

# SEXUAL RISK BEHAVIORS IN BRAZILIAN ADOLESCENTS AND YOUNG WOMEN: A COMMUNITY-BASED STUDY

*COMPORTAMENTO SEXUAL DE RISCO ENTRE MULHERES ADOLESCENTES E JOVENS BRASILEIRAS: UM ESTUDO DE BASE COMUNITÁRIA*

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## ABSTRACT

**Introduction:** Risky sexual behaviors among adolescents can result in high rates of sexually transmitted infections and unwanted pregnancies. **Objective:** To estimate the prevalence and to identify sociodemographic factors associated with early start of sexual activity and inconsistent condom use among adolescents and young women. **Methods:** This cross-sectional, community-based study enrolled 1,072 women from 2007 to 2009. The participants were between 15 and 24 years old and were residents of three different mid-sized cities in the state of Goiás, Central-Western region of Brazil. Sociodemographic and behavioral data were collected in a structured questionnaire, following ethics committee approval. Logistic regression analysis was performed, with odds ratio and adjusted odds ratio calculation, with confidence interval of 95% (95%CI) and statistical significance of 5% ( $p < 0.05$ ). **Results:** Of the 1,072 interviewees, 64.9% were sexually active, of which 46.4% reported sexual initiation at the age of 15 or younger, and 73.2% reported inconsistent condom use. The factors associated with the early start of sexual activity were to be under 20, to have less than eight years of education, and to report no religion with odds ratio of 3.13 (95%CI 2.22–4.40), 6.21 (95%CI 4.41–9.32) and 2.05 (95%CI 1.17–3.58) respectively. The factor associated with inconsistent condom use was being married or in a stable relationship, with odds ratio of 4.63 (95%CI 2.86–7.50). **Conclusion:** The high prevalence of risky sexual behaviors among Brazilian adolescents and young women is due to socioeconomic and cultural factors.

**Keywords:** sexual behavior; adolescents; young adults; condom.

## RESUMO

**Introdução:** Comportamento sexual de risco entre adolescentes resulta em altas taxas de infecções sexualmente transmissíveis e gravidez indesejada. **Objetivo:** Estimar a prevalência e identificar os fatores sociodemográficos associados ao início precoce da atividade sexual e ao uso inconsistente do preservativo masculino entre mulheres adolescentes e jovens. **Métodos:** Estudo transversal, de base comunitária, com 1.072 mulheres realizado entre 2007 e 2009. As participantes tinham entre 15 e 24 anos, residentes em três cidades de médio porte do estado de Goiás, Região Centro-Oeste do Brasil. Dados sociodemográficos e comportamentais foram coletados por meio de questionário estruturado. Análises de regressão logística com cálculo de *odds ratio* e *odds ratio* ajustado foram realizadas com intervalo de confiança de 95% (IC95%) e significância estatística de 5% ( $p < 0,05$ ). O estudo foi aprovado pelo Comitê de Ética. **Resultados:** Das 1.072 entrevistadas, 64,9% eram sexualmente ativas, entre as quais 46,4% reportaram iniciação sexual aos 15 anos ou menos, e 73,2% reportaram uso inconsistente do preservativo masculino. Os fatores associados com a iniciação sexual precoce foram idade menor que 20 anos, ter menos que oito anos de escolaridade e não possuir religião, com *odds ratio* de 3,13 (IC95% 2,22–4,40), 6,21 (IC95% 4,41–9,32) e 2,05 (IC95% 1,17–3,58), respectivamente. O fator associado ao uso inconsistente do preservativo foi o estado civil casada ou união estável, com *odds ratio* de 4,63 (IC95% 2,86–7,50). **Conclusão:** A prevalência de comportamento sexual de risco entre mulheres adolescentes e jovens brasileiras é elevada em consequência de fatores socioeconômicos e culturais.

**Palavras-chave:** comportamento sexual; adolescentes; adultos jovens; preservativo masculino.

## INTRODUCTION

Adolescents and young adults are more frequently involved in risky sexual behaviors, resulting in high levels of sexually transmitted infections (STI) and unwanted pregnancies<sup>(1-3)</sup>. Worldwide, 2.5 million women give birth before the age of 16, and obstetric complications are the second leading cause of premature death among women aged between 15 and 19<sup>(2,4)</sup>. Every day, almost one million new cases of STI are detected around the world<sup>(3)</sup>, with large increase in cases among young adults aged between 15 and 24 years<sup>(5)</sup>. The prevalence of human papillomavirus infection (HPV) in this age group ranges from 28.0 to 47.1%<sup>(6,7)</sup>.

This scenario results in an increased economic and social impact on obstetric complications, such as prematurity and congenital

infections<sup>(4)</sup>. Perinatal transmission of human immunodeficiency virus (HIV) makes acquired immunodeficiency syndrome (AIDS) the third leading cause of premature death among young adults in the world<sup>(2)</sup>. In addition, the exposure to chlamydia increases the costs of infertility and pelvic inflammatory disease treatments<sup>(8)</sup>. HPV-induced cervical cancer is the fourth in number of deaths among all types of cancer in women, the second in developing countries<sup>(9)</sup>.

The limited impact of sexual health interventions as described in the literature contributes to this reality<sup>(10)</sup>. There is also no consensus on which factors affect sexual behavior in each culture and population<sup>(11,12)</sup>. This research aims to fill this knowledge gap.

## OBJECTIVE

To identify the demographic, social, and behavioral factors associated with the early start of sexual activity and inconsistent condom use, as well as the reasons cited for not using condoms, among adolescents and young women in the urban centers of Midwestern Brazil.

