

## ORIGINAL PAPER

## SEXUAL BEHAVIOR OF ADOLESCENTS WITH AN EMPHASIS ON USE OF CONTRACEPTIVES / RISK OF SEXUALLY TRANSMITTED INFECTIONS

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## Abstract

**Aim:** The aim of the study was to survey adolescent sexual behavior, use of contraceptives, and sexually transmitted infections, and, in addition, to see how these factors correlated with selected individual characteristics of the respondents (e.g., age, gender). **Design:** A quantitative cross-sectional study. **Methods:** An exploratory method, using a specially designed questionnaire, was selected. The research sample consisted of 381 adolescents with an average age of 17.75 years ( $\pm 1.28$ ). Data were analyzed using descriptive statistics and the Chi-squared ( $\chi^2$ ) test ( $p < 0.05$ ). **Results:** More than half of adolescents (61.35%;  $2.49 \pm 1.91$ ) have had sexual intercourse. We found a variety of reasons for differences in the use of contraceptive methods. The most commonly used contraceptive methods during sexual intercourse were male condoms (50.13%), and hormonal pills (16.80%). However, most respondents (86.61%) reported they had not used condoms during their last sexual intercourse. Only 12.86% of respondents considered their sexual behavior safe. Statistically significant differences were found in adolescent sexual behavior relating to contraceptive use in terms of gender and age ( $p < 0.05$ ). Male adolescents were more likely to use condoms during sexual intercourse, and to use contraceptive methods to prevent sexually transmitted infections. **Conclusion:** The study revealed that the level of adolescent sexual behavior deserves more attention. Evidence of significant differences should serve as an argument for efforts to increase awareness and education on issues related to sexual health, with an emphasis on the risk of sexually transmitted infections.

**Keywords:** adolescence, contraceptives, prevention, sexual behaviour, sexually transmitted infections.

## Introduction

The period of adolescence represents a transitional phase of growth and development between childhood and adulthood. During this period, the development of sexual maturation begins, and adolescents may also experience their first sexual intercourse. Compared to the past, the recent period can be characterized as more open and liberal, offering a variety of sexual opportunities that could generally be viewed as risky. Adolescents begin to experiment and develop partnerships at a time when they are undergoing many changes, including physical maturation, formation of identity, and self-development. Such early, often premature, experience of sexual relationships might be encouraged by the media, particularly the Internet, as well as by the rapid pace of modern lifestyles, and the earlier onset of puberty. Research on adolescents' attitudes towards sexuality plays a significant role

in many representative studies of sexual behavior. Sexual activity is influenced not only by degree of sexual maturation, but also by surrounding cultural and social pressures. In recent times, adolescents have begun to mature at an earlier age than before, with a number of negative consequences, particularly on their reproductive capacity and sexual health (Skrzeczowska et al., 2015). Risky sexual behavior automatically implies a greater incidence of sexually transmitted infections (STIs), which are, unfortunately, not uncommon in the period of adolescent development and, according to data released by the World Health Organization (WHO), their number is on the rise (World Health Organization [WHO], 2004). Every day, more than 1 million STIs are contracted worldwide. STIs are spread by contact with infected body fluids such as blood, saliva, vaginal secretions, or semen during sexual contact, including vaginal, anal and oral sex (WHO, 2012). The main indicators for sexual behavior are lack of condom use, contraction of STIs, and pregnancy in adolescents (Currie et al., 2008; WHO, 2012). Adolescent sexual behavior has been recognized as a significant health, social, and demographic problem in the developing world,

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particularly with regard to unintended pregnancies (Osaikhuwuomwan & Osemwenkha, 2013; Somba et al., 2014). One of the most significant trends influencing the sexual behavior of adolescents in the 21<sup>st</sup> century has been the constantly decreasing age of sexual initiation in teenagers, and the tendency among younger adolescents to delay use of contraception (Osaikhuwuomwan & Osemwenkha, 2013). Hence, prevention is a more important and beneficial tool in fighting this global challenge than therapeutic or remedial interventions, which are both associated with difficulties (Mazúchová, 2012). Control strategies and key principles of prevention centre on comprehensive sex education, which should be available and accessible to adolescents. It should begin before their sexual initiation, and should include new methods of family planning and contraception that have been developed in recent decades (Maskálová, 2010; Mazúchová & Kulová, 2014).

