WWJMRD 2017; 3(8): 216-219
www.wwjmrd.com
International Journal
Peer Reviewed Journal
Refereed Journal
Indexed Journal
UGC Approved Journal
Impact Factor MJIF: 4.25
e-ISSN: 2454-6615

Daniel Cebo
Institute of Veterinary Physiology, Free University of Berlin, Oertzenweg, Berlin, Germany

Correspondence:
Daniel Cebo
Institute of Veterinary Physiology, Free University of Berlin, Oertzenweg, Berlin, Germany

Assessing of knowledge and awareness of HPV and HIV among teenagers in Europe

Daniel Cebo

Abstract
Sexually transmitted infections appear to be an increasing problem in several European countries, especially among teenagers 16-19 years old. This may indicate that adolescents lack the necessary information and options which can help them lead healthy sexual and reproductive lives. In this work, basic sexually transmitted infections knowledge and awareness and comprehensive Human Papilloma Virus awareness of school-going adolescence aged 12-20 years was assessed using a systematic literature search and a multi-centric school-based survey. Results of this work can help point out areas where sexually transmitted diseases risk communication for adolescents needs to be improved.

Keywords: sexually transmitted diseases, teenagers, Europe, condoms, awareness, knowledge

Introduction
High rates of teenage pregnancies and increasing numbers of sexually transmitted infections (STIs) in adolescents have led to more attention being paid to adolescent sexual and reproductive health worldwide. Although the sexual and reproductive health of adolescents in industrialized countries is generally considered to be good, differences in outcomes such as teenage pregnancies, an indicator of unprotected sexual intercourse, have been observed within and between regions [1]. Despite the fact that teenage birth and pregnancy rates in the United States have been on the decline since 1991, they are still considerably higher than in other industrialized countries and also said to be among the highest worldwide. Within Western Europe, teenage pregnancies are a major problem in the United Kingdom, where the annual rate is 47 per 1000 15-19-year-old. A comparison between Western and Eastern/Central Europe shows that rates of teenage pregnancies, induced abortions and STIs among adolescents are considerably higher in the latter region than in the former. Trends in teenage pregnancy rates are said to be an indicator for the sexual and reproductive health of adolescents and of the opportunities and capacity they have to control their sexual and reproductive health. Reasons which have been given for the observed differences in outcomes include poverty, ethnicity or migrant background, parental level of education, family structure and functioning, societal influences such as family, friends and communities, cultural attitudes and access to education and health care services [2].
Over the last decade, an increase in numbers of diagnosed STIs such as syphilis, gonorrhea and chlamydia has been observed in several western European countries, especially among teenagers 16-19 years old. This has been taken as an indication that adolescents lack the necessary information and options which can help them lead healthy sexual and reproductive lives (Table 1).
To improve the sexual and reproductive health of adolescents and reduce inequalities between and within countries, the WHO drew up a strategy to meet the demands of sexual and reproductive health of adolescents in Europe [3].
In this work, basic STI knowledge and awareness, as well as comprehensive awareness of school-going adolescence aged 12-20 years was assessed using a systematic literature review and a multi-centric school-based survey.

Methods

Systematic literature review

We performed literature searches in PubMed using various combinations of the search terms "STD", "HIV", "HPV", "chlamydia", "syphilis", "gonorrhea", "herpes", "hepatitis B", "knowledge", "awareness", and "adolescents".

Inclusion criteria

Studies were selected if they reported on awareness and/or knowledge of one or more sexually transmitted disease(s) among school-attending adolescents in a European country, or in Europe as a whole, and were published in English or German.

Exclusion criteria

Case reports, reviews, editorials, letters to the editor, expert opinions, studies on sexual activity/behaviour only, studies evaluating intervention programmes and studies not specifically on school-attending adolescents were excluded

School-based cross-sectional survey

Between October and December 2015, we conducted a questionnaire-based cross-sectional survey to assess the knowledge and awareness of STIs among adolescents attending the 8th grade and above in 8 secondary schools, 6 in Berlin.

Students with signed consent completed an anonymous, self-administered questionnaire at their school during normal school time. The questionnaire covered issues on knowledge and awareness of STIs, and on Human Papilloma Virus (HPV) vaccination among girls as well as demographic variables. The questionnaires (one for girls and one for boys) were pre-tested on a sample of school-going adolescents aged 13-15 years. The completed questionnaires were assessed for ambiguity, clarity, comprehensibility and completion times required, and were thereafter modified accordingly.