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## METHODS

### Study design and sample

This is a cross-sectional community-based study, carried out in three medium-sized cities of the state of Goiás (located in the Midwestern region of Brazil), between 2007 and 2009. The cities were randomly selected to represent the urban population outside the capital Goiânia. All 4,500 women aged 15 to 24 years included in the Family Health Program (FHP) were randomized and potentially eligible<sup>(13)</sup>. The FHP is a multidisciplinary public health program responsible for primary health care in municipalities according to their individual needs. It is also a significant data source.

The sample's size of 570 sexually active women was calculated using Open Source Epidemiologic Statistic for Public Health (OpenEpi 2.3.1). A previous research performed in the same state found a percentage of sexually active adolescents and young women of 60%<sup>(14)</sup>. After adding an additional 10% margin for dropout, a sample size of 1050 participants was obtained, and 1072 participants responded to the survey.

### Data collection

The structured questionnaire contains two steps. The first, given to all respondents, collected individual and sociodemographic data, such as age, marital status, religion, education, family income, mother's education level, number of people living in their home, concern about their health, menstrual problems, satisfaction with their relationships with the parents, vaccination status against hepatitis B, and the age they started sexual activity. The second, given only to sexually active respondents, collected data about sexual behavior, such as age and partner at first sexual intercourse, number of lifetime sexual partners, number of sexual partners in the last three months, perception of STI risk of their partners, having an exclusive sexual relationship, perception on their partner's fidelity, frequency of condom use, use of condom in the last time they had sex, reasons they gave for not using condoms, type of sexual intercourse, sexual activity in risky situations (in exchange for money, drugs, or when one or both partners is under the influence of drugs), history of pregnancy, and age at first pregnancy.

### Criteria definition

For the purposes of this study, early start of sexual activity is defined as sexual initiation at the age of 15 years or younger, as in other studies<sup>(15,16)</sup>, being 14 the age of consent in Brazil<sup>(17)</sup>. Inconsistent condom use is defined as the use of a condom in less than 100% of sexual encounters, as in other studies<sup>(18,19)</sup>.

### Data analysis

A descriptive and frequency analysis of sociodemographic and behavioral characteristics was performed. For the categorical variables, the percentage distributions with the respective confidence intervals (CI), 95% was calculated. Logistic regression was performed to evaluate the sociodemographic and behavioral differences between sexually active participants and those who had never had

sex, as well as to evaluate the association of these factors with early sexual initiation and inconsistent condom use. Odds ratios (OR) and the adjusted OR with 95%CI and statistical significance level of 5% ( $p < 0.05$ ) were calculated. All variables that presented the value of  $p < 0.20$  were subjected in the multivariate model.

### Ethical aspects

The present study was approved by the Committee of Ethics in Human and Animal Medical Research of the Hospital das Clínicas of the Federal University of Goiás, under the protocol 83763518.6.0000.5078. All participants signed the Free and Informed Consent form, and all interviews were conducted so as to protect the interviewee's privacy. To ensure the reliability of the information given by participants under 18 years old, exemption from parental involvement was obtained by court order.

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## RESULTS

From the 1,072 women interviewed, 64.9% (696) were sexually active. The prevalence of early start of sexual activity was 46.4% (95%CI 42.7–50.1). The prevalence of inconsistent condom use was 73.2% (95%CI 63.9–82.6). Most participants had their first sexual intercourse with their boyfriend or partner in a stable relationship (94.6%). More than half of all participants had more than one partner in their lifetimes (50.7%). Anal sex was reported by 13.7% of women, and sex in exchange for money, drugs or sex with drugged partner was related by 3.2%. Previous pregnancy was reported by 39.4% of participants, of which 26.2% were younger than 15 (**Table 1**).

The characteristics that distinguished sexually active participants from those who had never had sex were age and education. After multivariate analysis, the sexually active women were 6.3 times more likely to be over 20 years (95%CI 3.98–9.96), and 2.04 times more likely to have less than eight years of education (95%CI 1.19–3.49) compared to those who had never had sex (**Table 2**).

The factors associated with early start of sexual activity were: to be under 20 years, to have less than eight years of education and to have no religion with an OR of 3.13 (95%CI 2.22–4.40), 6.21 (95%CI 4.41–9.32) and 2.05 (95%CI 1.17–3.58) respectively (**Table 3**).

The factor that remained associated with inconsistent condom use after multivariate analysis was being married or in a stable relationship, with OR of 4.63 (95%CI 2.86–7.50) (**Table 4**).

The most cited reasons for not using condoms were “confidence in partner” by 49.8%, “partner dislikes it” by 43.7% and “less pleasure” by 35.4% of the participants. The less cited reason for not using condoms was “they're expensive” (**Table 5**).

## DISCUSSION

This study investigated the prevalence of risky sexual behaviors, defined as: the start of sexual activity at the age of 15 or younger, inconsistent condom use and the socioeconomic and behavioral factors associated with these. The sample was composed by adolescents and young women, living in urban centers in Midwestern Brazil.

