

## ORIGINAL PAPER

## TRENDS IN SEXUAL BEHAVIOUR IN SLOVAK SCHOOLCHILDREN BETWEEN 2006–2018

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## Abstract

**Aim:** The objective of this study was to analyze changes in incidence of sexual experience in 15-year-old Slovak adolescents between 2006–2018, and use of protection against unwanted pregnancy. **Design:** A series of cross-sectional school questionnaires. **Methods:** Data were obtained from an international study of Health Behaviour in School-Aged Children (HBSC) on a representative sample of Slovakian schoolchildren through an anonymous standardized questionnaire to assess the health-related behavior of adolescents. For the analysis, we used data from 15-year-old adolescents from 2006 (n = 1,252), 2010 (n = 1,568), 2014 (n = 1,549), and 2018 (n = 1,293) regarding their experience of sexual intercourse and use of contraceptive methods. **Results:** During the observed period, there were no significant changes in the prevalence of sexually active adolescents, except for an increase in 2014 (11.7% in 2006; 12.1% in 2010; 16.1% in 2014; and 14.3% in 2018). The most frequently used method of contraception was a condom, which was used by 42.4% of sexually active respondents in 2014, and as many as 74.5% of sexually active respondents in 2010. Hormonal contraception was used by 3.3% of sexually active girls in 2006, compared to 23.4% of sexually active girls in 2010. **Conclusion:** The results showed that the incidence of early sexual intercourse in Slovakian adolescents did not change significantly during the period 2006 to 2018, and the situation remains relatively favorable compared to other European countries. On the other hand, there was insufficient use of contraception in sexually active adolescents.

**Keywords:** adolescents, contraception, HBSC, first sexual intercourse, sexual behavior.

## Introduction

The period of adolescence is characterized by changes in all areas and at all levels of the body and the personality of the individual (Sobotková et al., 2014). It is characterized by physical and hormonal changes associated with sexual maturation, which produce new emotions (Manlove et al., 2006). An important aspect of adolescents' lives is the discovery of their own sexuality (Sobotková et al., 2014). Sexuality is a vital element of human characteristics (Young et al., 2018). According to the World Health Organization (WHO), positive sexual health affects a person's physical and mental well-being, and it is also essential for achieving sustainable development and accomplishment of global health and human rights (Temmerman et al., 2014). Adolescent sexuality is considered not only immature, but qualitatively different from adult sexuality (Fortenberry, 2013). Adolescent sexuality is

generally portrayed as being preliminary, experimental, confused, clumsy, and innately dangerous (Schalet, 2004). Individual sexual activities during adolescence are mostly sporadic and irregular. At the same time, adolescent relationships create space for the initial discovery of sexuality, and they can lead to the first sexual intercourse and further sexual activity (Madarasová-Gecková et al., 2015).

Experience of sex in adolescence is associated with the social status of adolescents. They might adopt attitudes such as: 15 is the optimal age for the beginning of sexual life, sexual intercourse is a form of fun, or the use of contraceptive devices (condoms, the pill, etc.) is “uncool” (Weiss, 2010). Sexual initiation among adolescents can be accelerated by peer pressure or emotional arousal (Templeton et al., 2017). Common social norms allow boys greater sexual freedom, and this is associated with earlier initiation compared to girls. However, differences in social and cultural norms lead to discrepancies in the incidence of early sexual initiation between countries (Madkour et al., 2014). However, the risk

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behavior of adolescents, which can have an impact on the quality of their reproductive health, does not relate only to their sexual life, but also to the whole lifestyle that is characteristic of them (Urbanová, 2010). Risk factors in addition to premature sexual activity include: sexual promiscuity, risky methods of sexual intercourse, abuse of drugs and other substances, sexually transmitted diseases (inflammatory and other), body weight, smoking, stress, and lack of information on reproductive and sexual health. Early sexual initiation contributes to feelings of guilt, shame, and social feedback that affect the way young people interpret early sexual experiences, which, in turn, can worsen mental health. Subsequently, sexual relationships can change relationships with friends and family, which could later lead to increased stress (Gazendam et al., 2020). Moreover, an early initiation of sexual life, in addition to social and personal influences, could also have direct health consequences, especially in terms of the acquisition of sexually transmitted diseases and unplanned pregnancy (Young et al., 2018). The risk of these consequences is greatly increased by the inconsistent use of condoms and other contraceptive methods (Madkour et al., 2014).

