

Analysis of sexual and reproductive health indicators of Brazilian adolescents, 2009, 2012 and 2015

Análise dos indicadores de saúde sexual e reprodutiva de adolescentes brasileiros, 2009, 2012 e 2015

Mariana Santos Felisbino-Mendes¹, Thayane Fraga de Paula¹, Ísis Eloah Machado¹, Maryane Oliveira-Campos¹, Deborah Carvalho Malta¹

ABSTRACT: *Objective:* To analyze sexual and reproductive health indicators of adolescents based on data from the National School-based Health Survey (PeNSE) in 2015, comparing them to the data from 2009 and 2012. *Methods:* Cross-sectional study that has analyzed data from 9th grade students from PeNSE 2015, 2012 and 2009. We estimated prevalence and 95% confidence intervals for the following indicators: sexual initiation, condom use in the last sexual intercourse, counseling for pregnancy, sexually transmitted infections and free condoms in the three rounds of the survey. Prevalence of all indicators accessed in 2015 was estimated according to sex, type of school and region. Pearson's χ^2 test was used. *Results:* The prevalence of sexual initiation reported by adolescents has decreased from 30.5%, in 2009, to 27.5%, in 2015, as well as the use of condom in the last intercourse, from 75.9 to 66.2%, respectively. In respect to counseling, there was a reduction regarding pregnancy prevention in public schools, from 81.1 to 79.3% and in relation to free condom in private schools, from 65.4 to 57.3%. About 30% reported using both condom and another contraceptive method, and 19.5% did not use any method. Boys presented greater prevalence of sexual initiation, higher number of partners and reduced prevalence of condom use. Adolescents living in North, Northeast and Central-West regions presented worse indicators. *Conclusion:* There was a reduction in sexual initiation and condom use among Brazilian adolescents, boys were more vulnerable to sexually transmitted infections, and girls from public schools were more vulnerable to pregnancy.

Keywords: Sexual and reproductive health. Adolescents. Health status indicators. Contraception. Public health policy.

¹Nursing School, Universidade Federal de Minas Gerais – Belo Horizonte (MG), Brazil.

¹General Department of Surveillance of Diseases and Noncommunicable Diseases and Health Promotion, Department of Health Surveillance, Ministério da Saúde – Brasília (DF), Brazil.

Corresponding author: Mariana Santos Felisbino-Mendes. Avenida Alfredo Balena, 190, Santa Efigênia, CEP: 30130-100, Belo Horizonte, MG, Brasil. E-mail: marianafelisbino@yahoo.com.br

Conflict of interests: nothing to declare – **Financial support:** Ministry of Health.

RESUMO: *Objetivo:* Analisar indicadores de saúde sexual e reprodutiva de adolescentes com base nos dados da Pesquisa Nacional de Saúde do Escolar (PeNSE) em 2015, comparando-os aos de 2009 e 2012. *Métodos:* Estudo transversal que analisou dados de escolares do nono ano da PeNSE 2015, 2012 e 2009. Estimou-se a prevalência com intervalos de confiança de 95% para indicadores de iniciação sexual, uso do preservativo na última relação sexual, ter recebido orientação para gravidez, infecções sexualmente transmissíveis e preservativo grátis nas três edições. Prevalências dos indicadores de 2015 foram estimadas segundo sexo, dependência administrativa da escola e região. Utilizou-se o teste do χ^2 de Pearson para diferenças estatísticas. *Resultados:* A prevalência de iniciação sexual apresentou queda, de 30,5% em 2009 para 27,5% em 2015, assim como do uso de preservativo, de 75,9 para 66,2%. Notou-se queda da orientação para prevenção de gravidez nas escolas públicas, de 81,1 para 79,3% e de preservativo gratuito nas escolas privadas, de 65,4 para 57,3%. Cerca de 30% relataram uso combinado de preservativo e outro método e 19,5% não fizeram uso de método algum. Observou-se que meninos apresentaram maior prevalência de iniciação sexual, maior número de parceiros e menor uso de preservativo. As regiões norte, nordeste e centro-oeste apresentaram pior desempenho dos indicadores. *Conclusão:* Evidenciou-se diminuição da iniciação sexual e do uso de preservativo entre adolescentes, maior vulnerabilidade às infecções sexualmente transmissíveis nos meninos e à gravidez entre as adolescentes de escolas públicas.

Palavras-chave: Saúde sexual e reprodutiva. Adolescentes. Indicadores de saúde. Métodos contraceptivos. Políticas públicas de saúde.

INTRODUCTION

Sexual and reproductive health care among adolescents has faced some problems and challenges. If, on the one hand, there have been efforts from government representatives and organizations to promote sexual and reproductive health in the young population, on the other hand, many challenges remain¹. For instance, there is stability and, in some of the most vulnerable groups, increase in the fertility rate of this population, especially in adolescents aged less than 15 years who live in Latin American countries², including Brazil³. Additionally, we observe that the young population has a high burden of diseases related to unwanted pregnancies and births, not to mention sexually transmitted infections (STI), including the human immunodeficiency virus / human immunodeficiency syndrome (HIV / AIDS), maternal death and abortion⁴⁻⁸.

Add to that the fact that this population group has presented lower adherence to the use of condoms. A study has estimated that the global burden of disease among people aged from 10 to 24 years points to unprotected intercourse as a major cause for the increasing number of missed years due to disability adjusted life years (DALYs) among these individuals^{7,9}. Low coverage of vaccines against the human papillomavirus (HPV) has also been observed in Brazil¹⁰ and it is caused by insufficient adherence of parents and adolescents, due to religious motives, relation of HPV with sexual intercourse and adverse effects, including mistaken information without any scientific evidence^{10,11}. Besides, many adolescents do not recognize HPV as being a STI¹².