## Aim

The aim of the study was to survey adolescent sexual behavior, use of contraceptives, and STIs, and, in addition, to see how these factors correlated with selected individual characteristics of the respondents (e.g., age, gender).

## Methods

### Design

A quantitative cross-sectional study.

### Sample

The cohort consisted of participants who had fulfilled the following inclusion criteria: aged 15–21 years, attending a secondary school with a final graduation examination, and signed informed consent prior to participation. The research sample consisted of 381 adolescents, with an average age of 17.75 years ( $SD \pm 1.28$ ). The largest group (141 respondents) were 18-year-olds. From the total sample of 381 respondents, 275 were female and 106 were male. In terms of age, 142 respondents were aged 15–17 years, and 239 were aged 18–21 years.

### Data collection

A non-standardized specially-constructed questionnaire was used to collect the data. The clarity of the questionnaire was verified by a pilot study with ten respondents. Based on the piloting, problematic formulations of a formal and/or stylistic character were modified. The questionnaire was designed to identify how aspects of sexual behavior related to knowledge and contraceptive use. It contained 26

items, three of which were demographical. The respondents selected options from a predetermined list of responses, using an ordinal scale from 1 – “disagree” to 5 – “agree”. Data collection was conducted from February 2018 to October 2018. A combined method of personal and electronic questionnaire administration was chosen. A total of 300 paper questionnaires were distributed by hand in grammar schools and secondary vocational schools (with a final graduation examination) in the Prešov District, which had agreed to take part in the research and had provided signed informed consent. The completed questionnaires were put into a marked drop box, located in the school building. The response rate for the paper questionnaires was 93% ( $n = 280$ ). A total of 120 electronic questionnaires were received via social networks (Facebook, Twitter) and e-mail. From the total of 400 questionnaires distributed physically and electronically, 19 were excluded due to non-compliance with the inclusion criteria. As a result, a total of 381 questionnaires were used for the research study, a response rate of 95%.

### Data analysis

The received data were analyzed in SPSS 22.0 and Microsoft Office Excel 2007 programs, using descriptive statistics and a Chi-squared test ( $\chi^2$ ) to determine differences among the selected groups. A test result with a p-value below 0.05 ( $p < 0.05$ ) was considered statistically significant.

## Results

The average scale response and standard deviation ( $d \pm SD$ ), representing interpretation of descriptive characteristics of individual questionnaire statements, are shown in parentheses.

The results of the quantitative study revealed that the most popular contraceptive methods among adolescents was the male condom at 50.13% ( $3.67 \pm 1.64$ ), followed by hormonal contraceptive pills at 16.80% ( $2.32 \pm 1.57$ ), the calendar rhythm method at 13.65% ( $2.48 \pm 1.52$ ), and the withdrawal method at 12.86% ( $2.39 \pm 1.49$ ) (see Table 1).

Most adolescents (86.61%) did not use condoms during their most recent sexual intercourse.

For adolescents, the major reasons for contraceptive use are the following: a) to prevent pregnancy (39.37%;  $3.19 \pm 1.74$ ); b) non-contraceptive health benefits (7.63%;  $1.89 \pm 1.31$ ); c) to prevent STIs (18.64%;  $2.65 \pm 1.59$ ). In addition, 50.92% ( $2.25 \pm 1.53$ ) of adolescents use at least one form of contraceptive method during sexual intercourse, while 16.27% use none. The most common reasons

