

**Accessibility of school health education is an underlying factor for
differences in knowledge about sexually transmitted infections
of secondary school pupils**

Dostopnost do šolske zdravstvene vzgoje pogojuje razlike v znanju dijakov
o spolno prenosljivih okužbah

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Abstract: Health education constituted an individual subject in secondary schools in Slovenia before 1985. Thereafter it was disintegrated and its topics incorporated into different school subjects. Health education topics are required in the extent of 15 hours in upper secondary general education schools, but in the extent of 0 to 18 hours in other secondary school programmes. The present study compared the knowledge about sexually transmitted infections of pupils of two 4-year secondary school programmes with different health education requirements. The results demonstrated that different accessibility of school health education results in distinct differences in knowledge about the existence, sources of infection, symptoms, and protection against sexually transmitted infections between pupils of different secondary school programmes. Despite the general conception of overloaded curriculums, more than two thirds of pupils of both educational programmes expressed the need of receiving more information in sexual education topics, with systematic medical exam selected as the most suitable form of sexual education, closely followed by Biology class, and school project day. The results call for the attention of educational policy makers, as they clearly emphasise the need of establishing systematic and comprehensive school health education for all pupils, not only for those enrolled in the selected secondary school programmes.

Key words: sexually transmitted infections, sexual education, health education, secondary education

Izvleček: Pred letom 1985 je bila zdravstvena vzgoja samostojen srednješolski predmet. Kasneje so bile njene vsebine vključene v različne šolske predmete. Za srednje splošno izobraževanje je danes predpisanih 15 ur obveznih vsebin zdravstvene vzgoje, za druge srednješolske programe pa od 0 do 18 ur. Pričujoča raziskava je primerjala znanje o spolno prenosljivih okužbah dijakov dveh 4-letnih srednješolskih programov z različnim obsegom zdravstvene vzgoje. Rezultati raziskave so pokazali, da se različna dostopnost do šolske zdravstvene vzgoje srednješolcev odraža v izrazitih razlikah v poznavanju spolno prenosljivih okužb in v znanju dijakov o virih okužbe, simptomih in zaščiti pred spolno prenosljivimi okužbami. Kljub splošni predstavi o prenasičenih predmetnikih, je več kot dve tretjini dijakov obeh srednješolskih programov izrazilo

potrebo po večjem obsegu spolne vzgoje, pri čemer so kot najbolj primerno obliko za spolno vzgojo izbrali sistematski zdravniški pregled, takoj za tem pa ure biologije in šolski projektni dan. Rezultati kličejo po pozornosti oblikovalcev izobraževalne politike, saj so jasno pokazali potrebo po vzpostavitvi sistematizirane in izčrpne zdravstvene vzgoje za vse dijake, ne le za dijake izbranih srednješolskih programov.

Ključne besede: spolno prenosljive okužbe, spolna vzgoja, zdravstvena vzgoja, srednješolsko izobraževanje

Introduction

World Health Organisation (WHO) defines sexual health as a state of physical, emotional, mental, and social well-being in relation to sexuality; sexual health is thus not merely the absence of disease, dysfunction or infirmity (World Health Organization 2006). According to WHO, the ultimate objective of sexual health is thus the attainment of physical, emotional, mental, and social well-being in relation to sexuality, with comprehensive education and information being one of the crucial sexual health intervention areas (World Health Organization 2017).

In Slovenian educational system (Direktorat... 2019), sexual education is part of health education topics. These topics constituted an individual subject in secondary schools before 1985, but were afterwards disintegrated and incorporated into different subjects, including Biology and Civil education and ethics in primary schools, and Compulsory elective topics in secondary schools.