The lack of information about health and rights, difficult access to contraceptive methods, cultural and social aspects, low schooling and income, violence and sexual abuse, as well as gender inequalities, are factors that contribute with the persistence and increase of these problems among adolescents^{2,12,13}. Other causes have been investigated in several countries, and evidence shows that the lack of a formal and structured sexual education by the schools and parents is implied in the process^{4,12,14}.

A few Brazilian studies, with a national scope, approach aspects regarding the sexual and reproductive health of adolescents. Local studies, of specific populations, with only one dimension of sexual and reproductive health, are more frequent^{8,12,15,16}. The National School-based Health Survey (PeNSE) allows a more thorough approximation to the sexual and reproductive health profile of adolescents in the country. The recent third edition will also allow comparisons with the 2009 and 2012 surveys.

Thus, the objective of this investigation was to analyze the sexual and reproductive health indicators of adolescents based on data from PeNSE in 2015, comparing them to indicators from 2009 and 2012. Moreover, we aimed assessing the differences of these most recent indicators by sex, type of school and country region. We believe that these estimations can contribute with a better programming and formulation of strategic intervention, one that is closer to the reality of Brazilian adolescents.

METHODS

PeNSE is a survey conducted every three years, since 2009, by the Brazilian Institute of Geography and Statistics (IBGE), in partnership with the Ministry of Health, including students from public and private schools. The survey is now in its third edition and, throughout the years, has been going through important changes, such as the increasing sampling plan, which, in the last edition, counted on different samples contemplating students attending the 9th grade, as well as students aged between 13 and 17 years (equivalent to the sixth to the ninth grade, and the third to third grades of high school)¹⁷.

The first survey, carried out in 2009, comprised a sample of 63,411 students, selected from the public and private networks of the 26 Brazilian state capitals and the Federal District¹⁸. It used the cluster sampling system, and the school was the main sampling unit. Then, up to two classes of the ninth grade were selected randomly, ranging in relation to the size of the school. All students in the selected class were invited to participate.

The second edition of PeNSE, carried out in 2012, was composed of approximately 109,104 students and represented Brazil, the major geographic regions, capitals, and the Federal District. Based on these strata, the cluster sampling was performed in two stages; schools composed the first stage, and the classes selected in the schools composed the second stage, including students from the ninth grade¹⁹.

The third edition of PeNSE, carried out in 2015, included 102,072 students who were regularly enrolled in the ninth grade of elementary schools, in public and private schools in Brazil, in order to compose the sample of PeNSE 2015¹⁷. This sample allows the comparison with the results referring to the previous years.

The survey's data collection, in the three editions, was carried out based on a structured and self-applicable electronic survey, divided by thematic modules with a varied number of questions. The questions were formulated aiming at the best understanding of the students on the theme, and the answers were standardized according to a methodology established by the Global School-based Student Health Survey, from the World Health Organization (GSHS/WHO).

STUDY DESIGN AND POPULATION

This is an epidemiological, cross-sectional study, which analyzed data referring to the sexual and reproductive health of adolescents who composed sample 1 of PeNSE, in 2015 (n = 102,072), as well as punctual estimations of some indicators measured in the editions of 2009 (n = 63,411) and 2012 (n = 109,104), for purposes of comparison.

SEXUAL AND REPRODUCTIVE HEALTH INDICATORS

In this study, the variables used to describe the sexual behavior of adolescents, considering the three editions of the survey (2009, 2012, and 2015) were: report of sexual initiation; use of condom in the last intercourse; orientation about the prevention of pregnancy; orientation about the prevention of STI/AIDS; and orientation about obtaining condoms for free.

In 2015, the following variables were included: age at sexual initiation; number of partners; use of contraceptive methods and to prevent STIs; use of other contraceptive methods; method use to prevent pregnancy; and pregnancy among students.

Explanatory variables were also used, such as sex (male and female), region (North, Northeast, Center-West, South, and Southeast), and type of school (public and private). It is important to mention that sexual initiation indicators and counseling about the prevention of pregnancy, STI/AIDS and obtaining free condoms were estimated for all adolescents in the study; the prevalence of the other indicators only included those who gave a positive response to sexual initiation.

DATA ANALYSIS

Initially, we estimated the prevalence rates with the respective 95% confidence intervals (95%CI) for the sexual initiation indicators and use of condom in the last intercourse, in

the three editions of the survey. Then, we estimated the prevalence of receiving counseling about pregnancy, STIs and free condoms, according to the school for the three editions of the survey. Then, we estimated the prevalence of all indicators accessed in 2015, stratifying them by sex, administrative dependence of the school and region. The statistical differences were assessed using the Pearson's χ^2 test. We considered a 5% level of statistical significant, and the composition of the complex sample to obtain population estimations, using the survey module of Stata, version 14.0 (Statacorp.).

ETHICAL CONSIDERATIONS

PeNSE was approved and registered in the National Commission of Research Ethics (CONEP). It is pointed out that some measurements were taken, in order to protect the adolescents during their participation, such as the will to participate and the secrecy of their information. The school was not identified, ensuring the privacy of the participants.