**Table 1** Contraceptive methods – preferences

Answers	Research sample (n = 381)						SD
	1	2	3	4	5	d	
<b>Barrier (mechanical) contraception</b>							
male condom	23.10	2.89	8.14	15.75	50.13	3.67	1.64
female condom (Femidom)	67.98	9.97	14.70	4.72	2.62	1.64	1.06
<b>Hormonal contraception</b>							
contraceptive pills	51.44	9.19	12.34	10.24	16.80	2.32	1.57
contraceptive patch	70.34	6.82	18.11	3.15	1.57	1.59	0.99
emergency contraceptive pill (Escapelle)	60.89	8.92	15.75	9.45	4.99	1.89	1.26
<b>Chemical contraceptives</b>							
spermicidal suppositories	70.00	5.26	22.11	1.32	1.32	1.59	0.96
spermicidal foam sprays	72.18	6.56	20.21	1.05	0.0	1.50	0.85
spermicidal gels	71.13	5.51	21.26	1.31	0.79	1.55	0.92
spermicidal creams	72.18	5.25	21.26	0.79	0.52	1.52	0.89
<b>Natural birth control methods</b>							
withdrawal method (coitus interruptus)	45.93	9.45	16.80	14.96	12.86	2.39	1.49
calendar rhythm method	44.36	7.35	17.59	17.06	13.65	2.48	1.52
basal body temperature method	66.67	4.72	22.05	3.15	3.41	1.72	1.12
mucous inspection method	67.45	4.99	23.10	2.62	1.84	1.66	1.03

1 – disagree; 2 – somewhat disagree; 3 – I do not know; 4 – somewhat agree; 5 – agree; d – the average scale value of the answers; SD – standard deviation; the results in the answers (column 1, 2, 3, 4, 5) are expressed in %

for respondents not to use contraceptive methods during sexual intercourse are the following: a) personal reasons (9.71%;  $1.77 \pm 0.86$ ); b) having sexual intercourse rarely (9.71;  $1.97 \pm 1.40$ ); and c) lack of money for contraceptives (4.99%;  $1.58 \pm 1.13$ ) (see Table 2).

In response to the question confirming sexual activity, 61.35% ( $2.49 \pm 1.91$ ) of adolescents declared that they had already had sexual intercourse, of which 29.40% ( $2.28 \pm 1.83$ ) reported having had their first sexual intercourse at 16–17 years of age. A further 12.07% ( $1.54 \pm 1.33$ ) of respondents reported having had sexual intercourse at 13–15 years of age. During their first sexual intercourse, more than a third of respondents 37.01% ( $2.81 \pm 1.85$ ) had used a contraceptive method.

The research indicated that most respondents (58.01%) had had more than one sexual partner by the age of 16–17. However, more than half of respondents (57.74%) considered having multiple sexual partners to be risky, while only 12.86% ( $3.99 \pm 1.22$ ) of respondents considered their sexual behavior to be safe.

#### *Analysis of sexual behavior in relation to contraceptive use in terms of gender and age*

Table 3 shows statistically significant differences in adolescent sexual behavior in relation to gender (female, male) and age (15–17 and 18–21 years of age) using the Chi-squared test of independence with degree of significance  $p < 0.05$ .

**Table 2** Contraceptive methods – protection against STIs, reasons for use

Answers	Research sample (n = 381)						SD
	1	2	3	4	5	d	
Hormonal contraception	38.85	8.66	32.55	8.14	11.81	2.45	1.38
Chemical contraceptives	47.51	8.66	37.80	2.89	3.15	2.06	1.12
Natural birth control methods	42.52	6.56	34.12	7.61	9.19	2.34	1.34
No contraceptive method prevents transmission of STIs	24.41	16.01	37.80	10.50	11.29	2.68	1.26
I do not use any contraceptive method during sexual intercourse	50.92	12.60	12.86	7.35	16.27	2.25	1.53
Health reasons for use (acne, menstrual cycle disorders, ...)	62.37	8.16	15.00	6.84	7.63	1.89	1.31
Contraceptive use to prevent pregnancy	33.07	5.25	10.76	11.55	39.37	3.19	1.74
Contraceptive use to prevent transmission of STIs	41.99	6.04	16.01	17.32	18.64	2.65	1.59