Operationalising awareness and knowledge

To assess awareness of STIs, the students were asked to indicate which of the following diseases they had ever heard of: HIV/AIDS, HPV, chlamydia, herpes, syphilis, gonorrhea and hepatitis B. They were also asked to indicate their sources of information regarding sexual issues and STIs.

Data analysis

Cross-sectional data were analyzed using different statistical methods. Descriptive analyses were performed and frequencies for all variables. Chi-square test was used to assess bivariate relations between the independent variables age (in categories), sex, migrant background, school education of mother, ever had sex, type of school (offering up to the 10th or up to the 12th/13th grade).

In all multivariable analyses, the demographic variables age, sex, migrant background and school education of mother were maintained in the models as they have been shown to be associated with knowledge and awareness of STIs among adolescents in other studies. A random effects ordinal regression model (PROC GLIMMIX) was initially applied to account for clustering of individual observations by school, and the Computes covariance test for adaptive linear modelling (COVTEST) statement was used to test for differences by school. Where the covariance parameter was not significant, standard ordinal regression analysis (PROC LOGISTIC) was conducted. In each case, the proportional odds assumption was tested to assess the appropriateness of the ordinal regression model.

Results

A systematic literature review identifies, evaluates and interprets empirical evidence relevant to a research question or topic area using clearly defined systematic methods. Systematic reviews can be conducted to summaries known information about a certain topic, treatment or technology, to identify gaps in research and suggest areas for further investigation, or to provide a background against which new research activities or policies can be positioned.

We conducted a systematic review on knowledge and awareness of STIs among school-going adolescents in Europe to get a clear picture of research activities in this area and so that we could relate our findings to the European context.

To assess the methodology of the studies included in the review, a modified version of the Critical Appraisal Form from the Stanford School of Medicine was used [4]. We however were not able to assess the risk of infection in the included studies as most of them did not provide the necessary information. For example, in some studies it was not clear how many schools participated in the survey, how the schools were selected, or what the participation rate was. A further limitation is that we could not conduct a meta-analysis of the data as the wording of the questions used to assess awareness and knowledge varied between studies, as did the age of participants included in the studies. As we restricted our search to original, peer-reviewed studies clearly assessing knowledge and awareness among school-attending adolescents, it cannot be ruled out that we missed some relevant grey-zone literature. Including the latter would however have made the quality assessment of included literature even more difficult as these are generally not based on original, systematically conducted surveys. Finally, as the search was limited to German and English literature, this precluded the inclusion of studies in other European languages [5].

Overall, 465 titles and abstracts were obtained from the searches conducted. Three hundred and ninety-three articles were excluded as they did not report on studies conducted in Europe. A further 47 were excluded as they did not focus on knowledge and awareness of adolescents [6]. Of the 25 identified articles dealing with knowledge on STDs among adolescents in Europe, 8 were excluded as they either did not specifically address the question of knowledge and/or awareness, or focused more on sexual behaviour/beliefs [7]. A further seven articles were excluded because the study population was not clearly stated to be school-attending [8].

Six of the articles were published before the year 2016, and nine after 2000. Most the 15 studies specifically focused on HIV/AIDS only (7 studies) [9, 10], four on STDs in general, one on STDs in general with focus on HPV, and three on HPV only [11, 12, 13]. All the HPV studies were published after the approval and market introduction of the HPV vaccine in 2006 (Figure 1).

Generally, the studies were conducted in particular regions/towns in different countries, with only one being

conducted across three towns in three different countries (Russia, Georgia and the Ukraine). Six of the studies were conducted in Sweden, two in Russia and one each in Ireland, England, Croatia, Finland, Italy, and Germany [14,15,16].

In the studies, both male and female adolescents varying in age from 13-20 years were surveyed. One study surveyed women only and adolescents 11-12 years old were included in only one study [17]. Because most of the studies included assessed awareness and knowledge among boys and girls, only one study assessed the association between age and awareness/knowledge.

Awareness and knowledge of HPV

The reported awareness of HPV among the surveyed adolescents was generally low ranging from 5.4% to 66% [18, 19]. In the two studies which also reported results for females and males separately, awareness was observed to be statistically significantly higher among females than among males: 16.4% vs. 9.6% in the Swedish study 71.6% vs. 51.2% in the Italian study [20, 21]. Whereas only 2.9% and 9.2% of adolescents in these two Swedish studies were aware that HPV is sexually transmitted, the proportion was 60.6% in the Italian study [22]. A minority of adolescents knew that HPV is a risk factor for cervical cancer: 1.2% in the Italian study and 8.1% in the Swedish study. Among the adolescents who participated in the survey 48.6% were aware that the aim of the HPV vaccine is to prevent cervical cancer [23, 24]. Among female adolescents who participated in the study 11.8% did not believe they would be infected with HPV [25]. The latter study surveyed pupils aged 14-20 years but did not report on age differences in awareness. Three studies reported on awareness of condylomata, genital warts which are caused by the human papilloma virus. Two of the studies reported awareness of 35% and 43% [26].

