RESEARCH ARTICLE

Knowledge, Attitudes and Beliefs about Cervical Cancer and Human Papilloma Virus Vaccination with Related Factors in Turkish University Students

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Abstract

Background: This study aimed to determine knowledge, attitudes and believes about cervical cancer and human papilloma virus (HPV) vaccination with related factors in Turkish university students. Materials and Methods: This descriptive and cross sectional study was conducted between June-July 2013 in Hitit University located in Corum, a rural area to the East of Ankara. The population consisted of 550 university students who were training in first and last year from Faculties of Economics, Theology and Health. We reached 463 volunteer students without selection. The study of data was collected with a 44 item questionaire covering socio-demographic features, knowledge, attitudes and beliefs about cervical cancer, HPV and vaccination. Also for this study ethic committee report was taken from Bozok University. Data were evaluated with the SPSS 17.0 programme using the Ki kare test with P<0.05 accepted as statistically significant. Results: It was seen that there was a statistically significant variation between classrooms and departments of students with knowledge about cervical cancer and human papilloma virus and vaccine (p<0.001; p<0.01; p<0.05). Also we found low attitudes to thinking about taking HPV vaccination of girls and their children in the future. Conclusions: In light of the study findings; it was concluded that knowledge levels, beliefs and attitudes of the university students about cervical cancer, HPV infection and HPV vaccination were low.

Keywords: Cervical cancer - human papilloma virus - knowledge - attitudes - beliefs - Turkish university students

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Introduction

Cervical cancer ranks second among women in terms of the most commonly seen cancer types; with a nearly 528.000 new diagnoses and over 250.000 deaths annually (Mgomella et al., 2012). The incidence rate in Turkey is 4.3 per 100.000 people and our country is among the countries with low cervical cancer prevalence (IARC, 2013). Cervical cancer is caused by sexually transmitted Human Papilloma Virus (HPV) (WHO, 2013). Also; low age of the first sexual intercourse (<16 years), having more than one sexual partner, history of sexually transmitted diseases (HIV, HSV-2, genital wart etc), high parity, black race, smoking, low socio-economic status, poor hygiene and oral contraceptive use are among the other risk factors associated with cervical cancer (Guner and Taskiran, 2007; Kaya and Akin, 2009).

It is now compulsory to take preventive and protective measures because HPV related diseases have become a public health problem (Christensen, 2005; Kahn and Bernstein, 2003). That World Health Organization WHO recommends early diagnosis and screening programs against cervical cancer demonstrates that it is a cancer type negative outcomes of which can easily be prevented in preventive medicine (Fidaner, 2007). Primary preventive measures are as follows: raising awareness among the society and health care personnel against risky sexual behaviors, implementation of local strategies in order to change these risky sexual behaviors in the society (safe sexual life, monogamy, condom use), development and popularization of cost-effective HPV vaccination and fighting against smoking (Kaya and Akin, 2009).

It is reported that three doses of HPV vaccines are needed and completed for protection before sexual activity starts because risk for HPV infection increases with the beginning of sexual intercourse. Therefore; the recommended target group for the vaccination is composed of sexually non-active teenagers aged 9-13 years. Three doses of vaccines are needed over a period of six months (WHO, 2013).

Among the Turkish women; there are no sufficient data relating HPV levels and types. In 2007; "Cervical Cancer National Screening Standards" was issued by Ministry of Health. According to these standards; at least one smear should be taken from the women aged 35-40 as a secondary protection and smear-taking should be repeated

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over a period of five years and screening should be quitted among those women whose last two tests are negative. Today; Early Diagnosis and Screening Centers for Cancer (EDSCC) located in 49 provinces conduct screenings and provides on-job trainings and public education (Tuncer et al., 2009; Kaya and Akin, 2009). Although reports of HPV knowledge and vaccine acceptability by Turkish females, parents and paediatricians have been published (Kilic et al., 2012; Genc et al., 2013; Ozsurekci et al., 2013; Ozyer et al., 2013) rural communities have not received sufficient attention.

It is reported that young adults of the society are especially under risk for sexually transmitted diseases (STDs) and one of the 20 youths are annually contracted with STDs (WHO, 1999). High maternal mortality rates and high undesired pregnancy rates, high prevalence and frequency of sexually transmitted diseases and low sexual health/reproduction health knowledge levels of the young people are principal and main problems of sexual health detected in our country (Basara et al., 2012; Kose, 2010; TDHS, 2008). All of these findings and results indicate that reproduction health knowledge levels among the young people -making up one third of the population- should be immediately increased. With the correct knowledge, attitudes and behaviors relating sexual health/reproduction health to be given during adolescence and adulthood; health awareness and understanding levels can be increased among the parents in our society.

