

## Sexuality Aspects of Female University Students in a City of the State of Paraná-Brazil

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### Abstract

**Objective:** Analyze aspects of the sexuality of female university students, emphasizing on their ages of menarche and first sexual intercourse, as well as the relations with the consequences of both, like unplanned pregnancies, use of birth control methods, number of partners at the beginning of the sex life and the presence of sexually transmitted diseases (STDs).

**Methods:** Cross-sectional study carried out through data collection of 365 online forms. Statistical analysis of the data was made by IBM SPSS Statistics®, version 20 software.

**Results:** 365 female medical school students filled the questionnaire, 323 (88.5%) said to have had sexual intercourse, with the mean age of sexarche at 17 ( $\pm 2.1$ ) and menarche at 12.1 ( $\pm 1.3$ ). With 234 (72.5%) having an interval greater than 3 years until their first sexual intercourse. 275 (85.1%) said to have used some kind of birth control method at their first sexual intercourse, while 277 (75.9%) said to currently use it always. 344 (94.2%) had information about the use of birth control methods before their first sexual intercourse, while 11 (3%) participants said to have had unplanned pregnancies. There was significance between: race and age of first intercourse ( $p=0.010$ ); sexual orientation and age of first intercourse ( $p=0.025$ ); unplanned pregnancy and age of menarche ( $p=0.004$ ) and age of first intercourse ( $p=0.003$ ); number of sexual partners at the beginning of the sex life and sexarche ( $p=0.000$ ); STDs and age of sexarche ( $p=0.001$ ); and number of sexual partners ( $p=0.002$ ).

**Conclusions:** The responsibility of young girls and their own sexuality still is a public health concern in third world countries, especially in relation to unplanned pregnancies and STDs, as well as its implications. The data and its statistical analysis found in this research are similar to what was found in the literature. The necessity of dialogue about sexual and reproductive health with health professional and with those involved in the education of adolescents must be emphasized.

**Keywords:** adolescence; menarche; first intercourse; contraception; sexually transmitted diseases.

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### I. Introduction

Adolescence is defined as the stage of life during which the individual looks to establish his adult identity, leaning on the first internalized relations and observing the reality the social environment offers, using biophysical elements at his disposal which, in its turn, helps define his personality on a genital medium, possible only when there is confrontation against the infantile identity. In this regard, adult genitality can be defined by the full exercise of the individual's libidinous capacity, going through all the steps of psychosexual maturity, reaching the implicit acceptance of the capacity to procreate[1].

There is a progressive growth of risky sexual behavior in the young Brazilian population, especially due to the lack of use of contraceptives. According to data from the Ministry of Health, in 2010 there were 319 new cases of syphilis in the 13 to 19 years old bracket, while in 2019 there were 16129. Rate of detection of acquired disease by 100 thousand habitants went from 2.1 in 2010 to 72.9 in 2019[2]. In relation to HIV, even though there was a small difference in the total number of notifications of infected between the 10 to 19 years old bracket and other age brackets (5.3% in 2007/08 and 5.5% in 2019), the gross number grew almost three times (857 in 2007/08 and 2290 in 2019)[3].

There is a progressive tendency of the precocity of sexual maturity, this being an important medical and social concern, seeing as it could result in a rise of morbidity and mortality in adult life<sup>6</sup>. Early menarche and sexarche are directly related to an increased risk of unplanned pregnancies in adolescence, greater number of sexual partners and, due to this greater exposure, a higher possibility of acquiring a sexually transmitted diseases (STDs)[4-7].

Considering this, the objective of this study was to draw an epidemiological profile of the sexuality aspects of a population of university students of Cascavel City – PR, Brazil.

## **II. Method**

Cross-sectional study, descriptive and observational developed through a survey with 16 questions, created by the researchers, with female students of two medical schools from Cascavel City, Paraná, Brazil. To complete the survey, it was necessary that the participant logged in with a password and the approximated time of completion was 5 minutes.

The survey was online, through the Google Forms platform, due to the difficulties imposed by the current pandemic. In this study were selected female medical school students who were regularly enrolled, who wished to participate voluntarily, with no other inclusion criteria. Attached to the questionnaire was an informed consent form, being necessary its reading and acceptance before answering the former. Due to the nature of the study, no male participant was included. As answers to the question “How often do you use a contraceptive method?”, “almost always” was considered as being more than 75% of the time, and “rarely” as being under 25% of the time.