Awareness and knowledge of HIV/AIDS

Knowledge and awareness was quite high in all studies reporting on HIV/AIDS, with more than 90% of adolescents being able to identify the disease as an STD from a given list or in response to the direct question "Have you ever heard of HIV/AIDS?". In one study where the open question "Which STDs do you know or have you heard of?" was used, 88% of respondents mentioned HIV/AIDS.

In the studies where this was asked, a large majority of the adolescents knew that HIV is caused by a virus, is sexually transmitted, and that sharing a needle with an infected person may lead to infection with the virus. Statistically significant age specific differences in knowledge on mode of HIV-transmission were reported in the study conducted in Germany [27]. Compared to 13 and 15-year-old pupils, a higher proportion of 14-year-old pupils correctly identified the level of risk of HIV-transmission associated with bleeding wounds, intravenous drug use and sexual contact. For the latter mode of transmission, the lowest proportion of correct answers was observed among 16-year-old pupils. Generally, the proportion of respondents correctly reporting that use of condoms helps protect against contraction of HIV was above 90%. The only exception was in the Russian study in which only 42% of females and 60% of males were aware of this fact. In the same study, only 15% of the adolescents perceived themselves 'not at risk' of contracting HIV [28,29].

Only one study reported asking the adolescents if one can tell by looking at someone if they have HIV, to which 47% responded affirmatively.

Discussion

The highest awareness and knowledge were reported for HIV/AIDS. This is certainly linked to the fact that since the mid-1980s, extensive awareness campaigns on this topic have been conducted globally. The lowest proportions were reported for HPV, with awareness as low as 5.4% in one study. With only about 1 in 8 respondents knowing that HPV is an STD, awareness was still very low in one of the two studies conducted after the introduction of the HPV vaccine. A higher awareness (66.6% of respondents aware), measured in a different population, was observed in the second recent study on HPV [30].

Two factors appeared to have influenced awareness. The first was of a methodological nature and related to the fact whether an open or closed question was posed. Of the studies included in the review which assessed awareness, all but one used closed-form questions only. The adolescents either had to identify sexually transmitted diseases from a given list of diseases, or the question was in a yes/no format. Only one participant (0.2%) mentioned HPV as one of the STDs known to them, but later, 24 (5.4%) reported to have heard of HPV [31]. In comparison to open-form questions, closed questions are not only more practical and easier to respond to, but also easier to code and analyze. One of the arguments raised against closed questions, especially where a list of possible answers is given, is the risk of guesswork. It cannot be ruled out that some participants, unable to answer the question, will select answers at random. Open questions have been recommended for surveying participants with unknown or varying knowledge/awareness as these questions provide a more valid picture of the state of knowledge.

To a lesser extent, gender also appears to have influenced knowledge and awareness, especially for HPV. Significant gender differences were observed, with females having better awareness and knowledge than males. Although the data are limited as not all studies reported results separately for males and females, these findings, could be reflective of the way awareness campaigns, for example on HPV, have been targeted more at females than at males.

The studies on HIV included in this work generally reported high awareness of the protective effect of condoms among adolescents [32]. One study included in the review however observed that adolescents seem to regard condoms primarily as a method of contraception and not as a means of protection against sexually transmitted diseases [33]. In this study, 19 out of 20 female adolescents who reported more than 4 sexual partners at the age of 18 reported intercourse without a condom in relationships of less than 6 months' duration. The majority of them were, however, convinced that they had neither acquired (96%) nor transmitted (93%) an STD at last unprotected intercourse. Other studies also indicate that consistent condom use is generally low among adolescents.

Conclusion

The results of this work confirm the importance of the school setting for adolescent sexuality education, and also the significant role mothers play as a source of sexuality information for adolescents. However, the fact that

HIV/AIDS remains the only STI most school-going adolescents have heard of is a clear indication that sexuality education needs to be broadened to encompass other STIs such as HPV and chlamydia. This is particularly so as the numbers of these two infections are reported to be increasing among adolescents in industrialized countries.

It is worrying that more than half of the participating girls did not know whether or not they were vaccinated against HPV as individuals are normally informed about procedures done on them. More research is needed to investigate factors contributing to this unawareness as these might have implications for health prevention and communication strategies (Figure 2).