The aim of the present study was to explore knowledge levels, attitudes and behaviors relating cervical cancer and HPV vaccination among university students and affecting factors in a rurla area of Turkey, east of Ankara.

Materials and Methods

The study was cross-sectional and descriptive. It was conducted between June and July 2013 at the Hitit University. The population of the study was composed of 550 first grade and final grade students who studied at the school of economics, faculty of theology and school of nursing of the Hitit University. No sampling was made and all of the students were included in the study. Questionnaire forms were administered to 463 voluntary students. In the questionnaire form designed by the researchers in line with literature; there were 44 questions; 11 questions for socio-demographic characteristics and 33 questions investigating students' knowledge levels, attitudes and behaviors about cervical cancer and HPV infection vaccination. Written official permissions from the University and approval of the ethical committee from the Medical Faculty of Bozok University were obtained. The data of the study were assessed with SPSS 17.0 package program. The academic departments of the students were again sorted as "health department and non-health department". As for the perceived economic status variable; the options of "very satisfactory" and "satisfactory" were combined and turned into "satisfactory" while the options of "very bad" and "bad" were combined and turned into "bad". For the statistical assessments; percentages, means and chi-square tests were used. The accepted level of statistical significance for all analyses was $p<0.05$.

Results

51.8% of the study group was composed of those aged ≤ 20 years and mean age was 20.71±2.41 (min-max: 17-40). 23.1% of the participants were male while 76.9% of them were female university students. 4.5% of the participants were married. The rate of those who were sexually active was 14.1% and among those who were sexually active; the rate of those who started sexual intercourse before the age of ≤18 was 72.3%.

Table 1 demonstrated socio-demographic characteristics of the study group. It was seen that 37.2% of the first grade students and 64.3% of the fourth grade students heard about cervical cancer before and 45.7% of the first grade students and 62.3% of the fourth grade students who heard about cervical cancer before named correctly the name of the inner organ where cervical cancer developed. 39.6% of the first grade students used media as a source of information on cervical cancer while 31.7% of fourth grade students learnt information from educational institutions. When the students were examined in terms of having heard about HPV vaccination; it was found out that 37.2% of the first grade students and 61.4% of the fourth grade students heard about HPV vaccination. 34.1% of the first year students who heard about HPV vaccination used media as a source of information while 35.2% of the fourth grade students learnt information from educational

Table 1. Socio-Demographic Characteristics of the Participant Students

Socio-demographic characteristics (n=463)	Number	%
Age groups		
≤ 20 years (mean age 20.71±2.41)	240	51.8
≥21 years	223	48.2
Gender		
Male	107	23.1
Female	356	76.9
Academic Department		
Department of Theology	155	34.6
School of Economics	201	43.4
School of Health	107	22.0
Grade		
First grade	250	54.0
Fourth grade	213	46.0
Mothers' educational status		
Secondary school and below	373	80.5
High school and above	90	19.5
Fathers' educational status		
Secondary school and below	266	57.4
High school and above	197	42.6
Perceived economic status		
Satisfactory	161	34.8
Moderate	283	61.1
Bad	19	4.1
Marital Status		
Married	21	4.5
Single/divorced	442	95.5
Being sexually active		
Yes	65	14.1
No	398	85.9
Age of the beginning sexual intercourse (n=65)		
≤ 18 years	47	72.3
≥ 19 years	18	27.7

institutions. The rate of the first grade students who knew that HPV vaccination was given in our country was 45.2% whereas the rate of the fourth grade students who knew that HPV vaccination was given in our country was 70.9%. 59.2% of the first grade students and 54.9% of the fourth grade students knew the age range between which HPV vaccination should be given. It was noted that there was a statistically significant correlation between academic grades of the students and their knowledge levels about the cervical cancer, HPV infection and HPV vaccination ($p<0.001$; $p<0.01$; $p<0.05$).

Table 3 included the findings whether or not a correlation existed between academic departments of the participant students and their beliefs about the cervical cancer, HPV infection and HPV vaccination.