In Slovenia, the extent of obligatory health education topics is equal for pupils of all primary schools. In secondary schools, however, the extent of obligatory health education topics varies between different school programmes. Consequently, health education topics have the extent of 15 hours in Upper secondary general education schools (for example: general high school graduate programme), from 0 (for example: electrician programme) to 18 hours (for example: mechanical technician programme) in Upper secondary technical education schools, 0 hours in Upper secondary vocational education schools (for example: hairdresser programme, auto mechanic programme), and 6 hours in Short upper secondary vocational education schools (for example: carpenter programme) (Obvezne izbirne vsebine... 2015). Thus, although recognised as a critical part

of sexual health intervention areas by the WHO (World Health Organization 2017), it is clearly evident that comprehensive health education is not equally available to all secondary school pupils in Slovenia. We therefore hypothesised that these differences in the accessibility of health education between pupils enrolled in different secondary school programmes will be reflected in their knowledge about sexually transmitted infections.

Material and methods

Pupils of two 4-year secondary school programmes were invited to voluntarily participate in the study. Pupils of three classes of the fourth year of the Novo mesto grammar school (which is an upper secondary general education programme) (school A), as well as pupils of three classes of the fourth year of electrician programme of Secondary electro school and technical gymnasium of School centre Novo mesto (which is an upper secondary technical education programme) (school B) participated in the study. Fifteen hours of health education, which are presented during Biology classes, are included in the curriculum of school A pupils, but none in the curriculum of school B pupils. In addition, pupils of school A have obligatory classes of Biology for two hours per week in the first three years of schooling, and selective four to six hours per week of Biology in their fourth year of schooling; pupils of school B do not have any classes of Biology during their four years of schooling.

An anonymised online questionnaire relating to the knowledge about sexually transmitted infections was prepared for all pupils with an online open-source tool Ika (<https://www.ika.si/>). Twenty-five mainly closed questions were included in the questionnaire and were aimed to assess the

knowledge of pupils about the existence, sources of infection, symptoms, and protection against sexually transmitted infections, as well as about their acquaintance with the existing publicly accessible professional sexual education projects, and their experiences and wishes regarding sexual education.

The questionnaires were completed by the pupils anonymously, in the computer classrooms in schools during regular course time. While the pupils were answering the questionnaire, investigator was available in the same classroom to answer any technical- or subject-related questions.

The collected data were transferred from the online questionnaire into Microsoft Excel 2010 (Microsoft Office 2010), examined and analysed. All data were divided into those obtained from pupils of school A and those obtained from pupils of school B. A Chi-square test was applied to

determine any statistically significant differences between the two groups. Level of <0.05 was adopted as statistically significant.

Results

The questionnaire was fulfilled by 50 pupils of school A and 71 pupils of school B. Among males, there were 28 females who fulfilled the questionnaire in school A, and no females among those who answered the questionnaire in school B. The average (standard deviation) age of the participating pupils was 18 (0.21) years.

Of 121 participating pupils, 71% reported that they were already sexually active, with no statistically significant differences ($p > 0.05$) observed between the pupils of the two schools (68% in school A, 73% in school B).

