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## Research Article

# Adolescents' Knowledge of Sexuality in a School Context: A Descriptive Study

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**Introduction:** School is a privileged place for sex education that equips adolescents with the knowledge and skills to make choices about their health, well-being and safe experience of sexuality. The study was carried out as part of a health promotion project with secondary school students from a school in the Lisbon Metropolitan Region, with the aim of drawing up a profile of knowledge, beliefs and attitudes about sexuality, which would inform the development of specific and adapted interventions.

**Materials and Methods:** This was a descriptive, correlational, cross-sectional study using a questionnaire comprising questions on socio-demographic and academic characterization and two scales of knowledge, beliefs and attitudes towards sexuality (QCS and QACSES), validated for the population under study. The sample consisted of students from a secondary school attending the 10th, 11th and 12th grades.

**Results:** The sample had an average age of 16,4 years, 51,1% boys and 48,5% girls. Female gender, age and previous attendance at courses on sexuality showed statistically significant correlations with knowledge and/or attitudes and these also showed a positive correlation with each other. The different areas of study also showed significant differences in terms of both attitudes and knowledge.

**Conclusions:** The instruments used are suitable for the initial diagnosis and/or assessment of sexuality.

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## Introduction

Adolescence is a complex phase of biological growth and changing social roles in which sexual maturity coexists with a progressive increase in autonomy. At this stage, experimentation with new roles is associated with sexual behaviour that exposes adolescents to sexual and reproductive risks, such as sexually transmitted infections, unwanted pregnancies or unsafe terminations (Leung et al., 2019).

In this context, school has emerged as a privileged place for sex education that equips adolescents with the knowledge, attitudes and skills that enable them to make choices related to their health and well-being and to live their sexuality safely (Goldfarb & Lieberman, 2021; UNESCO, 2019).

Although it is not a sufficient condition, knowledge is considered a prerequisite for adopting preventive behaviours. Several studies have shown an association between knowledge and the adoption of protective behaviours, the reduction of risk behaviours and violence, and the promotion of attitudes of tolerance (Goldfarb & Lieberman, 2021; Macarthur et al., 2018).

However, despite the efforts made by most of the European Union countries covered by the "Health Behaviour in School-aged Children" study, its results reveal a trend towards a systematic reduction in preventive knowledge and behaviours (Jo Inchley et al., 2020).

In the context of a school-based health promotion project, it has become important to profile young people's knowledge in order to provide input for the development of specific interventions that are appropriate to the context (Nery et al., 2015; Ramírez-Villalobos et al., 2021).

As an integral part of health, sexuality should be part of health promotion projects. In fact, access to information about sexuality should be an indispensable sexual right for young people, in order to prevent risky sexual behaviour (DeVito, 2007).

We also know that scientifically correct information positively influences a higher level of knowledge, which is reflected in a reduction in risk behaviours and a reduction in negative beliefs and attitudes towards different aspects of human sexuality (Carvalho et al., 2017). On the other hand, variables related to beliefs and attitudes are a strong indicator of the adoption of protective behaviours and have therefore been used to assess the impact of sex education programmes (Carvalho et al., 2016; Carvalho et al., 2017).

These data provide valuable clues as to the direction of an intervention with adolescents aimed at promoting healthy lifestyles with an increase in health literacy that implies a change in attitudes towards aspects such as gender issues, violence or hazardous consumption.

## Material and Methods

In order to assess adolescents' knowledge, attitudes and beliefs about sexuality and sex education in a secondary school located in the Lisbon region of Portugal, a quantitative cross-sectional, exploratory and observational study was carried out. The participants were approached in a school context as part of the development of a health education project in the area of sexuality. A non-probabilistic convenience sample was used and the inclusion criteria were being a student in the 10th, 11th or 12th year of school, being present at school on the day the data collection instrument was applied and being available to take part. Exclusion criteria were absence on the days of data collection and failure to provide informed consent signed by their legal guardians.

In order to guarantee a good response rate to the questionnaire, a presentation was first given to explain the study and the instructions for collecting the questionnaires. This strategy proved to be effective, as there was a 100% return rate.

