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RESEARCH ARTICLE

Awareness of human papilloma virus, cervical cancer and HPV vaccine in healthcare workers and students of medical and nursing schools

Sağlık çalışanları, tıp öğrencileri ve hemşirelik öğrencilerinde insan papilloma virüsü, servikal kanser ve HPV aşısı farkındalığı

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ABSTRACT

Objectives: Establishment of the knowledge and the need to make conscious in medicine students, nursing students and nurses due to the effective role of updating conscious of the health workers, we aimed to assess the knowledge of nurses and students of İstanbul Bilim University and affiliated hospitals about HPV and cervical cancer.

Materials and methods: Because healthcare personnel illuminate and influences the public, the survey was conducted to medicine students of the first three years, nursing students and nurses. The reason of choosing the first three years of medicine students is with the begining of the gynecology courses at the 4th year of education in medical faculty, learning takes the place of awareness. Totally 743 participants were asked to survey but 603 subjects responded (81.2%) then the surveys that was not asked for the identity information were taken into consideration

Results: Nurses and students of nursing had better knowledge about smear test when compared to students of medicine (first 3 years) and other healthcare personnel. Only 52% accepted to get a daughter vaccinated. The main reasons for vaccine rejection were the concerns about vaccine safety (41%), cost of the vaccine (10%) and sexual promiscuity (5%) after vaccination. Religious aspects were not considered as an obstacle.

Conclusions: The awareness of HPV, cervical cancer and HPV vaccination should be increased. *J Clin Exp Invest 2012; 3(3): 318-325*

Key words: HPV, HPV vaccine, cervical cancer, knowledge

ÖZET

Amaç: Sağlık çalışanlarının halkı bilgilendirmedeki etkin rolü göz önüne alındığında hemşirelik öğrencileri, tıp öğrencileri ve hemşirelerin serviks kanseri, HPV ve HPV aşıları hakkındaki bilinç düzeyinin tespit edilmesini ve bilinçlendirme ihtiyacının araştırılmasını amaçladık ve İstanbul Bilim Üniversitesi öğrencileri ve afiliye hastanelerdeki sağlık çalışanlarının HPV ve serviks kanseri hakkındaki bilgilerini değerlendirdik.

Gereç ve yöntem: Sağlık personeli, toplumu bilgilendirme ve yönlendirme yaptığı için, anket, tıp fakültesi ilk 3 yıl öğrencilerine, hemşirelik öğrencilerine ve hemşirelere yapıldı. Dördüncü sınıftan itibaren jinekoloji derslerinin başlamasıyla birlikte bilinç yerini bilgiye bıraktığı için sadece ilk üç yıldaki tıp öğrencileri seçilmiştir. Anket sorularını cevaplandırması istenen 743 katılımcının 603 tanesi (% 81,2) anketimizi cevaplamayı kabul etti. Daha sonra kimlik bilgisi istenmeyen anketler değerlendirmeye alındı.

Bulgular: Hemşireler ve hemşirelik öğrencileri, tıp fakültesi öğrencileri (ilk 3 yıl) ve diğer sağlık çalışanlarıyla kıyaslandığında smear test konusunda daha bilgiliydiler. Katılımcıların sadece %52'si kızlarının aşılanmasına itiraz etmeyeceğini beyan etti. Aşıyı kabul etmeyenlerin kabul etmeme gerekçeleri aşının güvenirliliği hakkındaki endişeler (% 41), aşının maliyeti (%10) ve aşılanmadan sonra cinsel ilişki serbestisinin onaylanması fikri (%5) idi. Dini konular engel olarak değerlendirilmedi.

Sonuç: HPV, serviks kanseri ve HPV aşıları hakkındaki farkındalığın artırılması gerekmektedir.

Anahtar kelimeler: HPV, HPV aşıları, serviks kanseri, bilinç düzeyi

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INTRODUCTION

Cervical cancer is the 9th most common cancer among women in Turkey. Every year approximately 1500 cervical cancer cases are diagnosed and nearly half of these cases die.[1] Systematic screening has been shown to decrease death rates from cervical cancer by more than 70%.[2] There are no organized mass screening programs in Turkey, but pap smear test is afforded by the government.

