



Effect of an educational intervention on Hungarian adolescents' awareness, beliefs and attitudes on the prevention of cervical cancer

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ARTICLE INFO

Article history:

Received 19 April 2012

Received in revised form 27 August 2012

Accepted 7 September 2012

Available online 18 September 2012

Keywords:

Human papillomavirus (HPV)

Sex education

Prevention

Adolescents' health

Sexual behaviour

Educational intervention

ABSTRACT

The alarming national data on the mortality and morbidity rates of cervical cancer as well as the results of a Hungarian survey demonstrating adolescents' low level of understanding of human papillomavirus (HPV) infection and HPV vaccination encouraged the authors to conduct an educational intervention. The aim of this survey was to explore the impact of a brief, HPV-focused program on adolescents' knowledge, beliefs and attitudes.

A self-administered anonymous questionnaire was completed by 394 male and female adolescents in September, 2010, in Hungary. Half of the students (48.5%) then had a one-off educational intervention on aspects cervical cancer lasting 45 min lesson, while the rest of the participants, the control group, did not have the educational intervention. Three months following the education, both groups were retested using the same questionnaire. Data were analysed using Statistical Package for the Social Sciences (SPSS).

Following the education, significant increase was detected in cervical cancer awareness: causal relationship between HPV and cervical cancer (7.9% → 22.1%, $p < 0.05$), or perception of HPV vaccination (61.3% → 85.9%, $p < 0.05$). Similarly, health-related beliefs have enhanced, such as 'HPV may cause cervical cancer' (64.9% → 81.0%, $p < 0.05$) or 'cervical cancer may be prevented by vaccination' (66.5% → 85.3%, $p < 0.05$). Our data also highlighted that Hungarian adolescents have been practising extremely risky sexual behaviour. Nearly half of the sexually active adolescents had engaged in 'one-night relationship' (41.1%) as well as having sexual intercourse without any contraceptive safety measures (44.3%).

In addition to providing adolescents with clear and meaningful information about the implications of a HPV infection and addressing their fears of screening and vaccination, health education should focus on promoting safe sex behaviour by promoting the use of condoms and reducing the number of sexual partners to limit the spread of HPV, and also on encouraging the participation in regular cervical screenings, thus reducing the incidence of cervical cancer.

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1. Introduction

In 2009 a nationwide questionnaire survey was conducted in Hungary to explore adolescents' awareness of human papillomavirus (HPV) infection and their attitudes towards measures to prevent cervical cancer. It also aimed to determine the factors affecting uptake of HPV vaccination, which was first introduced in Hungary in 2007 [1]. The authors identified a number of obstacles including lack of knowledge, mistrust of the healthcare system and the high cost of vaccine as being significant in influencing decisions about being vaccinated. The study also found that adolescents relied on school-health services (61.3%) and education on health at school (49.2%) for information on sexually transmitted diseases (STDs).

In 2010, school-based educational programmes on HPV vaccinations were initiated in Hungary. Despite this, the estimated number of 12–16 year old females who have been vaccinated is still only 10%. There are approximately 1100 new cases of cervical cancers diagnosed and 500 deaths every year and these figures give Hungary the fourth highest rate of incidence and the sixth highest mortality rate due to cervical cancer in the European Union [2]. These alarming morbidity and mortality rates of a largely preventable disease, as well as the results of the national study demonstrating considerable gaps in adolescents' knowledge confirm the recommendations of numerous studies which emphasise an urgent need for well-designed, HPV-focused educational interventions targeting adolescents [1,3–13].

Several studies have indicated that knowledge of HPV infection in the general population is poor [1,3–16,18,19,21]. It has been suggested that interventions targeted at increasing understanding of the risks associated with HPV infections may have a positive impact on uptake of the HPV vaccine [5,6,15]. Interestingly, adolescents have also expressed a need for accurate information on HPV that allows them to make informed and confident decisions on having themselves vaccinated [1,3,16]. Furthermore, lack of knowledge about HPV prevalence and its transmission as well as low levels of understanding of HPV vaccination may also have direct implications for adolescents' future health practices including sexual behaviour, condom use and participation in cervical screening [3,7]. Despite this, the contribution of health education which is an integral part of primary prevention for preventing cervical cancer is often not understood and ignored [17].