## Aim

The aim of the paper was to analyze the changes in the incidence of sexual experience, and the use of methods of protection against unwanted pregnancy in 15-year-old adolescents in Slovakia from 2006 to 2018.

## Methods

### Design

Health Behavior in School-Aged Children (HBSC) is an international cross-sectional school questionnaire study. Its standardized design makes it possible to create harmonized data sets suitable for cross-country comparisons, and for the identification of changes over time. So far, four HBSC surveys have been carried out in Slovakia: in the school years 2005 / 2006, 2009 / 2010, 2013 / 2014, and 2017 / 2018. Data were collected through standard anonymous questionnaires containing mandatory question modules used in each participating country, and optional modules containing question sets based on the specific needs of each country.

### Sample

The samples used in HBSC surveys are created in accordance with the structure of the education system in a given country, and are stratified by region and type of school in order to obtain representative

data on 11, 13, and 15-year-old adolescents. Two-phase sampling is used in accordance with a standardized research protocol (HBSC Publications: International Reports, 2020). In Slovakia, in the first phase, a sample of schools was randomly compiled from the official list of all schools provided by the Ministry of Education. Schools were selected according to region (from eight self-governing regions) and type of school (primary schools of the 1<sup>st</sup>–9<sup>th</sup> grade and eight-year grammar schools of the 6<sup>th</sup>–13<sup>th</sup> grade). In the second phase, within the selected schools, sets of classes were randomly created in which data were collected.

In the analysis, we analyzed respondents between 15 and 15.9 years of age, which accounted for 30.6% of all respondents ( $n = 5,662$ ). Data included: 1,252 adolescents (47% boys and 52.8% girls) in 2006; 1,568 adolescents (49.2% boys and 50.8% girls) in 2010; 1,549 adolescents (52.5% boys and 47.5% girls) in 2014; and 1,293 adolescents (54.4% boys and 45.6% girls) in 2018.

### Data collection

An original international questionnaire developed for the needs of the HBSC study was used for data collection, which was translated into Slovak in the standard way. Data collection took place directly in the classroom, and was performed by trained field administrators. The team of administrators consisted mainly of students from the faculties involved in the project. During the completion of the questionnaires and their processing, the anonymity of the provided data was assured. In 2018, respondents filled in online questionnaires using tablets. Parents were informed in advance about the study through the school administration, and could withdraw if they did not agree with their child's participation. In Slovakia, the project was coordinated by the Faculty of Medicine of the Pavel Jozef Šafárik University in Košice. Further detailed information on HBSC surveys in Slovakia is provided in individual research reports (Madarasová-Gecková et al., 2019).

### Data analysis

Data were analyzed using PSPP statistical software, version 18.0. Descriptive statistics (frequencies and corresponding percentages) were used to report the characteristics studied.

The Chi-square test was used to evaluate the statistical significance of differences between groups of respondents. For the purposes of the study, we analyzed the following variables: "Have you ever had sexual intercourse (sometimes called "making love", "having sex" or "sleeping with someone")?" Respondents answered yes or no (the number

of respondents who stated “Yes” is presented); and “Did you or your partner use a condom, hormonal contraception, the morning after pill, or any other method of protection against unwanted pregnancy?” (the number of respondents who stated “Yes” to a specific method is presented). Only 15-year-old schoolchildren who had already had sexual intercourse were asked to respond to these questions. We compared the results from 2006 to 2018 on the occurrence of first sexual intercourse in 15-year-old boys and girls.