Human papillomavirus (HPV) has been identified as the major risk factor for cervical cancer [3] and it is the most common sexually transmitted disease (STD).[4,5] Cofactors such as using oral contraceptives, smoking, low socioeconomic status and promiscuous sexual behavior also play a role in the etiopathogenesis. Findings in previous surveys indicate that the knowledge about HPV vaccine among the general public is low.[6-9] HPV prevalence in Turkey was reported to be low,[10] but the prevalence of cervical dysplasias and genital warts are increasing with acceptance of more promiscuous sexual behavior. The HPV vaccine introduced in 2006 was effective in protecting against precancerous lesions of the cervix.[11] Results from randomized controlled trials (RCTs) of prophylactic HPV vaccines have shown high efficacy in preventing infection and subsequent precancerous cervical lesions associated with vaccine-type oncogenic HPV (HPV 16 and 18) as well as phylogenetically-related oncogenic HPV types.[12]

Two different types of vaccines are available in Turkey, namely Gardasil (Merck and Co Inc, West point, Pa) and Cervarix (GlaxoSmithKline Biologicals, Rixensart, Belgium), but the vaccine is not in the immunization program as in many European countries and is not afforded by the government. Both of the vaccines can be obtained from the drug stores without a prescription. Bearing this knowledge in mind we designed a survey to understand the knowledge of Turkish healthcare workers and candidates (the best possible source of information for patients) about HPV, cervical cancer and HPV vaccine.

MATERIALS AND METHODS

Between December 2010 and February 2011, students of Bilim University and healthcare workers of affiliated hospitals were asked to participate in a survey to understand their knowledge about HPV, pap smear test, cervical cancer, HPV vaccine and their attitudes toward HPV vaccination. The study was designed according to the Declaration of Helsinki. A self-administered questionnaire consisting of 25-items was introduced. Students received the survey in their classroom at one time and put the completed survey in a closed box. Working staff completed the survey within 24 hours and replaced it in a closed box. The first part of the questionnaire consisted of 5 questions to determine age, sex, smoking status, contraception method and occupation in the hospital (Table 1). The second part of the questionnaire assessed the knowledge about smear test and HPV to give an opinion about the domains which needs awareness raising (Table 2). The third part of the questionnaire included 5 questions about HPV vaccine (Table 3). We also searched changes in responses according to history of gynecological cancer in the family (Table 4). The detail of situation of religious beliefs of the responders are not questioned. The study is approved by the Institutional Review Board of our University.

Statistical analysis was performed using the computer software NCSS (Number Cruncher Statistical system) 2007 & PASS 2008 statistical Software (Utah, USA). Chi-square analysis was used to compare categorical variables and p-value was calculated according to the total number of responses. A p-value< 0.05 was considered statistically significant.

RESULTS

Participants

From 743 healthcare workers and students invited, 603 of them agreed to participate in the self-administered survey and completed it. The response rate was 81.2%. A small part of the participants rejected the survey. Their mean age was 25.4±6.4 years. Participants were grouped into three: 19.1% of the participants were students of medicine (SOM) (first 3 years), 47.9% of them were nurses+students of nursing of the last year (SON), 23% of them were secretaries/technicians and other healthcare personnel (HCP). Regarding the data 20.2% of the participants were males and 79.8% were females. A large proportion of the subjects never had sexual intercourse (56.3% of women and 32.8% of men). During sexual intercourse 21.1% of the participants used condoms, 6.6% used intrauterine device, 14.9% used oral contraceptives, 1.2% used other hormonal contraceptives, 7.5% used coitus interruptus as a contraceptive method and 3.6% had tubal ligation. When we look at the smoking status, 43.4% of males and 27.4% of females were smokers (Table 1).

Table 1. Main characteristics of the participants (n=603)

Age (years)	25.41±6.36
Sex	79.8% females, 20.2% males
Smokers	27.4% of females, 43.4% of males
Contraception method	21.1% Condom
	14.9% Oral contraceptives
	6.6% Intrauterine device
	3.6% Tubal ligation
	1.2% Injectable hormonal contraceptives
	51.4% No coitus
Occupation	19.1% Students of medicine,
	47.9%Nurses+Students of nursing
	23% Other health care personel

Knowledge of Pap smear screening, HPV and cervical cancer

Participants were asked if they knew the risk factors for cervical cancer, 64.2% of them chose HPV, 55.1% chose multiple partners and 28.7% chose smoking as a risk factor for cervical cancer. Forty percent of participants thought that genetic-familial factors played a role in the etiology of cervical cancer. Of our sample 76% of respondents correctly answered that HPV is transmitted via sexual intercourse. When their source of information was investigated, 37.1% gave it as school, 31.7% as internet, 35.8% as newspaper-television. When the diseases caused by HPV were investigated, 4.5% considered HPV as the causative agent of genital warts only, 25.2% as the causative agent of both genital warts and cervical cancer. Forty percent of respondents thought that HPV affected only females.

