ÖZGÜN ARAŞTIRMA ORIGINAL RESEARCH

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ARE WOMEN AWARE OF THE VACCINE AGAINST HUMAN PAPILLOMAVIRUS? A HOSPITAL-FOCUSED CROSS-SECTIONAL STUDY

KADINLAR HUMAN PAPİLLOMA VİRÜS AŞISI OLDUĞUNU BİLİYOR MU? HASTANE ODAKLI KESİTSEL BİR ÇALIŞMA

Ülkü Ayşe TÜRKER[1], Binali ÇATAK[2]

[1] Kars Harakani State Hospital, Obstetrics and Gynecology Clinic, Kars, TÜRKİYE
[2] Kafkas University, Faculty of Medicine, Department of Public Health, Kars, TÜRKİYE

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Öz

Amaç
Human Papilloma Virus (HPV) serviks kanserinin nedenidir. Aşılanma ile serviks kanserinin oluşması engellenebilir. Çalışmamızda ki amacımız Kars ilinde jinekoloji polikliniklerine başvuran kadınların HPV aşısı hakkında ki bilgi düzeylerini değerlendirmektir.

Gereç ve Yöntem
Bu çalışma Kars Harakani Devlet Hastanesi jinekoloji polikliniklerine 1-31 Aralık 2020 tarihleri arasında başvuran kadınları kapsayan kesitsel bir çalışmadır. Çalışmaya 380 kadın dahil edilmiştir. Kadınların HPV aşısını bilip bilmedikleri sorulmuştur.

Bulgular
Çalışmada kadınların HPV aşısını bilmeme riskini 34 yaş altında olmanın 4,013 kat, eve giren gelirin yetersiz olmasının 8,640 kat, 8 yıl ve altında eğitim almış olmanın 3,375 kat arttırdığı görüldü.

Sonuç
Serviks kanserine karşı HPV aşısı hakkında bilgi düzeyinin yetersiz olduğu görülmüştür.

Anahtar Kelimeler: HPV, Serviks kanseri, Aşı

Abstract

Objective
Human Papillomavirus (HPV) is the causative agent of cervical cancer. However, the disease can be prevented by vaccination. In this study, we aimed to evaluate the level of knowledge about HPV vaccination among women who applied to gynecology outpatient clinics in Kars, Turkey.

Materials and Methods
This cross-sectional study included women who were admitted to the gynecology outpatient clinics of Kars Harakani State Hospital in December 2020. Overall, 380 women were included in the study, and they were asked if they knew about the existence of the HPV vaccine.

Results
We observed that the risk of being uninformed about the HPV vaccine increased by 4.013 times in women aged <34 years, by 8.640 times in households with insufficient income, and by 3.375 times in women with education of ≤8 years.

Conclusion
Based on the findings, it could be concluded that

Sorumlu yazar ve iletişim adresi /Corresponding author and contact address: A.Ü.T. / ulku1ayse@gmail.com
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ORCID IDs of the authors: Ü.A.T: 0000-0002-3393-6310; B.Ç: 0000-0003-2769-990X

the level of knowledge about the availability of HPV vaccine against cervical cancer is insufficient.

Keywords: Cervical cancer, Human papillomavirus, Vaccine

Introduction

Human Papillomavirus (HPV) belongs to the papillomavirus family and is a DNA virus that infects the basal epithelial layer cells on the skin and mucosal surfaces. The most important characteristic of the virus is that it can cause cancer in the regions of the cervix, penis, vulva, vagina, anus, mouth, oropharynx, and other mucosal areas [1].

There are many types of HPV, and most of them do not cause any problems. HPV infections disappear within a few months, and 90% of them are resolved within 2 years. However, a small percentage of infections that occur with some HPV types persist and can progress to cervical cancer. According to the data of the World Health Organization, cervical cancer is the 4th most common type of cancer in the world and is responsible for 7.5% of deaths due to all female cancers. Cervical cancer control consists of processes including vaccination against HPV (primary protection), screening and treatment of precancerous lesions (secondary protection), and diagnosis and treatment of invasive cervical cancer (tertiary protection). Among these processes, the most important factor in terms of cost and effectiveness is the vaccination of women [2].

