Original Article

Diagnosis of knowledge on sexuality among adolescents

Diagnóstico do conhecimento dos adolescentes sobre sexualidade

Diagnóstico de conocimientos de adolescentes sobre sexualidad

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Abstract

Objectives: To diagnose adolescents' knowledge of sexuality for posterior implementation of a specific and targeted intervention program.

Methods: This was a quantitative-based cross-sectional (observational/descriptive) study including a population of 250 students enrolled in year ten of secondary education. A questionnaire for sociodemographic characterization was applied along with the Questionnaire on Sexuality Knowledge (QCS), which consisted of 25 questions in a dichotomous (true/false) answer scale separated into six dimensions.

Results: The convenience sample of 136 teenagers aged between 14 and 19 years. The majority of participants were men (54.4%). Mean knowledge was 18.6 (DP = 2.71); areas where adolescents showed the least knowledge are the following: "first sexual relation and sexual concerns"; "pregnancy prevention"; e "counseling and care in sexual and reproductive health". The only significant difference between dimensions was for "pregnancy prevention" (girls show higher knowledge). Factors positively impacting adolescents' knowledge are the parents' formal education level (higher education, especially for mothers) and one of the parents be a healthcare provider.

Conclusion: The need to develop an intervention program targeting the reality of schools was identified, based on the areas of "first sexual relation and sexual concerns"; "pregnancy prevention"; and "counseling and care in sexual and reproductive health". The program should target gender differences and, especially, considering boys.

Resumo

Objetivo: Realizar o diagnóstico do conhecimento dos adolescentes sobre sexualidade para a implementação, à posteriori, de um programa específico e direcionado de intervenção.

Métodos: Estudo observacional-descritivo, quantitativo, transversal, numa população de 250 alunos a frequentar o décimo ano. Aplicou-se um questionário com caraterização sociodemográfica e o Questionário de Conhecimentos sobre Sexualidade (QCS), constituído por 25 questões de resposta dicotómica (verdadeiro ou falso) e organizado em seis dimensões.

Resultados: Amostra de conveniência de 136 adolescentes, entre os 14-19 anos, maioritariamente do sexo masculino (54,4%). A média de conhecimento é de 18,6 (DP=2,71), sendo as áreas em que os adolescentes apresentam menores conhecimentos as seguintes: "Primeira relação sexual e relações sexuais"; "Prevenção da gravidez"; e "Aconselhamento e atendimento em saúde sexual e reprodutiva". Existe apenas diferença significativa favorável às raparigas na dimensão "Prevenção da gravidez". Como fatores que influenciam positivamente o conhecimento dos adolescentes identificam-se a escolaridade ao nível do ensino superior dos pais com enfoque maior nas mães, e um dos pais ser profissional de saúde.

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Conflicts to interest: none to declare.

Conclusão: Constatou-se a necessidade de desenvolver um programa de intervenção direcionado à realidade da escola, incidindo nas áreas de "Primeira relação sexual e relações sexuais", "Prevenção da gravidez" e "Aconselhamento e atendimento em saúde sexual e reprodutiva", direcionando o programa para as diferenças do género, com especial relevância para os rapazes.

Resumen

Objetivo: Realizar un diagnóstico de conocimientos de los adolescentes sobre sexualidad para la implementación, *a posteriori*, de un programa específico y orientado de intervención.

Métodos: Estudio observacional-descriptivo, cuantitativo, transversal, en una población de 250 alumnos que cursan el décimo año. Se aplicó un cuestionario con caracterización sociodemográfica y el Cuestionario de Conocimientos sobre Sexualidad (QCS), constituido por 25 preguntas de respuesta dicotómica (verdadero o falso) y organizado en seis dimensiones.

Resultados: Muestreo por conveniencia de 136 adolescentes, entre 14 y 19 años, mayormente de sexo masculino (54,4%). El promedio de conocimiento es de 18,6 (DP=2,71) y las áreas donde los adolescentes presentan menor conocimiento son: "Primera relación sexual y relaciones sexuales", "Prevención del embarazo" y "Consejos y atención en salud sexual y reproductiva". Hay una diferencia significativa favorable para las mujeres solamente en la dimensión "Prevención del embarazo". Se identifican como factores que influyen positivamente en el conocimiento de los adolescentes la escolaridad a nivel de educación superior de los padres, con mayor enfoque en las madres, y que uno de los padres sea profesional de la salud.