RESULTS

Figure 1 presents the prevalence and the 95%CI of sexual initiation and use of condoms in the last sexual intercourse, for the three editions of the survey. There was a reduction in the prevalence of adolescents who reported having initiated their sexual life, from 30.5% (95%CI 29.9 – 31.2), in 2009, to 27.5% (95%CI – 26.7 – 28.3), in 2015 (Figure 1A). On the other hand, the use of condoms in the last intercourse also decreased, from 75.9% (95%CI 73.9 – 77.9), in 2009, to 66.2% (95%CI 65.0 – 67.2), in 2015 (Figure 1B).

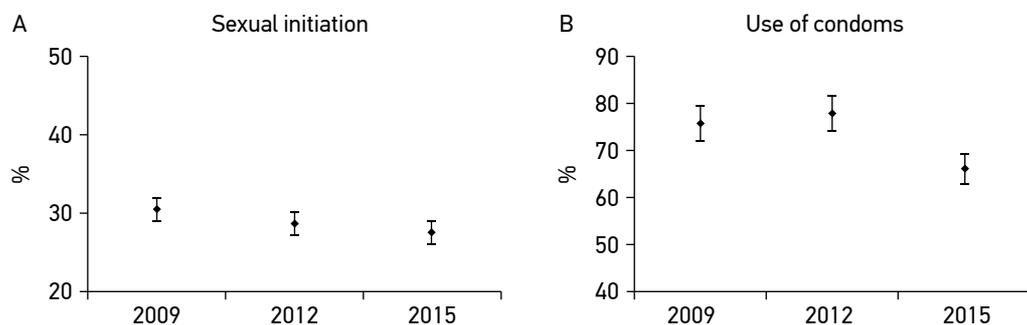
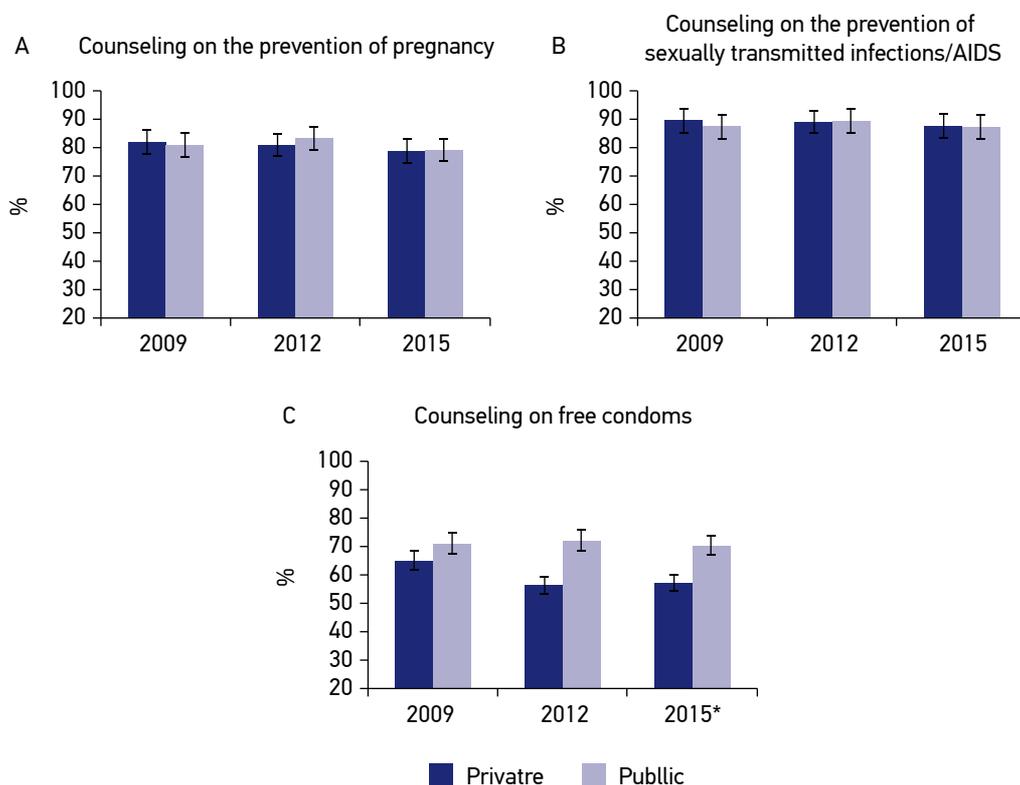


Figure 1. Prevalence and 95% confidence interval of sexual initiation (A) and use of condoms in the last sexual intercourse (B) of Brazilian students in 2009, 2012, and 2015. National School-based Health Survey.

There was a slight reduction in the prevalence of receiving some counseling over the prevention of pregnancy in the schools, especially in public schools. The prevalence was 81.1% (95%CI 80.5 – 81.8), in 2009, to 79.3% (95%CI 78.3 – 80.1), in 2015, despite the increase observed in 2012 (83.3%; 95%CI 80.6 – 86.0) (Figure 2A). The same was not observed for the counseling on STI and AIDS prevention, whose prevalence rates were very similar in the three editions (Figure 2B). Counseling regarding free condoms was lower in private schools in comparison to public schools in the three editions of the survey. Moreover, there was a reduction between 2009 and 2012, but not in 2015; 65.4% (95%CI 64.2 – 66.7), 56.7% (95%CI 49.9 – 63.5), and 57.3% (95%CI 54.6 – 60.0), respectively (Figure 2C). The small reduction observed for public schools in 2012 and 2015 was not significant; 72.3% (95%CI 68.8 – 75.7) and 70.3% (95%CI 69.3 – 71.4).