## Results

Under the indicator of first sexual intercourse, we included a number of synonyms for vaginal intercourse. The average age in both sexes was 15 years. The percentage of respondents who reported having sex did not exceed 20% for either gender. Compared to 2006, the percentage increased significantly in 2014, and in 2018 (for boys) (Table 1).

Further questions were asked to investigate which methods of contraception were most often used. Respondents were asked to select all appropriate options regarding their use of contraception during

their last sexual intercourse. Since they could select more than one option or none, the sum of all options was not 100%. The most frequently used method of protection against unwanted pregnancies was a condom (Table 2). This method of protection is the most available, and, at the same time, protects against sexually transmitted diseases. In 2014, the incidence of respondents reporting this method decreased in both sexes. The development trend is shown in Graph 1.

The percentage of girls reporting the use of hormonal contraception increased significantly in 2010, and then decreased in 2014 for both sexes. For boys, however, it rose again in 2018 (Graph 2).

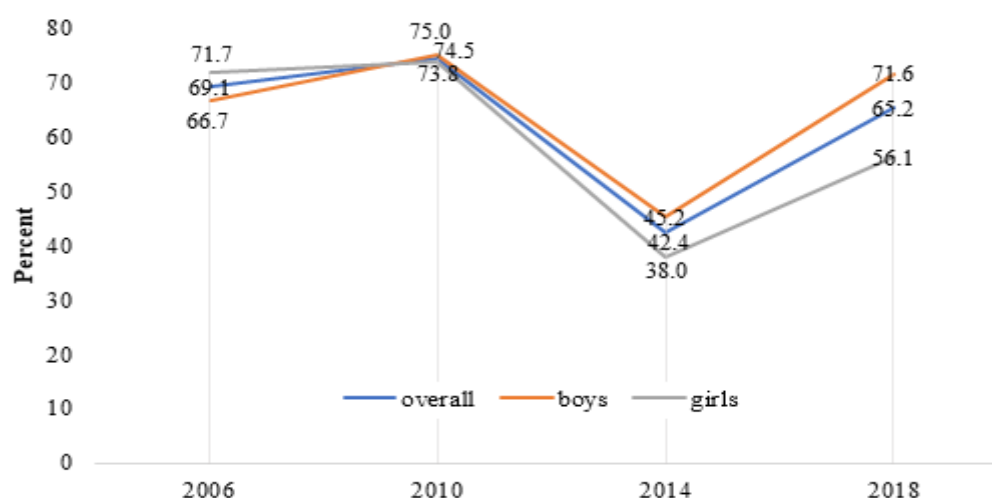
The item “morning after pill” was only included in the questionnaire survey from 2010, when more than 12% of boys and 15% of girls reported using this method. In 2014, the use of this method decreased for both sexes. In the same year, an increase in condom use was apparent. Similarly, in 2018, we found an increase in the use of this method in boys (Graph 3).

After 2006 we noted an increase in other contraceptive methods. However, these could not be specified more precisely since the relevant questions were not included in the questionnaires.

**Table 1** Occurrence of first sexual intercourse in 15-year-old children in 2006, 2010, 2014, and 2018

	2006 n (%)	2010 n (%)	2014 n (%)	2018 n (%)	2006 vs. 2010	2010 vs. 2014	2014 vs. 2018	2010 vs. 2018	2006 vs. 2014	2006 vs. 2018
<b>together</b>	146 (11.7)	188 (12.1)	220 (16.1)	151 (14.3)	ns	p < 0.01	ns	ns	p < 0.001	ns
<b>Sexual boys</b>	76 (12.8)	107 (14.6)	126 (17.9)	94 (17.0)	ns	ns	ns	ns	p < 0.05	p < 0.05
<b>girls</b>	70 (10.6)	81 (9.8)	94 (14.2)	57 (11.3)	ns	p < 0.01	ns	ns	p < 0.05	ns