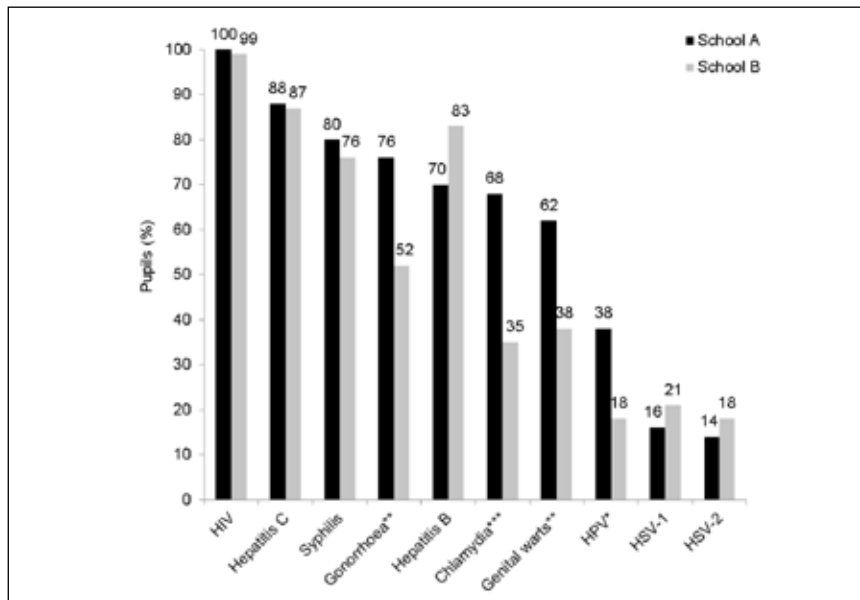


Figure 1: The percentage of pupils from a given secondary school programme that selected a given sexually transmitted infection as the one for which they had already heard of. School A - upper secondary general education programme, School B - upper secondary technical education programme. HIV - human immunodeficiency viruses, HPV - human papilloma virus, HSV 1 - herpes simplex virus type 1, HSV 2 - herpes simplex virus type 2. Asterisks mark statistically significant differences between the pupils of the two secondary school programmes (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$).

Slika 1: Delež dijakov posamezne srednje šole, ki so izbrali določeno spolno prenosljivo okužbo, za katero so slišali. Šola A – splošni program srednje šole, Šola B – tehniški program srednje šole. HIV – humani virusi imunske pomanjkljivosti, HPV – humani papiloma virus, HSV 1 – virus herpes simplex tipa 1, HSV 2 – virus herpes simplex tipa 2. Zvezdica označuje statistično značilno razliko med dijaki obeh srednješolskih programov (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$).

The most interesting results, obtained from the answers of pupils are presented below. Pupils had to select the sexually transmitted infections that they had already heard of. The majority of pupils reported they had heard of HIV (human immunodeficiency virus), syphilis, and hepatitis (both B and C) (Figure 1). Far less of them reported they had heard of gonorrhoea, chlamydia, genital warts, HPV (human papilloma virus), and HSV (herpes simplex virus, both type 1 and 2). Statistically significant differences were observed between the results of pupils of the two schools, with constantly lower values observed in pupils of School B (Figure 1).

When asked about the common symptoms of sexually transmitted infections, a high percentage of pupils from both schools A (92%) and B (89%)

selected the correct symptom of burning sensation during urination, with no statistically significant differences between the two groups. However, a significantly smaller number of pupils from school B than from school A selected unusual discharge from urethra or vagina (76% vs. 96%; $p < 0.01$) and itch (54% vs. 88%; $p < 0.001$) as the two other correct common symptoms of sexually transmitted infections. In addition, significantly more pupils (41% vs. 18%; $p < 0.01$) from school B than from school A incorrectly selected sensitive breasts as a common symptom of sexually transmitted infection. Several pupils from both schools A and B also selected the other incorrect statements about common symptoms of sexually transmitted infections as correct (Figure 2).

