



Romanian adolescents' knowledge and attitudes towards human papillomavirus infection and prophylactic vaccination



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ABSTRACT

Objectives: Since licensure of HPV vaccine in 2006, HPV vaccine coverage among Romanian adolescents remains worryingly low. The objectives of the study were to assess the knowledge and attitudes towards HPV infection and vaccination among Romanian adolescents and to explore the barriers to HPV vaccination with a view to developing strategies for expanding primary HPV infection prevention.

Study design: This study was conducted in Bucharest between April and June 2015. A total of 524 adolescents aged 16–18 years old were recruited from the first two general highschools in Bucharest (according to the admission grade) and completed a self-administered questionnaire including demographics, HPV related and Papanicolau smear test knowledge. Odds ratio and 95% confidence intervals were used to identify the strength of association. Logistic regression analysis was used to identify the effect of demographic characteristics on the level of knowledge and HPV vaccination rate. Associations were considered statistically significant at $p < 0.05$.

Results: Of the adolescents interviewed, a very small proportion had heard of HPV infection, HPV vaccine and Papanicolau smear test, that is, 20.22%, 67.92% and 22.9%, respectively. The overall vaccination rate for this group was 2.3%. The most common reason for not receiving the HPV vaccine was the lack of information (80.6%) followed by parents' concerns regarding safety (11%), fear of pain (5.59%) and not being sexually active (2.7%). However, 97.7% of the respondents declared interest in receiving more information about HPV. According to demographic characteristics, age at first sexual intercourse over 16 years old, monthly household income over one thousand euros and self-perceived good relationship with family members were statistically associated on a multivariate logistic regression analysis with a high HPV knowledge score and rate of vaccination.

Conclusions: This study shows a low level of knowledge about HPV infection and prophylactic vaccination among Romanian adolescents which may be one of the most important factors for the alarmingly low HPV vaccination rate. We specifically call for HPV knowledge and awareness programs; the implication of health professionals, Romanian media and family members should be included as a centrepiece in the effort to inform this vulnerable population group.

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Introduction

The human papillomavirus (HPV) is a common sexually transmitted virus among humans that causes premalignant and malignant lesions of the cervix [1,2], vagina [3], vulva [4], anus [5], penis [6], and oropharynx [7], as well as genital warts [8,9].

It is a general consensus that cytology screening for cervical cancer and prophylactic HPV vaccination are both effective in reducing the incidence and mortality of this malignancy [10]. In contrast to this striking result, current estimates indicate that, in Romania, every year 4.343 women are diagnosed with cervical cancer and 1.909 die from the disease. Moreover, cervical cancer ranks as the 3rd most frequent cancer among Romanian women and the 2nd most frequent cancer among women between 15 and 44 years of age [11].

Adding to these disquieting data, cervical cancer screening coverage in women aged 15–44 years is 19.5% and the 3-dose HPV

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vaccination coverage for routine immunization since the vaccination programme's debut in 2008 is <5% [11].

No data are currently available regarding knowledge of HPV infection and prophylactic vaccination in Romanian adolescents; therefore, the purpose of this study is to assess the adolescents' level of knowledge and attitudes towards HPV infection and vaccination and reveal which sources of information are commonly used for health education. The results of this study could help in the understanding of the adolescents' preparedness and difficulties regarding HPV prevention and could be applied to the development of strategies to expand primary cervical cancer prevention for adolescents in Romania.

Materials and methods

A cross-sectional questionnaire-based study was carried out between April and June 2015 in Bucharest, Romania. A total of 524 male and female adolescents aged 16–18 years attending junior and senior years in the first two general highschools in Bucharest according to the admission grade agreed to voluntarily participate in the study. The study design was approved by The Committees of Ethics and Research in Humans of the two hospitals and highschools where the study was performed. All participants signed a written consent in accordance with The Code of Ethics of the Declaration of Helsinki and for participants 17 years old and below, written consent was obtained in addition to parental consent.

The adolescents were asked to complete a written anonymous 10 min – lasting questionnaire during the educational class; the questionnaire was written in Romanian, the national language of the country.