As seen in Table 3; it was found out that the correctness of the beliefs (having multiple sex partners, beginning sexual intercourse at an early age, many and frequent births) about risk factors for cervical cancer was higher among the students who studied at a health department while it was lower among the students who studied at a non-health department. As seen in Table 3; beliefs about risk factors for cervical cancer and beliefs -that HPV infection can cause cervical cancer, HPV infection can cause infertility among the women, HPV infection is seen among the women more, Condom prevents contraction of HPV infection- were higher among the students who studied at a health department while it was lower among the students who studied at a non-health department. The rate of the belief that HPV vaccination is a lifelong protection against cervical cancer among the women was by 5.6% among the students who studied at a health department while it was by 26.4% among the students who studied at a non-health department. The rate of the belief that HPV vaccination is also protective for those contracted with the virus was by 26.4% among the students who studied at a non-health department. The rate of the belief that HPV vaccination prevents AIDS contraction was by 16.8% among the students who studied at a health department while it was 3.9% among the students who studied at a non-health department. The rate of the belief that sexually transmitted diseases are not seen among those who had HPV vaccination was by 5.6 among the students who studied at a health department while it was by 3.1% among the students who studied at a non-health department. 19.6% of the students who studied at a non-health department and 1.7% of the students who studied at a health department had the belief that HPV vaccines may cause serious complications. It was found out that there was a statistically significant correlation between the academic departments of the students and their beliefs about cervical cancer, HPV infection and HPV vaccination ($p<0.001$; $p<0.05$).

Table 4 included the findings whether or not a correlation was between academic departments of the participant female students and their attitudes towards

Table 2. The Correlation between Students' Academic Grades and Their Knowledge Levels about the Cervical Cancer, HPV Infection and HPV Vaccination

Knowledge	1st grade (n=250)		4th grade (n=213)		
	Number	%	Number	%	χ^2
Having heard about cervical cancer before					
Yes	93	37.2	137	64.3	33,835
No	157	62.8	76	35.7	
Naming correctly the name of the inner organ where cervical cancer develops (n=230)					
Yes	42	45.7	86	62.3	6,213
No	50	54.3	52	37.7	
Source from which information on cervical cancer is received (n=230)					
Media	36	39.6	44	31.7	
Health personnel	19	20.9	40	28.8	16,319
Relatives/friends	11	12.0	10	7.2	
Educational Institutions	25	27.5	45	32.3	
Having heard about HPV vaccination					
Yes	89	37.2	129	61.4	26,186
No	150	62.8	81	38.6	
Knowing that HPV vaccination is given in our country					
Yes	113	45.2	151	70.9	31,370
No	137	54.8	62	29.1	
Knowing the age range between which HPV vaccines are given					
Yes	148	59.2	115	54.9	1,272
No	102	40.8	98	45.1	

Table 3. Correlation between Academic Departments of the Participant Students and Their Beliefs about the Cervical Cancer, HPV Infection and HPV vaccination

v Beliefs	Health (n=107)		Non-health (n=356)		χ^2	p
	Yes Number (%)	No Number (%)	Yes Number (%)	No Number (%)		
Cervical cancer is seen more among the women with multiple sex partners.	46 (43.0)	61(57.0)	18(5.1)	338(94.9)	99,387	0.000
Cervical cancer is seen more among the women who are together with -men with multiple sex partners.	42(39.3)	65(60.7)	26(7.3)	330(92.7)	67,023	0.000
Beginning sexual intercourse at an early age is a risk factor for cervical cancer.	50(46.7)	57(53.3)	26(7.3)	330(92.7)	93,207	0.000
Many and frequent births are risk factor for cervical cancer.	46(43.0)	61(57.0)	23(6.59)	333(93.5)	86,570	0.000
HPV infection can cause cervical cancer.	42(39.3)	65(60.7)	36(10.1)	320(89.9)	49,870	0.000
HPV infection is seen among the women more.	50(46.7)	57(53.3)	37(10.4)	319(89.6)	75,244	0.000
HPV infection can cause infertility among the women.	19(17.8)	88(82.2)	16(4.5)	340(95.5)	20,709	0.000
Condom use prevents contraction of HPV infection.	38(35.5)	60(65.5)	11(3.1)	345(96.9)	91,716	0.000
HPV vaccination is a lifelong protection against cervical cancer-among the women.	6(5.6)	101(94.4)	94(26.4)	262(73.6)	23,954	0.000
HPV vaccination is also protective for those contracted with the virus.	18(16.8)	89(83.2)	94(26.4)	262(73.6)	4,119	0.042
HPV vaccination should only be given to the women.	66(61.7)	51(38.3)	245(68.8)	111(31.2)	21,857	0.000
HPV vaccination prevents AIDS contraction.	18(16.8)	89(83.2)	14(3.9)	342(96.1)	21,246	0.000
Sexually transmitted diseases are not seen among those who have had-HPV vaccination.	6(5.6)	101(94.4)	11(3.1)	345(96.9)	1,474	0.225
HPV vaccines may cause serious complications.	21(19.6)	86(80.4)	6(1.7)	350(98.3)	48,222	0.000

