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## SEXUALLY TRANSMITTED DISEASES: KNOWLEDGE AND SEXUAL BEHAVIOR OF ADOLESCENTS

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### ABSTRACT

**Objective:** to evaluate the sexual knowledge and behavior of adolescents about Sexually Transmitted Diseases.

**Method:** a descriptive, observational and quantitative study with a convenience sample of 532 adolescents aged between 10 and 19 years old. An individual questionnaire on sexually transmitted diseases was applied. The STATA 11.1 program was used for data analysis.

**Results:** 89.2% of the teenage girls and 90.3% of the teenage boys were able to properly define the concept of a STD. Condom use is the most efficient method for STD prevention for 98.5% of the girls and 98.9% of the boys. However, 37.1% of the girls and 30.5% of the boys mentioned the use of contraceptives as a preventive method for sexually transmitted diseases.

**Conclusion:** it is important to carry out educational actions together with schools on topics such as sexuality and reproductive health.

**DESCRIPTORS:** Adolescent. Sexually transmitted diseases. Sexual and reproductive rights. Sex education. Nursing.

## DOENÇAS SEXUALMENTE TRANSMISSÍVEIS: CONHECIMENTO E COMPORTAMENTO SEXUAL DE ADOLESCENTES

### RESUMO

**Objetivo:** avaliar o conhecimento e comportamento sexual de adolescentes sobre doenças sexualmente transmissíveis.

**Método:** estudo descritivo, observacional, de caráter quantitativo, com amostra por conveniência de 532 adolescentes entre 10 e 19 anos. Aplicou-se um questionário individual sobre doenças sexualmente transmissíveis. Para a análise dos dados utilizou-se o programa STATA 11.1.

**Resultados:** 89,2% das meninas e 90,3% dos meninos souberam definir adequadamente o conceito de doenças sexualmente transmissíveis; para 98,5% das meninas e 98,9% dos meninos o uso de preservativo é o método mais eficaz para prevenção dessas doenças. Entretanto, 37,1% das meninas e 30,5% dos meninos referiram o uso de anticoncepcional como método preventivo para doenças sexualmente transmissíveis.

**Conclusão:** torna-se salutar a realização de ações educativas junto à escola sobre temas como sexualidade e saúde reprodutiva.

**DESCRIPTORIOS:** Adolescente. Doenças sexualmente transmissíveis. Direitos sexuais e reprodutivos. Educação sexual. Enfermagem.

# ENFERMEDADES DE TRANSMISIÓN SEXUAL: EL CONOCIMIENTO Y COMPORTAMIENTO SEXUAL DE LOS ADOLESCENTES

## RESUMEN

**Objetivo:** evaluar el conocimiento y comportamiento sexual de los adolescentes acerca de Enfermedades de Transmisión Sexual.

**Metodo:** estudio descriptivo, observacional, cuantitativo, con muestra de conveniencia con 532 adolescentes entre 10 y 19 años. El cuestionario fue administrado sobre ETS. Para el análisis de los datos se utilizó el programa STATA11.1. El proyecto fue aprobado por el.

**Resultados:** 89,2% de las chicas y el 90,3% de los chicos supieron definir adecuadamente el concepto de ETS; 98,5% de las chicas y 98,9% de los chicos el uso del preservativo es el método más eficaz para la prevención. Sin embargo, el 37,1% de las chicas y el 30,5% de los chicos reportaron el uso de anticonceptivos como método preventivo.

**Conclusion:** es saludable la realización de acciones educativas junto a la escuela sobre temas tales como la sexualidad y la salud reproductiva.

**DESCRIPTORES:** Adolescente. Enfermedades de transmisión sexual. Derechos sexuales y reproductivos. Educación sexual. Enfermería.