About 30% of all adolescents reported using double protection, condoms and another contraceptive method, whereas 36.1% reported using only condoms, and 8.7% only another contraceptive method, in 2015 (Figure 3). On the other hand, 19.5% did not use



* $p < 0.05$.

Figure 2. Prevalence and 95% confidence interval of receiving counseling on pregnancy (A), sexually transmitted infections/AIDS (B), and obtaining free condoms (C) per type of school in 2009, 2012, and 2015. National School-based Health Survey.

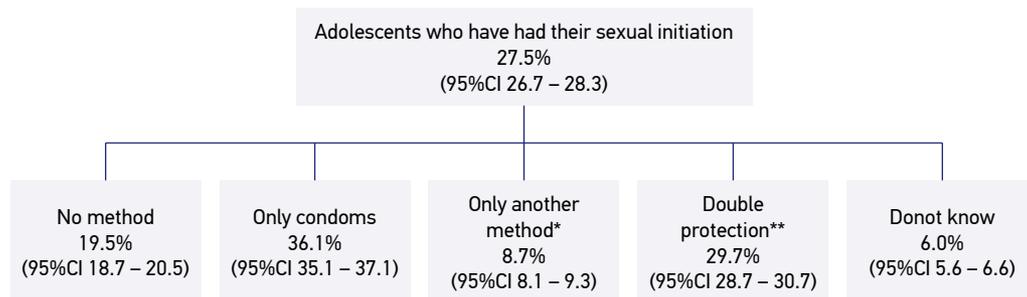
any method, and 8.7% reported using only another contraceptive method, except for condoms, in 2015.

Table 1 presents all sexual and reproductive health indicators accessed in 2015, and there were differences according to sex for all of them ($p < 0.0001$). It is important to mention that boys had higher prevalence of sexual initiation, lower use of condom in the first intercourse, lower use of a method to prevent pregnancy and STIs, and they also received less counseling about the prevention of these events in relation to girls. They also started with sexual activities earlier and presented higher number of partners than girls.

In relation to type of school, there was a higher prevalence of sexual initiation among students from public schools (29.7%), almost twice as high as that found for adolescents attending private schools (15.0%). Besides, there was higher prevalence of use of other methods besides condoms by the students in the public network, and a prevalence of history of pregnancy 3 times higher (9.4 versus 3.5%; $p = 0.002$) (Table 1).

By assessing these indicators according to country region, there was higher prevalence of sexual initiation in the North and Center-West regions, above 30%; higher use of condoms in the first sexual intercourse in the North, Northeast and South regions in 2015. Regarding the last sexual intercourse, there was higher use of a method to prevent pregnancy and STIs in the South region, and higher use of condom in the North and South of the country. There was also higher prevention of pregnancy in the South and Center-West regions.

Regarding the adolescents who already got pregnant, the North and Northeast regions stood out in this indicator, coinciding with the lower proportion of students who were advised for pregnancy prevention. There was a higher proportion of adolescents who were advised about free condoms in the Southeast, South and Center-West regions of the country (Table 2).



95%CI: 95% confidence interval; *other contraceptive methods which do not include male or female condom;

**association of the use of male or female condom with some hormonal contraceptive method.

Figure 3. Use of contraceptive methods among Brazilian adolescents. National School-based Health Survey 2015.

Table 1. Prevalence and 95% confidence intervals of sexual and reproductive health indicators among Brazilian adolescents according to sex and type of school. National School-based Health Survey, 2015.

Indicators	Brazil % (95%CI)	Sex		Type of school	
		Male % (95%CI)	Female % (95%CI)	Private % (95%CI)	Public % (95%CI)
Sexual initiation	27.5 (26.7 – 28.3)	36.0 (35.0 – 37.0)	19.6 (18.7 – 20.4)	15.0 (13.8 – 16.3)	29.7 (28.8 – 30.6)
Age of first intercourse ^a	13.2 (13.1 – 13.3)	12.9 (12.8 – 12.9)	13.7 (13.7 – 13.8)	13.0 (13.0 – 13.1)	13.2 (13.2 – 13.2)
Condom in the first intercourse ^a	61.2 (60.0 – 62.4)	56.8 (55.3 – 58.3)	68.7 (67.0 – 70.4)	62.2 (58.8 – 65.4)	61.0 (60.0 – 62.4)
Number of partners ^a	2.8 (2.7 – 2.8)	3.2 (3.2 – 3.3)	2.1 (2.1 – 2.7)	2.5 (2.5 – 2.6)	2.9 (2.9 – 2.9)
Condom in the last intercourse ^a	66.2 (65.0 – 67.2)	66.3 (64.9 – 67.6)	66.0 (64.2 – 67.7)	66.2 (62.6 – 69.6)	66.2 (66.0 – 67.3)
Method to prevent pregnancy ^a	38.7 (37.6 – 39.7)	35.2 (34.0 – 36.4)	44.7 (42.9 – 46.5)	35.8 (31.7 – 40.2)	38.9 (37.8 – 40.0)
Type of method ^b					
Birth control pill	61.5 (59.7 – 63.3)	32.3 (30.8 – 33.9)	28.2 (27.7 – 30.7)	8.0 (6.4 – 10.2)	92.0 (89.9 – 93.6)
Hormone shot	6.8 (6.0 – 7.8)	2.9 (2.4 – 3.6)	3.9 (3.4 – 4.6)	3.6 (2.3 – 5.4)	96.5 (94.6 – 97.7)
Another [*]	31.7 (29.9 – 33.5)	22.2 (20.7 – 23.7)	9.5 (8.5 – 10.5)	7.0 (5.5 – 8.9)	93.0 (91.1 – 94.6)
Previous pregnancy ^c	9.0 (8.0 – 10.0)		9.0 (8.0 – 10.0)	3.5 (1.8 – 6.6)	9.4 (8.3 – 10.5)
Counseling on pregnancy prevention	79.2 (78.5 – 80.0)	76.3 (75.3 – 77.2)	81.9 (81.1 – 82.8)	78.7 (76.6 – 80.5)	79.3 (78.5 – 80.1)
Counseling on STI/AIDS prevention	87.3 (86.7 – 87.9)	86.1 (85.5 – 86.8)	88.4 (88.0 – 89.0)	87.6 (86.2 – 88.9)	87.3 (86.6 – 87.9)
Counseling on free condoms	68.4 (67.4 – 69.4)	68.0 (66.9 – 69.2)	68.8 (67.7 – 69.9)	57.3 (54.6 – 60.0)	70.3 (69.3 – 71.4)

