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Parental perspective on human papillomavirus (HPV) vaccination in Serbia: Knowledge, attitudes and practice

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ABSTRACT

Study objective: Assessing knowledge and attitudes of parents towards human papillomavirus (HPV) vaccination of their children and estimating factors associated with parental positive attitude towards HPV immunization.
Study design: Cross-sectional.
Setting: Two Community Health Centers. A total of 282 adult parents of boys and/or girls who presented at the pediatrician's office with their child aged ≤18 years from December 2015 to May 2016.
Main outcome measures: HPV vaccination coverage with one dose, knowledge and attitudes towards HPV vaccination. Parental knowledge was tested through a set of 10 items such as the infectious nature of HPV, mode of transmission, symptoms and its association with cervical cancer and circumstances surrounding HPV vaccine in Serbia. Answers were graded on a 5-point Likert scale from "strongly disagree" to "strongly agree".
Results: Coverage with one dose of HPV vaccine was 2.0%. Majority of parents knew that the vaccine existed (71.0%). One quarter of parents confirmed that their child should be vaccinated against HPV. Parents expressed highest level of agreement with the statement that HPV vaccination in Serbia is not sufficiently promoted (4.17 ± 1.21 points). Having female child and more knowledge on HPV were independently associated with positive attitude towards vaccination among parents of children aged < 9 years. Having received recommendation for HPV vaccination from a pediatrician was independently associated with positive attitude towards HPV vaccination among parents of children aged ≥9 years.
Conclusion: Coverage with one dose of HPV vaccine is low. Health-care authorities are urged to consider inclusion of HPV vaccination in immunization schedule.

Introduction

Human papillomavirus (HPV) infection is one of the most common sexually transmitted infections [1]. At least 20 HPV types have been associated with development of venereal warts, however infection with types 16, 18, 31, 33 and 35 is the crucial risk factor for development of cervical cancer [2]. A recent study reported the prevalence of HPV type 16/18 positivity as high as 31.6% on a routine cytological cervical cancer screening in a sample of Serbian women [3]. The incidence rate of cervical cancer in the Republic of Serbia has been estimated at 23.8/100,000 with corresponding mortality rate of 7.7/100,000, which is one of the highest in Europe [4].

Immunization against HPV infection represents a key prevention measure against cervical cancer worldwide. The uptake of HPV vaccine at a global level began in 2006 and has been recommended to females aged 11 and 12 years [5]. The vaccine, however, can be administered as early as 9 years of age, while recommended catch-up vaccination includes females up until 26 years [5]. Since 2006, female HPV immunization has been a part of the vaccination schedule in a number of countries worldwide [6]. Vaccination of males in the same age groups as that of females has been recommended since 2011 [7].

Previous study reported remarkable variations in female HPV immunization coverage among countries, pointing out that the highest coverage is recorded in countries with school-based immunization scheme [8]. At the same time, in countries where mass HPV immunization is not organized, vaccination coverage is quite low [8]. In countries of the Southeast Europe, such as in Former Yugoslav Republic of Macedonia and Slovenia, systematic/compulsory HPV vaccination of

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school-aged girls has already been introduced [9]. Nevertheless, there is a lack of systematic/compulsory HPV vaccination of boys in the region of Southeast Europe [9]. Previous studies suggested that lack of information on HPV vaccine, fear of side effects, costs and concern that being vaccinated might induce undesirable sexual behavior of adolescents were the strongest motives for not taking part in optional vaccination offered to adolescent girls in Romania and Taiwan [10,11].

The HPV vaccine has been available in Serbia since 2008 [9,12], however, it is not included in the compulsory immunization schedule and health insurance does not cover its cost. The price of one dose of HPV vaccine varies from 73 to 89 Euros, depending on the manufacturer and can be obtained in pharmacies. This means that parents who consider that their child should be vaccinated against HPV may individually purchase the HPV vaccine in line with vaccination schedule. According to most recent Rulebook on immunization in the Republic of Serbia, HPV vaccine has been recommended to all children older than 9 years, regardless of gender [13]. Still, the target group for HPV immunization comprises children in 6th grade of primary school (aged 12 years) in the entire country [13]. Bivalent, quadrivalent and nonavalent HPV vaccine in 2 doses is recommended to children aged 9–13 years and 3 doses are recommended to children aged ≥15 years [13]. It is customary to administer intramuscular, intravenous and/or subcutaneous injections free of charge at the general practitioner's office of the Community Health Center where the person (or parent/guardian) is registered. Recent studies among Serbian physicians suggested that majority of pediatricians [14] and gynecologists [15] are willing to recommend HPV vaccine to their patients.