## INTRODUCTION

Adolescence is a period marked by biopsychosocial changes in which one's peers gain importance and sexuality is more exacerbated. Adolescents may experience unsafe sexual practices due to lack of information, lack of communication with relatives due to taboos or fear of sharing their sexual experiences with the family.<sup>1</sup>

The transition from childhood to adulthood is characterized by a period of distancing from behaviors and privileges typical of childhood. It leads to psychological maturation where the personality is structured in searching for an identity and acquisition of adult characteristics, in addition to economic independence and moving out of their parents' house. These changes often generate crises, conflicts and contradictions, but they are essentially positive for biopsychosocial maturation. It is considered a moment of great vulnerability due to the new aspirations that arise in this period.<sup>2-3</sup>

In this context, we can highlight the issue of Sexually Transmitted Diseases (STDs) and the importance of discussing this with groups of adolescents. According to a study<sup>4</sup> that sought results regarding teenagers' knowledge of STDs, it was revealed that on average they knew of five to six sexually transmitted diseases, with AIDS being the most cited (92.2%). However, the same study showed no knowledge regarding syphilis (35.6%), genital herpes (33.3%), gonorrhea (30.0%) and HPV (27.2%).

Another study<sup>5</sup> identified that 100% of adolescents investigated were aware that STD transmission occurred through sexual intercourse. Moreover, 63.0% of these adolescents cited the use of condoms as the most appropriate method for prevention, although the use of the contraceptive pill (28.3%) and the morning-after pill (5.6%) were cited as (prevention) methods.

One study<sup>6</sup> reports that having multiple partners may increase the risk of acquiring STDs. However, despite participants of a different study<sup>7</sup> being aware about this subject, they presented risky behaviors evidenced by the early onset of sexual activities, multiplicity of partners and use of alcoholic beverages.

We believe that educational actions can play an important role throughout adolescence, since they provide information and the opportunity to exchange experiences about healthy sexual activity. A corroborating study conducted over a decade ago<sup>8</sup> reported that sex education programs performed by empathic educators with specific training in the subject can increase knowledge about sexuality, as well as promote safer sex practices among adolescents. It is worth emphasizing that the Ministry of Health recommends that healthy sexual and reproductive education in addition to STD prevention education are offered to students in the final years of elementary and middle school.<sup>9</sup>

In view of the above, we propose the following research question: what is the sexual knowledge and sexual behavior of adolescents about sexually transmitted diseases? Thus, we aimed to evaluate the sexual knowledge and sexual behavior of adolescents about sexually transmitted diseases.

## METHOD

This is a descriptive study using a quantitative and observational approach with convenience sampling. The study population was comprised of 1,011 students from a municipal school in the south of Rio Grande do Sul, Brazil. Data were collected in July 2014. Inclusion criteria were: being enrolled and attending the 7<sup>th</sup> and 8<sup>th</sup> grades of middle school or in high school; and being between 10 and 19 years old.

The applied instrument was a self-administered, anonymous, pre-coded questionnaire based

on the questionnaire from the research "Knowledge, practice and behaviors" of the Ministry of Health<sup>10</sup>, divided into three blocks represented by sociodemographic data, behavioral data and knowledge about STDs. The questionnaire was applied in the classroom with prior authorization from parents, the school's directors and teachers. After reviewing and coding the data, data were double-entered into the EXCEL® program with consistency checking, and then transferred to the STATA® 11.1 program for analysis.

As this study was based on the questionnaire by the Ministry of Health<sup>10</sup>, the variables were distributed according to the blocks indicated in this publication. Sociodemographic variables studied were age, gender, schooling and income. The income variable considered the national minimum wage, which at the time of the study was R\$724.00.

For the behavioral data, variables of age at first sexual intercourse, condom use in the first and last encounters, number of sexual partners in the last year and being responsible for the prevention of STDs were considered. In order to evaluate knowledge about STDs, questions from the Knowledge block were used, including the definition of STDs, diseases that are considered sexually transmissible, those that have a cure, means of infection, prevention methods and sources of information on STDs. The variables age, gender, number of partners in the last year and age at first sexual intercourse were described by mean and standard deviation. Categorical variables were described by absolute and relative frequencies.

The outcome Knowledge was considered appropriate for those who defined STD as "a disease transmitted through sexual intercourse (vaginal, oral, anal) with people infected by STDs." The most well-known STDs considered were HIV/AIDS, syphilis, HTLV - Human T-Lymphotropic Virus, HPV - Human Papilloma Virus, herpes, gonorrhea, PID - Pelvic Inflammatory Disease, trichomoniasis, chlamydia, donovanosis, venereal lymphogranuloma, chancroid, and viral hepatitis.