ns – statistically insignificant difference

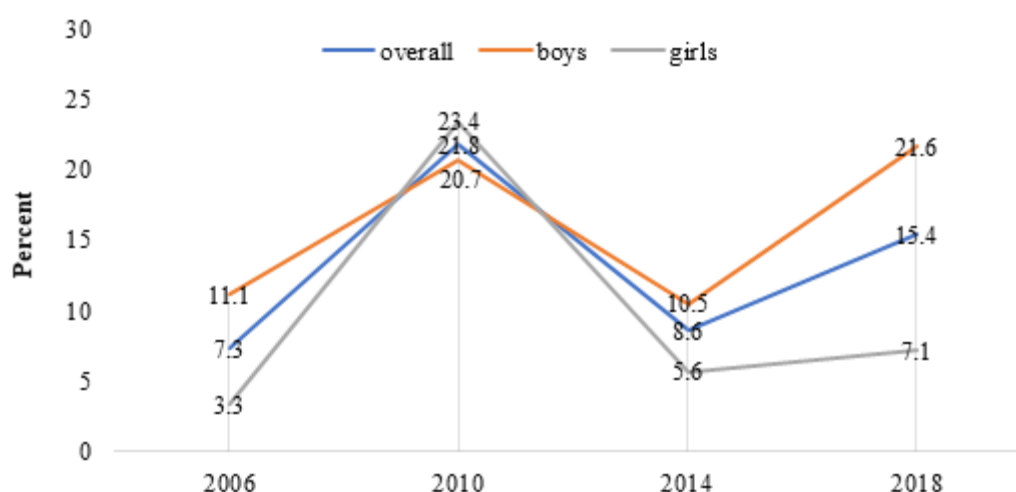


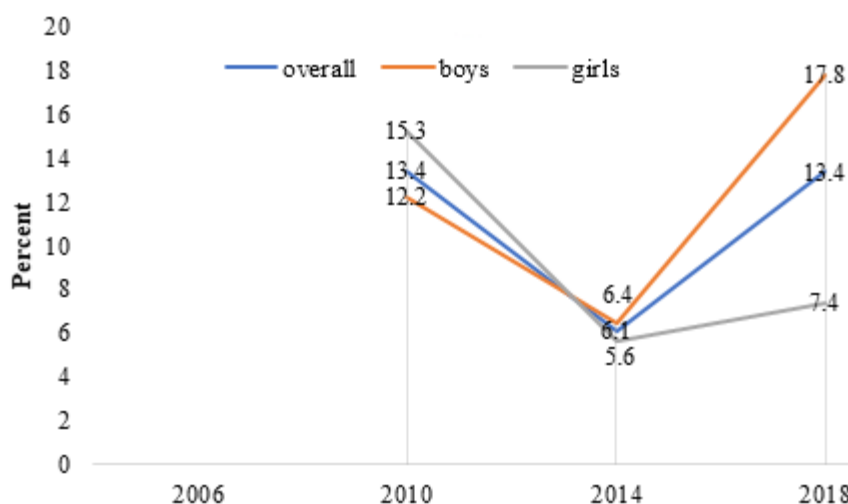
**Graph 1** Trend of development in use of condoms as protection against unwanted pregnancy in 15-year-old adolescents in years 2006–2010 – 2014–2018

**Table 2** The method used to protect against unwanted pregnancy in 15-year-old boys and girls who had their first sexual experience in 2006, 2010, 2014, and 2018