Although the National Program for Cervical Cancer Screening in the Republic of Serbia targets women aged 25–69 years [12], an organized systematic HPV immunization program has not yet been established. Similarly, data on HPV vaccination coverage are lacking. Considering that parents' attitudes could be the main barrier to HPV immunization compliance, it is crucial to assess parental knowledge and attitudes towards this preventive strategy before organization and implementation of the systematic HPV immunization in Serbia. The aim of this study was: (1) to assess knowledge and attitudes of parents towards HPV vaccination of their children and (2) to estimate factors associated with parental positive attitude towards HPV immunization.

Materials and methods

Setting and participants

This cross-sectional study was conducted at two Community Health Centers in the Serbian capital city, Belgrade. A Community Health Center is an institution of primary health care delivery. All citizens have access to Community Health Centers where they are required to register with their own general practitioner, pediatrician (for children < 18 years), gynecologist (for women over 15 years) and dentist. Belgrade has 17 Community Health Centers corresponding to 17 local municipalities (10 central urban districts and 7 suburban outskirts) in the wider metropolitan area [16]. Two Centers were randomly selected for recruitment of parents in the following manner: names of all 17 Community Health Centers in Belgrade metropolitan area were written on separate pieces of paper and placed in a non-transparent bag. A person from the research team who did not participate in preparation procedure manually picked two pieces of paper from the bag. The Community Health Centers taken from the bag were chosen for recruitment of parents.

We recruited those parents who presented with their child aged ≤18 years at their chosen pediatrician's office either in morning or afternoon hours, during a six month period (December 2015 – May 2016). We recruited parents who had previously appointed regular annual pediatric check-ups. There were approximately three to five scheduled visits with chosen pediatricians at the Center, although occasionally some parents missed the appointment. We did not approach parents of children with urgent health conditions as we considered that they could not focus on answering the questionnaire due to acute medical problem of their child. All parents who were eligible were approached to participate in the study. A total of 339 parents were invited and 282 agreed to participate in the study (response rate 83.2%). Parents completed the questionnaires in the waiting room. The study was approved by the Institutional Review Boards of the two corresponding Community Health Centers (Health Centers "Savski Venac" and "Voždovac"). All the parents signed informed consent prior to enrollment.

Instrument

Data were collected by a questionnaire that consisted of 43 items, adapted from the existing literature [17–22]. The first segment comprised questions on parental socio-demographic characteristics (age, gender, marital status, highest educational attainment, employment status, partner's employment status, household monthly income, age and gender of the child with whom they presented at the Community Health Center, and total number of children in the household), as well as overall attitude towards immunization in general.

Specifically, we asked the parents whether or not their child (who they presented with on this occasion) was immunized according to vaccination schedule and whether the parents themselves comply with immunization against seasonal influenza. Since vaccination against seasonal influenza is optional for healthy adults and children above 6 months of age, we aimed at exploring parental behavior towards vaccination outside the mandatory schedule.

Parental knowledge of HPV infection and vaccination was explored in the second segment. The parents were asked about infectious nature of HPV, mode of transmission, symptoms and its association with cervical cancer. Also, they were asked whether or not they were aware of HPV vaccination existence, if they knew whether the vaccination was mandatory, if it involved additional costs and who was the target population for HPV immunization. While there is a validated measure of knowledge about HPV in literature [23], this questionnaire was not developed in a population of parents exclusively. For this reason, items in our questionnaire were modified according to previous questionnaires regarding parental and child's knowledge on HPV vaccination [17–20]. Each correct answer was awarded 1 point. The sum of all correct answers represented the knowledge score, which ranged from 0 to 10.

Following the knowledge section, parents were asked whether or not their children were immunized against HPV infection (yes/no) and in what number of vaccine doses (1/2/3 doses). Also, parents were asked whether they considered that their child should be immunized against HPV infection (yes/no/I do not know or I am not sure). This was the key item in the questionnaire to explore whether or not the parents had positive attitude towards HPV vaccination. Then, we asked the parents what sources of information they use when looking for HPV-related issues. The last 16 items referred to parental attitudes towards HPV vaccine. This segment was modified from several questionnaires that examined parental, students' and pediatricians' attitudes towards HPV immunization [19,21,22].

Data analysis

All variables except data on whether the child has been vaccinated against HPV infection and whether the child had received all mandatory age-related vaccines were normally distributed. For this reason, socio-demographic characteristics of parents and their children were presented as means with corresponding standard deviations. The Spearman's correlation coefficient "rho" (ρ) was used to investigate potential correlation between knowledge score and demographic characteristics of parents and their children. Because HPV vaccination is recommended from age 9 to 13 years [5,13], we stratified the sample

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