**Table 1** – Characteristics of sexually active participants (n=696).

Variable	n	%	95%CI
Age (years) (n=695)			
15 to 19	345	49.6	45.9–53.4
20 to 24	350	50.4	46.6–54.1
Age at first sexual activity (years) (n=692)			
Up to 15	321	46.4	42.7–50.1
Over 15	371	53.6	49.9–57.3
First sexual intercourse (n=691)			
Friend, stranger, or recently met	37	5.4	3.7–7.0
Boyfriend, spouse, or housemate	654	94.6	92.9–96.3
Number of lifetime partners (n=686)			
1	338	49.3	45.5–53.0
2 to 3	207	30.2	26.7–33.6
4 or more	141	20.6	17.5–23.6
Number of partners in the last three months (n=692)			
0	69	10.0	7.7–12.2
1	589	85.1	82.5–87.8
2	25	3.6	2.2–5.0
3 or more	9	1.3	0.5–2.1
Perception of STI risk with partner (n=685)			
Yes	36	5.3	0.46–2.17
No	649	94.7	93.1–96.4
Stable relationship (n=686)			
Yes	585	85.3	82.6–87.9
No	101	14.7	12.1–17.4
Unfaithful to partner (n=588)			
Yes	15	2.6	1.3–3.8
No	573	97.4	96.2–98.7
Condom use (n=691)			
Always	185	26.8	23.5–30.1
Sometimes (more than half the time)	237	34.3	30.8–37.8
Rarely (less than half the time)	171	24.7	21.5–28.0
Never	98	14.2	11.6–16.8
Use of condom in last intercourse (n=672)			
Yes	277	41.2	37.5–44.9
No	395	58.8	55.1–62.5
Type of relations			
Oral (n=635)	257	40.5	36.7–44.3
Vaginal (n=688)	688	100.0	-
Anal (n=633)	87	13.7	11.1–16.4
Risk situations			
Sex for money (n= 685)	15	2.2	1.1–3.3
Sex for drugs (n= 684)	3	0.4	0.0–0.9
Sex with an injection drug user or sex worker (n= 685)	4	0.6	0.0–1.2
Perception of unfaithfulness in relationship (n=578)			
Yes	73	12.6	9.9–15.3
No	505	87.4	84.7–90.1
Previous pregnancy (n=687)			
Yes	271	39.4	35.8–43.1
No	416	60.6	56.9–64.2
Age at first pregnancy (n=267)			
< 15 years	70	26.2	20.9–31.5
15–19 years	149	55.8	49.8–61.8
>19 years	48	18.0	13.4–22.6
Previously been tested for STI (n=671)			
Yes	33	4.9	3.3–6.6
No	638	95.1	93.4–96.7

\*The difference between the total of each variable and the overall total are due to questions left blank.

There is no consensus in the literature on which factors are associated with these behaviors<sup>(11,12)</sup>, hence the importance of the present study. Social attitudes against sexual activity in adolescence blocks to addressing this issue and are a limiting factor in the effectiveness of intervention strategies<sup>(20)</sup>.

Sexually active participants, when compared to those who had not previously had sex, were older and had fewer years of education. According to data, 51.3% of participants were sexually active at the age of 19, increasing to 87.7% at the age of 24. In fact, the prevalence of sexual activity increases over the years in adolescence and youth. These results are in accordance with a previously published study that reported the percentage of sexually active individuals is, on average, 60% at the age of 18, and 90% at the age of 24<sup>(21)</sup>.

The prevalence of early start of sexual activity was high. Indeed, 46.4% of the participants reported sexual initiation at the age of 15 or younger, a higher number than that found in other studies. In Brazil, a population-based survey on adolescent students in 2016 found that 35.9% of them were sexually active by the age of 15<sup>(22)</sup>. In the United States of America (USA), a longitudinal, decade-long study found that 13 to 35% of adolescents started having sex up until 15 years old<sup>(23)</sup>. In a national sample of African adolescents, in 2012, this number was around 25%<sup>(24)</sup>. Therefore, adolescents and young women living in Midwestern Brazil should be considered a high-risk population for the consequences of early sexual behavior.

The factors associated with early start of sexual activity were to be under 20 years of age, having a low level of education and no religion. Regarding age, data showed that 57.6% of participants between 15 and 19 years old reported to have begun their sexual activity early, significantly higher than those between 20 and 24 (34.5%). These data suggest a decrease in the age of first sexual intercourse over the years, as supported by the literature<sup>(21,25,26)</sup>. This information suggests the need for studies that assess sexual behavior before 15 years to guide more effective sexual education programs and prevent the negative consequences of early sexual activity.

Along with age, low education level was associated with early start of sexual activity. According to the available evidence, a higher level of education correlates with starting sexual activity later in life, particularly when the individual intends to pursue higher education. In fact, staying in school and having a good performance are associated with the adoption of healthy behaviors overall, including being mindful of sexually healthy<sup>(27,28)</sup>. Conversely, dropping out of school is associated with teenage pregnancy and early marriage<sup>(29)</sup>, which can lead to future issues, such as maintaining these women's social vulnerability. These results suggest that in addition to health policies, education policies are needed to improve sexual health.

Another factor associated with early sexual debut was to have no religion. Indeed, evidence from literature shows that religiosity in adolescence is associated with healthier attitudes and it protects against various risk behaviors, including early start of sexual activity<sup>(30,31)</sup>. However, the norms and attitudes internalized by religion do not ultimately affect the motivations of teenagers to have sex, which ends up happening<sup>(32,33)</sup>. For this reason, adolescents should not be exempted from sexual education for religious reasons. There is evidence that programs based on the religious prerogative of sexual abstinence are ineffective and can even harm prevention actions<sup>(34)</sup>.

In addition to age, educational level and religion, other studies suggest the association between the early start of sexual activity, the mother's education level and the low socioeconomic level<sup>(35)</sup>, as well as the lack of satisfaction with the relationship with their parents<sup>(36)</sup>. After multivariate analysis, however, this study did not support these associations.