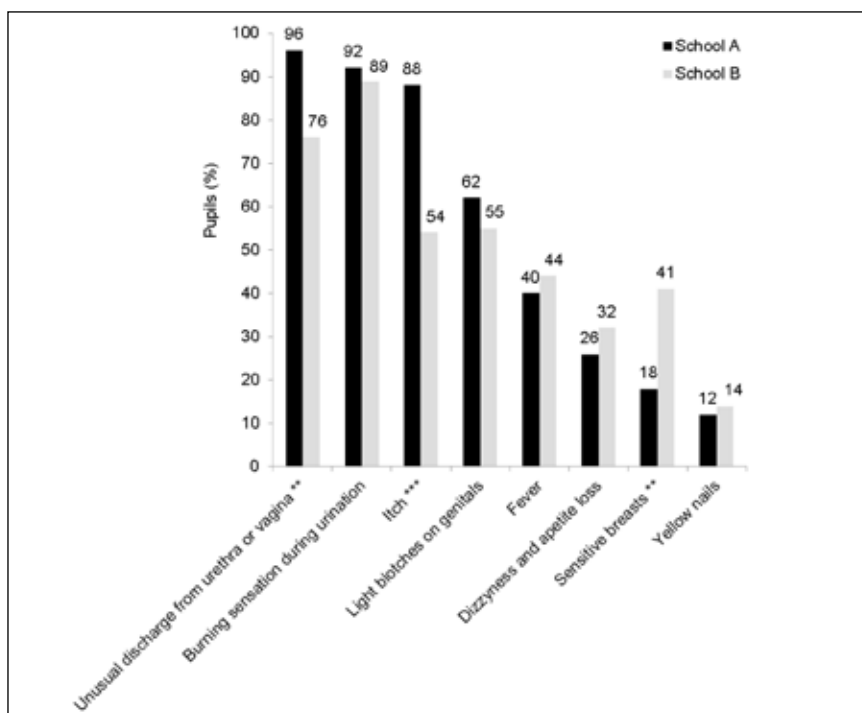


Figure 2: The percentage of pupils from a given secondary school programme that selected a given symptom as a common symptom of a sexually transmitted infection. Only the first three answers from left to right are correct, i.e. are actual symptoms of an infection. School A - upper secondary general education programme, School B - upper secondary technical education programme. Asterisks mark statistically significant differences between the pupils of the two secondary school programmes. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Slika 2: Delež dijakov posamezne srednje šole, ki so izbrali določen splošno razširjen znak spolno prenosljive okužbe. Prvi trije odgovor na levi strani so pravilni, tj. so dejanski znaki okužbe. Šola A – splošni program srednje šole, Šola B – tehniški program srednje šole. Zvezdica označuje statistično značilno razliko med dijaki obeh srednješolskih programov (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$).

Seven percent of pupils from School B, but none from school A ($p < 0.05$) incorrectly stated that contraceptive pills can provide effective prevention against sexually transmitted infections. Similarly, 4% of pupils from school B, but none from school A ($p < 0.05$) incorrectly stated that in case of sexually transmitted infection one should ask for antibiotics in a pharmacy. Also, 45% of pupils from school B, but 10% from school A ($p < 0.001$) incorrectly stated that in case of HIV infection no treatment is available, the others selected antiretroviral drugs as available treatment. In addition, 41% of pupils from school B and 14% of pupils from school A ($p < 0.001$) incorrectly stated that HIV infection is a bacterial infection.

Ninety percent of pupils from school B and 82% of those from School A ($p > 0.05$) did not participate in any of the stated publicly accessible professional sexual education projects. Even more, almost a half of pupils (49%) from school B and 30% of pupils from school A did not hear for any of the publicly accessible professional sexual education projects (Figure 3). At the same time, more than three quarters (78% and 82%,

pupils from school A and B, respectively; $p > 0.05$) provided positive feedback when one of these (ASPO, *n.d.*) was presented to them.

In addition, regardless the health education topics required by law in some of the secondary school programmes, of which sexual education should be a part of, there were 20% of pupils from school B and 2% of pupils from school A ($p < 0.05$) who reported that they had not participated in any sexual education topics throughout their secondary school education, additional 48% of pupils from school B and 66% of pupils from school A ($p < 0.05$) reported to participated in only 1 to 5 hours of sexual education topics throughout their secondary school education. We found it interesting that 28% and 20% of pupils from school A and B, respectively, stated that they had not asked any questions during their sexual education, not because they did not have any, but because they were ashamed. In case they would have had the opportunity to ask questions anonymously in advance, 70% of pupils from school A and 61% of pupils from school B stated they would have actually posed a question.