The purpose of this present study was to establish the impact of a school-based, HPV-focused educational intervention on adolescents' knowledge, beliefs and attitudes towards the prevention of HPV infection and cervical cancer 3-months following the program.

2. Study population and methods

An educational intervention study for male and female adolescents, aged between 14 and 19 was conducted between September 2010 and February 2011 in Baranya County, Hungary. It involved two vocational schools that were matched by profile, benchmark and age-composition. One school was the 'experimental-group', in which the education was undertaken, whilst there was no education in the other ('control-group'). The education was conducted in eight classes, with two classes in each grade. The participants in the control group were selected in the same way and consequently similarity of the two schools' age-composition was assured. Table 1 summarizes the sociodemographic characteristics of the study population.

As a first step, the headmasters of the selected schools were contacted to obtain consent to participate in the study and to identify a contact person in each school. Parents were informed of the study by letter and children only participated in the study with

parental consent. The students were informed of the aims of the study by the contact person and anonymity was assured. Students participated in the study voluntarily and without remuneration. Questionnaires were completed by the students during a lecture, immediately collected and sent back to the survey organisers.

The survey instrument was a self-administered anonymous questionnaire with 47 items. The items included demographic questions, participants' past and current sexual behaviour, knowledge of HPV and cervical cancer, and beliefs and attitudes towards screening and vaccination. Questions related to gynaecological screening and the administration of the HPV vaccine were completed by female participants only.

Sampling of participants was based on a non-probabilistic strategy and questionnaires were completed at the beginning of the study and repeated three months later. The number of students enrolled in the first questionnaire survey was 518 (Table 1). Questionnaires which did not indicate either sex or age or were incomplete were excluded from the analysis. Consequently, 394 questionnaires were analysed (response rate was 82.4%). At the second stage of the study, participation at the intervention was an inclusion criterion for the experimental group. In the case of the control group, completing the pre-testing questionnaire was not a pre-requisite for inclusion at post-test. In the second stage of the study, 378 questionnaires were analysed (response rate was 86.1%).

The educational intervention was undertaken by a trained health educator (first author) during the students' regular classes in October, 2010. The number of students in each class ranged between 25 and 33. The total number of students who attended these sessions was 191. The educational program was of 45 min duration, consisting of a didactic presentation with information on the viral life-cycle and HPV, the female reproductive system focusing on the cervix, gynaecological screening (a cytobrush and cusco-speculum were demonstrated) and risk factors of cervical cancer with emphasis on sexual behaviour and methods of prevention. The presentation was followed by a question-and-answer session and the students were provided with handouts containing key-messages.

It is important to note that in Hungary, there is no specific education focusing on the prevention of cervical cancer or STD incorporated into high school curriculum. These issues are generally discussed in relation to the reproductive system: one or two lessons at primary school (for students aged 12–14) and the same number at high school (for students aged 16–18). Sex education and STD prevention education may vary between schools and this is usually dependent on the preferences of the biology teacher and commitment of the school nurses.

2.1. Statistical analysis

The Statistical Package for the Social Sciences (SPSS) for Windows Release 6.1.4 Standard Version was used for data analysis. Basic descriptive statistics and frequency calculations were performed on all variables. Bivariate relationship between nominal variables was assessed using Pearson's χ^2 test and the level of statistical significance was set at 0.05 for all data.

3. Results

The results (Table 2) focus on adolescents' current and past sexual behaviour and it is noticeable that a considerable number of sexually active students (41.1%) had experiences of 'one-night relationship'. One in three adolescents (33.7%) had their first sexual experience when they were aged between 13 and 14 and half of them when they were 15–16 years old. Only a quarter of the participants (27.9%) had only one sexual partner prior to the survey

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