Although vaccination is effective in preventing cervical cancers, it is not included in the routine vaccination program of most countries. In most of the developing countries such as Turkey, HPV vaccines are recommended but the vaccination is not included in the national immunization program [3].

One of the most important problems in vaccination programs is the lack of appropriate information, and the second is vaccine hesitancy. According to the literature, while vaccine hesitancy prevails even in the case of childhood vaccines, such as those against measles and whooping cough [4], lack of information is one of the main reasons for not getting the HPV vaccine [5,6].

The present study therefore aims to determine the level of knowledge amongst women in the age group of 15–49 years about the existence of HPV vaccine and to identify the sociocultural factors affecting this knowledge

Materials and Methods

Defining the region where the research was conducted

Turkey is divided into 30 health regions. The hospital where the study was conducted is located in the 30th health zone and is the largest and most important hospital in the region. Being the region in which the highest mountain of Turkey is located, this region is adjacent to Iran, Georgia, Nakhichevan, and Armenia. The main livelihood of the people in this region is agriculture and animal husbandry. The region is below the average socioeconomic development level in the country. Illiterate people account for 11.7% of the total population in the region, and those who never finished school account for 13.5% of the total population [7].

In terms of health personnel per thousand people, the region is below the national average. Infant deaths amount to 11.2 per 1.000 and maternal deaths to 24.5 per 100.000, which are above the national average (Turkey's average rates of infant deaths and maternal deaths are 6.8 per 1.000 and 14.6 per 100.000, respectively) [8].

Study Type

Hospital-focused cross-sectional study

Study Population

To determine the study population, women aged 15–49 years who applied to the Gynecology and Obstetrics Outpatient Clinic of Kars Harakani State Hospital in 2019 were considered. The total number of applicants was 36,230. The same number of patients was predicted to apply in 2020, during which the study was conducted.

Study Sample

Since the population of the study is known, the number of women to be included in the sample was calculated using the formula n = Nt2 p q/d2 (N-1) + t2 p q, where, N is the number of individuals in the universe, n is the number of individuals to be included in the sample, p is the frequency (probability) of occurrence of the investigated event, q is the frequency (probability) of the investigated event not occurring, t is the theoretical value found in the t table at the given degree of freedom and the detected level of error, and d is the ± deviation desired to be made according to the frequency of occurrence of the event [9]. Accordingly,

the sample size was calculated as 380 women, with p = 0.50, q = 0.50, t = 1.96, and d = 0.05.

Arriving at the Data Collection Form
The data collection form was prepared by the researchers, and it consisted of two parts. The first part included the sociodemographic, biodemographic, and socioeconomic information of the partiipants, and the second part included questions about HPV.

Research Variables
Dependent variable: The woman's state of being informed about the existence of HPV vaccine.

Independent variables: Sociodemographic, biodemographic, and socioeconomic characteristics

Ethics Committee and Written Approval
Ethics committee approval was obtained from Kafkas University Faculty of Health Sciences Non-Invasive Research Ethics Committee for the study (number/ issue: 81829502.903/100). The participants' written consents were also obtained. Our study was conducted in accordance with the Helsinki Declaration.

Data Collection
The data were collected in December 2020 by the researcher using face-to-face interview technique in the gynecology and obstetrics outpatient clinic.

Preliminary Trial of the Study
It was conducted with seven women aged 15–49 years who applied to the outpatient clinic. Necessary adjustments were made to complete the missing parts of the data collection form.

Statistical Analysis
Chi-square test was used for paired comparisons. The variables that were found to be significant in the hi-square test were included in the logistic regression (backward: LR) analysis. $p < 0.05$ was considered significant.

Results

In this study, 82.7% of women aged 15–49 years were not informed that HPV vaccine exists. While the paired analysis between marital status and the state of being informed or uninformed about the HPV vaccine did not reveal statistically significant difference ($p = 0.664$), there was a statistically significant difference in terms of residential place, age, family type, number of people in the household, health insurance, educational background, employment status, and income level ($p = 0.041$, $p = 0.001$, $p = 0.035$, $p = 0.046$, $p = 0.001$, $p = 0.001$, $p = 0.001$, $p = 0.001$, respectively) (Table 1).

As seen in Table 2, there was no statistically significant difference between the states of being informed and uninformed about HPV in terms of total number of pregnancies, knowing the name of the family physician, and knowing the name of the family health midwife ($p = 0.271$, $p = 0.661$, $p = 0.622$). However, there was a statistically significant difference between the state of being informed about the smear test and HPV vaccine ($p = 0.001$).