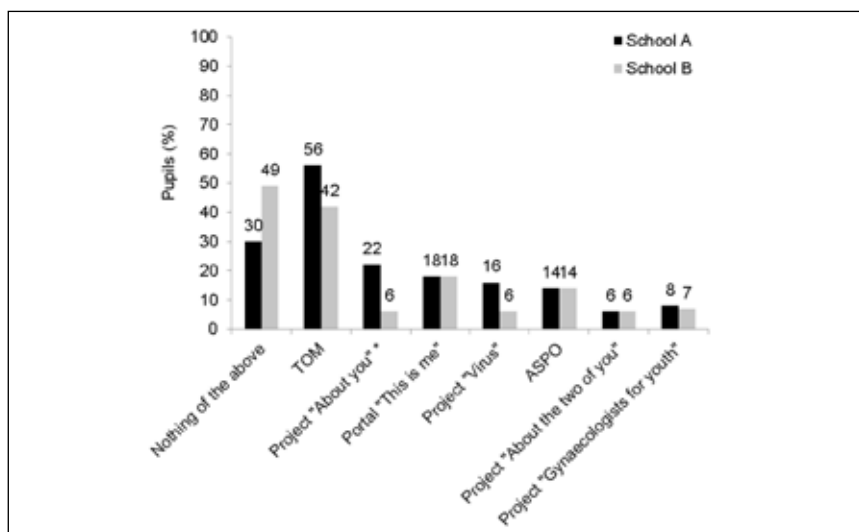


Figure 3: The percentage of pupils from a given secondary school programme that selected a given publicly accessible professional sexual education projects as familiar. School A - upper secondary general education programme, School B - upper secondary technical education programme. TOM - telephone for children and youth, ASPO - online application for recognition and information about sexually transmitted infections.

Slika 3: Delež dijakov posamezne srednje šole, ki so izbrali poznan javno dostopen projekt s področja profesionalne spolne vzgoje. Šola A – splošni program srednje šole, Šola B – tehniški program srednje šole. TOM – telefon za otroke in mladostnike, ASPO – spletna aplikacija za prepoznavanje in informiranje o spolno prenosljivih okužbah.

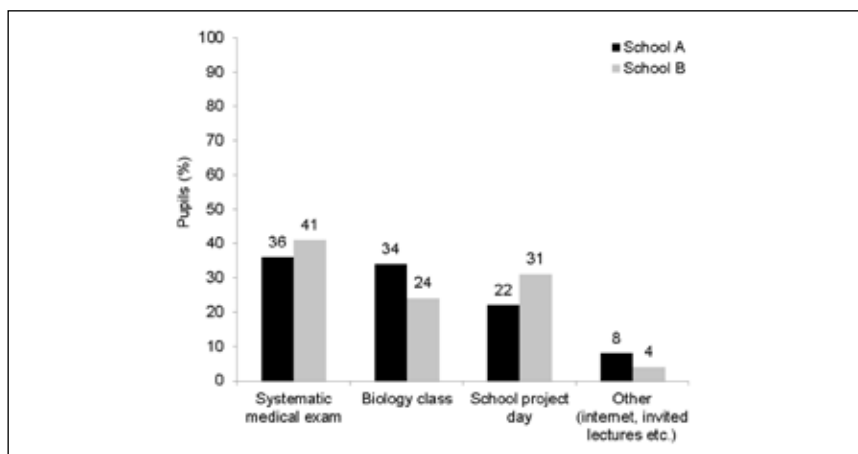


Figure 4: The most suitable forms of sexual education, as selected by the pupils of upper secondary general education programme (School A) and upper secondary technical education programme (School B).

Slika 4: Najprimernejše oblike spolne vzgoje po izboru dijakov splošnega programa srednje šole (šola A) in tehniškega programa srednje šole (šola B).

Last but not least, more than two thirds (i.e. 78% of pupils from school A and 68% of pupils from school B; $p > 0.05$) stated they would require more sexual education topics through the course of their education, with systematic medical exam selected as the most suitable form, closely followed by Biology class, and school project day (Figure 4).

It is also worth stressing that individual suggestions received from several students called for the inclusion of not only biological/physiological topics and topics related to sexually transmitted infections into sexual/health education, but also for the inclusion of psychological and emotional dimensions that would help establishing a positive and respectful approach to sexuality.

Discussion

The results of the present study demonstrate that the accessibility of school health education significantly affects the knowledge about sexually transmitted infections of secondary school pupils. Clear lack of knowledge about sexual education topics was observed in pupils of upper secondary technical education programme (school B) when compared to pupils of upper secondary general

education programme (school A). This difference in knowledge between pupils of the two schools was consistent along all the posed questions in which statistically significant differences were observed. Pupils of Upper secondary technical education programme (school B) demonstrated a significantly lower knowledge about the existence, sources of infection, symptoms, and protection against sexually transmitted infections. Although the sample of secondary school pupils in the present study was rather small, the observed differences are far too profound and far too consistent to be of random nature.