Table 4. The Correlation between Academic Departments of the Participant Female Students and their Attitudes towards HPV Vaccination

	Academic departments			
	Health (n=78) Number (%)	Non-health (n=278) Number (%)	χ^2	p
Having HPV vaccination				
Yes	3 (3.8)	5 (1.8)	1,739	0.426
No	75 (96.2)	273 (98.2)		
Considering of having HPV vaccination				
Yes	13 (17.7)	41 (17.7)	4,817	0.090
No	15 (19.2)	91 (32.80		
Undecided	50 (64.1)	146 (52.5)		
Considering of giving HPV vaccination to their daughters				
Yes	23 (29.5)	100 (36.0)	7,580	0.023
No	13 (16.7)	75 (27.0)		
Undecided	42 (53.8)	103 (37.0)		
Thinking that HPV vaccination should be given compulsorily and gratis to all of the women				
Yes	30 (38.5)	71 (25.5)	5,005	0.025
No	48 (61.5)	207 (75.5)		
Being afraid of side effects of the HPV vaccination				
Yes	33 (42.3)	62 (22.3	12,460	0.000
No	45 (57.7)	216 (77.7)		
Finding the price of the HPV vaccines expensive				
Yes	11 (14.1)	81 (29.1)	7,184	0.007
No	67 (85.9)	197 (70.9)		
Having had training and education on cervical cancer and HPV vaccination				
Yes	16 (29.5)	28 (10.1)	6,130	0.013
No	62 (79.5)	250 (89.9)		
Wishing more information on cervical cancer HPV vaccination				
Yes	63 (80.8)	180 (64.7)	7,126	0.007
No	15 (19.2)	98 (35.3)		

HPV vaccination.

The 3.8% of female university students who studied at a health department and 1.8% of the students who studied at a non-health department told that they had HPV vaccines ($p>0.05$). The rate of those who considered of having HPV vaccination was by 17.7% among the female university students who studied at a health department and by 14.7% among the students who studied at a non-health department ($p>0.05$). 29.5% of the female university students who studied at a health department and 36.0% of the students who studied at a non-health department told that they considered of giving HPV vaccination to their daughters ($p<0.05$). The rate of those who thought that HPV vaccination should be given compulsorily and gratis to all of the women was by 38.5% among the students who studied at a health department and by 25.5% among the students who studied at a non-health department ($p<0.05$). The rate of those who were afraid of side effects of the HPV vaccination was by 42.3% among the female students who studied at a health department ($p<0.001$). 29.1% of the students who studied at a non-health department thought that the price of the HPV vaccines was expensive ($p<0.01$). The rate of receiving training about cervical cancer and HPV vaccination was 20.5% among those who studied at a health department whereas it was by 10.1% among those who studied at a non-health department ($p<0.05$). 80.8% of the students who studied at a health department and 64.7% of the students who studied at a non-health department told that they wished to get information on cervical cancer and HPV vaccination ($p<0.01$).

Discussion

In this study in which we examined knowledge levels, belief and behaviors of the university students about cervical cancer, HPV infection and HPV vaccination; it was found out that academic grades of the students affected their knowledge levels about cervical cancer ($p<0.05$). It was noted that students' knowledge and awareness level about the disease increased as their academic grades increased. Yet; it was seen that students' knowledge levels about the disease were not good both among first grade students and fourth grade students (Table 2). Similar results were obtained in the other studies done in our country, too and the studies pointed out that university students' knowledge levels about the disease were low (Pinar et al., 2009; Onsuz et al., 2011; Ozsaran et al., 2011; Guvenc et al., 2012). The relevant studies from Portugal (Medeirosa and Ramadab, 2011), the Unites States of America (Allen et al., 2009a), Malaysia (Wong and Sam, 2010) and Poland (Kamzol et al., 2013) were conducted with university students and reported that knowledge level of the university students were low. In the community-based studies from United Kingdom (Marlow et al., 2007), Germany (Klug et al., 2008), China (Li et al., 2009; Lee et al., 2007), Holland (Lenselink et al., 2008), Korea (Kim, 2012) and Japan (Hanley et al., 2014) and United Arab Emirates (Ortashi et al., 2013) it was found out that community knowledge levels and awareness about HPV and cervical cancer was low whereas it was high in the United States of America (Jain et al., 2009) and Belgium (Donder et al., 2009).