STIs: sexually transmitted infections; 1 – disagree; 2 – somewhat disagree; 3 – I do not know; 4 – somewhat agree; 5 – agree; d – the average scale value of the answers; SD – standard deviation; the results in the answers (column 1, 2, 3, 4, 5) are expressed in %

Statistically significant differences were found in adolescent sexual behavior in relation to contraceptive use, depending on gender and age. The effect of gender was demonstrated in several parameters: a) use of (male) condoms ( $\chi^2 = 9.854$ ;  $p = 0.043$ ) – with more male adolescents preferring it than female adolescents (60.38% : 46.18%); b) no use of contraceptive methods during sexual intercourse ( $\chi^2 = 13.852$ ;  $p = 0.008$ ) – with more female adolescents preferring it than male adolescents (17.45% : 13.21%); c) use of contraceptive methods for health reasons or non-contraceptive health benefits ( $\chi^2 = 10.960$ ;  $p = 0.027$ ) – with more female adolescents preferring it than male adolescents (7.30% : 5.66%); d) use of contraceptive methods to prevent STIs ( $\chi^2 = 15.943$ ;  $p = 0.003$ ) – with more male adolescents preferring it than female adolescents (29.25% : 14.55%). First sexual intercourse at the age of 20 or above, was more common among male adolescents than among female adolescents (36.36% : 33.96%), ( $\chi^2 = 15.646$ ;  $p = 0.004$ ). The analysis of the results indicated that at 16–17 years of age the majority of respondents

(58.01%) had had more than one sexual partner, and more than half of respondents (57.74%) considered having multiple sexual partners to be risky (see Table 2 and 3). This outcome proved to be statistically significant in terms of gender ( $\chi^2 = 34.700$ ;  $p < 0.000005$ ) – female adolescents perceiving it to be more risky than male adolescents (66.18% : 35.85%).

A statistically significant effect of age on adolescent sexual behavior in relation to contraceptive use was indicated for certain questions: a) experience of first sexual intercourse at 18–19 years of age ( $\chi^2 = 44.457$ ;  $p < 0.000005$ ) – reported more by older than by younger respondents (25.10% : 1.41%); b) “I have not had sexual intercourse yet.” ( $\chi^2 = 33.902$ ;  $p < 0.000005$ ) – reported more by younger than by older respondents (53.52% : 25.10%); and c) use of a contraceptive method during sexual intercourse ( $\chi^2 = 11.879$ ;  $p = 0.018$ ) – older respondents reporting use of contraceptive methods more often than younger respondents (42.68% : 27.46%) (see Table 3).

**Table 3** The significance level of differences in sexual behavior in relation to contraceptive use in terms of gender and age

Answers	gender		age	
	$\chi^2$	p*	$\chi^2$	p*
The contraceptive methods I prefer during sexual intercourse: male condom	9.854	0.043		
I do not use any contraceptive method at sexual intercourse	13.852	0.008		
I use contraceptive method for non-contraceptive health benefits (acne...)	10.960	0.027		
I use contraceptive methods to prevent STIs transmission	15.943	0.003		
I had my first sexual intercourse at 18-19 years of age	-	-	44.457	< 0.001
I had my first sexual intercourse at the age of 20 or above	9.503	0.050		
I have not had sexual intercourse yet	15.646	0.004	33.902	< 0.001
During sexual intercourse I used a contraceptive method			11.879	0.018
I consider having multiple sexual partners to be risky	34.700	< 0.001		

$\chi^2$  – the value of Chi-squared test; p\* – statistically significant at  $p < 0.05$