The data was collected using a self-completion questionnaire consisting of three parts. The first was to characterise the participants: sociodemographic variables (gender, age, science area and school year), sources of information and clarification on sexuality, topics and areas of information already received at school. The second part consisted of applying the Questionnaire of Knowledge about Sexuality (QCS) (Carvalho et al., 2017), validated for the Portuguese population, and the third part was the Questionnaire of Attitudes and Beliefs about Sexuality and Sex Education (QACSES) (Carvalho et al., 2016).

The QCS consists of 25 questions, divided into six dimensions: (1) First sexual intercourse and sexual concerns (items 1, 3, 14, 17 and 22); (2) Sexuality and sexual pleasure (items 6, 15 and 23); (3) Contraception and safe sex practices (items 7, 8, 9, 11 and 19); (4) Pregnancy prevention (items 2 and 13); (5) Sexually transmitted infections and HIV/AIDS (items 4, 5, 10, 12, 16, 18, 21 and 24); and (6) Sexual and reproductive health (SRH) counselling and care (items 20 and 25). The response scale is dichotomous, i.e. it accepts true/false as an answer. One point is awarded for each correct answer, indicating adequate knowledge of sexuality, up to a maximum of 25 points. Unanswered items are scored in the same way as wrong answers, with a score of zero (0). Knowledge of sexuality is greater the higher the total score obtained in the QCS.

The Questionnaire of Attitudes and Beliefs about Sexuality and Sex Education (QACSES) (Carvalho et al., 2016) was developed with the aim of finding out about adolescents' representations of sexuality and sex education. Designated as Beliefs associated with sex and contraception, Beliefs associated with dating violence, sex and sexual behaviour and Beliefs associated with romantic relationships, it is useful to use as support for actions that can promote the prevention of risky sexual behaviour (Carvalho et al., 2016).

The data was analysed using the Statistical Package for the Social Sciences (SPSS). A significance level of  $p < 0,05$  was chosen to determine statistical significance. The sociodemographic variables were analysed using descriptive statistics. To assess the relationship between the CSF subscales and the sociodemographic variables, Pearson's correlation coefficient was used for correlation analyses (Soares et al., 2008). A cross-over

analysis of variance (ANOVA) was carried out to examine the interactions between the QCS and QACSES scores.

The questionnaire was administered in one lesson, with an average of 30 minutes allowed for completion, and flexibility was allowed in the response time, taking into account the individual differences of the students.

The study was approved by the Ethics Committee of Egas Moniz School of Health and Science, N.º 678.

A Free and Informed Consent Form signed by the legal representatives was obtained in the case of adolescents who were minors or not legally emancipated. Participation also required the consent of the adolescent themselves.

The informed consent form described the objectives of the study, the procedures, the potential risks and

benefits, as well as the rights of the participants, emphasising that participation was voluntary.

The research team took precautions to safeguard the privacy of the participants' data, which will be stored in a secure location and accessible only to the researchers conducting the study. To safeguard the identity of the participants, no personal information was collected and the data was analysed in aggregate form.

## Results

The participants in the study were students attending the 10th, 11th and 12th grades at a secondary school in the Lisbon Metropolitan Region in Portugal. Based on the information presented in Table 1, the sample for this study consisted of 358 secondary school students aged between 14 and 20, with an average age of 16,39 ( $M=16$   $SD=1,15$ ).

		n	%	M	SD	
Gender	Female	174	48,5			
	Male	185	51,5			
Age Group	14-15	91	25,3			
	16.	116	32,3			
	17.	90	25,1			
	18-20	62	17,3			
Age				16,39	1,15	
Educational Level	10th grade	168	46,8			
	11th grade	89	24,8			
	12th grade	102	28,4			
Course	Science and Technology	134	37,3			
	Languages and Humanities	120	33,4			
	Socio-economic sciences	33	9,2			
	Professional	72	20,1			
Source of information	Family	129	37,1			
	Internet	168	48,3			
	Friends and boyfriend/girlfriend	51	14,7			
Did you take part in sex education sessions or activities related to sexuality at school?	0	1	0,3			
	Yes	296	82,5			
	No	62	17,3			
QACSES (1-5)				2,18	0,49	
QACSES_ Inverted (1-5)				3,82	0,49	
QCS (0-25)				16,58	2,79	

**Table 1.** Scores on the scale of the timing of the introduction of sex education topics, according to gender, training and experience among secondary school adolescents. Portugal, 2024.