95%CI: 95% confidence interval; ^astudents who gave a positive response about sexual; ^bstudents who gave a positive answer to the indicator "method for preventing pregnancy" (except condom); ^cgirls who gave a positive response to sexual initiation; ^{*}another (intrauterine device, diaphragm, others); STI: sexually transmitted infections.

Tabela 2. Prevalência e intervalos de confiança de 95% de indicadores de saúde sexual e reprodutiva entre adolescentes brasileiros de acordo com a região de residência. National School-based Health Survey, 2015.

Indicators	Brazil % (95%CI)	North % (95%CI)	Northeast % (95%CI)	Southeast % (95%CI)	South % (95%CI)	Center-West % (95%CI)
Sexual initiation	27.5 (26.7 – 28.3)	36.2 (34.5 – 37.8)	27.5 (26.3 – 28.7)	25.0 (23.5 – 26.6)	28.5 (26.7 – 30.2)	30.0 (28.7 – 31.3)
Age of first intercourse ^a	13.2 (13.1 – 13.3)	13.0 (13.0 – 13.0)	13.3 (13.3 – 13.4)	13.2 (13.1 – 13.2)	13.4 (13.3 – 13.4)	13.0 (13.0 – 13.0)
Condom in the first intercourse ^a	61.2 (60.0 – 62.4)	69.0 (67.3 – 70.5)	66.0 (64.4 – 67.4)	64.0 (61.2 – 65.9)	71.1 (69.2 – 73.0)	67.5 (65.7 – 69.3)
Number of partners ^a	2.8 (2.7 – 2.8)	3.0 (3.0 – 3.1)	2.7 (2.7 – 2.8)	2.8 (2.7 – 2.8)	2.6 (2.5 – 2.7)	2.8 (2.8 – 2.9)
Condom in the last intercourse ^a	66.2 (65.0 – 67.2)	69.0 (67.3 – 70.5)	65.9 (64.4 – 67.4)	63.6 (61.3 – 65.9)	71.1 (69.2 – 73.0)	67.5 (65.6 – 69.3)
Method to prevent pregnancy ^a	38.7 (37.6 – 39.7)	36.4 (34.7 – 38.3)	38.3 (36.7 – 39.8)	37.7 (35.5 – 40.0)	43.5 (40.9 – 46.1)	40.7 (39.0 – 42.2)
Type of method ^b						
Birth control pill	61.5 (59.7 – 63.3)	6.6 (5.9 – 7.3)	15.8 (14.4 – 17.2)	23.5 (21.7 – 25.5)	10.0 (9.0 – 11.2)	5.6 (5.1 – 6.2)
Hormone shot	6.8 (6.0 – 7.8)	1.0 (0.84 – 1.29)	2.2 (1.8 – 2.6)	2.4 (1.7 – 3.3)	0.6 (0.5 – 0.9)	0.6 (0.5 – 0.7)
Another [*]	31.7 (29.9 – 33.5)	4.2 (3.8 – 4.7)	9.4 (8.6 – 10.3)	12.6 (11.0 – 14.4)	3.1 (2.6 – 3.8)	2.4 (2.0 – 2.7)
Previous pregnancy ^c	9.0 (8.0 – 10.0)	12.0 (9.9 – 14.4)	13.3 (11.3 – 15.5)	6.4 (4.6 – 8.6)	6.4 (4.9 – 8.3)	7.6 (5.9 – 9.8)
Counseling on pregnancy prevention	79.2 (78.5 – 80.0)	78.0 (76.3 – 79.6)	77.3 (76.2 – 78.4)	80.0 (78.5 – 81.3)	81.3 (79.4 – 83.0)	80.3 (78.8 – 81.6)
Counseling on STI/AIDS prevention	87.3 (86.7 – 87.9)	85.9 (84.6 – 87.0)	85.8 (84.9 – 86.6)	88.0 (86.9 – 89.0)	88.7 (87.3 – 90.0)	88.5 (87.4 – 89.5)
Counseling on free condoms	68.4 (67.4 – 69.4)	62.0 (59.9 – 64.2)	64.1 (62.7 – 65.6)	70.6 (68.6 – 72.4)	73.5 (71.0 – 75.9)	72.5 (70.7 – 74.2)

95%CI: 95% confidence interval; ^astudents who gave a positive response about sexual; ^bstudents who gave a positive answer to the indicator “method for preventing pregnancy” (except condom); ^cgirls who gave a positive response to sexual initiation; ^{*}another (intrauterine device, diaphragm, others); STI: sexually transmitted infections.