	2006 n (%)	2010 n (%)	2014 n (%)	2018 n (%)	2006 vs. 2010	2010 vs. 2014	2014 vs. 2018	2010 vs. 2018	2006 vs. 2014	2006 vs. 2018
<b>Condom</b>										
overall	85 (69.1)	143 (74.5)	161 (42.4)	90 (65.2)	ns	p < 0.001	p < 0.001	ns	p < 0.001	ns
boys	42 (66.7)	84 (75.0)	104 (45.2)	58 (71.6)	ns	p < 0.001	p < 0.001	ns	p < 0.001	ns
girls	43 (71.7)	59 (73.8)	57 (38.0)	32 (56.1)	ns	p < 0.001	p < 0.05	p < 0.05	p < 0.001	ns
<b>Hormonal contraceptives</b>										
overall	9 (7.3)	34 (21.8)	31 (8.6)	20 (15.4)	p < 0.001	p < 0.001	p < 0.05	ns	ns	p < 0.05
boys	7 (11.1)	19 (20.7)	23 (10.5)	16 (21.6)	ns	p < 0.05	p < 0.05	ns	ns	ns
girls	2 (3.3)	15 (23.4)	8 (5.6)	4 (7.1)	p < 0.01	p < 0.001	ns	p < 0.05	ns	ns
<b>Emergency hormonal contraceptives</b>										
overall	N/A	20 (13.4)	22 (6.1)	17 (13.4)	N/A	p < 0.01	p < 0.01	ns	N/A	N/A
boys	N/A	11 (12.2)	14 (6.4)	13 (17.8)	N/A	ns	p < 0.01	ns	N/A	N/A
girls	N/A	9 (15.3)	8 (5.6)	4 (7.4)	N/A	p < 0.05	ns	ns	N/A	N/A
<b>Other method contraceptives</b>										
overall	9 (7.3)	22 (15.4)	27 (8.5)	9 (9.7)	p < 0.05	p < 0.05	ns	ns	ns	ns
boys	4 (6.3)	15 (17.0)	18 (10.1)	9 (17.6)	ns	ns	ns	ns	na	ns
girls	5 (8.3)	7 (12.7)	9 (6.5)	0 (0.0)	ns	ns	N/A	ns	N/A	N/A

ns – statistically insignificant difference; N/A – not available; impossible to calculate

**Graph 2** Trend of development in use of hormonal contraceptives (tablets) as protection against unwanted pregnancy in 15-year-old adolescents in years 2006–2010 – 2014–2018



**Graph 3** Trend of development in use of emergency hormonal contraception (the “morning after pill”) as protection against unwanted pregnancy in 15-year-old adolescents in years 2006–2010 – 2014–2018

## Discussion

Data collection for our study takes place regularly at four-year intervals. The study is conducted on a large sample of Slovakian primary school and eight-year high school students, which gives us the opportunity to monitor trends of development in this issue, such as the number of school children with an early onset of sexual behavior, and protection against unwanted pregnancies and sexually transmitted diseases. Among the countries where the HBSC study takes place (Madarasová-Gecková, 2019), the incidence of sexual experience is lowest in the Slovak Republic. We did not find any statistically significant changes except for a slight increase in sexual experience in girls between 2010 and 2014, which remained without any further statistically significant change between 2014 and 2018. However, the increase was statistically significant in 2014 (compared to 2006), when up to 17.9% of boys and 14.2% of girls had their first sexual intercourse at the age of 15. According to the international HBSC report, when Slovakia, the Czech Republic, Hungary, Poland, and Ukraine are compared, Slovakian and Polish school children are below the average of the HBSC study in the field of sexual intercourse, while Hungarians and Czechs are above the average (Madarasová-Gecková et al., 2016).