The data was put in an Excel 2020 spreadsheet, and using IBM SPSS Statistics® for Windows, version 20 (Released 2011, Armonk NY: IBM Corp.), which was analyzed for its quantitative (mean, median, 1<sup>st</sup> and 3<sup>rd</sup> quartiles, minimum and maximum values and standard deviation), and qualitative variables were summarized considering frequencies and percentages. To compare two classes of quantitative variables, the Student’s t-Test was considered for independent samples. To compare more than two classes of quantitative variables the Variance Analysis model was considered with a source of variance. The evaluation of the association between qualitative variables was made using Fisher’s Exact Test and Chi-squared Test. The joint evaluation of the influence of sexual orientation and sexarche over the use of contraceptives was made adjusting the logistic regression model. Values of p under 0.05 were considered statistically significant.

This study was submitted and approved by the Ethics and Research Committee of *Universidade Estadual do Oeste do Paraná* under the CAAE number 23317119.7.0000.0107 and approval number 3.792.039 from December/2019.

## **III. Results**

500 university students from two medical schools (one public and one private) in Cascavel City, Paraná, Brazil, accessed the online survey, and 365 filled it. Participant’s ages ranged from 17 to 37 years old (mean age: 22.6). In relation to ethnicity, 324 (88.8%) were white, while there was only one indigenous (0.3%) in the study. As for sexual orientation, nine (2.5%) of the participants considered themselves to be homosexuals, while the rest said to be heterosexuals or bisexuals. The ages of menarche ranged from 9 to 16 years old (mean age: 12.1, median: 12) and of sexarche ranged from 11 to 24 years old (mean and median age: 17), respectively. Even though there was little association between the ages of menarche and sexarche of the participants, this was significantly different from zero.

Of the 323 who said to have had sexarche, 234 (72.5%) had it over 3 years after menarche, while 275 (85.4%) used some contraceptive method when it happened, 246 (89.4%) of these used male condom and 187 (68.3%) used some oral contraceptive. 128 (39.7%) of the participants who had sexarche said to have had over three sexual partners in the first five years of sexual activity. Also, the study found 32 (8.7%) participants to have had precocious menarche (under 11 years of age) and 86 (26.6%) participants to have had precocious sexarche (under or at 15 years of age). Table 1 shows the epidemiologic characteristics of the studied population.

**Table 1 – Characteristics of the studied population**

Characteristic	Total			%	
	Min	Median	Max	Mean	Standard deviation
<b>Age (years)</b>	17	22	37	22.6	
<b>Institution</b>					
Private		301		82.5	
Public		64		17.5	
<b>Ethnicity</b>					
White		324		88.8	
Brown		29		7.9	
Asian		8		2.2	
Black		3		0.8	
Indigenous		1		0.3	
<b>Sexual orientation</b>					
Heterosexual		315		86.3	
Homosexual		9		2.5	
Bisexual		41		11.2	
<b>Age at menarche (n = 365)</b>	Min	Median	Max	Mean	Standard deviation
	9	12	16	12.1	± 1.3
<b>Age at sexarche (n = 323)</b>	Min	Median	Max	Mean	Standard deviation
	11	17	24	17.0	± 2.1
<b>Interval between menarche and sexarche</b>					
Sexarche before menarche		1		0.3*	
Less than 1 year after		4		1.2*	
Between 1 and 2 years after		26		8.0*	
Between 2 and 3 years after		58		18.0*	
More than 3 years after		234		72.5*	
<b>Number of partners in the first 5 years of sexual activity</b>					
Only 1		91		28.2*	
2 or 3		104		32.2*	
More than 3		128		39.6*	
<b>Use of contraceptive method at sexarche</b>					
Yes		275		85.1*	
No		48		14.9*	
<b>Use of contraceptive method nowadays</b>					
Always		277		75.9	
Almost always		43		11.8	
Rarely		9		2.4	
Never		36		9.9	
<b>Information about contraceptive methods before sexarche</b>					
Yes		344		94.2	
No		21		5.8	
<b>Unplanned pregnancies</b>					
Yes		11		3	
No		354		97	

\*Percentage related to the number of participants who said to have had sexarche (n = 323).