We can see that this is a homogeneous sample in terms of gender distribution, with 51,1% (n=185) being boys and 48,5% (n=174) being girls. As for the distribution by year of schooling, we can see that there is representation from all years, with the largest sample being from the 10th year of schooling with 46,8%

(n=168), followed by the 12th year with 28,4% (n=102) and finally the 11th year with 24,8% (n=89) of the students.

With regard to areas of study/courses, the majority of the sample is made up of students from the Science and Technology area/course with 37,3% (n=134), followed by

the Languages and Humanities area/course with 33,4% (n=120), then the Professionals area/course with 20,1% (n=72) and finally the Socio-Economic Sciences area/course with 9,2% (n=33).

With regard to the source of information they seek when they want to clarify doubts, we can see that 48,3% (n=168) look for it on the internet, 37,1% (n=129) turn to family members and finally 14,7% (n=51) seek to clarify their doubts with friends or boyfriends/girlfriends.

In the question about previous participation in sex education sessions or activities related to sexuality at school, we can see that 82,5% of the students answered in the affirmative.

As for the QCS, the scale ranges from 0-25. Values above 12,5 are positive, with an average of 16,58. All the values that emerge from the crosses are positive. The lowest value is 16,11, which corresponds to 10th grader, and the highest value is 17,06, which corresponds to 11th grader. However, the range of variation is minimal and does not reach one value.

		QACSES			QCS		
		M	SD	p	M	SD	p
Gender	Female	2,02	0,37	<0.001*	16,8	2,63	0.144
	Male	2,33	0,55		16,37	2,93	
Age	14-15	2,13	0,4	0.114	15,84	2,67	0.019*
	16	2,17	0,53		17,03	2,88	
	17	2,15	0,45		16,59	2,57	
	18-20	2,32	0,6		16,79	2,96	
Educational Level	10th grade	2,17	0,45	0.842	16,11	2,85	0.012*
	11th grade	2,18	0,55		17,06	2,79	
	12th grade	2,2	0,51		16,92	2,6	
Course	Science and Technology	2,12	0,45	<0.001*	17,01	2,53	0.022*
	Languages and Humanities	2,04	0,42		16,63	2,83	
	Socio-economic sciences	2,43	0,76		15,55	3,51	
	Professional	2,42	0,4		16,14	2,72	
Source of information	Family	2,16	0,52	0.450	16,75	2,83	0.319
	Internet	2,21	0,5		16,68	2,82	
	Friends and boyfriend/girlfriend	2,11	0,39		16,08	2,61	
Health education sessions	Participated	2,16	0,48	<0.001*	16,63	2,75	<0.001*
	Didn't participate	2,22	0,44		16,5	2,72	

Table 2. QACES and QCS cross-references. Portugal, 2023

\*  $p \leq 0,05$

In Table 2, we can see that the average is equal to 2,18, so it is a positive average. Regarding the QACES, the scale varies between 1-5, with the neutral value being 3. The scale is inverted, with lower values being more positive, so positive values are up to 3 and negative values are above 3. The average is equal to 2,18, so it is a positive average. It can be verified that in all cross-tabulations there are no values above 3, so in general, it can be said that students, whether boys or girls, of all ages and in all types of courses analysed, show positive attitudes. There are no major differences in student attitudes according to their different characteristics. Thus, it can be verified that girls have more positive attitudes than boys, and there is no difference in knowledge about sexuality between sexes. With

advancing age, there are no major differences in attitude changes; however, there is a significant tendency for knowledge to improve with age. Regarding different school years, they do not represent changes in attitudes, but they show a trend of improving knowledge as the school years' progress. Students in different areas of study present significant differences, both in attitudes and in knowledge. That is, the Language and Technology courses show more positive attitudes and better knowledge regarding sexuality, while Socioeconomic and Vocational courses show worse attitudes and worse knowledge. Regarding the sources of information on sexuality used by adolescents, they are not associated with significant differences in the level of knowledge or attitudes. Regarding the question "Who participated in Sexual Education sessions," they show better attitudes and better knowledge about sexuality. Finally, knowledge

and attitudes show a positive correlation, that is, the better the degree of knowledge, the better the attitudes, and vice versa.