We also monitored the use of contraceptives during sexual intercourse. In Slovakian school children, (girls and boys) a condom was the most frequently used contraceptive protection method. In Ireland, up to 80% of school children aged 15 to 18 used a condom in their last intercourse (Young et al., 2018). Non-use of condoms, which was found

in 40% of sexually active Slovak school children in the 2010 data collection, means a high risk of possible transmission of sexually transmitted diseases (Madarasová-Gecková et al., 2011). Nonetheless, in 2014, when there was a higher incidence of sexually active Slovakian school children, a smaller percentage of them used protection against unwanted pregnancies and sexually transmitted diseases, which could have a potentially negative impact on reproductive health. The choice of contraception in young people is influenced by biological, psychological, and social factors. It is often determined by its availability, price, and sufficient knowledge of adolescents about the correct use of contraception (Young et al., 2018). A 2010 survey found that 23% of sexually active 15-year-old school children used hormonal contraception. Therefore, sufficient information and timely appropriate sexual education are needed. (Madarasová-Gecková et al., 2011). This points to the importance of effective educational and preventive interventions for Slovakian school children. Information on possible side effects of contraceptive methods should also be included in educational and intervention activities (Madarasová-Gecková et al., 2011). Information on possible side effects of contraceptive methods should also be included in educational and intervention activities (Madarasová-Gecková et al., 2011). Although the results of the study indicated that more boys than girls had an early sexual experience in Slovakia, we cannot underestimate sexual risk behavior in girls either. There was a more frequent use of condoms in 2014 among Czech, Hungarian, and Ukrainian 15-year-old school children (Madarasová-Gecková



et al., 2016). In France, 17.7% of girls in this age group stated that they had had sexual intercourse, and as many as 88.4% of them said that they had used condoms or birth control pills during their last sexual intercourse (Godeau et al., 2008). The international HBSC survey for 2013 / 2014 found that in Ireland 16% of girls and 27% of boys had had sex at the age of 15. This was a lower proportion than in a number of European countries, such as Sweden, (26% of girls and 24% of boys), Hungary (27% of girls and 29% of boys), and Bulgaria (21% of girls and 40% of boys) (Temmerman et al., 2014).

Sexual activity in adolescents is influenced by several factors and determinants. An early sexual initiation in boys was predicted by alcohol, tobacco and cannabis use, poorer background, good communication with friends (Young et al., 2018), complete and incomplete family, negative attitude to life, and early menarche (Godeau et al., 2008). In girls, an early sex life was also affected by bullying (Young et al., 2018). Negative body image, family support, social media, and overall life satisfaction have been shown to be predictors of early sex life in Canadian schoolchildren (Gazendam et al., 2020). Use of social media involves higher exposure to sexualized behavior and images, which can break down barriers to sexual activity. The use of social media can be a sign of loneliness, which can lead to early sexual activity (Költo et al., 2019). Although more conservative cultural contexts may limit early sexual initiation, they may also limit adolescents' access to sexual health information and education, as shown in the U.S. analysis, in which states with higher religiosity and conservatism recorded higher birth rates (Madkour et al., 2014). Health promotion and a healthy lifestyle can be considered as highly beneficial determinants influencing early sex life and protection against unwanted pregnancies and sexually transmitted diseases. Sex education programs should focus on decisions about the timing of first sexual intercourse, with a special emphasis on gender and social inequalities, to reduce negative feelings about experiencing sexual intercourse (Moreau et al., 2019). Despite unquestionable progress, the protection of girls during their first sexual intercourse is not perfect. Adolescents' lack of knowledge about contraception may lead one partner to assume that the other will take responsibility for protection against unwanted pregnancies (Young et al., 2018). Although the main risks are considered to be unwanted pregnancies and sexually transmitted diseases, the psychological consequences involved in early sexual initiation are also increased (Godeau et al., 2008). Unwanted pregnancies in adolescents are more common in families with low socio-economic status,