Conclusión: Se constató la necesidad de desarrollar un programa de intervención orientado hacia la realidad de la escuela, con incidencia en las áreas de "Primera relación sexual y relaciones sexuales", "Prevención del embarazo" y "Consejos y atención en salud sexual y reproductiva", con orientación del programa hacia las diferencias de género y especial relevancia hacia los hombres.

Introduction

Adolescence is understood as the transition from childhood to the adult age. In addition to its characteristic biological changes, it also includes psychological changes interfering in family, education, and social relations. The adolescence starts with the first physical signs of sexual maturity and ends with the social occurrence of the independent adult status.[1] This situation is usually seen when the first (and often unforeseen) amorous relations take place, in which adolescents are commonly introduced to their first sexual experience. Adolescent sexuality is often tumultuous, as the emotional maturity is not always on a par with physical maturity.[2] We point out that teenager sexuality is intrinsic and transcends to the biological aspect, manifesting as a psychological and social phenomenon influenced by beliefs, personal and family values, moral norm, and taboos.[2]

Sexuality in adolescence is considered a public health issue, and the school is a privileged place for implementing health-promoting public policies for adolescents, contributing to provide sexual-education-related discussions. The increasingly common discussion of sex-related matters in social means of communication induces early sexual initiation, as well as its banalization.[3,4] Safe and pleasurable sexual experiences result in adolescents' emotional well-being, which is also related to the sexual and reproductive health. The World Health Organization recommends a series of targets, goals, and action plans to be implemented in Europe by 2030, which show the materiality of informed sexuality for all—especially adolescents .[5]

This is the school's responsibility to promote adolescents' integral education, which naturally includes approaching and discussing sexuality on the light of promoting sexual health.[3,6-8] Additionally, we point out that educational success may be at risk if we do not implement, and assess these intervention projects.[5]

For this reason, when designed and targeted a behavioral modification and empowerment, school interventions may be effective and contribute to their overall education of helping students to adopt healthier life styles.[9]

Education for health must provide learning of sexuality-relevant content and lead to adolescents to question their own attitudes and decisions, thereby impacting risk reduction.[2]

In this setting, the following concern arises: what are the needs and interests of adolescents regarding sexuality? The aim of this study is to diagnose knowledge on sexuality among adolescents for posterior implementation of a specific and targeted intervention program.

Methods

This was a quantitative-based cross-sectional (observational/descriptive) study conducted in a public school located in an urban area, in Northern Portugal. The study population included 250 students enrolled in the year ten of secondary education, which corresponds to the first year of high school in Brazil.

We included students enrolled in the year ten at the school. We excluded those who did not sign the informed consent form on the day of data collection, which was previously sent to students' legal guardians for validation.

A sociodemographic questionnaire was used to characterize the sample (age, sex, area of study, members of family who he/she lived with, formal education level of parents, occupation of parents, marital status of parents), and the Questionnaire on Sexuality Knowledge (QCS)[8] was applied in April 2019. The QCS is composed of 25 questions in a dichotomous (true/false) scale separated into six dimensions (D1: first sexual relation and sexual concerns; D2: sexuality and sexual pleasure; D3: contraception and safe sexual practices; D4: pregnancy prevention; D5: sexually transmitted infections and HIV/AIDS; D6: counseling and care in sexual and reproductive health). Each correct answer is assigned one point, up to a maximum of 25 points. The higher the QCS score, the higher the knowledge of sexuality or of any given area will be.

This study follows national and international ethical regulations for research involving humans.

Despite the sample size, variables were evenly distributed and did not reflect normality due to which nonparametric tests were used (Mann-Whitney and Kruskal-Wallis). For the analysis and data management, IBM SPSS Statistics Version 25 was used. The significance level adopted was $p<0.05$.

Results

The target population consisted of 250 adolescents. After applying the defined exclusion criterion, the nonprobability sample included 136 adolescents (response rate of 54.4%) between the ages of 14 and 19 years old (M = 15.7; SD = 3.3). The average knowledge value in QCS was 18.6 (DP = 2.71). Table 1 shows study subjects' sociodemographic characteristics, as well as the mean, standard deviation, and tests pertaining to sexuality knowledge (QCS score).

Table 2 shows data from the classification of adolescent's knowledge per pooled variables selected by the authors, i. e., marital status of parents (either "married"/"domestic partnership" or "other"), in an attempt to clarify the influence of parent occupation on adolescent's knowledge (either "at least one parent working in healthcare" or "other").