Regarding a question on which STDs are curable, responses considered acceptable were syphilis, HPV, gonorrhea, PID, trichomoniasis, chlamydia, donovanosis, venereal lymphogranuloma, chancroid and viral hepatitis. Regarding transmission forms, the responses considered were vaginal intercourse, oral intercourse, anal intercourse, use of shared syringes, piercing, tattooing, manicure, breastfeeding and blood transfusion. As for STD

prevention methods, the expected response was the use of condoms.

Pearson's chi-square test or Fisher's exact test were used to evaluate the association between categorical variables. Statistically significant values were those that presented a value of  $p < 0.05$ , thus constituting a level of significance of 95%.

The study development was approved by the Research Ethics Committee under Opinion number 702.277, and met the ethical precepts of research involving humans according to Resolution 466/12. Parents and/or guardians were required to sign the Free and Informed Consent Form (ICF) for the participants in the case of minors (under 18), and students were required to sign the Assignment Term. In the case of participants of legal age (over 18), only the students were asked to sign the ICF.

## RESULTS

Among the eligible population, 945 were attending school at the time of the survey. A total of 610 students answered the questionnaire, however a total of 532 students were included in the study following the pre-established inclusion criteria, as 78 students were above 19 years of age. Among those who did not respond to the questionnaire, 25 refused, 146 were not in the classroom at the time of applying the survey questionnaire, and the remaining 164 students did not submit the ICFs duly signed by their parents.

There was a predominance of females with 65.2%. The mean age was  $15.2 \pm 1.96$  years. Regarding skin color, there was a predominance of Caucasian ethnicity with 70.9%. A total of 97.1% reported being single. Of the 532 participating adolescents, 51.9% were enrolled in the 7<sup>th</sup> and 8<sup>th</sup> grades of middle school and 48.1% were in high school. Out of the total sample of adolescents, 16.1% worked; regarding family income distribution, 21.1% had income of up to 1 minimum wage; 55.2% between 1 and 3; 16.3% between 3 and 5; and 7.4% reported family income greater than 5 minimum wages.

Table 1 shows that 36.6% of the girls and 43.3% of the boys among the participants had already had sex. The first sexual intercourse occurred for girls at an average of 14.8 years of age  $\pm 1.5$  years, and the median was 15 years; and average sexual initiation for the boys was at 14.4 years  $\pm 1.5$  years, and the median was 15 years. Of the total, four had no partner in the previous year; 162 had one to five and 18 had six partners or more in the last year, with an

average of  $2.5 \pm 3.7$  partners in the previous year. Condom use during the first intercourse was mentioned by 72.1% of the girls and 74.0% of the boys, whereas 55.4% of the girls and 76.3% of the boys had continued to use one in the last sexual intercourse.

Regarding responsibility for preventing of STD, 96.6% believed that it was the responsibility of both men and women; 2.0% reported it being the responsibility of man; 0.8% thought it was the responsibility of women; and 0.6% did not respond.

**Table 1 - Behavioral variables related to age at the time of their first sexual intercourse, use of condoms in the first and last intercourse, and responsibility for STD prevention. Pelotas-RS, Brazil, 2014**

Variable	Gender				P*
	Female		Male		
	n	%	n	%	
Had sexual intercourse (n=519)					0.1
Yes	124	36.6	78	43.3	
No	215	63.4	102	56.7	
Age at first sexual intercourse (n=187)					0.2
Up to 13 years of age	17	14.8	17	23.6	
14 to 16 years of age	84	73.0	51	70.8	
17 to 18 years of age	14	12.2	4	5.6	
Number of partners in the previous year (n=184)					0.5
None	2	1.7	2	3.1	
1 to 5 partners	113	94.2	49	76.6	
6 or more partners	5	4.1	13	20.3	
Used a condom in first sexual intercourse (n=199)					0.9
Yes	88	72.1	57	74.0	
No	32	26.2	19	24.7	
Not sure/Did not respond	2	1.7	1	1.3	
Used a condom in the last sexual intercourse (n=201)					0.01
Yes	67	55.4	61	76.3	
No	51	42.1	17	21.2	
The person responsible for STD prevention (n=520)					0.9
Women	2	0.6	2	1.1	
Men	6	1.8	4	2.2	
Both	329	97.0	174	96.1	
Not sure	2	0.6	1	0.6	

\* Chi-square test.