The prevalence of inconsistent condom use was also high. Data showed that 73.2% of adolescents and young women did not use condoms in all sexual encounters, a higher number than in other populations. In Chinese adolescents, this was 69.3%, African Americans reported 68.2% and in Africa this figure ranged from 30.1 to 59.5%, depending on the country<sup>(37-39)</sup>. Data from this study points to a high risk of STI in Brazil and suggests the need of health programs that promote condom use.

Being married or in a stable relationship were associated with inconsistent condom use. In fact, according to evidence, condom use in casual sex is greater than in sex with steady partners<sup>(19)</sup>. This is due to a perceived lower risk and a higher confidence in

stable partners<sup>(40)</sup>. However, evidence showed high rates of unfaithfulness in these relationships, where about one-third of individuals with stable partners reported a second sexual encounter in the previous three months<sup>(19)</sup>. This demonstrates that false monogamy can perpetuate STI risk<sup>(41)</sup>.

The main reasons cited by participants for not using condoms were trust in their partners and negative attitudes related to condoms. These data agree with evidence that shows a direct relationship between these kinds of resistant attitudes and low rates of condom use<sup>(42,43)</sup>. In cultures dominated by the male gender, women find greater resistance when negotiating condom use<sup>(44)</sup>. This situation increases the vulnerability of women and suggests the discussion of gender norms in sex education programs.

STI rates in the same sample were performed by other studies, in which the prevalence of Chlamydia trachomatis infection was 9.5% (95%CI 7.4–12.4)<sup>(7)</sup>, and for HPV infection, the prevalence was 47.1% (95%CI 41.0–53.2)<sup>(13)</sup>. Despite agreeing with literature data, the infection by these agents was high and deserves attention<sup>(13)</sup>.

**Table 2** – Factors associated with sexually active adolescents and young women.

Variable	Sexually active		Virgin		p-value	OR (95%CI)	p-value	OR <sup>a</sup> (95%CI)
	n	%	n	%				
Age (years)								
15 to 19	345	51.3	327	48.7	<0.001	6.77 (4.84–9.46)	<0.001	6.30 (3.98–9.96)
20 to 24	350	87.7	49	12.3				
Civil status					0.993	-	-	-
Single	431	53.4	376	46.6				
Married/Living together	262	100.0	-	0.0				
Religion					0.301	1.25 (0.82–1.91)	-	-
Yes	619	64.4	342	35.6				
No	77	69.4	34	30.6				
Education (years)					<0.001	2.45 (1.74–3.46)	0.009	2.04 (1.19–3.49)
Up to 8	186	79.1	49	20.9				
Over 8	506	60.7	327	39.3				
Good experience in school					0.046	1.61 (1.01–2.57)	0.202	1.46 (0.82–2.59)
Yes	352	52.0	325	48.0				
No	54	63.5	31	36.5				
Mother's education (years)					0.013	1.44 (1.08–1.91)	0.689	1.07 (0.75–1.53)
Up to 8	437	65.9	226	34.1				
Over 8	160	57.3	119	42.7				
Family income (multiples of minimum wage)*					0.048	1.33 (1.00–1.76)	0.629	0.91 (0.62–1.34)
Up to 2x	238	70.2	101	29.8				
Over 2x	433	64.0	244	36.0				
Number of people in home					0.073	1.27 (0.98–1.67)	0.186	1.27 (0.89–1.82)
Up to 4	488	66.8	242	33.2				
Over 5	205	61.2	130	38.8				
Preoccupied with health					0.055	1.28 (0.99–1.65)	0.150	0.78 (0.55–1.09)
Yes	332	68.0	156	32.0				
No	362	62.4	218	37.6				
Menstrual problems					0.022	2.62 (1.15–5.99)	0.402	1.56 (0.55–4.49)
Yes	33	82.5	7	17.5				
No	663	64.2	369	35.8				
Satisfied with parental relationships					0.253	1.27 (0.84–1.93)	-	-
Yes	603	64.1	337	35.9				
No	82	69.5	36	30.5				
Vaccinated for hepatitis B					0.743	0.94 (0.67–1.33)	-	-
Yes	467	65.8	243	34.2				
No	118	64.5	65	35.5				

OR: odds ratio; OR<sup>a</sup>: Adjusted odds ratio; \*Minimum wage in Brazil at the time of this survey was BRL R\$ 380 / USD \$ 100.

In addition, pregnancy rates were also high. Almost 40% of adolescents and young women in this study reported having previously become pregnant, more than a quarter before the age of 15. This is an alarming reality since it is associated with dropping out of school and other social problems<sup>(45)</sup>.

Despite cultural advances on the role of sex in society today, the acceptance of sexual activity during adolescence is still low<sup>(20)</sup>. In the last decade, authors have discussed the normalization of sex in adolescence as a way to increase access to sexual education<sup>(46,47)</sup>. In societies where this already happens, as in the Netherlands, dual use of condoms and contraceptive pills was the largest among the 24 surveyed countries<sup>(48)</sup>. Adolescents have many questions about topics related to contraception and STI risk; there is also a low correlation between knowledge and sexual behavior<sup>(49)</sup>. Therefore, the most effective sex education strategies are those that begin early in young people between 10 and 14 years old, before they start having sex<sup>(50)</sup>.