For the analysis of adolescents' knowledge on sexuality considering the questionnaire six dimensions ranges, table 3 shows mean classification data and overall data per dimension, sex, and age group, highlighting the variables where differences were seen, such as: education level of parents (basic education/higher education); occupation of parents (at least one parent working in healthcare sector/none of the parents working in healthcare sector).

Discussion

The adherence of a little over half of the eligible adolescents is not related to the fact that they did not wish to answer the questionnaire. In fact, in our perception that the case was quite the opposite. It seems to be due to a lack of communication between students and their legal guardians, which led to not having the informed consent form signed and handed by the date of data collection for their inclusion in the study. According to information provided by the study's school, the lack of proper orchestration between students/teachers/legal guardians is a recurring event, one that the school is also willing to work on and improve.

The study's representativeness is limited. However, it is easily reproducible, which can be of value when reproducing it in other locations with similar characteristics.

Similarly to other studies, there are more boys than girls, and girls that show the highest knowl-

Table 1. Adolescents ' sociodemographic characteristics in correlation to QCS (n = 136)

Characteristics	n(%)		M (SD)		*p-value*	
Sex						
Boys	74(54.4)		18.4 (2.84)		0.551 (b)	
Girls	62(45.6)		18.8 (2.54)			
Age groups						
[12-14] years	2(1.5)		18.0 (2.8)		0.744 (c)	
[15-17] years	130(95.6)		18.6 (2.6)			
[18-19] years	4(2.9)		18.3 (1.0)			
Area of study						
Sciences	67(49.3)		19.1 (2.1)		0.393 (c)	
Humanities	37(27.2)		18.4 (2.6)			
Visual Arts	11(8.1)		17.8 (4.5)			
Economic/Social Sciences	4(2.9)		19.0 (1.4)			
Vocational Course (Computing)	17(12.5)		17.5 (3.4)			
Members of family who he/she lived with (most Significant)						
Parents and siblings	62(45.6)		18.9 (2.6)		0.259 (c)	
Parents	27(19.9)		17.9 (3.0)			
Mother and brother	16(11.8)		19.0 (2.2)			
Mother	12(8.2)		18.3 (3.2)			
Father	3(2.2)		17.7 (1.5)			
Mother and grandparents	3(2.2)		18.0 (2.6)			
Parents. siblings. and grandparents	1(0.7)		17.0 (4.2)			
Parents and siblings	1(0.7)		14.0 -			
Mother. siblings. and grandparents	1(0.7)		19.0 -			
Mother. siblings. and stepfather	1(0.7)		22.0 -			
Grandparents	1(0.7)		17.0 -			
marital Status of parents						
Single	11(8.1)		19.3 (3.1)		0.503 (c)	
Married	70(51.5)		18.2 (2.7)			
Domestic partnership	6(4.4)		18.3 (3.2)			
Divorced/separated	42(30.9)		19.1 (2.6)			
Widowed	6(4.4)		18.0 (2.3)			
Education level of parents	Mother	Father	Mother	Father	Mother	Father
Basic and secondary school	77(56.6)	84(61.8)	18.1 (2.7)	18.4 (2.7)	0.037 (b)	0.191 (b)
Higher education	56(41.2)	45(33.1)	19.3 (2.6)	19.1 (2.6)		
No answer	3 (2.2)	7(5.1)	18.7 (3.1)	17.7 (2.9)		
Occupation of parents [a]	Mother	Father	Mother	Father	Mother	Father
A	- -	1(0.7)	19 -	- -	0.066 (c)	0.471 (c)
B	12(8.8)	15(11.0)	19.1(2.4)	18.93 (2.6)		
C	35(25.7)	35(25.7)	19.8 (2.3)	19.0 (2.3)		
D	14(10.3)	9(6.6)	19.0 (1.8)	19.4 (2.1)		
E	19(14.0)	10(7.4)	17.6 (2.8)	17.9 (1.9)		
F	28(20.6)	18(13.2)	18.1 (2.8)	18.0 (3.3)		
G	- -	1(0.7)	- -	22.0 -		
H	2(1.5)	13(9.6)	19.5 (0.7)	17.7 (2.9)		
I	1(0.7)	3(2.2)	22.0 -	20.3 (1.2)		
Unemployed	15(11.0)	11(8.1)	17.9 (3.0)	19.2 (2.1)		
Retired	1(0.7)	- -	18.0 -	- -		
Homemaker	1(0.7)	- -	20.0 -	- -		
No Answer	8(5.9)	20(14.7)	16.6 (3.6)	17.9 (3.6)		