Table 2 identifies that 89.2% of the girls and 90.3% of the boys adequately defined STD as a sexually transmitted disease (vaginal, anal or oral) with a partner infected by the disease; however, there was no statistically significant difference between the knowledge of teenage girls and boys ( $P=0.7$ ).

A total of 2.9% of the girls and 4.6% of the boys considered the definition of a STD as a disease transmitted by the contact of hands, kisses, hugs, sharing of personal objects and shared use of toilets

with people infected by a STD; 7.6% of girls and 5.1% of boys reported that both statements were correct definitions for STDs; and only 0.3% of girls were not sure how to respond.

When questioned about which STDs they knew, 78.0% of girls and 89.3% of boys had adequate knowledge regarding which diseases are considered STDs, and the boys knew more STDs than the girls ( $P=0.002$ ).

**Table 2 - Variables grouped by responses considered appropriate regarding the adolescents' knowledge about STDs. Pelotas-RS, Brazil, 2014**

Variable	Gender				P*
	Female		Male		
	n	%	N	%	
Can define STD (n=516)					0.7
No	37	10.8	17	9.7	
Yes	304	89.2	158	90.3	
Know STDs (n=522)					0.002
No	75	22.0	19	10.7	
Yes	266	78.0	158	89.3	
Can identify diseases that are curable (n=469)					0.02
No	222	73.7	95	62.9	
Yes	79	26.3	56	37.1	
Recognizes forms of infection/transmission (n=511)					0.15
No	205	61.9	95	55.2	
Yes	126	38.1	77	44.8	
Understands forms of prevention (n=518)					0.03
No	200	58.6	85	48.6	
Yes	141	41.4	90	51.4	

\* Chi-square test.

Table 3 shows the stratification by gender and school year regarding STDs that adolescents knew and believed to be curable. The most mentioned diseases by the participants were Acquired Immunodeficiency Syndrome (AIDS), herpes; gonorrhoea; Human Papilloma Virus (HPV); syphilis and viral hepatitis. A statistically significant difference was observed for education level in

both genders regarding the knowledge of syphilis (P=0.001); only for girls (P=0.04) regarding HPV; only for boys (P=0.006) regarding gonorrhoea; and only for girls (P<0.001) regarding viral hepatitis. The existence of chancroid was reported by a small number of participants, with a significant difference for both genders (P=0.02 for girls and P=0.03 for boys).

**Table 3 - Sexually transmitted diseases that adolescents reported knowing and believed to be curable, stratified by gender and school year. Pelotas-RS, Brazil, 2014**

Variable	Girls					Boys				
	7 <sup>th</sup> and 8 <sup>th</sup> grades		High school			7 <sup>th</sup> and 8 <sup>th</sup> grades		High school		
	n	%*	n	%*	P†	n	%*	n	%*	P†
Known STDs (n=522)										
Aids	159	98.2	177	97.8	0.8‡	104	96.3	69	97.2	0.9‡
Syphilis	58	35.8	108	59.7	<0.001	20	18.5	42	59.2	<0.001
HTLV	15	9.3	8	4.4	0.1‡	11	10.2	4	5.6	0.4‡
HPV	112	69.1	106	58.6	0.04	39	36.1	29	40.9	0.5
Herpes	107	66.1	135	74.6	0.1	52	48.2	42	59.2	0.2
Gonorrhoea	86	53.1	113	62.4	0.08	46	42.6	45	63.4	0.006

