0.96-1.42)	0.245
1-2	18.2	44.1	1.19 (0.87-1.45)	0.321
3 or more	78.3	41.6	1	
Suffer bullying (n = 159,063)[d]				
Yes	39.5	44.9	1.30 (1.04-1.57)	0.047
No	60.2	39.4	1	
Practice bullying (n = 159,041)[e]				
Yes	12.2	46.4	1.36 (1.11-1.68)	0.017
No	87.4	38.5	1	
Satisfaction with one's body (n = 158,470)[f]				
Satisfied	64.2	35.4	0.89 (0.78-1.24)	0.455
Indifferent	11.3	40.9	1	
Unsatisfied	23.9	41.4	1.28 (0.95-1.56)	0.254
Perception of one's body (n = 158,459)[g]				
Thin	27.7	42.6	1.18 (0.87-1.58)	0.573
Normal	49.7	38.0	1	
Fat	22.2	43.0	1.20 (0.78-1.50)	0.371
Use of alcohol (n = 133,434)[h]				
Yes	63.2	41.9	1.48 (1.21-1.69)	0.001
No	36.6	30.5	1	
Use of cigarettes (n = 133,461)[i]				
Yes	21.6	47.1	1.64 (1.47-1.89)	0.001
No	78.3	35.1	1	
Use of illicit drugs (n = 133,411)[j]				
Yes	12.8	49.1	1.61 (1.43-1.92)	0.001
No	87.0	36.6	1	

[a] RSB: risky sexual behavior; [b] PR$_{cr}$ (95%CI): crude prevalence ratio (95% confidence interval); [c] Did not answer: 0.2%; [d] Did not answer: 0.3%; [e] Did not answer: 0.4%; [f] Did not answer: 0.5%; [g] Did not know: 0.4%; [h] Did not answer 0.2%; [i] Did not answer: 0.1%; [j] Did not answer: 0.2%.

Source: Authors.

Characterized in this study as the practice of sex without a condom, the absence of a clear and consensual definition of RSB hinders proper comparisons with the literature. In addition to the non-use of condoms or its inconsistent use, studies include the criteria of early sexual activity; multiple partners, whether simultaneous and/or sequential; and sexual practices while under the influence of alcohol and illicit drugs[4-6,9,20,21]. In Portugal, for example, when defining RSB as the non-use of a condom in the last sexual intercourse, our study found a 12% prevalence among high school adolescents from 2002 to 2014[5]. By contrast, in four Caribbean countries (Jamaica, the Dominican Republic, Suriname, and Trinidad and Tobago), from 2016-2017, 31.9% of the adolescents reported two or more RSBs, including early sexual activity at 14 years of age or under, the non-use of a condom during the last sexual intercourse, and two or more sexual partners throughout life[22].

Among the regions of Brazil, the prevalence of RSB was the highest in the Southeast (43.5%) and the lowest in the North (37.4%). Similar results were observed in 2005 when analyzing the use of condoms among young people, aged 16 to 24 years, identifying the North and Northeast with the highest prevalence of the use of condoms, both consistently in the last 12 months and during the last sexual intercourse[23]. In 2019, among adults, aged 18 years or older, the Southeast region also showed the highest prevalence of the consistent use of condoms, and the North with the highest indexes[24]. It is important to con-

Table 4. Multivariate and hierarchical analysis of risky sexual behavior. PeNSE, Brazil, 2019.

Variables	Model 1		Model 2		Model 3	
	PR$_{ad}$[a]	95%CI[b]	PR$_{ad}$[a]	95%CI[b]	PR$_{ad}$[a]	95%CI[b]
Sex						
Male	1					
Female	**1.39**	**1.12-2.01**				
Lives with mother and/or father						
Yes	0.91	0.73-1.01				
No	1					
Type of school						
Public	1.18	0.94-2.02				
Private	1					
Suffer bullying						
Yes			1.22	0.93-2.04		
No			1			
Practice bullying						
Yes			**1.31**	**1.10-1.63**		
No			1			
Age of first sexual intercourse						
13 or under					**1.70**	**1.51-3.63**
14-17					1.35	0.93-1.99
18 or over					1	
Use of condom in first sexual intercourse						
Yes					**0.48**	**0.19-0.61**
No					1	
Sexual violence						
Yes					**1.64**	**1.20-1.91**
No					1	
Pregnancy						
Yes					1.37	0.92-1.74
No					1	
Use of cigarettes						
Yes					**1.54**	**1.28-1.81**
No					1	
Use of alcohol						
Yes					**1.40**	**1.19-1.75**
No					1	
Use of illicit drugs						
Yes					**1.55**	**1.24-1.89**
No					1	

[a] PR$_{ad}$: adjusted prevalence ratio; [b] 95%CI: 95% confidence interval.