M = mean; SD: standard deviation; a) As per the National Classification of Occupations: A) Occupations in the armed forces; B) Representative of legislative power and executive organs; C) Intellectual and scientific experts; D) Technicians and intermediary-level occupations; E) Administrative staff; F) Workers of personal. protection. and safety services and salespeople; G) Workers skilled in farming and agricultural trades; H) Workers skilled in industrial. construction and operational trades; I) Field-service and machinery workers and industrial assembly workers. "unemployed". "retired". and "homemaker" were added. as they did not fit any of the categories; b) Mann-Whitney; c) Kruskal-Wallis.

Table 2. QCS results per variable pooled by occupation of parents and marital status of parents

Characteristics	n(%)	M (SD)	p-value
Parents working in healthcare			
At least one parent working in healthcare	18 (13.2)	20 (2.2)	0.027 (a)
None of the parents working in healthcare	113 (83.1)	18.5 (2.6)	
No response	5 (3.7)	16 (4.2)	
Marital Status of Parents			
Married/Domestic Partnership	75 (55.2)	18.3 (0.32)	0.345 (a)
Other	60 (44.1)	18.9 (0.34)	
No response	1 (0.7)	16.6 -	

(a) Kruskal-Wallis; M = mean; SD = standard deviation

Table 3. Dimension distribution of adolescent knowledge per sex, age group, formal education level of mother and father, and having at least one parent working in healthcare

Characteristics	QCS Dimensions (mean/SD)					
	D1	D2	D3	D4	D5	D6
Total Classification	2.72 (0.90)	2.80 (0.49)	4.52 (0.97)	1.25 (0.69)	5.00 (1.27)	1.27 (0.56)
Sex						
Boys	2.82 (0.90)	2.74 (.58)	4.55 (.92)	1.12 (.62)	5.11 (1.31)	1.26 (.55)
Girls	2.60 (.90)	2.87 (.38)	4.48 (1.04)	1.40 (.74)	4.87 (1.22)	1.29 (.58)
P (b)	0.143	0.125	0.677	0.018	0.280	0.731
Age groups						
[12-14] years	3.50 (0.71)	2.50 (0.71)	5.50 (0.71)	1.00 (0.00)	4.50 (0.71)	2.00 (0.00)
[15-17] years	2.72 (0.91)	2.82 (0.48)	4.51 (0.97)	1.25 (0.69)	5.10 (1.29)	1.26 (0.57)
[18-19] years	2.25 (0.50)	2.50 (1.0)	4.50 (1.29)	1.50 (0.58)	5.00 (0.82)	1.25 (0.50)
P (b)	0.194	0.347	0.301	0.634	0.656	0.158
Education level of mother						
Basic and Secondary School	2.64 (0.87)	2.79 (0.27)	4.38 (1.00)	1.19 (0.50)	4.87 (1.39)	1.18 (0.53)
Higher Education	2.86 (0.94)	2.80 (0.23)	4.73 (0.82)	1.32 (0.64)	5.18 (1.09)	1.39 (0.59)
No Answer	2.33 (0.58)	3.0 (0.00)	4.33 (1.16)	1.33 (1.16)	5.00 (1.00)	1.33 (0.58)
p (b)	0.214	0.758	0.101	0.584	0.543	0.081
Education level of father						
Basic and Secondary School	2.68 (0.93)	2.77 (0.55)	4.48 (0.94)	1.26 (0.68)	4.88 (1.31)	1.27 (0.59)
Higher Education	2.80 (0.89)	2.82 (0.44)	4.58 (0.99)	1.24 (0.68)	5.24 (1.15)	1.31 (0.51)
No Answer	2.71 (4.88)	3.0 (0.00)	4.71 (1.38)	1.14 (0.90)	4.86 (1.46)	1.0 (0.58)
p (b)	0.641	0.499	0.522	0.950	0.368	0.432
Parents working in healthcare						
At least one parent working in healthcare	2.83 (0.71)	2.89 (0.32)	4.78 (0.94)	1.56 (0.51)	5.40 (1.19)	1.28 (0.58)
None of the parents working in healthcare	2.73 (0.94)	2.81 (0.49)	4.50 (0.97)	1.20 (0.69)	4.90 (1.25)	1.26 (0.56)
No response	2.20 (0.45)	2.4 (0.89)	4.0 (1.23)	1.20 (0.84)	4.0 (1.58)	1.6 (0.55)
p (b)	0.232	0.239	0.320	0.146	0.100	0.403