## Discussion

Adolescent sexual behavior is a topical issue, especially in view of its ongoing and changing trends. Our findings represent only a partial inquiry into this broad topic. Nevertheless, the results of the quantitative study revealed a rising tendency in the sexual activity of adolescents, together with a decline in age at first sexual intercourse (13–15 years of age) (see Table 3). That adolescent sexual behavior is risky is proven by the fact that only 18.64% of those surveyed use contraceptives to prevent STIs (see Table 2), which sharply contradicts their stated preferences of contraceptive method, with 50.13%

of adolescents claiming to prefer male condom use during sexual intercourse (Table 1). The most common method of contraception in adolescents is condom use (72%), while hormonal contraceptive pills (12%), and the withdrawal method (11%) are less common (Skrzeczowska et al., 2015). Respondents considered hormonal methods (50%), intrauterine contraceptive methods (21%), and condoms (21%) to be the most effective methods of contraception, while the withdrawal method (53%), and natural birth control methods (34%) were regarded as the least effective. The *Health Behavior in School-aged Children (HBSC)* study (Madarasová

Gecková & Dankulincová, 2015; Madarasová Gecková et al., 2016) reported that 74% of sexually active school-aged adolescents at the age of 15 years had used condoms during sexual intercourse to prevent unwanted pregnancy, 23% had used hormonal contraceptive pills, and 31% had used the withdrawal method. Sysák et al. (2014) points out that the advantages of condom use are easy availability without a medical prescription, low cost and, above all, prevention of STIs.

Our study provides a considerable insight into the factors influencing use of contraception. We found that respondents use contraceptives for non-contraceptive health benefits (7.63%), pregnancy prevention (39.37%), and STI prevention (only 18.64%). However, as many as 86.61% of adolescents did not use a condom during their last sexual intercourse. Filipp et al. (2005) found that 20% of young women did not use any method of contraception, and in a study by Woynarowska et al. (2006), 11.10% of respondents did not use any contraceptive methods during their last sexual intercourse. Kalina et al. (2006) reports that 72.40% of males and 80.70% of females occasionally use condoms during sexual intercourse. Risky behavior in (especially younger) respondents may increase the risk of STIs and of unplanned pregnancies. Common sexually transmitted infections with the highest incidence and impact on public health include syphilis, gonorrhoea, chlamydial infections, trichomoniasis, viral hepatitis B, genital herpes, and human papillomavirus infections. This suggests that comprehensive sex education should be available to young people before sexual initiation. This would allow the lay population, including adolescents, to recognize the symptoms of STIs, and would, thus, increase the chances of early diagnosis and treatment. The simplest and economically most accessible forms of protection are sexual abstinence and barrier contraception (condoms, femidoms).

Simultaneously, our research indicated that over half of the adolescents surveyed (61.35%) had already had sexual intercourse. These results are in line with several previous findings (Kabíček et al., 2014; Kelčíková et al., 2017; Potard et al., 2008; Skrzeczkowska et al., 2015; Woynarowska et al., 2006). Approximately a third of adolescents (29.40%) had their first sexual intercourse at 16 to 17 years of age; however, 12.07% of those questioned reported that they had experienced sexual intercourse as young as 13 to 15 years of age. Švihelová (2003) reports that 43% of respondents declared that they had had their first sexual intercourse at 15 to 16 years of age, 45% at 17 to 18 years of age, and 8% at the age of 19 or above. Data from the Czech Republic

suggest that 45% of adolescent females had had their first coital experience before the age of 16 (Dobáková, 2014). These results confirm that the average age at first sexual intercourse has gradually fallen, and that adolescent sexual activity is more frequent than is officially reported. Sexual experience often contributes to the prestige of an individual within a group of adolescents, which may encourage young people to start experimenting in this field prematurely (Vágnerová, 2008).

Analysis of the results indicates that most respondents (58.01%) have had more than one sexual partner by the age of 16 to 17. However, while over half of respondents (57.74%) considered having multiple sexual partners to be risky, only 12.86% of respondents considered their own sexual behavior to be safe. A study by Rahamefy et al. (2008) among undergraduates in Madagascar showed that 29% of those surveyed reported having had two or more sexual partners, while only 13.5% consistently used a condom. However, a higher figure for condom use (48.9%) was found among university students in Kampala.