The main strength of the study is its large random sample size of adolescents and young women. Another force is the exemption from parental participation obtained by court order that secured the reliability of the responses given by those participants under the age of majority. The limitations of this study are related to the period of data collection and the memory bias on the part of study participants. Studies of sexuality in the last decades use the Sexual Revolution as the marker for significant changes in sexual behavior<sup>(51)</sup>. After that, a research shows that over the years in the 21st century, changes in sexual behavior are tenuous and slow<sup>(52)</sup>. As a result, the authors of this study believe that the data used in this work can be extrapolated to the present day.

## CONCLUSION

Adolescents and young women living in urban centers in Brazil continue to engage in risky sexual behaviors, with high rates of

**Table 3** – Factors associated with early start of sexual activity ( $\leq 15$  years of age).

Variables	Sexual activity up to the age of 15	Total	%	OR (95%CI)	p-value	OR <sup>a</sup> (95%CI)	p-value
Age (years)							
From 15 to 19	199	342	58.2				
From 20 to 24	121	349	34.7	2.62 (1.93–3.57)	<0.001	3.13 (2.22–4.40)	<0.001
Civil Status							
Single	188	429	43.8				
Married/living together	131	260	50.4	0.77 (0.57–1.05)	0.768	-	-
Religion							
No	51	76	67.1				
Yes	270	616	43.8	2.61 (1.58–4.33)	<0.001	2.05 (1.17–3.58)	0.012
Education (years)							
Up to 8	138	183	75.4				
Over 8	181	505	35.8	5.49 (3.74–8.05)	<0.001	6.21 (4.14–9.32)	<0.001
Good experience in school							
Yes	151	349	43.3				
No	24	54	44.4	1.05 (0.59–1.69)	0.871	-	-
Mother's education (years)							
Up to 8	212	435	48.7				
Over 8	56	159	35.2	1.75 (1.20–2.55)	<0.004	1.14 (0.71–1.83)	0.592
Family income (multiples of minimum wage)*							
Up to 2x	126	236	53.4				
Over 2x	181	432	41.9	1.59 (1.15–2.19)	0.005	1.13 (0.78–1.64)	0.532
Number of people in home							
Up to 4	218	486	44.9				
Over 5	102	203	50.2	1.24 (0.89–1.72)	0.196	1.23 (0.84–1.79)	0.281
Preoccupied with health							
Yes	140	330	42.4				
No	181	360	50.3	1.37 (1.02–1.85)	0.039	1.18 (0.78–1.79)	0.430
Menstrual problems							
Yes	16	33	48.5				
No	305	659	46.3	1.09 (0.54–2.20)	0.804	-	-
Satisfied with parental relationships							
Yes	268	600	44.7				
No	47	81	58.0	1.71 (1.07–2.74)	0.025	1.31 (0.68–2.54)	0.416
Vaccinated for hepatitis B							
Yes	207	465	44.5				
No	60	117	51.3	1.31 (0.87–1.97)	0.190	1.19 (0.70–2.01)	0.522

OR: odds ratio; OR<sup>a</sup>: Adjusted odds ratio; \*Minimum wage in Brazil at the time of this survey was BRL R\$ 380 / USD \$ 100.

teenage pregnancy and STI. The factors associated with these behaviors were to be under 20 years old, to have low education level, and to have no religion. The low rates of consistent condom use were associated with confidence in their steady partner and negative social norms. Social, economic, and cultural changes are therefore necessary, with a focus on a high-quality education and gender equality.

A broader perspective in studies on sexuality can help work toward a normalization of sex in adolescence to promote sexual education before the start of sexual activity. More research into sexual activity in early adolescence is necessary to better understand risk factors and to create more effective approaches.

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**Table 5** – Reasons for not using a condom according to adolescents and young adults.

Reasons given	n	%
Confidence in partner	252	49.8
Partner dislikes	221	43.7
Reduces pleasure	179	35.4
Ruins the mood	112	22.1
No need for it	90	17.8
None	80	15.8
Fear of partner getting the wrong idea	37	7.3
Too self-conscious to ask partner to use one	36	7.1
It's difficult or embarrassing to use	32	6.3
Too self-conscious to buy	25	4.9
Don't know how to use one	4	0.8
Religion prevents it	2	0.4
Don't know where to buy / Don't have a place to buy	2	0.4
It is Expensive	-	0.0

**Table 4** – Factors associated with inconsistent condom use by male partner.

Variables	Inconsistent condom use	Total	%	OR (95%CI)	p-value	OR <sup>a</sup> (CI95%)	p-value
Age (years)							
From 15 to 19	229	341	67.2				
From 20 to 24	277	349	79.4	1.89 (1.33–2.65)	<0.001	1.24 (0.84–1.82)	0.278
Civil Status							
Single	269	427	63.0				
Married/living together	235	261	90.0	5.31 (3.38–8.33)	<0.001	4.63 (2.86–7.50)	<0.001
Religion							
No	54	76	71.1				
Yes	452	615	73.5	0.88 (0.52–1.50)	0.650	-	-
Education (years)							
Up to 8	139	183	76.0				
Over 8	366	504	72.6	1.19 (0.80–1.76)	0.381	-	-
Good experience in school							
Yes	235	348	67.5				
No	41	54	75.9	1.52 (0.78–2.94)	0.218	-	-
Mother's education (years)							
Up to 8	320	434	73.7				
Over 8	109	158	69.0	1.26 (0.85–1.88)	0.253	-	-
Family income (multiples of minimum wage)*							
Up to 2x	184	236	78.0				
Over 2x	304	431	70.5	1.48 (1.02–2.14)	0.039	1.13 (0.76–1.70)	0.548
Number of people in home							
Up to 4	367	485	75.7				
Over 5	137	203	67.5	1.50 (1.05–2.15)	0.028	1.12 (0.76–1.65)	0.582
Preoccupied with health							
Yes	251	331	75.8				
No	254	358	70.9	1.29 (0.91–1.80)	0.148	1.26 (0.87–1.83)	0.224
Menstrual problems							
Yes	27	33	81.8				
No	479	658	72.8	1.68 (0.68–4.14)	0.258	-	-
Satisfied with parental relationships							
Yes	438	599	73.1				
No	58	81	71.6	0.93 (0.55–1.55)	0.773	-	-
Vaccinated for hepatitis B							
Yes	338	464	72.8				
No	85	118	72.0	0.96 (0.61–1.51)	0.860	-	-