Variable	Girls					Boys				
	7 <sup>th</sup> and 8 <sup>th</sup> grades		High school			7 <sup>th</sup> and 8 <sup>th</sup> grades		High school		
	n	%*	n	%*	P†	n	%*	n	%*	P†
PID	14	8.6	19	10.5	0.6‡	11	10.2	7	9.9	0.9‡
Trichomoniasis	7	4.3	10	5.5	0.6‡	3	2.8	4	5.6	0.4‡
Chlamydia	10	6.2	13	7.2	0.8‡	5	4.6	1	1.4	0.4‡
Donovanosis	3	1.8	2	1.1	0.7‡	3	2.8	0	0.0	0.3
Lymphogranuloma Venereal	3	1.8	7	3.9	0.3‡	4	3.7	1	1.4	0.6‡
Mycoplasma	9	5.6	15	8.3	0.4	4	3.7	2	2.8	0.9‡
Urethroma	6	3.7	7	3.9	0.9‡	4	3.7	4	5.6	0.7‡
Chancroid	11	6.8	26	14.4	0.02	10	9.3	15	21.1	0.03
Viral hepatitis	39	24.1	81	44.8	<0.001	21	19.4	21	29.6	0.12
Mononucleosis	30	18.5	25	13.8	0.2	8	7.4	5	7.0	0.9‡
STDs that are curable (n=469)										
Aids	40	28.0	22	13.3	0.001	23	24.2	16	24.6	0.9
Syphilis	33	18.2	59	35.5	0.001	16	16.8	28	43.1	<0.001
HTLV	9	6.3	6	3.6	0.3	5	5.3	2	3.1	0.7‡
HPV	52	36.4	37	22.3	0.006	16	16.8	20	30.8	0.04
Herpes	79	55.2	89	53.6	0.8	34	35.8	34	52.3	0.04
Gonorrhea	50	35.0	70	42.2	0.2	31	32.6	32	49.2	0.04
PID	13	9.1	13	7.8	0.7	9	9.5	3	4.6	0.4‡
Trichomoniasis	3	2.1	5	3.0	0.7‡	4	4.2	3	3.1	0.9‡
Chlamydia	7	4.9	7	4.2	0.8	2	2.1	5	7.7	0.1‡
Donovanosis	4	2.8	2	1.2	0.4‡	3	3.2	1	1.5	0.6‡
Lymphogranuloma Venereal	1	0.7	2	1.2	0.8‡	5	5.3	1	1.5	0.4‡
Mycoplasma	3	2.1	4	2.4	0.9‡	5	5.3	1	1.5	0.4‡
Urethroma	2	1.4	5	3.0	0.5‡	3	3.2	2	3.1	0.9‡
Chancroid	6	4.2	13	7.8	0.2	13	13.7	7	10.8	0.6‡
Viral hepatitis	13	9.1	49	29.5	<0.001	22	23.2	15	23.1	0.9‡
Mononucleosis	11	7.7	13	7.8	0.9	5	5.3	3	4.6	0.9‡

\* More than one option of answers: sums of the proportions of the categories above 100%; † Chi-square test; ‡ Fisher's exact test.

Table 2 shows that knowledge regarding STDs that have a cure was adequate for 26.3% of the girls and 37.1% of the boys, presenting a statistically significant difference between both genders ( $P=0.02$ ). Among the diseases that can be curable (Table 3), herpes stood out with 55.2% of the girls in the 7<sup>th</sup> and 8<sup>th</sup> grades and 53.6% of high school girls, with no statistical significance ( $P=0.8$ ). Among the boys, 35.8% of those in the 7<sup>th</sup> and 8<sup>th</sup> grades and 52.3% of those in high school reported that herpes had a cure, and this knowledge was statistically significant ( $P=0.04$ ). Knowledge about STDs that have a cure also presented significant data among the girls for syphilis ( $P=0.001$ ), HPV ( $P=0.006$ ), and hepatitis ( $P<0.001$ ).

Regarding the forms of infection/transmission presented in Table 2, 38.1% of the girls and 44.8% of the boys were aware of correct forms of infection/transmission. No statistically significant differences were found between the gender ( $P=0.15$ ), and 41.4% of the girls and 51.4% of the boys knew the proper way to prevent STDs, which was a statistically significant difference ( $P=0.03$ ).

Table 4 shows that there was a statistical difference between the school years only for inadequate prevention methods, such as contraceptive pill use for girls ( $P=0.001$ ), and non-sharing of objects for girls ( $P=0.003$ ) and boys ( $P=0.05$ ).