Source: Authors.

sider, however, that the highest percentage of the use of condoms in the North region may not necessarily reflect improvements in sexual and reproductive health. It is believed that, in this region, the choice of this method may be more related to the free access, not needing a medical prescription and with easy use, than to the conscientious choice of the condom as the best contraceptive method[25]. Despite showing the highest prevalence of sexual activity, the prevalence of

the use of a oral contraceptive in the North region is among the lowest in the country[26].

RSB is known to be influenced by intrapersonal and interpersonal processes, beyond the context in which the adolescent is inserted, and can act in an isolated or simultaneous manner, especially as regards the consumption and/or abuse of psychoactive substances[1,3,8,10,21]. In this study, the consumption, at some point in one's life, of alcohol, cigarettes, and illicit drugs was associat-

ed with RSB. The relationship between the consumption of alcoholic beverages before sex and RSBs in adolescents and young adults is a consensus[20,21,26,27]. Moreover, young people who drink early (before 13 years of age) are twice as likely to become involved in unprotected sexual practices[28]. The association of the use of illicit drugs and RSB was also proven by other investigations, demonstrating that the daily routines of users has an important influence on RSB and STI vulnerability, with a greater frequency of sex and a greater probability of having multiple partners[21,29,30].

The abusive consumption of alcohol may be distinctly related to the RSBs. One refers to the pharmacological effects of alcohol on the body, and it is believed that, when intoxicated, certain alterations in cognitive functions occur, such as an increase in impulsiveness and inhibition of attention, judgment, and perceptions of risk[31,32]. There is also an emphasis on the individual expectation of alcohol opening the door to positive sexual experiences, with greater excitement and sexual disinhibition[32,33]. The abusive use of illicit substances, by contrast, frequently lead the user to a strong desire of the drug, favoring the non-use of a condom and the practice of violent acts to acquire it[21,34]. The association of substances amplifies these outcomes; however, the isolated effect of illicit drugs is greater than that of alcohol and cigarettes regarding RSB[34]. The consumption of cigarettes has shown an association with poor communication and a worse interaction between the adolescents and the parents[30], factors related to a satisfactory sexual life at this stage[35].

Having begun sexual activity at 13 years of age or under was also associated with RSB in the present study. Although there is no consensus about what age would be defined as early sexual activity[36], when it takes place before 15 years of life, there is an association with the non-use of the condom and with sexual intercourse with multiple partners[37-39]. Data from PeNSE, 2012, showed that the simultaneousness of RSB (having two sexual partners or more and the non-use of a condom) was 11% lower among adolescents of 16 years of age or under than among young people of 13 years of age or under[7]. It is possible that young people who begin their sexual activity early have a greater difficulty of knowledge of, access to, and negotiation with their partner about contraceptive methods in general[36]. By contrast, the relation between early sexual activity and RSB may not be casual, acting as a marker of simultaneous factors, such as the use of illicit drugs and delinquency, which raises the chance of multiple risky behaviors and their negative outcomes[36].

The report of having suffered sexual violence at some point in one's life was also associated with RSB in the present study, which was the focus of recent investigations[40,41]. Suffering sexual assault in the initial years of adolescence (13 to 15 years) predisposed the adolescents to RSB at the end of adolescence and at the beginning of adult life (16 to 20 years), such as the greater probability of multiple sexual partners and of contracting some type of STI[41]. Although sexual assault is considered to be less severe, as compared to rape itself, it is believed that this type of victimization can diminish an adolescent's capacity of defense and resistance to pressure from partners during more intimate experiences[41]. Women who suffer any type of violence (psychological, physical, or sexual), however, frequently find themselves in situations that hinder them from negotiating the use of a condom[42]. Though not evaluated in this study, experiences of sexual abuse during childhood can reverberate negatively into adolescence and adulthood, and can bring consequences to mental health, such as a greater incidence of the symptoms of post-trauma disorders, anxiety, and depression throughout life[43,44]. These outcomes are interrelated with sexual compulsivity, which itself is associated with RSB[45].