OR: Odds ratio; OR<sup>a</sup>: Adjusted odds ratio; \*Minimum wage in Brazil at the time of this survey was BRL R\$ 380 / USD \$ 100.

## Conflict of interests

The authors declare no conflict of interests.

## REFERENCES

- Kann L, Kinchen S, Shanklin SL, Flint KH, Hawkins J, Harris WA, et al. Youth risk behavior surveillance—United States, 2013. *Morbidity and Mortality Weekly Report: Surveillance Summaries*. 2014;63(4):1-168.
- World Health Organization. *Health for the world's adolescents: a second chance in the second decade: summary*. Geneva: World Health Organization; 2014.
- World Health Organization. *Sexually transmitted infections*. Geneva: World Health Organization; 2016.
- Temmerman M. Adolescent mothers: too young to be neglected. *Lancet Child Adolesc Health*. 2017;1(3):164-6. [https://doi.org/10.1016/S2352-4642\(17\)30061-5](https://doi.org/10.1016/S2352-4642(17)30061-5)
- Centers for Disease Control and Prevention. CDC Fact sheet. Reported STDs in the United States. 2014 National data for chlamydia, gonorrhea, and syphilis [Internet]. Atlanta, GA: Centers for Disease Control and Prevention; 2016 [cited November 2015]. Available at: <https://www.cdc.gov/nchhstp/newsroom/docs/factsheets/std-trends-508.pdf>
- Alves RRF, Turchi MD, Santos LE, Guimarães EMB, Garcia MMD, Seixas MSC, et al. Prevalence, genotype profile and risk factors for multiple human papillomavirus cervical infection in unimmunized female adolescents in Goiania, Brazil: a community-based study. *BMC Public Health*. 2013;13(1):1041. <https://doi.org/10.1186/1471-2458-13-1041>
- Nonato DR, Alves RR, Ribeiro AA, Saddi VA, Segati KD, Almeida KP, et al. Prevalence and factors associated with coinfection of human papillomavirus and Chlamydia trachomatis in adolescents and young women. *Am J Obstet Gynecol*. 2016;215(6):753e1-9. <https://doi.org/10.1016/j.ajog.2016.07.003>
- Owusu-Edusei Jr. K, Chesson HW, Gift TL, Tao G, Mahajan R, Ocfemia MCB, et al. The estimated direct medical cost of selected sexually transmitted infections in the United States, 2008. *Sex Transm Dis*. 2013;40(3):197-201. <https://doi.org/10.1097/OLQ.0b013e318285c6d2>
- Bruni L, Barrionuevo-Rosas L, Albero G, Aldea M, Serrano B, Valencia S, et al. ICO Information Centre on HPV and Cancer (HPV Information Centre). *Human Papillomavirus and Related Diseases in the World. Summary Report 2015*. Institut Català d'Oncologia; 2017.
- Mason-Jones AJ, Sinclair D, Mathews C, Kagee A, Hillman A, Lombard C. School based interventions for preventing HIV, sexually transmitted infections, and pregnancy in adolescents. *Cochrane*. 2016.
- Buhi ER, Goodson P. Predictors of adolescent sexual behavior and intention: A theory-guided systematic review. *J Adolesc Health*. 2007;40(1):4-21. <https://doi.org/10.1016/j.jadohealth.2006.09.027>
- Pokhrel P, Bennett BL, Regmi S, Idrisov B, Galimov A, Akhmadeeva L, et al. Individualism-Collectivism, Social Self-Control and Adolescent Substance Use and Risky Sexual Behavior. *Subst Use Misuse*. 2018;53(7):1057-67. <https://doi.org/10.1080/10826084.2017.1392983>
- de Lima YAR, Turchi MD, Fonseca ZC, Garcia FLB, Cardoso FADB, da Guarda Reis MN, et al. Sexually transmitted bacterial infections among young women in Central Western Brazil. *Int J Infect Dis*. 2014;25:16-21. <https://doi.org/10.1016/j.ijid.2014.03.1389>
- Vieira M, Guimarães BEM, Barbosa MA, Turchi MD, Alves MFC, Seixas MSC. Factors associated with condom use by female adolescents in Goiânia City. *DST J Bras Doenças Sex Transm*. 2004;16:77-83. <http://www.dst.uff.br/revista16-3-2004/10.pdf>.
- Madkour AS, De Looze M, Ma P, Halpern CT, Farhat T, Ter Bogt TF, et al. Macro-level age norms for the timing of sexual initiation and adolescents' early sexual initiation in 17 European countries. *J Adolesc Health*. 2014;55(1):114-21. <https://doi.org/10.1016/j.jadohealth.2013.12.008>
- Shu C, Fu A, Lu J, Yin M, Chen Y, Qin T, et al. Association between age at first sexual intercourse and knowledge, attitudes and practices regarding reproductive health and unplanned pregnancy: a cross-sectional study. *Public Health*. 2016;135:104-13. <https://doi.org/10.1016/j.puhe.2016.01.021>
- Brasil. Decreto-Lei nº 2.848, de 7 de dezembro de 1940. Código Penal [Internet]. 2009 [cited December 31, 1940]. Available at: [http://www.planalto.gov.br/ccivil\\_03/decreto-lei/Del2848compilado.htm](http://www.planalto.gov.br/ccivil_03/decreto-lei/Del2848compilado.htm)