Table 3 presents the results of the logistic regression analysis. As seen in the table, the risk of being uninformed about the existence of HPV vaccine was 4.013 times (CI = 1.506–10.694) higher in women aged ≤34 years than in those aged ≥35 and over, 8.640 times (CI = 3.579–20.859) higher in women with insufficient household income than in those with sufficient household income, 3.375 times (CI = 1.385–10.074) higher in women with ≤8 years of education than in those with ≥9 years of education, and 29.119 times (CI = 11.477–73.880) higher in women who had not heard of the smear test than in those who had heard about it.

Discussion

Almost all cases of cervix cancer are due to HPV infection. However, it is a health problem that can be prevented with HPV vaccine and can be treated with early diagnosis [2]. The current study aims to determine whether women aged 15–49 years are informed about the existence of HPV vaccine.

According to the results of the present study, 82.7% of the women were uninformed about the existence of HPV vaccine. According to various studies conducted in different regions across Turkey, the rates of being uninformed about HPV vaccine range between 43.4% and 66.4% [3]. In a study conducted in Thailand, 60.0% of the women stated that they were uninformed about the existence of HPV vaccine [10]. The high difference among the studies with regard to knowledge on HPV vaccine is probably due to two reasons. The first of these reasons is that sociocultural and socioeconomic differences exist among the regions where the studies were conducted, and the second is that other studies were conducted in medical faculty hospitals [11].
The risk of being uninformed about the existence of HPV vaccine increased by 3.375 times in women with an education level of ≤8 years when compared to those with an education level of ≥9 years. In a similar study conducted in China where the junior schooler

Table 1 The effect of sociodemographic characteristics of women on their level of knowledge about the human papillomavirus vaccine (Kars, 2020)

Sociodemographic		Informed	Uninformed	Total	X^2	P
		n (%) *	n (%) *	n (%) **		
Place of residence	Village/town	8 (9.8)	74 (90.2)	82 (21.5)	4,177	**0.041**
	City/district center	58 (19.4)	241 (80.6)	299 (78.5)		
Age	≤34 years	43 (14.1)	262 (85.9)	305 (80.1)	11,100	**0.001**
	≥35 years	23 (30.3)	53 (69.7)	76 (19.9)		
Marital status	Married	60 (16.9)	294 (83.1)	354 (92.9)	0.487	0.664
	Not married	6 (22.2)	21 (77.8)	27 (7.1)		
Family type	Large	10 (10.3)	87 (89.7)	97 (25.5)	4,469	**0.035**
	Nuclear	56 (19.7)	228 (80.3)	284 (74.5)		
Number of persons in the household	≤4	50 (20.2)	198 (79.8)	248 (65.1)	3,997	**0.046**
	≥5	16 (12.0)	117 (88.0)	133 (34.9)		
Health insurance	No	13 (6.7)	180 (93.3)	193 (50.7)	30,611	**0.001**
	Yes	53 (28.2)	135 (71.8)	188 (49.3)		
Education	≤8 years	19 (9.7)	176 (90.3)	195 (51.2)	16,021	**0.001**
	≥9 years	47 (25.3)	139 (74.7)	186 (48.8)		
Employment	Housewife	34 (11.6)	258 (88.4)	292 (76.6)	28,149	**0.001**
	Income-generating	32 (36.0)	57 (64.0)	89 (23.4)		
Household income	Sufficient	46 (40.0)	69 (60.0)	115 (30.2)	59,144	**0.001**
	Insufficient	20 (7.5)	246 (92.5)	266 (69.8)		
Total*		**66 (17.3)**	**315 (82.7)**	**381 (100.0)**		

* row percentage, ** column percentage

is taken as the lower reference, awareness of HPV vaccination was increased by 2.175 times (CI: 1.966–2.406) in high school and by 5.026 times (CI: 4.527–5.580) in college [12]. Although multiple analyses were not conducted, it has been stated in studies involving paired analysis that awareness of HPV vaccine increases as the education level increases [13,14]. The probable reason for the increase in knowledge about the vaccine as the education level increases could be the higher health literacy of women with a high level of education. As a matter of fact, studies have reported that health literacy and vaccine awareness are directly proportional to each other [15,16,].