## Discussion

This study aimed to explore the influence of sociodemographic factors on adolescents' knowledge and attitudes about sexuality. Undoubtedly, adequate knowledge for the prevention of risk behaviours is essential to contain undesirable consequences among adolescents (Scott et al., 2013; Yau et al., 2020).

In our study, we used the terms "male" and "female" as descriptors of the levels of the "gender" variable. These terms correctly represent the biological sex of the participants in our sample. Although we recognize that sex is a multifaceted construction influenced by social and cultural factors, our study examined the association between biological sex and the outcomes of interest. By using "male" and "female," our goal was to maintain terminological consistency and ensure clarity of our conclusions regarding the participants' biological sex. We emphasize that our study does not directly explore the complexities of gender identity or gender-related factors.

As mentioned earlier, knowledge can influence adolescents' attitudes and behaviours, promoting a decrease in risk practices (Delgado et al., 2022; Deshmukh & Chaniana, 2020).

Similar to other studies, there was no significant difference in knowledge between boys and girls (Carvalho et al., 2017; Silva et al., 2020; Siva et al., 2021; Soares et al., 2008). As in the studies (Gaspar et al., 2022; Martins, 2010), regarding age, we found that there are no major differences in attitude changes with advancing age. However, in this study, it is noted that the students who have more knowledge are the younger adolescents, in the age group with  $\leq 17$  years, this result is in line with the study (Leitão, 2020) in which younger adolescents have more knowledge than the older age group. Thus, the results found indicate that although girls have more positive attitudes than boys (Moreira et al., 2023), there is no difference in knowledge about sexuality, which contradicts the results found by other studies in Portugal (Delgado et al., 2022; Gonçalves et al., 2023; Rocha et al., 2016).

Regarding education, the different school years do not represent a change in attitudes, but there is a trend of improvement in knowledge with the advancement of school years (Deshmukh & Chaniana, 2020).

The different areas of study present significant differences both in attitudes and in knowledge: Languages and Technologies show more positive attitudes and better knowledge regarding sexuality, while Socioeconomic and Vocational show worse attitudes and worse knowledge. The way students seek information about sexuality does not present significant differences in terms of attitudes and knowledge about sexuality (Loureiro et al., 2021). However, those who have already participated in sexual education sessions show better attitudes and knowledge about sexuality (Kotiuga et al., 2022). Attitudes and knowledge are associated with each other. That is, the better the attitudes, the better the level of knowledge, and vice versa (Deshmukh & Chaniana, 2020; Kotiuga et al., 2022).

Despite the findings, the study has some limitations. Understanding that there are variables that can influence knowledge and attitude, to which these adolescents are subjected. It would be pertinent to conduct a longitudinal study, following these adolescents throughout their school career in order to assess the evolution of their knowledge, attitudes, and beliefs about sexuality.

There is some limitation of the representativeness of the study; however, its easy reproducibility could be an asset for other places with similar characteristics.

In addition, our study used a quantitative approach that, although robust, may not fully capture the complexity and diversity of individual experiences and perspectives. A mixed methods design, combining quantitative data with qualitative knowledge, in future studies may provide a more comprehensive understanding of adolescents' knowledge and perceptions about sexuality.

## Conclusions

Overall, there is a tendency for girls to present more positive attitudes compared to boys, while knowledge about sexuality does not differ significantly between sexes. With advancing age, there are no major changes in attitudes, but there is a significant improvement in knowledge. Regarding different school years, there are no variations in attitudes, but there is a trend of improvement in knowledge as the years progress. Regarding areas of study, there are significant differences both in attitudes and knowledge. Actions of education carried out in the school context, about sexuality, have proven to be an advantage. The relationship between education and the level of correct information about sexuality is real, although it has not

shown the same association with changes in sexuality behaviour.

By exploring adolescents' knowledge and attitudes about sexuality in this context, we can contribute to improving knowledge, contributing to the adequacy of interventions so that adolescents' sexual health is more satisfactory and without additional risks.

Despite the limitations mentioned, it is important to emphasize that this study contributes to clarifying some characteristics of this population and context. By conveying information about sexuality, adolescents are empowered to acquire safer behaviours and more positive attitudes, from differences in gender, contraception, dating violence, sexual behaviour, and beliefs about romantic relationships.

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