When they were asked about pap smear test, 77.4% of respondents correctly answered that a pap smear test is a cervical cancer screening test, 7.6% believed that it was a STD test, 1% believed that it was a cancer treatment, 10.8% had no idea. When the knowledge about pap smear frequency was searched, 70.3% of respondents answered it correctly. Only 8% knew that smear tests should continue after HPV vaccination (Table 2).

Only women had to answer the next 3 questions, 42% had a gynecological examination before the survey, 21.6% had a smear test before the survey and 1.3% had a history of abnormal pap smear result before. Those who have had a gynecological examination before the survey correctly answered that a pap smear is a cervical cancer screening test (87.6%), pap smears are done yearly (83.6 %), HPV is the causative agent of cervical cancer (77.6%) and HPV is transmitted sexually (81.1%), but there was no statistically significant difference between the groups.

Knowledge and attitudes about HPV vaccination

When the knowledge about HPV vaccine was searched, 15.5% of participants believed that the vaccine prevented cervical cancer totally, 43% answered that they had no idea and 16.6% believed that it prevented other STDs. Only 4% of participants were vaccinated. When the willingness to get their daughter vaccinated (a daughter or a supposed future one) was searched, 52.1% of the respondents were willing to accept it. Those who were not willing to get their daughters vaccinated reported the safety of the vaccine (41.2%) as the main reason. The price of the 3 doses of vaccine was given as US $ 275 and it was considered as an objection for vaccination by 9.7% of the participants. Only 4.5% of the respondents were concerned that vaccination would lead to more risky sexual behaviors, religion was not an obstacle. Some of the respondents accepted to get their daughters vaccinated when the government paid for it. Having a relative with a gynecological cancer did not change the acceptability of the vaccine for the daughter and it did not increase the number of women taking the vaccine (5.9% versus 3.6%, p=0.426). A previous history of a STD also did not change the acceptability of the vaccine, but the number of this group of respondents was small. Those who have had a gynecological examination previously had an increased acceptability of the vaccine for their daughters (63.7% versus 47%, p=0.001) and they were less concerned for the safety of the vaccine (11.9% versus 31.9%, p=0.01) (Table 3) (Table 4).

Table 2. Knowledge about pap smear test, HPV and cervical cancer (n=603)

	Total	Females	Males	SOM	SON	HCP
What are the risk factors for cervical cancer?						
Familial-genetic	40	41	36.9	40	44.6	33.7
HPV	64.2	66.3	55.7*	76.5	70.6	47.7*
Multiple partner	55.1	6.2	49.2*	76.5	61.6	51.8*
Multiple partner of the partner	55.1	58.4	41.8*	67.8	56.7	45.2*
Smoking	28.7	28.3	30.3	46.1	28.7	18.6*
No idea	12.6	9.8	23.8*	5.2	6.6	25.6*
What is pap smear test?						
STD test	7.6	11	7.4	7.8	1.4	10.6
No idea	10.8	7.1	25.4*	11.3	8.3	14.1
Cancer teratment	1	1.2	2.5	2.6	0.3	2.5
Cervical cancer screening test	77.4	84	67.2*	80	84.1	75.9
At what intervals should a woman get a pap smear test?						
Yearly	70.3	72.5	61.5*	63.2	74.7	67.8*
Every 3-5 years	13.8	9	15	21.1	15.9	6.6
Every 10 years	0.7	0.8	0	0.9	0.7	0.5
No idea	55.3	11.7	29.5	14.9	8.7	25.1
Which virus leads to cervical cancer?						
a. HPV	72.8	75.7	61.5	87	76.1	59.8
b. HSV	4.8	4.8	4.9	6.1	6.2	2
c. HIV	3.6	4	2.5	6.1	2.4	4
d. No idea	22.7	20.6	31.1	9.6	9.4	35.2*
How can you get HPV infection?						
Sexual intercourse	76	78.2	67.2*	85.2	74.7	72.4*
Blood	8.8	7.5	13.9*	15.7	3.5	12.6
Toilet	8.5	9.4	4.9	5.2	13.8	2.5*
No idea	20.6	19.2	25.4	10.4	22.5	23.6*
HPV leads to what kind of disease ?						
Genital warts	4.5	4.2	5.7	2.6	3.8	6.5*
Cervical cancer	49.1	49.7	46.7	47	44.6	56.8
Genital warts+cervical cancer	25.2	26.6	19.7	40.9	30.4	8.5
No idea	21.2	19.5	27.9	11.3	19.4	25.6
HPV affects						
Only women	40	41.6	33.6	34.8	41.2	41.2*
Only men	0.8	0.6	1.6	9.0	0.7	1
Both men and women	38.5	39.3	39.3	53	38.8	32.2
No idea	19.9	18.5	25.4	11.3	19.4	25.6