In the study, the decrease in the amount of household income increased the risk of being uninformed about the HPV vaccine in women by 8.640 times. In one study, it was reported that when compared to families with lower income levels, families with higher income levels were 3.752 (CI: 3.113–4.522) times more aware of the existence of HPV vaccine [11]. This situation is thought to stem from the social status of women. In Turkey, women with a high level of education are of higher social status; therefore, these women get a higher share of the national income. The received share paves the way to be benefitted from the services of the healthcare institutions to a greater extent. This may contribute to the increased awareness of many health-related issues among these women [17,18].

In this study, when women aged ≥35 years were taken as a reference, those aged ≤34 demonstrated 4.013 times higher risk of being uninformed about the existence of HPV vaccine. In a study [10], that did not fully match the present study, the younger group (aged <45 years) had a 2.33 (CI: 1.61–3.38) times greater desire for vaccination compared to the older

Table 2 The effect of healthcare use among women on their level of knowledge about the human papillomavirus vaccine (Kars, 2020)

Health service		Informed	Uninformed	Total	X^2	P
		n (%) *	n (%) *	n (%) **		
Total number of pregnancies	≤2	46 (18.9)	197 (81.1)	243 (63.8)	1,210	0,271
	≥3	20 (14.5)	118 (85.5)	138 (36.2)		
Name of family doctor	Informed	43 (16.7)	214 (83.3)	254 (67.5)	0,193	0,661
	Uninformed	23 (18.5)	101 (81.5)	127 (32.5)		
Name of family nurse	Informed	33 (18.3)	147 (81.7)	180 (47.2)	0,243	0,622
	Uninformed	33 (16.4)	168 (83.6)	201 (52.8)		
Knowledge about smear test	Informed	7 (2.9)	238 (97.1)	245 (64.3)	100,283	**0.001**
	Uninformed	59 (43.4)	77 (56.6)	136 (35.7)		
Total*		**66 (17.3)**	**315 (82.7)**	**381 (100.0)**		

* row percentage, ** column percentage

group (aged ≥45 years). This situation may arise from cultural differences between the countries. The most important control mechanism on women in Turkey is the "gender"-specific control mechanism. Among these control mechanisms, "honor rumor" comes first. Younger women are restricted by their family elders from using the public space without gaining social trust. As the age increases, the number of marriages and children increase, in other words, as the society cultivates a sense of trust toward women, the control mechanism on women decreases [20]. Therefore, interactions with public institutions at a younger age may reduce awareness of health-related issues.

In the study, when compared to women informed about the Pap smear test, those who were uninformed about the test had 29.119 times higher risk of not knowing about the existence of the HPV vaccine. In a study examining Thai women, it was shown that women's knowledge of the Pap smear test did not affect their knowledge about the HPV vaccine [10]. The probable reason for the state of being uninformed about the smear test increasing the risk of not knowing about the existence of the HPV vaccine is that physicians are advised to run the smear test only when there is a symptom. It is thought that the woman's awareness of the existence of the HPV vaccine is raised when the physician informs the patient about the existence of the HPV vaccine and recommends her to get the vaccination at the time of explaining the patient's result of the smear test.

The advantage of the study is that it is the first data about the region where the study was conducted, while the disadvantage is that it does not cover the entire eastern Anatolia region.

To conclude, being of young age, having ≤11 years of formal education, insufficient income of the household, and being uninformed about the smear test were found to be the risk factors for women not knowing that the HPV vaccine exists.

In this context, the government should include the HPV vaccine in the national vaccination program at the earliest. Visual and auditory advertisements should be initiated to raise awareness about this vaccination among the public. Especially, "family physicians"

and “family health midwives” who provide services in primary care should inform the young, less-educated, and poor women about the vaccination and monitor them closely.

Conflict of Interest Statement
The authors have no conflicts of interest to declare.

Ethical Approval
Ethics committee approval was obtained from Kafkas University Faculty of Health Sciences Non-Invasive Research Ethics Committee for the study (Date: 30.10.2020, Number: 81829502.903/100). The study was conducted in accordance with the Helsinki Declaration.

Consent to Participate and Publish
Written informed consent to participate and publish was obtained from all individual participants included in the study.

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