- Morris L, Kouya F, Kwalar R, Pilapil M, Saito K, Palmer N, et al. Factors associated with inconsistent condom use in adolescents with negative or unknown HIV status in Northwest Cameroon. *AIDS Care*. 2014;26(11):1440-5. <https://doi.org/10.1080/09540121.2014.920948>
- Nehl EJ, Elifson K, DePadilla L, Sterk C. Sex partner type, drug use and condom use self-efficacy among African Americans from disadvantaged neighborhoods: Are associations with consistent condom use moderated by gender? *J Sex Research*. 2016;53(7):805-15. <https://doi.org/10.1080/00224499.2015.1092018>
- Twenge JM, Sherman RA, Wells BE. Changes in American adults' sexual behavior and attitudes, 1972–2012. *Arch Sex Behav*. 2015;44(8):2273-85. <https://doi.org/10.1007/s10508-015-0540-2>
- Lewis R, Tanton C, Mercer CH, Mitchell KR, Palmer M, Macdowall W, et al. Heterosexual Practices Among Young People in Britain: Evidence From Three National Surveys of Sexual Attitudes and Lifestyles. *J Adolesc Health*. 2017;61(6):694-702. <https://doi.org/10.1016/j.jadohealth.2017.07.004>
- Borges ALV, Fujimori E, Kuschnir MCC, Chofakian CBN, Moraes AJP, Azevedo GD, et al. ERICA: início da vida sexual e contracepção em adolescentes brasileiros. *Rev Saúde Pública*. 2016; 50(Supl. 1):15s. <https://doi.org/10.1590/S01518-8787.2016050006686>
- Zimmer-Gembeck MJ, Helfand M. Ten years of longitudinal research on US adolescent sexual behavior: Developmental correlates of sexual intercourse, and the importance of age, gender and ethnic background. *Develop Rev*. 2008;28(2):153-224. <https://doi.org/10.1016/j.dr.2007.06.001>
- Doyle AM, Mavedzenge SN, Plummer ML, Ross DA. The sexual behaviour of adolescents in sub-Saharan Africa: patterns and trends from national surveys. *Trop Med Int Health*. 2012;17(7):796-807. <https://doi.org/10.1111/j.1365-3156.2012.03005.x>
- Wellings K, Johnson AM. Framing sexual health research: adopting a broader perspective. *Lancet*. 2013;382(9907):1759-62. [https://doi.org/10.1016/S0140-6736\(13\)62378-8](https://doi.org/10.1016/S0140-6736(13)62378-8)
- Brasil. Ministério da Saúde. Departamento de DST, Aids e Hepatites Virais. PCAP – Pesquisa de conhecimentos, atitudes e práticas na população brasileira, 2013. Brasília: Ministério da Saúde; 2016.
- Bradley BJ, Greene AC. Do health and education agencies in the United States share responsibility for academic achievement and health? A review of 25 years of evidence about the relationship of adolescents' academic achievement and health behaviors. *J Adolesc Health*. 2013;52(5):523-32. <https://doi.org/10.1016/j.jadohealth.2013.01.008>
- Rasberry CN, Tiu GF, Kann L, McManus T, Michael SL, Merlo CL, et al. Health-Related Behaviors and Academic Achievement Among High School Students—United States, 2015. *MMWR Morb Mortal Wkly Rep*. 2017;66(35):921-7. <http://dx.doi.org/10.15585/mmwr.mm6635a1>
- Villalobos-Hernández A, Campero L, Suárez-López L, Atienzo EE, Estrada F, la Vara-Salazar D. Embarazo adolescente y rezago educativo: análisis de una encuesta nacional en México. *Salud Publica Mex*. 2015;57(2):135-43.
- Sinha JW, Cnaan RA, Gelles RJ. Adolescent risk behaviors and religion: Findings from a national study. *J Adolesc*. 2007;30(2):231-49. <https://doi.org/10.1016/j.adolescence.2006.02.005>
- Hull SJ, Hennessy M, Bleakle A, Fishbein M, Jordan A. Identifying the causal pathways from religiosity to delayed adolescent sexual behavior. *J Sex Res*. 2011;48(6):543-53. <https://dx.doi.org/10.1080%2F00224499.2010.521868>
- Aalsma MC, Woodrome SE, Downs SM, Hensel DJ, Zimet GD, Orr DP, et al. Developmental trajectories of religiosity, sexual conservatism and sexual behavior among female adolescents. *J Adolesc*. 2013;36(6):1193-204. <https://doi.org/10.1016/j.adolescence.2013.08.005>
- Vasilenko SA, Duntzee CI, Zheng Y, Lefkowitz ES. Testing two process models of religiosity and sexual behavior. *J Adolesc*. 2013;36(4):667-73. <https://dx.doi.org/10.1016%2Fj.adolescence.2013.04.002>
- Santelli JS, Kantor LM, Grilo SA, Speizer IS, Lindberg LD, Heitler J, et al. Abstinence-only-until-marriage: An updated review of US policies and programs and their impact. *J Adolesc Health*. 2017;61(3):273-80. <https://doi.org/10.1016/j.jadohealth.2017.05.031>