**Table 4 - Variables of adolescents' knowledge regarding forms of infection/transmission and methods to prevent STDs, stratified by gender and school year. Pelotas-RS, Brazil, 2014**

	Girls					Boys				
	7 <sup>th</sup> and 8 <sup>th</sup> grades		High school			7 <sup>th</sup> and 8 <sup>th</sup> grades		High school		
	n	%*	n	%*	P†	n	%*	n	%*	P†
Forms of transmission										
Vaginal intercourse	141	89.2	168	93.9	0.2	90	87.4	66	93.0	0.3
Oral sex	106	67.1	124	69.3	0.7	69	67.0	52	73.2	0.4
Anal sex	112	70.9	132	73.7	0.6	74	71.8	51	71.8	0.9
Shared Syringes	119	75.3	131	73.2	0.7	64	62.1	51	71.8	0.2
Piercing	39	24.7	58	32.4	0.15	22	21.4	19	26.8	0.5
Tattoo	44	27.9	66	36.9	0.07	26	25.2	22	31.0	0.4
Manicure	54	34.2	70	39.1	0.4	28	27.2	23	32.4	0.8
Breastfeeding	30	19.0	35	19.6	0.9	17	16.5	12	16.9	0.9
Blood donation	61	38.6	84	46.9	0.15	44	42.7	30	42.3	0.9
Blood transfusion	52	32.9	68	38.0	0.3	33	32.0	24	33.8	0.9
Sharing of contaminated objects	39	24.7	54	30.2	0.3	22	21.4	14	19.7	0.8
Using the same toilet	17	10.8	23	12.9	0.6	5	4.9	6	8.5	0.35
Kissing on the mouth	35	22.2	33	18.4	0.4	22	21.4	12	16.9	0.6
Hug or handshake	3	1.9	8	4.5	0.2	3	2.9	2	2.8	0.9
Methods for STD prevention										
Using condoms	160	98.8	177	98.3	0.9	103	98.1	71	100.0	0.5
Using contraceptive pills	77	47.5	50	27.8	<0.001	39	37.1	17	23.9	0.07
Not sharing objects	36	22.2	67	37.2	0.003	18	17.1	21	29.6	0.05
Not using the same toilet	10	6.2	16	8.9	0.4	0	0.0	7	9.9	0.001‡

\* More than one option of answers: sums of the proportions of the categories above 100%; † Chi-square test; ‡ Fisher's exact test.

Table 5 below shows that girls (69.4%) talked about sexuality with their mothers more than boys (44.5%). The same statistical significance was found between mothers and fathers ( $P < 0.001$ ). The school/teachers presented very low rates of being open to discuss sexuality issues with adolescents, being mentioned only by 7.2% of girls and 10.3% of boys, not presenting statistical significance. Nonetheless,

school/teachers were reported by 60.4% of the girls and 54.3% of the boys as a source of information on STDs, however with no statistical significance between genders. Parents and school stand out as sources of information that adolescents seek to learn about STDs, with statistical significance only for mothers and fathers ( $P = 0.01$  and  $P < 0.001$ , respectively).

**Table 5 - Variables of adolescents' knowledge and sexual behavior related to whom they talk about sex with and what sources of information they seek about STDs. Pelotas-RS, Brazil, 2014.**

Variables	Gender				P†
	Female		Male		
	n	%*	n	%*	
With whom they talked about sex (n=463)					
Mother	213	69,4	69	44,5	<0,001
Father	42	13,7	50	32,3	<0,001
Siblings	45	14,7	23	14,8	0,95
Friends	166	54,1	85	54,8	0,9
Boyfriend or girlfriend	58	18,9	24	15,5	0,4
School/teachers	22	7,2	16	10,3	0,25
Health services	14	4,6	2	1,3	0,07
Who informed them about STDs (n=516)					
Mother	238	69,8	101	57,7	0,01
Father	84	24,6	74	42,3	<0,001
Siblings	36	10,6	22	12,6	0,6
Friends	88	25,8	37	21,1	0,2
Boyfriend or girlfriend	27	7,9	14	8,0	0,9
School/teachers	206	60,4	95	54,3	0,2
Health services	110	32,3	55	33,1	0,8
Newspaper/magazine	130	38,1	54	30,9	0,1

\* More than one option of answers: sums of the proportions of the categories above 100%; † Chi-square test

## DISCUSSION

About 21 million adolescents live in Brazil, thus there is a need for investment in the educational area in order for these adolescents to acquire knowledge, skills and abilities to develop to their full potential.<sup>11</sup> In addition, investments in health care, protection and inclusion of these adolescents in the labor market are also essential for developing this segment of the population.