The survey also had questions related to STDs, with a total of 34 (9.3%) participants affirming to have already contracted at least one of the given diseases, as shown on table 2.

**Table 2 – STDs declared by the participants**

STDs (n = 34)	Total	%	% of those who have had sexarche (323)
Human papillomavirus	16	47.2	4.9
Genital herpes	5	14.8	1.5
Trichomoniasis	3	8.8	0.9
Chlamydia	2	5.9	0.6
Inflammatory pelvic disease	1	2.9	0.3
Venereal lymphogranuloma	1	2.9	0.3
Chlamydia + Trichomoniasis	1	2.9	0.3
HPV + Genital herpes + Gonorrhea	1	2.9	0.3
HPV + Genital herpes	1	2.9	0.3
Did not know which	3	8.8	0.9

Table 3 shows the relations between ethnicity, medical school and sexuality aspects of the participants.

**Table 3** – Analysis between ethnicity, medical school and sexuality aspects of the participants.

Variables	n	Mean	Min	Median	Max	Standard deviation	p*
<b>Ethnicity X Age at menarche</b>							
White	325	12,1	9	12	16	1,3	0,801
Brown or black	31	12,2	9	12	15	1,3	
Other	9	12,3	11	12	13	0,7	
<b>Ethnicity X Age at sexarche</b>							
White	285	16,9	11	17	24	2,0	0,010
Brown or black	30	17,3	13	17	24	3,0	
Other	8	19,0	16	19	22	2,1	
<b>Type of school of enrollment X Age at menarche</b>							
Public	63	12,1	9	12	14	1,1	0,643
Private	302	12,1	9	12	16	1,4	
<b>Type of school of enrollment X Age at sexarche</b>							
Public	52	17,3	13	17	23	2,4	0,213
Private	271	16,9	11	17	24	2,0	
<b>Sexual orientation X Age at menarche</b>							
Heterosexual	315	12,2	9	12	16	1,3	0,129
Homosexual	9	11,9	10	11	14	1,8	
Bisexual	41	11,7	9	12	14	1,3	
<b>Sexual orientation X Age at sexarche</b>							
Heterosexual	279	17,1	13	17	24	2,1	0,025
Homosexual	9	16,2	14	15	19	2,0	
Bisexual	35	16,1	11	15	19	2,1	
<b>Use of contraceptive at sexarche X Age at menarche</b>							
Yes	275	12,1	9	12	16	1,3	0,387
No	48	12,3	9	12	14	1,4	
<b>Use of contraceptive at sexarche X Age at sexarche</b>							
Yes	275	17,0	13	17	24	2,0	0,616
No	48	16,8	11	17	24	2,5	
<b>Frequency of use of contraceptives X Age</b>							
Always	277	22,8	17	22	37	2,8	0,204
Almost always	43	22,0	18	21	37	3,5	
Rarely	9	24,1	21	22	40	6,1	
Never	36	22,6	19	22	27	2,7	
<b>Frequency of use of contraceptives X Age at sexarche</b>							
Always	258	17,0	11	17	24	2,1	0,095
Almost always	42	16,4	13	17	19	1,7	
Rarely	8	18,3	16	18	22	1,8	
Never	15	17,3	13	18	21	2,4	
<b>Unplanned pregnancy X Menarche</b>							
Yes	11	11,0	9	11	12	1,0	0,004
No	354	12,2	9	12	16	1,3	
<b>Unplanned pregnancy X Sexarche</b>							
Yes	11	15,1	12	15	17	2,0	0,003
No	312	17,0	11	17	24	2,1	
<b>Number of sexual partners in the first 5 years of sexual activity X Menarche</b>							
Only 1	91	12,0	9	12	16	1,5	0,650
2 or 3	104	12,1	9	12	15	1,1	
More than 3	128	12,2	9	12	16	1,4	
<b>Number of sexual partners in the first 5 years of sexual activity X Sexarche</b>							
Only 1	91	17,8	12	18	24	2,2	