SOM: Students of medicine, SON: Students of nursing, HCP: Health care persons, Chi-square test *p<0.05

Table 3. Knowledge and attitude to HPV vaccination (n=603)

	Total	Females	Males	SOM	SON	HCP
Does HPV vaccine prevent cervical cancer totally?						
Yes	15.6	15.8	14.8	11.3	17	16.1*
No	41.5	40.3	45.9	71.3	35.3	33.2
No idea	43	43.9	39.3	17.4	47.8	50.8
Does HPV vaccine prevent other sexually transmitted diseases too?						
Yes	16.6	16.4	17.2	12.2	13.8	23.1*
No	44.9	45.7	41.8	62.6	52.6	23.6
No idea	38.5	37.8	41	25.2	33.6	53.3
Have you had a HPV vaccine?						
Yes	4	4.4	2.5	4.3	4.5	3
No	96	95.6	97.6	95.7	95.5	97
Would you like to get your daughter / future daughter vaccinated for cervical cancer?						
Yes	52.1	54.1	44.3	65.2	49.5	48.2*
No	47.9	45.9	55.7	34.8	50.5	51.8
What is the reason for rejection of HPV vaccination?						
I am against all vaccine	2.4	1.2	1.6	0.9	0.7	2.5
Vaccine is not safe	41.2	23.5	9*	13.9	31.5	8.5*
Vaccine may increase sexual promiscuity	4.5	1.9	5.7*	0.9	2.4	4
Vaccine is not necessary	10.7	5.6	4.1	1.7	6.2	6
Cost is high	9.7	5	5.7	3.5	4.5	7
I will accept if the government pays for it	13.5	6.4	13.9*	3.5	3.8	16.6*
Religious reasons	0.2	0.2	0	0.9	0	0
Other	26.7	5.4	21.3	13	4.5	12.1*
After vaccination there is no need for routine smear screening						
Yes	8	7.3	10.7*	6.1	5.6	12.6*
No	83.7	87.5	68.9	86.1	91	71.9
No idea	8.3	5.2	20.5	7.8	3.5	15.6

SOM: Students of medicine, SON: Students of nursing, HCP: Health care persons, Chi-square test, *p<0.05

Table 4. Family history of gynecological cancer and attitude to vaccination

Family history of cervical cancer	Yes (%)	No (%)
Does HPV vaccine prevent cervical cancer totally		
Yes	4.2	15.9
No	54.2	41
No idea	41.7	43.1
Does HPV vaccine prevent other sexually transmitted diseases too		
Yes	8.3	17
No	66.7	43.9
No idea	25	39.1
Have you had a HPV vaccine		
Yes	5.9	3.6
No	94.1	96.4
Would you get your daughter / future daughter vaccinated for cervical cancer		
Yes	54.9	51.9
No	45.1	48.1

Chi-square test, *p<0.05

DISCUSSION

The prevalence of HPV infection in hospital based investigations in low-risk Turkish women was reported as 2%,[10] but a hospital looking after women with a high level of education reported a prevalence of 16%,[13] in Turkey better education and income are associated with more promiscuous sexual attitudes. Cervical cancer has a long preinvasive phase, as the conservative nature of our culture changes, premarital sexual contact and polygamy becomes more common, the prevalence of HPV will certainly increase to the rates reported worldwide.[13]

In this survey females had significantly more knowledge about HPV and smear test. Also SOM performed better than the other two groups when the items about HPV were considered, but SON answered the questions about smear test more correctly. This is most probably related to gender, nearly all of the SON are females in Turkey. Previously in a similar study of SOM and midwives, midwives were found to have more knowledge about

HPV and HPV vaccine than SOM.[14] Main source of knowledge in our subjects was school (37%), followed by media (newspaper-television, 36%) and internet (32%), similar to the previous reports.

Vaccination prior to HPV exposure is likely to provide the greatest benefit; more than half our respondents never had sexual intercourse before. However only 4% had the vaccine, a level similar to that reported in previous studies,[15] To be sexually inactive or monogamy [16] may be the reasons for postponing of the vaccination.