Nevertheless, we can not exclude the possibility that gender structure of the two programmes might have been a contributing factor to the observed results. Namely, in the Upper secondary general education programme half of the participating pupils were females, who often have higher school grades than males, while there were only male pupils in the Upper secondary technical education programme. However, as the available sample does not allow gender analysis relative to educational programme, this option can not be tested. In addition, it would be beneficial, if school grades of the participating pupils would be available, so that the potential correlation between school success and knowledge about

sexually transmitted diseases could be tested, but, as anonymity was guaranteed, these data were not available in the present study.

According to the existing curriculums of the two educational programmes, 15 hours of health education are obligatory for pupils of school A, but no health education is obligatory for pupils of school B during their four years of secondary schooling. Sexual education is one of the crucial parts of health education topics, yet 68% of pupils of both schools reported to participate in a maximum of 5 hours of sexual education during the course of their schooling, with a fifth of pupils from school B who reported receiving no sexual education at all.

Comprehensive sexual education consists of accurate, age-appropriate and up-to-date information on physical, psychological, and social aspects of sexuality and reproduction, as well as sexual and reproductive health and ill health (World Health Organization, 2017). Effective sexual education, combined with easy access to contraception, can effectively reduce adolescent pregnancy rates (Speroff and Darney 2005, cit. in Fuller 2007). Also, accurate and comprehensive information can build positive attitudes and values, and healthy behaviour (World Health Organization, 2017). As for the above results, not all of the Slovenian pupils have the access to school health education, which decreases the likelihood of adolescents making well informed choices.

We find it particularly concerning that, despite rather intense publicity, one can still find teen-aged individuals, who are not familiar with HIV infection. Also, only a third of pupils of Upper secondary technical education programme selected chlamydia as sexually transmitted infection for which they had already heard of, despite the fact that chlamydia is the third most often reported sexually transmitted infection in Slovenia (Sočan et al. 2018). It is not to be neglected that the incidence of infections with chlamydia has been increasing in both genders over the last ten years, with the highest incidence observed in young people (Sočan et al. 2018). This is not coincidental, as young people up to the age of 25 are a group with the highest-risk for sexually transmitted infections, as they usually change their sexual partners more often than older people (Pinter 2010). Results of a national HBSC study from 2014 suggest that

20% of 15-year old adolescents were already sexually active, with a quarter of them not using protection (Jeriček Klanšček 2015). Apart from chlamydia, an increase in sexually transmitted infections over the last ten years in Slovenia has also been observed for genital warts and gonorrhoea (Sočan et al. 2018), for which only a third and a half of pupils of upper secondary technical education programme, respectively, had heard of.

In addition, pupils from both schools declared a rather poor acquaintance with the existing publicly accessible professional sexual education projects. Their generally positive feedback to the presentation of one of such projects (ASPO, *n.d.*) suggests, however, that they require receiving more information. This is additionally supported by the fact that substantially more than two thirds of pupils expressed support for the inclusion of more sexual education topics in the existing curriculum, with some of them expressing the wish of health/sexual education being established as an individual subject, which is in clear contrast to a general perception of overloaded secondary school curriculum.

The pupils of both educational programmes clearly expressed the need of receiving more information in sexual education topics, as around two thirds of pupils of both schools declared they would have posed a question related to sexual education, if only they had had the opportunity of doing so in advance and anonymously. This result demonstrates that it can not be stressed enough, how important it is for sexual education providers to establish a respectful and safe environment for the pupils, when these topics are being presented.

Conclusions

The present study demonstrated the importance of school health education for adolescents and revealed that the accessibility to school health education is an underlying factor for the observed differences in knowledge about sexually transmitted infections between pupils of different 4-year secondary school programmes. Ideally, educational policy makers would recognise the importance of health education for all youngsters, not only for those enrolled in selected secondary school programmes, and would consequently re-establish

its position among obligatory school subjects. A less demanding task would be to include obligatory hours of health education into all secondary school programmes; positive feedback from pupils suggests such implementation would not face any serious resistance. Finally, a more systematic approach to health education, including a systematic presentation of the already existing publically accessible professional sexual education projects, would increase its effects and empower pupils for a self-motivated evidence-based self-education and making of well informed choices.