2 or 3	104	16,8	14	17	23	1,8	0,000
More than 3	128	16,4	11	16	24	2,1	
Only 1 X 2 or 3							0,001
Only 1 X More than 3							<0,001
2 or 3 X More than 3							0,135
<b>Unplanned pregnancy X Number of sexual partners in the first 5 years of sexual activity</b>							
Yes	11	2,5	1	3	3	0,8	0,160
No	312	2,1	1	2	3	0,8	
<b>STDs X Menarche</b>							
Yes	34	11,9	9	12	14	1,1	0,319
No	331	12,1	9	12	16	1,3	
<b>STDs X Sexarche</b>							
Yes	32	15,8	13	15,5	21	1,7	0,001
No	291	17,1	11	17	24	2,1	
<b>STDs X Number of sexual partners in the first 5 years of sexual activity</b>							
Yes	32	2,5	1	3	3	0,7	0,002
No	291	2,1	1	2	3	0,8	

\* Value of p under 0.05 was considered statistically significant.

**Graph 1** – Relation between age of menarche and age of sexarche (p=0.22).



#### IV. Discussion

Brazilian's mean age of menarche is 12.9 and age of sexarche is 17.9 (IBGE 2013), data which is similar to the one found in this research. Recent studies suggest a direct relation between both ages, also relating a younger menarche to earlier pregnancy[8-10].

International studies place black and brown ethnicities as a risk factor for early sexual initiation, greater number of sexual partners and lesser use of contraceptives, going against the findings of this study, where white women had earlier sexarche. Factors that seem to influence age of first intercourse include ethnicity, religion, culture, socioeconomic level, scholary, peer influence and relationships[11, 12], which are all known variables in each ethnicity in Brazil.

Adolescents' sexual orientation is volatile, fluid and frequently undefined[13]. Many studies have attempted to form a consensus on what age the individual defines how he sees himself (sexual identity) as well as

what he is attracted to (sexual orientation). A recent national study didn't find any difference of age of first intercourse when looking at the participants' sexual orientation[14], unlike the findings of this study, where young bisexuals presented with younger age of sexarche, similarly to other researches[15].

Studies conducted in some countries suggest that early menarche may lead to an increase in vulnerability of these adolescents to unfavorable outcomes, including early sexarche, early and unplanned pregnancies, as well as sexual violence[4, 16]. In Brazil, a recent research found, like the present study, association between unplanned pregnancies with early menarche and sexarche[10].

The National Scholar Health Survey (*PenSe*) from 2015 has shown a greater chance for an adolescent to use contraceptives in the 16 to 17 years old bracket (68.2%) when compared to the 13 to 15 years old bracket (59.7%)[17], results similar to the ones found in the present study, which shows that the use of contraceptives was less frequent when the sexarche was premature. Due to bisexuals having shown to have had an earlier start to sexual life, it also explains their lesser use of contraceptives, as well as justifying the greater number of unplanned pregnancies and STDs[15].

The individual's sexual behavior, including his orientation preference and number of sexual partners is a concept molded through values obtained from his family, religion, culture and social context. Teenagers may choose to have multiple sexual partners to feel more confident and efficient in the choice of a lifetime partner when reaching maturity. Literature shows a direct relation between early sexarche and multiple partners, similar to the results found in the present study[5, 18-21].

The World Health Organization (WHO) defines early sexarche as sexual initiation at or before the age of 15. Early sexarche is associated to unprotected sex, multiple sexual partners, greater risk of acquiring a STD and unplanned pregnancies, like the present study[18, 26].

Risky sexual behaviors more frequent in adolescence include multiple sexual partners and unprotected sex. Early age at first intercourse is considered a risk factor for both of the above, possibly resulting in contact with a STD. In this research there was relation between being diagnosed with a STD and early sexarche, as well as multiple sexual partners in the beginning of the individual's sexual life (first five years), concurring to the literature[22-25].

This study was biased for having a small sample, the sample consisting only of medical school students and the reliability of the survey's answers. On the other hand, it evidenced that despite educational campaigns in the media and school's educational projects, early sexuality still constitutes a public health concern in emerging countries.

## V. Conclusion

The early ages of menarche and sexarche found can be directly at fault of their inherent unfolding relating to STDs, little use of contraceptives and greater risk of pregnancies during adolescence.

Educational measures in due times are suggested so that physicians, teachers and other professionals involved in individual's sexual education can afford to have data that subside modification of the negative aspects of adolescents' sexuality, preventing their consequences. Results obtained with the sample studied, if extrapolated to the general population, may well serve as the foundation for the elaboration of public policies for the improvement in the quality of life of teens.

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