DISCUSSION

The findings in this study revealed reduced prevalence of adolescents who already had their first sexual intercourse, as well as a considerable reduction in the prevalence referring to the use of condom in the last sexual intercourse. Besides, there was a slight reduction in the counseling received on pregnancy prevention among adolescents from public schools, and lower counseling on free condoms among adolescents from private schools, by comparing the three surveys (2009, 2012, and 2015). In 2015, the data showed that boys are more prone to STIs, once they presented higher prevalence of sexual initiation, higher number of partners, and lower prevalence of condom use. The prevalence of pregnancy was three times higher among adolescents from public schools, as well as that of sexual initiation, twice as high as in students attending the private schools. The adolescents from North, Northeast and Center-West regions presented worse performance of the indicators, and the best situation of sexual and reproductive health of Brazilian adolescents was found in the South.

Currently, despite condoms being one of the most known prevention methods, encouraged by the Brazilian health system, it is possible to notice, especially from a younger audience, a reduction and significant resistance to using them^{8,15,20,21}, which corroborates findings in this study. This phenomenon is also known as condom fatigue, and has been observed in other parts of the world²¹. Moreover, the prevalence of condom use found in this study is lower than that reported by the WHO²² and slightly higher than the one reported among American young people (56.9%), even though the age groups are not completely agreeing. A national study with adults showed even lower prevalence rates of the use of the method²⁴.

The non-adherence to condoms by adolescents has been related to the low credibility of the method or to its banalization, belief in the invulnerability to infections, less sensations of pleasure, situations of social marginalization, contesting nature, non-agreement of the partner, among others^{8,15,20}, which contributes with higher incidences of STI in the population in question. There has been a gradual increase in the incidence of these infections among very young individuals, especially syphilis and HIV/AIDS^{5,6}.

The condom is the only method that provides double protection, against STIs, including HIV/AIDS, and against pregnancy. In this study, a few adolescents adopted that practice, and, among those who did not use the condom, some reported using other methods, especially the birth control pill, which reinforces the lack of belief in contracting a STI, but not necessarily of having an unwanted pregnancy^{16,25}. On the other hand, studies have also shown the disbelief in the possibility of getting pregnant at an early age, and especially in the first sexual intercourse^{20,25,26}, and that affects the non-adherence to the method.

This study showed a concentration of risk behaviors among boys. It is known that, socially, there is social pressure to prove masculinity¹⁴⁻¹⁶, and that encourages the early initiation, casual intercourse and the higher number of sexual partners. This greater vulnerability of boys must be considered when planning interventions for this specific audience, considering the lower use of condoms in this group.

Regarding pregnancy, this study pointed to a higher frequency among adolescents from public schools and living in the North, Northeast and Center-West regions. Likewise, a

heterogeneous distribution of this phenomenon was found in a study that assessed its tendency in Brazilian female adolescents, being higher and positive in the North and Northeast regions³, reinforcing the possible inequities found in this study. These characteristics could be considered as markers of worse socioeconomic status, and it has been previously demonstrated that pregnancy in adolescence is associated with low income, lower schooling, low use and knowledge of contraceptive methods^{13,26,27}.

Additionally, studies that approached girls detected they have some knowledge about the methods; however, superficially and with important gaps^{12,20,26}. They also showed that this knowledge is not sufficient to not take risks^{8,13,20,28}. The unawareness of the body and the disbelief in the possibility of getting pregnant are strong elements in this context^{20,25}. On the other hand, adolescents do not recognize the importance of protecting themselves, including from STIs^{12,26}, they do not recognize the signs and symptoms of these diseases^{12,25} and they experience a contradiction between knowing and practicing it^{8,16,25}.

The analysis of incongruency between having knowledge and not protecting oneself, as well as having free condoms available in the primary health care units and not using them, must consider that the action of taking a condom from the unit leads to the belief of showing the sexual status openly, being socially condemned, which is even stronger for girls^{16,20}. Therefore, it is important to recognize that this strategy does not guarantee the easy access to the method to that specific population^{15,16}. Girls also face other important vulnerabilities, which also point to gender inequalities, like the non-acceptance from the partner^{20,25} or the fact of believing to know the partner, or being in a stable relationship, are sufficient to avoid the contamination with a STI, or think that it is only important to prevent pregnancy, using birth control^{16,25}, making it difficult to negotiate the use of condom with the partner.

Despite the consistent high prevalence of receiving counseling regarding STIs, pregnancy and free condoms in the three editions of the survey, there was a mild reduction in the orientation about pregnancy in public schools, and lower orientation about free condoms in private schools.

Besides, there was no increase of the present coverage. It is worth to mention that it has been previously described that not receiving these counseling at school is related to higher chances of sexual initiation and unprotected sex¹⁴. On the other hand, the presence of sexual and reproductive education in the school curriculum is associated to late sexual initiation and higher frequency of protected sex⁴.

The need to maintain adolescents informed consistently regarding the means of STI/AIDS and pregnancy prevention is clear; however, it is essential to think about the quality of the information provided to that population, and about how to deliver these interventions efficiently, considering the needs of the young audience and the gender inequalities, and including younger adolescents (10 to 14 years)^{1,4,29}.

It is important to recognize that confidentiality, the continuity of actions and the development of self-responsibility regarding sexual and reproductive health need to be considered when proposing interventions for this specific population¹³. Designing friendly and effective interventions at a population level has become a great challenge¹, but it is indispensable to

improve and invest in the quality of the services and actions provided to that age group, as well as the investments made in mother-child health.