The WHO estimates that one in every 20 adolescents and young adults annually comes into contact with STIs. Generally, young people do not seek help for STIs, as they do not realize that they have an infection, they are too embarrassed to go to a clinic, or they do not have access to treatment. Late treated or untreated STIs can potentially pose a hazard to health and fertility of adolescents in the long term (WHO, 2004). The WHO health strategy (2016a) has responded to the STI epidemic by declaring it to be one of the main targets of sustainable development by 2030. WHO 2016–2021 strategies drive efforts to accelerate and target comprehensive preventive efforts through the expansion of evidence-based combined behavioral, biomedical and structural approaches, and facilitate access to information on STIs (WHO, 2016b).

In terms of the selected categorical variables (*gender, age*), statistically significant differences were revealed in sexual behavior regarding use of contraception according to *gender* and *age* (see Table 3). Adolescent males are more likely to use condoms and contraceptive methods during sexual intercourse to prevent STIs than adolescent females. Furthermore, older adolescents make more use of contraceptives than younger adolescents.

In conclusion, it should be emphasized that sexual intercourse is never without risk, whether this be in terms of STIs or unplanned pregnancies, and, as

a result, it should be approached with respect and responsibility.

### Limitation of study

Certain limitations were inherent in the nature of our research. Firstly, sampling of respondents was deliberate during manual distribution of the questionnaire. Consequently, conclusions can be interpreted and generalized only for the referred purposive sample; and the representativeness of the sample obtained through the use of the Internet accessed questionnaires is also an issue. Despite the strengths of the online questionnaire, a disadvantage may lie in the possible misunderstanding of questions, although we endeavoured to reduce this risk by piloting the survey, and by providing clear and comprehensible instructions for completion of the questionnaire. In addition, the questionnaire used may not have provided a true reflection of the level of adolescent sexual behavior and habits regarding use of contraceptives (e.g. due to the subjective statements of adolescents, and absence of an interviewer who could explore the answers of the respondents). A mixed research approach, including interviews with gynaecologists, teachers, and parents, would help to objectify and explain risky sexual habits in adolescents. The research outcomes may also have been partly distorted by possible inaccuracies in responses, as the questions were of an intimate nature. We can consider our study as partial, and it may serve as inspiration for exploration of other aspects of this issue in the future. We should also point out that the content and scope of our research did not completely exhaust the sub-areas of adolescent sexual behavior. However, the aforementioned research limitations notwithstanding, we believe that the study has arrived at challenging and compelling conclusions, and can be of benefit to educational practice.

### Conclusion

The onset of risky adolescent sexual behavior requires early recognition and intervention by healthcare professionals in primary healthcare settings. Our findings reflect the need for a strategy of targeted educational efforts to change sexual behavior, with only a third of the adolescents surveyed considering their sexual behavior to be safe. Sexual intercourse is never risk-free, especially regarding STIs. Evidence of significant differences in terms of gender and age could serve as an argument for healthcare professionals (gynaecologists, paediatricians, midwives, and nurses) and teachers to promote more effective

educational programs for adolescents regarding risky sexual behavior. The primary goal is to improve adolescents' compliance with sexual health and safe sexual behavior.

### Ethical aspects and conflict of interest

The research followed ethical guidelines. Headmasters of secondary vocational schools gave their informed consent to the research. All participants received full information about the nature and goals of the research, and their involvement in the study. Data collection was anonymous, and all participants expressed their willingness to be included in the study, providing written informed consent. The authors declare and confirm that there are no known conflicts of interest associated with this publication.

### Acknowledgement

We would like to thank the schools for allowing us to conduct the research, and the respondents for their willingness to participate in this sensitive study.

### Author contributions

The concept and study design (SK, MP), data analysis and interpretations (SK, MP), processing the draft of the manuscript (SK), critical revision of the manuscript (SK, NM), article finalization (SK, NM).

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