Adolescence is a period when adolescents undergo biopsychosocial modifications, while at the same time they feel the need to have new experiences which can make them vulnerable to STD infections.<sup>3,12</sup> Exercising sexuality in adolescence continues to be treated by many as an activity of vulnerability due to inadequate protection, often associated with STDs,<sup>13</sup> and considered as one of the world's public health problems.<sup>14</sup>

The results of this study point out that there are still doubts among participants about the definition of STDs, reiterating the importance of working on this topic, especially considering that some

thought that these diseases can be acquired by hand contact, kissing, hugging, sharing objects and using the same toilet as infected people. It was also verified that the adolescents participating in this study were aware of diseases that are considered sexually transmitted, corroborating with data found in another study<sup>15</sup> which compared knowledge among public and private school students, revealing that 80.1% and 90.7%, respectively, were had knowledge about STDs.

One study<sup>16</sup> identified that adolescents had relevant knowledge about STDs. However, they had many doubts and uncertainties at the same time. Educational activities through workshops allow adolescents to clarify their doubts about STDs, as well as help prevent their occurrence. From this perspective, sex education becomes essential in promoting protected sexual relations between adolescents and young people.<sup>17-18</sup>

In this study, condom use was identified as the most effective method for STD prevention. However, the participants referred to contraceptive use as a preventive method. These data confirm the findings



of other studies,<sup>4,15</sup> in which the male condom was cited by 71.1% of the participants as a method, and adolescents from both public and private schools demonstrated unsatisfactory knowledge about contraceptive methods.

It should be emphasized that information alone is not sufficient to promote the adoption of preventive behaviors, and it is also important to promote reflection and awareness among adolescents about these issues. In this way, behavior changes can be encouraged, respecting the individuality of each one as to the capacity to receive and process the information to use it properly.<sup>19</sup>

Hormonal, emotional and social changes occur at around nine to ten years of age, instigating the rediscovery of the body as a source of pleasure, with manifestations of interest appearing, affection and desire for people outside the family environment.<sup>20</sup> Such interest may stimulate the onset of sexual activity.

In this context, it should be noted that the onset of sexual activities occurred between 14 and 16 years for the participants of this study and condom use was greater for the girls. It is emphasized that when adolescents initiate sexual activities early, they may be vulnerable to STD infection.<sup>19,21</sup> This finding has already been confirmed in another study,<sup>6</sup> which also reported that early sexual initiation may lead to a 1.7 fold increase in infection by an STD.

Another study<sup>19</sup> reported that first sexual intercourse was precocious for 18.7% of participants between 12 and 13 years of age, of whom 64.3% used a condom; however, only 42.9% continued to use it in later relations. Thus, these data are in agreement with the findings of this study and another study<sup>18</sup> in which the girls reported greater use of condoms.

It should be noted that most of the study participants had little knowledge about sexually transmitted diseases and were unaware of their forms of infection/transmission, corroborating a study<sup>22</sup> conducted with Early Childhood and Primary Education students in Spain where there was greater knowledge among participants about HIV, while other diseases were less mentioned. In this study, responses considered as correct by participants were chancroid, chlamydia, gonorrhoea, pelvic inflammatory disease, donovanosis, viral hepatitis, venereal lymphogranuloma, syphilis, trichomoniasis, infections caused by the human papilloma virus and by the Human T-lymphotropic virus, as well as genital herpes and HIV.<sup>14</sup> Regarding the form of infection/transmission, the expected responses were related to sexual intercourse with an infected person

without the use of condoms, sharing syringes and needles, reusing sharp objects contaminated with blood or fluids, blood transfusion and an infected mother transmitting the disease to the child during pregnancy, delivery or breastfeeding.<sup>14</sup>

Forms considered inadequate for infection/transmission reported by adolescents included the act of giving blood, shaking hands, hugging, sharing objects, and using the same toilet as sources of infection. According to Ordinance 2.712 of 2013 of the Ministry of Health<sup>23</sup> governing blood donation, there is no risk of infection occurring during the act of donating, since all the material used for the donation process is exclusive to the donor. The possibility of STD infection was not found in the consulted literature regarding hugs, handshakes, sharing objects or using the toilet.