We tried to estimate the intention of vaccine providers to immunization by asking whether they would get their daughters vaccinated or not, as intention has been associated with behaviors.[17] Nearly half of them rejected to vaccinate their daughters. Previously reported vaccine acceptance of Turkish women for their daughters was higher.[15,18] Intentions from other parts of the world were also higher.[7,19-21] The main reluctance of our respondents when deciding to vaccinate their daughters appeared to be the concerns about vaccine safety, similar to that reported from a survey in physicians [22] and university students,[9] but less than that from other studies.[8,15,23] Females were more concerned about vaccine safety when compared to males and nurses were more concerned when compared to the other groups. Females with a previous gynecological examination had a statistically significantly higher vaccine acceptance for their daughters and they were less concerned about the vaccine safety. Although vaccine acceptance was the highest among SOM (65%), it is still very low. Confusions about the safety of HPV vaccination should be rectified as these will be directed to the general population and will decrease the patient compliance and adherence.[24]

Other obstacles were shared commonly. One of the factors that can have an impact on HPV vaccination is the vaccine cost. Nearly 10% of our respondents considered the cost of the vaccine as an important barrier to vaccination. The cost of three doses of vaccine is approximately equal to the monthly income of our HCP and is approximately half of the monthly income of a nurse. Our data provide evidence that the monthly income did not change the vaccine acceptability as was supported previously.[20] Other studies related lower income to higher vaccine acceptance [7,25,26] or contrarily lower income to decreased interest in vaccination.[27,28] Nearly 15% of the respondents answered that they would vaccinate their daughters only when the government paid for it; there was a statistically significant difference between male and female respondents, females were in favor of vaccination more than males whether the government paid for it or not, probably because the cervical cancer affects females. Also HCP were more likely to accept vaccination if the government paid for it, this is most probably related to the poorer knowledge and education of this group or to the male preponderance, as males have been reported to have lower awareness of HPV and cervical cancer risk [20] or may be related to low knowledge higher vaccine acceptance.[29]

An attitude as a general opposition to vaccination was rare and religion was not considered as an obstacle for HPV vaccination. Previous studies showed that a main barrier to vaccine acceptance was the concern that HPV vaccination could lead to more promiscuous sexual behavior,[30,31,32,33] that was put forward by less than 5% of our respondents and was similar to that of other reports.[15,34]

The primary goal in HPV vaccination is to prevent cervical cancer, but the inclusion of HPV types associated with genital warts may increase their interest in the vaccine.[35] Only 25% of our respondents knew that HPV caused both cervical cancer and genital warts. Unfortunately 55% of the respondents had the false beliefs that the HPV vaccine would protect them against STDs other than HPV and 8% assumed that there was no need to have pap smears after HPV vaccine, similar to the findings of a previous report.[23] It is also critical to mention the false sense of security with respect to cervical cancer risk after HPV vaccination. Only 42% of the study participants knew that the protection after HPV vaccination is not complete, 84% agreed that the smear tests should be performed after vaccination. The discrepancy between the answers is probably due to attribution of other diagnostic values to smear test besides being a cervical cancer screening test.

Vaccine acceptance for daughters was statistically significantly higher among SOM (65%). This emphasizes on the need to increase awareness about cervical cancer in doctors and nurses who are involved in the primary care of the patients and an important source of guidance for them. Other healthcare workers are not directly involved in providing clinical care and health education, but they can still be a role model in the population. It is also important to assess the factors that affect vaccine decision-making in this relatively young population, half of whom had no sexual intercourse.

A previous study conducted in women treated for cervical cancer discerned very low HPV knowledge,[36] contrarily history of cervical cancer in family or friends was found to be associated with higher HPV vaccine knowledge.[8,37,39] Our data provides

evidence that having had a family history of a gynecological cancer was not associated with higher vaccine acceptance for a daughter or vaccine knowledge.

The main reason for rejecting to complete the survey was being busy. SOM were from the first three years, they answered the survey before taking gynecology lessons, and therefore we can hope better results with the interns.

In Turkey pap smear tests are paid by the government but implementation of HPV immunization is not a policy of the near future. In countries with school-based immunization programs HPV vaccine uptake is already high (80%).[39] We hope to increase awareness about HPV, cervical cancer and HPV vaccination with better education of healthcare providers, whom can play an active role in educating and informing patients. The willingness of healthcare providers to recommend HPV vaccination may increase community demand for vaccination. It is fundamental to improve knowledge and awareness of healthcare personnel with effective education programs both in university and in professional life in a country where promiscuous sexual attitudes are rising and HPV vaccination is not in the immunization schedule.

Conflicts of interest: No competing financial interests exist

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