low parental education, low aspirations for young girls, low sense of family belonging, insufficient parental control, and a negative attitude towards school (Amu & Appiah, 2006; Milne & Glasier, 2008). Communication about options for protection against unwanted pregnancies, and sexually transmitted diseases, are an important predictor in choosing an appropriate method of protection against sexual intercourse (Young et al., 2018). In terms of recommendations for practice, the results of our analysis suggest that adequate education of adolescents about sexual relationships is particularly important in the prevention of early sexual activity and protection against unwanted pregnancies, and this could reduce the negative impact of sexual relations at a young age (Lara & Abdo, 2016). In these activities, midwifery and pediatric nursing can contribute through the facilitating of educational meetings, consultations, lectures, and professional discussion activities. Identifying and analyzing the factors associated with early sexual intercourse should help professionals to provide better care for at-risk adolescent girls (Godeau et al., 2008). Professionals should provide the lay population with information on the risks of early sexual intercourse, transmission of sexual illnesses, and unwanted pregnancies, especially in the context of primary pediatric care, but also through social networks, Internet, and mass media.

The results indicate the importance of paying attention to the sexual education of children, and consequently, of protecting both their physical and also their mental health. In addition, the appropriate training of teachers, nurses, and midwives in the field of sexual education should not be overlooked. With the right upbringing, sexuality can be carefully cultivated and can positively shape future generations. Only if health is already part of the value system for adolescents will results in this area be improved and the lifestyle of society positively influenced and adjusted. Based on the obtained results, we can state that the trends in the prevalence of first sexual intercourse in Slovakian 15-year-old adolescents showed an increasing tendency in both sexes from 2006; however, this trend later stopped, and in any case, the changes were quite small. The decline in the use of contraceptive methods also reversed.

Future research will confirm whether this is only a coincidence or the beginning of an increase in the average age at first sexual intercourse. The results showed the need to continue investigating the trend of sexual intercourse in children, and the importance of these data for setting measures and protecting children's health. We recommend focused

discussions between professional experts in this field, and subsequent application of recommendations, particularly for schools and all institutions that work with children. We also recommend cooperation with parents and social workers. As part of pediatric prevention care, information on menarche and first sexual intercourse should be included in medical histories.

### Limitation of study

There were certain limitations to our research. The questionnaires were distributed online. Questions about first sexual intercourse and methods of protection against unwanted pregnancy were shown only to pupils over 15 years of age due to the age limit. The results of the research may have been partially blurred by possible inaccuracies in the answers, as the questions were confidential. Despite the strengths of the online questionnaire, a drawback may be the possible misunderstanding of questions, although we tried to reduce this risk by providing clear and comprehensible instructions for completing the questionnaire, and by excluding teachers from the classroom (only administrators were present).

In addition, the questionnaire may not have accurately reflected the level of contraceptive use among adolescents, for example, due to their subjective understanding of the questions and ambiguous responses. We should also emphasize that the content and scope of our research have not completely exhausted the sub-areas of adolescent sexual behavior. Despite the limitations of the research mentioned above, we believe that the study has reached clear conclusions, and could be beneficial for nursing practice.

### Conclusion

The findings confirm and emphasize the importance to state health policy of focusing on young people. Targeted interventions could have unique effects on their sexual health. Within intervention programs, it is necessary to focus on the prevention of premature sexual initiation in order to maintain the relatively positive situation in Slovakia. Further research should focus on identifying socio-demographic and behavioral characteristics related to risky sexual behavior in adolescents. The study allows us to collect data across participating countries, and this enables us to identify health indicators and key patterns of health behavior. It is also possible that demographic factors and the health system, which differ from country to country, influence the timing of first sexual intercourse. The identification of these factors should assist field experts (gynecologists, pediatricians, midwives and nurses) in the

preparation of sex education programs. Safe sexual behavior and sexual health should be included in school prevention programs, as the prevention of sexually transmitted diseases and unwanted pregnancies in adolescents remain major challenges for the promotion of reproductive and sexual health.

### Ethical aspects and conflict of interest

The authors have disclosed no potential conflicts of interest – financial or otherwise.

### Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

### Author contributions

Conception and design (RC), data analysis and interpretation (PK), elaboration of manuscript design (MB, RC), critical revision of manuscript (MB), final elaboration of article (MB).

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