The present study found that adolescents sought information from reliable sources such as parents, siblings, teachers, and health services. However, it should be noted that seeking parents for information occurred for about half of the adolescents, which is a relevant fact considering that nowadays parents have little time to dedicate themselves to their children, often transferring this responsibility to the school.<sup>13,17-18</sup>

It is worth noting that other sources are not always well prepared to provide adequate guidance. Schools can be a place for the development of sex education because adolescents spend most of their time in it and also because it is a space for socialization, training and information. Given these aspects, schools should be considered as an extension of health services in order to promote a commitment to adolescents' own sexuality.<sup>24</sup>

In addition to increasing health as a preventive policy, education is a protective factor. Public policy aimed at adolescents lies in formal education, as one study<sup>25</sup> indicates that sexual activity and consequently STD infections tend to decrease with increasing levels of schooling, as well as having good relationships with their parents reduces the chances of adolescents getting involved in sexual relations.<sup>26</sup> Thus, encouraging adolescents and young people to dialogue with their parents and an increase in education in the country for them to qualify family relationships and pursue education beyond basic education may have immediate effects on the sexual and reproductive health of the population.

We believe in the need to encourage school adherence to the program proposed by the Ministry of Health<sup>9</sup> on sexual and reproductive education for students in the final years of middle school and

high school, thereby sharing knowledge among adolescents so that they can protect themselves from STDs once they start being sexually active. However, for this reality to happen, qualifying teachers is fundamental. One study<sup>27</sup> analyzing the schools' posture and teachers' attitudes towards sex education indicated that they recognize the importance of the theme, however most do not have sufficient knowledge to promote sexual orientation to adolescents, focusing more on the biological aspects of sexuality than on the feelings and values involved.

Continued specific training on sexuality education through deepening knowledge gives teachers competence and security to approach the subject with adolescents. Nonetheless, the work performed by the school does not replace or compete with the family's role and should only complement it.<sup>24</sup> Fundamentally, it is necessary that the debate on STDs promote access to adequate information, favoring a change of attitude towards sexual practice.

It is important to promote spaces for discussion about this theme in the school context through workshops on sex education by health professionals, since it can provide positive results regarding behavioral changes among adolescents.<sup>28-29</sup> Corroborating studies emphasize the need for the participation of health professionals<sup>20</sup> articulated with the school and with the family,<sup>30</sup> providing conversations groups, lectures and reflections that contemplate the themes of sexuality and reproductive health in the school environment.

Thus, in view of the growing picture of new cases of STDs among the population, and especially among adolescents, it is very important to know the realities in order to generate discussions on the subject. This study corroborates that the main prevention strategy in adolescence is addressing the problem of STDs and establishing intervention mechanisms that provide adolescents with being able to recognize the risks that permeate unsafe sexual practice.<sup>31</sup>

## CONCLUSION

Among the results found in this study, 89.2% of the girls and 90.3% of the boys knew how to properly define the STD concept, and 78.0% of the girls and 89.3% of the boys had knowledge about the diseases. Most STDs reported by adolescents were Acquired Immunodeficiency Syndrome (AIDS), herpes, gonorrhoea, HPV, syphilis and viral hepatitis. Knowledge about the STDs that have cure was adequate for 26.3% of the girls and 37.1% of the boys.

Regarding forms of infection/transmission, 38.1% of the girls and 44.8% of the boys knew them; 69.4% of the girls and 44.5% of the boys talked about sexuality with their mother, and the school was referred by 60.4% of the girls and 54.3% of the boys as a source of information. For 98.5% of the girls and 98.9% of the boys, condom use was the most effective method for STD prevention; however, 37.1% of the girls and 30.5% of the boys reported contraceptive use as a preventive method.

Based on the results found in this study, it is possible to highlight the importance of promoting adolescent health through information and school activities that also include families, as well as the union between health services and teachers with the aim to empower these adolescents in regards to decisions on safe sexual practices.

Considering that early initiation of sexual activities may lead to greater vulnerability to sexually transmitted diseases, it is considered necessary to develop educational strategies to minimize negative health outcomes. To this end, knowledge about STDs should be encouraged and shared among adolescents, and campaigns to prevent STDs should be conducted to promote health.

We are aware that this study may present weaknesses, since these data were collected in only one school and it we did not intend to generalize the results. However, it should be emphasized that the educational institution scenario of this study is a public school that welcomes students from various social classes.

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