This study presents some limitations, such as the memory bias, because some questions require data from the adolescents' memory. Thus, it is important to recognize that adolescents tend to not respond properly to questions related to this theme; however, the use of anonymous and auto-fill questionnaires tends to reduce that bias. The differences of representativeness of the sample of each edition of the survey is also important because it improved throughout the period. Therefore, the comparisons must be interpreted carefully.

On the other hand, we believe this study present advances regarding the fact that it highlights the reduction in the use of condoms throughout the years, as well as in the counseling provided to adolescents about the prevention of pregnancy, STIs and free condoms, especially in the private network of education. It also highlights the great relevance of the survey and its repetitions in intervals of time as an essential instrument to monitor risk and protective factors for Brazilian adolescents, strengthening health surveillance strategies. Finally, it shows the need to encourage interventions that are addressed to specificities of such a population, respecting its special features and subjectivities, thus contributing for the genesis of new and more effective public policies.

CONCLUSION

This study showed important phenomena in the behavior of young Brazilian adolescents, such as the reduction of sexual initiation and the use of condoms, the higher vulnerability to STIs among boys and the higher occurrence of pregnancy among adolescents from public schools. It also pointed to the worse performance of indicators among adolescents living in the North, Northeast and Center-West regions, reinforcing the need to invest in sexual and reproductive education, considering these specificities, with more attractive and empathetic strategies.

The school is an essential location for the transmission of content on sexual initiation, use of condoms, prevention of STIs, among others. There is no place for setbacks nor the restriction of these important themes due to religious reasons or gender prejudice.

Thus, schools and health services can be great allies in order to minimize risks and provide protection to health, insurance of rights and greater autonomy in the choices regarding contraception, as early as possible.

ACKNOWLEDGMENTS

Malta DC thanks Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPQ) for the productivity scholarship; Machado IE thanks CNPQ for the junior post-doctoral scholarship; Paula TF thanks Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) for the master's scholarship (social demand).

REFERENCES

1. Chandra-Mouli V, Svanemyr J, Amin A, Fogstad H, Say L, Girard F, et al. Twenty years after International Conference on Population and Development: where are we with adolescent sexual and reproductive health and rights? *J Adolesc Health*. 2015; 56: S1-6. <https://doi.org/10.1016/j.jadohealth.2014.09.015>
2. Caffè S, Plesons M, Camacho AV, Brumana L, Abdool SN, Huaynoca S, et al. Looking back and moving forward: can we accelerate progress on adolescent pregnancy in the Americas? *Reprod Health*. 2017; 14: 83-91. <https://dx.doi.org/10.1186%2Fs12978-017-0345-y>
3. Borges ALV, Chofakian CBN, Sato APS, Fujimori E, Duarte LS, Gomes MN. Fertility rates among very young adolescent women: temporal and spatial trends in Brazil. *BMC Pregnancy Childbirth*. 2016; 16: 57. <https://dx.doi.org/10.1186%2Fs12884-016-0843-x>
4. Li C, Cheng Z, Wu T, Liang X, Gaoshan J, Li L, et al. The relationships of school-based sexuality education, sexual knowledge and sexual behaviors—a study of 18,000 Chinese college students. *Reprod Health*. 2017; 14: 103. <https://doi.org/10.1186/s12978-017-0368-4>
5. Brasil. Boletim Epidemiológico HIV/Aids. Brasília: Ministério da Saúde, Secretaria de Vigilância em Saúde, PN de DST e AIDS; 2016. n. 1, v. 48.
6. Brasil. Boletim Epidemiológico Sífilis. Brasília: Ministério da Saúde, Secretaria de Vigilância em Saúde, PN de DST e AIDS; 2016. ano V, n. 35, v. 47.
7. Mokdad AH, Forouzanfar MH, Daoud F, Mokdad AA, El Bcheraoui C, Moradi-Lakeh M, et al. Global burden of diseases, injuries, and risk factors for young people's health during 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet*. 2016; 387: 2383-401. [https://doi.org/10.1016/S0140-6736\(16\)00648-6](https://doi.org/10.1016/S0140-6736(16)00648-6)
8. Costa ACPJ, Lins AG, Araújo MFM, Araújo TM, Amaral Gubert F, Vieira NFC. Vulnerabilidade de adolescentes escolares às DST/HIV, em imperatriz-maranhão. *Rev Gaúcha Enferm*. 2013; 34: 179-86.
9. Gore FM, Bloem PJ, Patton GC, Ferguson J, Joseph V, Coffey C, et al. Global burden of disease in young people aged 10–24 years: a systematic analysis. *Lancet*. 2011; 377(9783): 2093-102. [https://doi.org/10.1016/S0140-6736\(11\)60512-6](https://doi.org/10.1016/S0140-6736(11)60512-6)
10. Domingues CMAS, Maranhão AGK, Pinto MFS. The introduction of HPV vaccines in Brazil: advances and challenges. *J Bras Doenças Sex Transm* [Internet]. 2015 [citado em 24 set. 2017]; 27: 67-72. Disponível em: http://www.dst.uff.br/revista27-3-4-2015/DST_v27n3-4_IN_67-72.pdf <https://doi.org/10.5533/DST-2177-8264-2015273401>
11. Quevedo JP, Inácio M, Wiczorkiewicz AM, Invernizzi M. A política de vacinação contra o HPV no Brasil: a comunicação pública oficial e midiática face à emergência de controvérsias. *Rev Tecnologia Sociedade*. 2016; 12: 1-26. <http://dx.doi.org/10.3895/rt.v12n24.3206>
12. Ferreira JPT, Miranda TM, Baroni ALLR. Conhecimento sobre as DST entre adolescentes escolares em Vespasiano, Minas Gerais. *Adolesc Saúde*. 2016; 13: 51-9.
13. Moura LNB, Gomes KRO, Rodrigues MTP, Oliveira DC. Informação sobre contracepção e sexualidade entre adolescentes que vivenciaram uma gravidez. *Acta Paul Enferm*. 2011; 24: 320-6. <http://dx.doi.org/10.1590/S0103-21002011000300003>
14. Oliveira-Campos M, Nunes ML, Madeira FC, Santos MG, Bregmann SR, Malta DC, et al. Comportamento sexual em adolescentes brasileiros, Pesquisa Nacional de Saúde do Escolar (PeNSE 2012). *Rev Bras Epidemiol*. 2014; 17: 116-30. <http://dx.doi.org/10.1590/1809-4503201400050010>
15. Santos CP, Barboza ECS, Freitas NO, Almeida JC, Dias AC, Araújo EC. Adesão ao uso do preservativo masculino por adolescentes escolares. *Rev Bras Pesq Saúde*. 2016; 18: 60-70. <https://doi.org/10.21722/rbps.v18i2.15085>
16. Oliveira LDFR, Nascimento EGC, Pessoa Júnior JM, Cavalcanti MAF, Miranda FAN, Alchieri JC. Adesão de adolescentes à camisinha masculina. *Rev Pesq Cuidado Fundamental Online* [Internet]. 2015 [citado em 24 set. 2017]; 7: 1765-73. Disponível em: http://www.seer.unirio.br/index.php/cuidadofundamental/article/view/3467/pdf_1319 <https://doi.org/10.9789/2175-5361.2015.v7i1.1765-1773>
17. Instituto Brasileiro de Geografia e Estatística. Pesquisa Nacional de Saúde do Escolar 2016. Rio de Janeiro: IBGE; 2016.
18. Instituto Brasileiro de Geografia e Estatística. Pesquisa Nacional de Saúde do Escolar 2009. Rio de Janeiro: IBGE; 2010.
19. Instituto Brasileiro de Geografia e Estatística. Pesquisa Nacional de Saúde do Escolar 2012. Rio de Janeiro: IBGE; 2013.
20. Silva MRB, Silva LA, Maturana HCA, Silva RB, Santos ME, Figueiredo Filho V. Por que elas não usam?: um estudo sobre a não adesão das adolescentes aos métodos contraceptivos e suas repercussões. *Saúde Redes* [Internet]. 2015 [citado em 24 set. 2017]; 1: 75-83. Disponível em: <http://revista.redeunida.org.br/ojs/index.php/rede-unida/article/view/633> <http://dx.doi.org/10.18310%2F2446-4813.2015v1n4p75-83>