Povzetek

Svetovna zdravstvena organizacija (WHO) izčrpno spolno vzgojo postavlja za temelj intervencij na področju spolnega zdravja (World Health Organization 2017), ki je definirano ne le kot odsotnost bolezni, pač pa kot stanje s spolnostjo povezanega fizičnega, čustvenega, miselnega in socialnega blagostanja (World Health Organization 2006). Pred letom 1985 je bila zdravstvena vzgoja v Sloveniji samostojen srednješolski predmet, kasneje pa so bile njene vsebine vključene v različne šolske predmete.

Za srednje splošno izobraževanje je danes predpisanih 15 ur obveznih vsebin zdravstvene vzgoje, za druge srednješolske programe pa od 0 do 18 ur. Pričujoča raziskava je primerjala znanje o spolno prenosljivih okužbah dijakov dveh 4-letnih srednješolskih programov (splošne gimnazije in programa elektrotehnik) z različnim obsegom zdravstvene vzgoje. V raziskavo je bilo vključenih 121 dijakov prostovoljcev, 50 dijakov 4. letnika gimnazije in 71 dijakov 4. letnika programa elektrotehnik. Vsi dijaki so v šolski računalniški učilnici ob prisotnosti anketarja anonimno izpolnili vprašalnik z vprašanji o spolno prenosljivih okužbah, ki smo ga oblikovali v odprtokodnem spletnem orodju 1ka.

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ASPO - Spletna aplikacija za prepoznavanje in informiranje o spolno prenosljivih okužbah. *n.d.* <https://aspo.mf.uni-lj.si>, accessed May 14, 2019.

Rezultati so pokazali na dosledne razlike v znanju med obema skupinama dijakov, pri čemer so dijaki programa elektrotehnik značilno slabše poznali spolno prenosljive okužbe, njihove simptome in zaščito pred spolno prenosljivimi okužbami kot njihovi vrstniki gimnazijci. Znatno manj dijakov programa elektrotehnik kot gimnazijcev je poznalo okužbo s klamidijo in gonorejo, ki sta poleg genitalnih bradavic spolno prenosljivi okužbi, ki sta v zadnjih desetih letih v Sloveniji v porastu, pri čemer je njuno največjo incidenco zaslediti ravno med mladimi (Sočan et al. 2018).

Kljub splošni predstavi o prenasajenih predmetnikih, je več kot dve tretjini dijakov obeh srednješolskih programov izrazilo potrebo po večjem obsegu spolne vzgoje, pri čemer so kot najbolj primerno obliko za spolno vzgojo izbrali sistematski zdravniški pregled, takoj za tem pa ure biologije in šolski projektne dan. Izpostaviti velja tudi, da je več kot petina dijakov obeh srednješolskih programov navedla, da med urami spolne vzgoje niso postavili vprašanja, ne zato, ker ga ne bi imeli, pač pa zato, ker jih je bilo sram. Obenem je dve tretjini dijakov navedlo, da bi vprašanje postavili, če bi to lahko storili anonimno vnaprej. Izvajalci spolne vzgoje bi se morali torej dobro zavedati, kako velik je pomen vzpostavitve varnega in spoštljivega okolja za učinkovito izvedbo spolne vzgoje. Dijaki so obenem navedli, da si pri izvedbi spolne vzgoje poleg bioloških/fizioloških vsebin in vsebin, povezanih s spolno prenosljivimi okužbami želijo slišati tudi sovpadajoče psihološke in čustvene vsebine, ki bi pomagale pri vzpostavljanju pozitivnega in spoštljivega pristopa do spolnosti.

Rezultati pričujoče raziskave kličejo po pozornosti oblikovalcev izobraževalne politike, saj se je jasno pokazala potreba po vzpostavitvi sistematizirane in izčrpne zdravstvene vzgoje za vse dijake, ne le za dijake izbranih srednješolskih programov.

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