The underlying concept and format of the questionnaire was developed by our review of literature and research hypotheses. The items on the questionnaire were divided into four distinct sections: demographic characteristics of the participants, knowledge and information sources of HPV infection, PAP smear testing and HPV vaccination. Monthly income (in Romanian currency RON, which was equvalated in euros) was categorized as “low” (<200 euros), “medium” (200–1000 euros) and “high” (>1000 euros). Self-perceived relationship with family members was categorized as “weak” (limited communication), “medium” (open discussions, but with certain limits), “good” (open discussions about any topic).

Table 1
HPV knowledge score questionnaire.

Question	Answer			
1. Is HPV sexually transmitted?	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> I don't know	
2. Can HPV infection lead to AIDS?	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> I don't know	
3. Is HPV an infection appearing only in women?	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> I don't know	
4. Can HPV cause genital warts?	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> I don't know	
5. Can HPV cause cervical cancer in women?	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> I don't know	
6. Can HPV infection be prevented by using a condom?	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> I don't know	
7. Can HPV be transmitted by using personal objects of infected persons? (e.g. toothbrush, towels, clothes)	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> I don't know	
8. Can a vaccine prevent HPV infection?	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> I don't know	

A knowledge score (obtained by using an 8-item scale) about HPV infection and vaccination was created for respondents who had heard about HPV. The knowledge scale included questions regarding possible transmission routes for HPV, HPV-related disease and HPV vaccination (Table 1). The participants received 1 point for answering correctly and 0 points for wrong answers or when the answer was “I don't know”. The composite score of the scale was calculated by summing correct answers to all eight questions. We defined three levels of knowledge: low score (0–2 points), medium score (3–5 points) and high score (6–8 points). The Cronbach alpha for the eight items was 0.75 in the current sample.

The participants were asked whether they have ever received at least one dose of HPV vaccine and the ones who answered negatively were asked to specify the main reason.

At the end of the questionnaire, the participants were asked if they were interested in receiving more information about HPV and which information source they considered to be ideal.

For statistical analysis of the knowledge score, we only included responses from participants who were aware of HPV. Univariate and multivariate logistic models were employed to examine the association of high knowledge score and vaccination coverage and demographic and background variables. The strength of the association was assessed by using odds ratio and 95% confidence intervals. The level of statistical significance was set at 5% ($p < 0.05$). All statistical analysis was performed using IBM SPSS Statistics 20.0.0.

Results

A total of 524 questionnaires were distributed among female and male adolescents aged 16–18 years old. Table 2 presents demographic characteristics of the study participants. There was no significant difference regarding mean age between girls and boys (17.59 vs. 17.64 years, $p < 0.47$). The majority (99.23%) expressed their intention to attend college. Most of the participants (80.91%) came from families with medium monthly household income; 450 (85.87%) reported having a medium self-perceived relationship with family members. More than half (65.83%) of the respondents affirmed being sexually active.

Table 2
Demographic characteristics of the study participants (N=524).

Variable	N (%)	Gender N (%)	
		Female	Male
	524 (100)	262 (50)	262 (50)
Age (mean ± SD), years	17.61 ± 0.486	17.59	17.64
Education			
Will attend college	520 (99.23)	262 (50.38)	258 (49.61)
Won't attend college	4 (0.07)	0 (0)	4 (100)
Smokers	20 (3.81)	7 (35)	13 (65)
Monthly household income			
Low (<200 euros)	2 (0.38)	1 (50)	1 (50)
Medium (200–1000 euros)	424 (80.91)	200 (47.16)	224 (52.83)
High (>1000 euros)	98 (18.7)	61 (62.24)	37 (37.75)
Self-perceived relationship with family members			
Good	50 (9.54)	33 (66)	17 (34)
Medium	450 (85.87)	220 (48.88)	230 (51.11)
Weak	24 (4.58)	9 (37.5)	15 (62.5)
Sexually active	345 (65.83)	143 (41.44)	202 (58.55)
Age at first sexual intercourse			
>16 years	50 (14.49)	30 (60)	20 (40)
≤16 years	295 (85.5)	113 (38.3)	182 (61.69)
Condom use	330 (95.65)	133 (40.3)	197 (59.69)
Number of sexual partners			
<3	345 (100)	143 (41.44)	202 (58.55)
≥3	0	0	0

N = number of respondents. Percentages are shown in parentheses.

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