It was seen that students' beliefs about risk factors, vaccination protection and condom use differed in terms of the academic departments and these beliefs were higher/stronger among the students who studied at a health department (Table 3). It was seen that beliefs about the HPV infection among university students in Portugal who studied health sciences were higher/stronger and the correlation between health departments and non-health departments was statistically significant in terms of beliefs about the disease and the infection (Medeirosa and Ramadab, 2011). In the studies done in the United States of America; it was explored that the participants' risk belief about HPV infection and cervical cancer was high/strong whereas their beliefs about the protectiveness of the HPV vaccines was low/weak (Gerend and Magloire, 2008; Caskey et al., 2009).

In the current study; it was seen that female students' attitudes towards having HPV vaccination, considering of having HPV vaccination and considering of giving HPV vaccination to their daughters were low. Judging by the idea that those who do not think of having HPV vaccination and are undecided about HPV vaccination are under risk for cervical cancer; the trainings/educations and counseling should focus on these students. Although it is not a common opinion that HPV vaccination should be given to all of the students compulsorily and gratis; it was seen that a significant portion of the female students feared side effects of the vaccine and found the vaccines expensive. Therefore; these may cause female students not to have HPV vaccination or to be undecided about

whether they should have HPV vaccination or not. The rate of those who received professional training about cervical cancer and HPV infection was low among the students who studied at both health department and non-health department and the rate of those who wished to have more information was higher among the students who studied at health departments; which emphasized the educational gap among the female students (Table 4). In many countries; it was reported that the rate of having HPV vaccination was below the optimal levels (Zimet et al., 2013).

It was found out that in the United States; only 12.0% of the female university students (Allen et al., 2009b) had HPV vaccines while 53.0% of them considered having HPV vaccines. In Poland; 9.5% of the female Polish university students (Kamzol et al., 2013) had HPV vaccines. It was noted that 78.6% of the Korean women thought of giving HPV vaccination to their daughters in the future (Oh et al., 2010). Also in India it was reported that parents prefer vaccinating their daughters against HPV (Madhivanan et al, 2014). It was discovered that 48.0% of the Malaysian female students (Wong and Sam, 2010), 56.5% of the Thaiwanese female students (Juntasopeepun et al., 2011), 77.3% of the South African female students (Hogue et al., 2013) nearly 90.0% of the Portuguese female students (Medeirosa and Ramadab, 2011) thought of having HPV vaccines. In South Korea; the rate of having HPV vaccination was by 1.3%, the rate of those considering of having HPV vaccine was by 64.0% and the rate of those thinking that HPV vaccination was expensive and the rate of those fearing side effects of the vaccination was quite high. It was reported that in Belgium rate of HPV vaccination among the young women reduced due to the high cost of the HPV vaccination (Donder et al., 2009).

In conclusions and suggestions, in light of the study findings; it was concluded that knowledge levels, beliefs and attitudes of the university students about cervical cancer, HPV infection and HPV vaccination were low. University students represent the risk group who are open to negative health behaviors and effects of negative environmental factors. Unsafe sexual intercourse is one of those important health problems. Unsafe sexual intercourse is risk for such sexually transmitted diseases as HIV, HPV, syphilis, gonorrhea and chlamydia. In order to decrease this risk of unsafe sexual intercourse; it is necessary to prevent beginning sexual activity at an early age (<16), to use barrier contraceptive methods such as condom and to reduce the number of sexual partners. Integrated and informative training programs that should be designed in collaboration with the Ministry of Health and universities are needed across Turkey. Thus; wrong beliefs and attitudes about cervical cancer, HPV infection and HPV vaccination can be eliminated. Also; that HPV vaccination should be included in school age vaccination program in the national vaccination schedule or that cost of the HPV vaccination should be decreased will help developing trust in HPV vaccination and acceptability of HPV vaccination.

That seminars and conferences about sexual and reproductive health should be organized in universities and that elective courses about infectious diseases and cancer should be provided in the curriculum of the students who studied at non-health departments may contribute to increasing knowledge levels and awareness about cervical cancer -a threat risk for women health- in both genders.

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