Moreover, in the realm of violence, the present study verified an association between the practice of bullying and RSB. There is a growing body of evidence showing that both aggression, as well as victimization due to bullying, increase the risk of unprotected sexual practices, the multiplicity of sexual partners, and the use of alcohol and drugs before and during sex[19,46-48]. Data from adolescents, aged 12 to 15 years, from 53 countries reinforce the fact that being a victim of bullying increases the probability of the non-use of a condom, as well as having multiple sexual partners[19]. This finding diverges from the present study, in which the association with risky behavior was identified among those who practice bullying and not among those victimized by this type of violence. In Brazil, data from adolescents from the North, in 2015, demonstrated an association between the perpetrators of bullying and all types of risky behavior, such as the use of alcohol and cigarettes, and the irregular use of a condom[48]. Even without a clear casual relationship, youth involved in bullying present a greater chance of other forms of violent behaviors occurring simultaneously, suggesting an intersection with common stress factors and inadequate resolutions to the problem[46].

Another variable associated with RSB in the present study was that of the female sex. Na-

tional data has also illustrated a less use of condoms among female as compared to male adolescents[11,24]. A temporal series study conducted between 2011 and 2015 in the United States, with information from adolescents, aged 15 to 19 years, identified a greater use of contraceptive methods among boys (95%) in their last sexual intercourse, when compared to girls (90%), with the male condom being the most commonly used method (97.4%)[49]. Among the possible justifications for such a finding, it is important to highlight the discontinued use of the condom due to physical discomfort, the non-availability of the condom at the moment of sexual intercourse[50], the substitution of the condom for more effective contraceptive methods (disregarding the occurrence of STI)[13,24,51], the difficulty in the negotiation (more prevalence with older ages)[52], and the limited use of the female condom (due to the discomfort felt upon insertion and estrangement in its use)[53]. First, among adolescents, it is common to hear reports on the flexibilization of the use of the male condom in more long-lasting relationships. The use of a condom tends to be more common with new partners and casual sexual intercourse[26].

By contrast, RSB was more prevalent among adolescents who reported the use of a condom in their first sexual intercourse. This association was also identified in the USA with a nationally representative sample, consisting of 80 secondary schools and with 90,000 students, between 1994 and 2002. This study found that the adolescents who reported having used the condom in their first sexual intercourse were more prone to use this method in their last sexual intercourse, and presented half the chance of contracting an infection due to chlamydia and gonorrhea and of not having high chances of multiple sexual partners throughout life, even after confounding factor controls[54]. Though it is an isolated marker, the use of the condom in one's first sexual intercourse seems to determine a cognitive association that leads to healthy and persistent sexual habits, using a protective factor throughout life[54].

One of the limitations of the study is related to the use of a condom in the last sexual intercourse as a criterion to define RSB. Although it is a possible and effective marker, it is commonly considered that the evaluation of the consistency of use, coupled with other RSB markers, offers a greater robustness to the stratification of the risks to sexual and reproductive health[2,10]. Moreover, attitudes and characteristics of adolescents not treated in this study, such as sexual orientation, type of condom, the dynamic of the relationships, and the use of psychoactive substances before and/or during sexual activity, may have led to underestimations or overestimations of the findings. As it provides a representative sample of school adolescents, future editions of the PeNSE should advance in a greater understanding of these aspects relevant to sexual and reproductive health. Another important possibility of bias is the fact that only adolescents who attend school were evaluated and the absence of school attendance can favor a greater association with risky behaviors[10,21]. It should also be considered that many questions about sexual variables and behaviors are sensitive, which can cause the adolescent not to tell the full truth. The use of a self-assessment questionnaire, in this sense, may well have diminished the false answers. It is also important to remember that, since the data were collected in 2019, they may well have been influenced by the COVID-19 pandemic in many behaviors analyzed here. In the end, due to its cross-sectional design, it was not possible to verify the cause and effect relationship between the variables and RSB.

Despite the limitation, this study served to expand the understanding of RSB among adolescents beyond the already well-known associations with sociodemographic characteristics, testing other variables, such as experiences of sexual violence and bullying. Another important point is the use of data from the national scope, making it possible to compare the results by region. The high prevalence of RSB observed in this study among high school adolescents, together with the knowledge of their associated factors, should aid in the implementation of interventions geared toward sexual and reproductive health among adolescents, with the objective of reducing negative outcomes, such as unplanned pregnancy and the occurrence of STI. Continued intersectoral efforts should make it possible for adolescents to experience responsible and pleasurable sexual practices.

Collaborations

LL Monte, AC Rufino and A Madeiro participated equally in all stages of preparation of the article.

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