SD = standard deviation (b) Kruskal-Wallis
D1 = First sexual relation and sexual preoccupations (maximum score: 5 points)
D2 = Sexuality and sexual pleasure (maximum score: 3 points)
D3 = Contraception and safe sexual practices (maximum score: 6 points)
D4 = Pregnancy prevention (maximum score: 2 points)
D5 = Sexually transmitted infections and HIV/AIDS (maximum score: 7 points)
D6 = Counseling and care in sexual and reproductive health (maximum score: 2 points)

edge of sexuality, but the difference is not significant.[9] However, other studies have shown this to be a relevant difference,[9] thereby showing a need to target boys in intervention programs and address this specificity.

The QCS mean knowledge was 18.6 out of a maximum of 25 points, a slightly higher value than seen in other studies.[9]

Knowledge of sexuality seems to increase with age[9] and this study shows that students possessing the highest knowledge are the oldest ones.

A higher adherence to the questionnaire was seen among students of the sciences, who also showed the highest knowledge of sexuality, most likely due to their being more exposed to this theme, given it is part of the school curriculum.

The majority of students living with their parents, but it is not their presence that implies higher knowledge in the area of sexuality, as the presence of other individuals, such as grandparents and stepfathers, correlates to higher values in knowledge of sexuality. On the other hand, families in which the father is the single parent, show the least knowledge about sexuality, due to fathers generally being less open, less participative, and less permissive than mothers, therefore influencing the life of adolescents.[10]

Having single or divorced/separated parents seems to positively influence knowledge of sexuality, which might be related to the fact that these families naturally live with a diversity that is uncommon in traditional families (stepparents, other individuals), as evidenced by the "members of family who he/she lived with" variable.

Family is naturally the main way for acquisition of values for living in society. However, families might not necessarily meet adolescents' expectations or needs, who may end up seeking other sources of information. The relevance of informal education in teenager education and the decisive role of healthcare providers in school is clearly evident, in order to respond to presupposes needed.[5,10]

Education level influences teenager knowledge of sexuality: the higher the parents' level of education, the higher was the knowledge of their children, as evidenced by similar studies.[9] Adolescents whose mothers hold higher education degrees show the highest knowledge, with a significant statistical difference.

Parents' occupation influences knowledge of sexuality, where occupations requiring a higher level of education, such as higher education, show correlation to the highest level of knowledge in adolescents. Adolescents who had at least one of their parents working in healthcare showed the highest knowledge of sexuality, with a significant statistical difference.

Regarding the six dimensions assessed by the questionnaire, the areas where adolescents showed the least knowledge were: D1, First sexual relation and sexual preoccupations; and D4, Pregnancy prevention, in this latter girls showed the highest knowledge (with a significant statistical difference). This is most likely due to the socially implicit weight of pregnancy for girls, which poses direct and immediate consequences and therefore the seeking for the morning-after pill or abortion.[11]

Still regarding the dimensions, there are no relevant differences in knowledge between the various dimensions correlating the age, education level of mother or father, and having one of the parents work in healthcare.

The methodology explored and the simple questionnaire used (QCS) can be easily used by education institutions or other institutions for a fast diagnosis about the fundament of a planning to develop interventions for preventing risk behavior in sexuality, in compliance with WHO guidelines.[5] The knowledge does not imply a corresponding change in behavior, however, it predisposes adolescents towards a self-protective conduct, which minimizes risk.[2,5]

Conclusion

In our diagnosis, the least knowledge was observed about the following areas: "first sexual relation and sexual concerns"; "pregnancy prevention"; and "counseling and care in sexual and reproductive health". We thus recommended an intervention targeting these areas, with a special emphasis on gender differences.

Collaborations

Silva SMDT, Ferreira MMSV, Amaral-Bastos MM, Monteiro MAJ, and Couto GR participated in the conception of the study, analysis and interpretation of data, drafting the paper, critical review of content, and approval of the final version to be published.

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