Recently, several activities focusing on adolescent sexuality health and/or education have been have been organized at the European level. Among others issues, the participants discussed on how sexuality education and awareness of adolescents can be improved. Results of this thesis can help towards providing more evidence on the level of awareness and knowledge of STDs among school-attending adolescents, highlight gaps and contribute data to the discussion on improving sexuality education for adolescents.

Conflict Of Interest Statement

This paper does not have any conflict of interests.

References

1. English, A., Morreale, M. and Houst, J. 2001, Health Law Policy, 1:63–108.
2. Hofmann, A.D. 1980, J. Adolesc. Health Care, 1:9–17.
3. Morreale MC, Dowling EC, (eds). Policy Compendium on Confidential Health Services for Adolescents, 2nd edition. Chapel Hill, NC: Center for Adolescent Health & the Law. In press.
4. English, A. and Kenney, K. E. State Minor Consent Laws. Center for Adolescent Health & the Law, Chapel Hill, NC, 2003.
5. English, A., Ford. and C. A. 2004, Perspect. Sex. Reprod. Health, 36:80–86.
6. Schuster, M. and Bell, R. 1996, Arch Pediatr. Adolesc. Med., 150:906–913.
7. Nowell, D. and Spruill, J. 1993, Prof Psychol. Res. Pr., 24:367–369.
8. Ford, C., Millstein, S., Halpern-Felsher, B. and Irwin, C. 1997, JAMA, 278:1029–1034.
9. Ford, C.A., Thomsen, S. L. and Compton, B. J. 2001, Adolesc. Health. 29:156–159.
10. Litt, I. F. 2001, J. Adolesc. Health, 29:79.
11. Ford, C. and Mitchell, R. 2000, J.Adolesc. Health, 26:129.
12. Rainey, D., Brandon, D. and Krowchuk, D. 2000, J. Adolesc. Health, 26:389–391.
13. Elster, A.B. 1998, Arch. Pediatr. Adolesc. Med., 152:193–198.
14. Cheng, T., Savageau, J., Sattler, A. and DeWitt, T. 1993, JAMA, 269:1404–1407.
15. Ford, C. A., Bearman, P.S. and Moody, J.1999, JAMA, 282:2227–2234.
16. Reddy, D. M., Fleming, R. and Swain, C. 2002, JAMA, 288:710–714.
17. Klein, J., McNulty, M. and Flatau, C. 1998, Arch Pediatr Adolesc Med., 152:676–682.
18. Akinbami, L. J., Gandhi, H. and Cheng, T. L. 2003, Pediatrics, 111:394–401.
19. Ford, C. A. and Millstein, S. G. 1997, Arch Pediatr Adolesc Med.,151:505–509.
20. Meehan, T. M., Hansen, H. and Klein, W.C. 1997, 97:1338–1341.
21. Jackson, S. and Hafemeister, T.L. 2001, J. Adolesc. Health, 29:81–93.
22. Beauchamp, T. L. and Childress, J.F. 1994, Principles of Biomedical Ethics, 4th edition. Oxford University Press, New York, NY
23. Silber, T. J. 1989, J Adolesc Health Care, 10:449–453.
24. Holder, A. R. 1985, Legal Issues in the Health Care of Children and Adolescents, 2nd edition. Yale University Press, New Haven, CT
25. Sigman, G. S. and O'Conner, C. 1991, J. Pediatr., 119:520–525.
26. Teare, C. and English, A. 2002, Nurs Clin North Am., 37:393–404.
27. Brindis, C., Morreale, M. C. and English, A. 2003, Future Child. 13:117–135.
28. Vinten, G. 1995, Manag.,33:27-31
29. WHO. 2010, Regional Office for Europe and Federal Centre for Health Education (BZgA). Standards for sexuality education in Europe. BZgA, Cologne
30. West, P. 1997, Social Science and Medicine 44:833-858
31. United Nations Population Fund (UNFPA)/Population Association: 2007 Turkey Population Association: 2007 Turkey Youth Sexual and Reproductive Health Survey
32. Ford, N. 1992, J. Adolesc. 1992;15: 393-413
33. Walsh, C. D., Gera, A., Shah, M., Sharma, A., Powell, J. E. and Wilson, S. 2008, BioMed Center of Public Health, 8, 368
34. Table 1: Examples of common STIs and their clinical manifestations
35. Figure 1: Flow diagram showing selection process of articles included in the review
36. Figure 2: SchematicpresentationofapossibleapplicationoftheInformation-Motivation-Behavioral Skills Model (IMB) in STI prevention