35. Gonçalves H, Machado EC, Soares ALG, Camargo-Figuera FA, Seering LM, Mesenburg MA, et al. Sexual initiation among adolescents (10 to 14 years old) and health behaviors. *Rev Bras Epidemiol*. 2015;18(1):25-41. <https://doi.org/10.1590/1980-5497201500010003>
36. Silva RNA, van de Bongardt D, van de Looij-Jansen P, Wijtzes A, Raat H. Mother-and father-adolescent relationships and early sexual intercourse. *Pediatrics*. 2016;138(6):e20160782. <https://doi.org/10.1542/peds.2016-0782>
37. Liu Z, Wei P, Huang M, bao Liu Y, Li L, Gong X, et al. Determinants of consistent condom use among college students in China: application of the information-motivation-behavior skills (IMB) model. *PLoS One*. 2014;9(9):e108976. <https://doi.org/10.1371/journal.pone.0108976>
38. Crosby RA, DiClemente RJ, Salazar LF, Wingood GM, McDermott-Sales J, Young AM, et al. Predictors of consistent condom use among young African American women. *AIDS Behav*. 2013;17(3):865-71. <https://dx.doi.org/10.1007%2Fs10461-011-9998-7>
39. Reynolds HW, Luseno WK, Speizer IS. Consistent condom use among men with non-marital partners in four sub-Saharan African countries. *AIDS Care*. 2013;25(5):592-600. <https://doi.org/10.1080/09540121.2012.726340>
40. East L, Jackson D, O'Brien L, Peters K. Condom negotiation: experiences of sexually active young women. *J Adv Nurs*. 2011;67(1):77-85. <https://doi.org/10.1111/j.1365-2648.2010.05451.x>
41. Muzny CA, Harbison HS, Austin EL, Schwebke JR, Van BDP, Hook EW 3rd. Sexually Transmitted Infection Risk among Women Is Not Fully Explained by Partner Numbers. *South Med J*. 2017;110(3):161-7. <https://doi.org/10.14423/SMJ.0000000000000621>
42. Davis KC, Schraufnagel TJ, Kajumulo KF, Gilmore AK, Norris J, George WH. A qualitative examination of men's condom use attitudes and resistance: "It's just part of the game". *Arch Sex Behav*. 2014;43(3):631-43. <https://dx.doi.org/10.1007%2Fs10508-013-0150-9>
43. Manyapelo T, Nyembezi A, Ruiters RA, Borne BVD, Sifunda S, Reddy P. Understanding the psychosocial correlates of the intention to use condoms among young men in KwaZulu-Natal, South Africa. *Int J Environ Res Public Health*. 2017;14(4):E339. <https://doi.org/10.3390/ijerph14040339>
44. Santana MC, Raj A, Decker MR, La Marche A, Silverman JG. Masculine gender roles associated with increased sexual risk and intimate partner violence perpetration among young adult men. *J Urban Health*. 2006;83(4):575-85. <https://dx.doi.org/10.1007%2Fs11524-006-9061-6>
45. Rosenberg M, Pettifor A, Miller WC, Thirumurthy H, Emch M, Afolabi SA, et al. Relationship between school dropout and teen pregnancy among rural South African young women. *Int J Epidemiol*. 2015;44(3):928-36. <https://doi.org/10.1093/ije/dyv007>
46. Tolman DL, McClelland SI. Normative sexuality development in adolescence: A decade in review, 2000-2009. *J Res Adolesc*. 2011;21(1):242-55. <https://doi.org/10.1111/j.1532-7795.2010.00726.x>
47. Hensel DJ, Fortenberry JD. A multidimensional model of sexual health and sexual and prevention behavior among adolescent women. *J Adolesc Health*. 2013;52(2):219-27. <https://doi.org/10.1016/j.jadohealth.2012.05.017>
48. Godeau E, Gabhainn SN, Vignes C, Ross J, Boyce W, Todd J. Contraceptive use by 15-year-old students at their last sexual intercourse: results from 24 countries. *Arch Pediatr Adolesc Med*. 2008;162(1):66-73. <https://doi.org/10.1001/archpediatrics.2007.8>
49. Moura LRD, Lamounier JR, Guimarães PR, Duarte JM, Beling MTC, Pinto JA, et al. The gap between knowledge on HIV/AIDS and sexual behavior: a study of teenagers in Vespasiano, Minas Gerais State, Brazil. *Cad Saúde Pública*. 2013;29(5):1008-18. <http://dx.doi.org/10.1590/S0102-311X2013000500018>
50. Lane C, Brundage CL, Kreinin T. Why we must invest in early adolescence: Early intervention, lasting impact. *J Adolesc Health*. 2017;61(4 Suppl.):S10-1. <https://dx.doi.org/10.1016%2Fj.jadohealth.2017.07.011>
51. Greenwood J, Guner N. Social change: the sexual revolution. *Int Economic Review*. 2010;51(4):893-923. <https://doi.org/10.1111/j.1468-2354.2010.00605.x>
52. Cavazos-Rehg PA, Krauss MJ, Spitznagel EL, Schootman M, Bucholz KK, Peipert JF, et al. Age of sexual debut among US adolescents. *Contraception*. 2009;80(2):158-62. <https://doi.org/10.1016/j.contraception.2009.02.014>

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