21. Dourado I, MacCarthy S, Reddy M, Calazans G, Gruskin S. Revisiting the use of condoms in Brazil. *Rev Bras Epidemiol* [Internet]. 2015 [citado em 24 set. 2017]; 18: 63-88. Disponível em: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1415-790X2015000500063 <http://dx.doi.org/10.1590/1809-4503201500050006>
22. World Health Organization. Social determinants of health and well-being among young people. *Health Behaviour in School-aged Children (HBSC) study: international report from the 2009/2010 survey*. Copenhagen: WHO Regional Office for Europe; 2012. *Health Policy for Children and Adolescents*, 6.
23. Kann L. Sexual identity, sex of sexual contacts, and health-related behaviors among students in grades 9–12—United States and selected sites, 2015. *MMWR* [Internet]. 2016 [citado em 24 set. 2017]; 65. Disponível em: <https://www.cdc.gov/mmwr/volumes/65/ss/pdfs/ss6509.pdf>
24. Kerr LR, Mota RS, Kendall C, Pinho AD, Mello MB, Guimarães MD, et al. HIV among MSM in a large middle-income country. *AIDS*. 2013; 27: 427-35. <http://dx.doi.org/10.1097/QAD.0b013e32835ad504>
25. Dias FLA, Silva KLD, Vieira NFC, Pinheiro PNDC, Maia CC. Riscos e vulnerabilidades relacionados à sexualidade na adolescência. *Rev Enferm UERJ* [Internet]. 2010 [citado em 24 set. 2017]; 18: 456-61. Disponível em: <http://www.facenf.uerj.br/v18n3/v18n3a21.pdf>
26. Santos CAC, Nogueira KT. Gravidez na adolescência: falta de informação? *Adolesc Saúde*. 2009; 6: 48-56.
27. Leite IDC, Rodrigues RDN, Fonseca MDC. Fatores associados com o comportamento sexual e reprodutivo entre adolescentes das regiões Sudeste e Nordeste do Brasil. *Cad Saúde Pública*. 2004; 20: 474-81. <http://dx.doi.org/10.1590/S0102-311X2004000200015>
28. González MA, Fernández MEV, Urturi AF, Moreno MFM, Molinero LR, Hernando CG. Hábitos sexuais en los adolescentes de 13 a 18 años. *Pediatría Atención Primaria*. 2015; 17: 217-25.
29. Campos HM, Schall VT, Nogueira MJ. Saúde sexual e reprodutiva de adolescentes: interlocuções com a Pesquisa Nacional de Saúde do Escolar (PeNSE). *Saúde Debate*. 2013; 37: 336-46.

Received on: 10/22/2017

Final version presented on: 01/11/2018

Accepted on: 01/30/2018

