



Awareness, Knowledge, Attitudes, and Behaviors of the Parents of 9-18 Year-Old Children About HPV Infection and HPV Vaccine in a Developing Country

9-18 Yaş Grubu Çocuğu Olan Ebeveynlerin HPV Enfeksiyonu ve Aşısı Hakkında Farkındalık, Bilgi, Tutum ve Davranışlarının Değerlendirilmesi

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Abstract

Objective: Since licensure of the human papillomavirus (HPV) vaccine, HPV vaccine coverage among Turkish adolescents has remained low compared with other recommended vaccines. The aim of this study was to determine parents awareness, knowledge, attitude and perceptions about HPV infection and HPV vaccine in Turkey. This information is critical to the development of approaches to optimise HPV vaccine uptake among this population group.

Material and Methods: A descriptive cross-sectional study was carried out between September 2017 and February 2018. The study sample comprised of volunteering to the families of children aged 9-18 years that were evaluated at Ankara Yıldırım Beyazıt University Yenimahalle Training and Research Hospital Clinic of Pediatrics. A total of 1000 parents participated in this study. The survey sought socio-demographic characteristics of their families, the level of knowledge about HPV infection and vaccination, attitudes and behaviors on vaccination practice.

Results: 762 (76.2%) women and 268 (26.8%) men were included in this study. The mean age was 37.7 ± 6.4. 66% of the mothers were graduates of high school and university, while 80.2% of the fathers were graduates of high school and university. Only 269 (26.9%) of the parents had heard of HPV and 220 (22%) had heard of HPV vaccine. The most common source of information of parents was the print media organs. Only 55 (5.5%) of the parents reported that they were informed by pediatrician and family physician. Only 14 (1.4%) of the parents were vaccinated for HPV. Only two parents had their children get vaccinated against HPV.

Öz

Giriş: İnsan papilloma virüsü (HPV) aşısının ruhsatlandırılmasından bu yana, ülkemizde adölesanların HPV aşılanma oranları, önerilen diğer ücretli aşılarla kıyasla daha düşük kalmıştır. Çalışmamızın amacı 9-18 yaş aralığındaki çocukların ebeveynlerinin HPV enfeksiyonu ve aşısı hakkında bilgi düzeyi, tutum ve davranışlarını öğrenmektir. Bu çalışmanın sonuçları, ülkemizde HPV aşılanma oranlarını iyileştirmeye yönelik yaklaşımların geliştirilmesi için önemlidir.

Gereç ve Yöntemler: Ankara Yıldırım Beyazıt Üniversitesi Yenimahalle Eğitim Araştırma Hastanesi Çocuk Polikliniklerine başvuran 9-18 yaş çocukların aileleriyle gönüllülük esas alınarak, anket çalışması şeklinde yürütülmüştür. Ankette ailelerin sosyo-demografik özellikleri, HPV enfeksiyonu ve aşısı hakkındaki bilgi düzeyleri, aşığı uygulama konusundaki tutum ve davranışları sorgulanmıştır. Çalışmaya toplam 1000 ebeveyn katılmıştır.

Bulgular: Çalışmaya katılanların 762 (%76.2)'si anne, 238 (%23.8)'i baba idi. Yaş ortalamaları 37.7 ± 6.4 idi. Annelerin 503 (%66)'ü lise ve üniversite mezunuyken, babaların 191 (%80.2)'i lise ve üniversite mezunudur. Ebeveynlerin yalnızca 269 (%26.9)'u HPV enfeksiyonu ve 207 (%20.7)'si HPV aşısı hakkında bir şeyler duymuş/okumuştur. Bilgi edinme kaynakları arasında birinci sırada basın yayın organları, ikinci sırada ise hekimler vardı. Ebeveynlerin yalnızca 55 (%5.5)'i çocuk doktorundan ve aile hekiminden bilgi edindiğini belirtmiştir. Ebeveynlerden yalnızca 14 (%1.4)'ü kendisine HPV aşısı yaptırmıştı. Çocuğuna HPV aşısı yaptıran ebeveyn sayısı yalnızca ikiydi. Araştırmaya katılan ebeveynler HPV enfeksiyonu ve aşısı hakkında sınırlı bilgiye sahipti.

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Conclusion: Despite the good socioeconomic status and accessible health care services of our sample, their awareness and knowledge about HPV infection and HPV vaccine was very low.

Keywords: Human papilloma virus, HPV vaccine, child, Turkey

Introduction

Human Papilloma Virus (HPV) infection is a major health problem worldwide. HPV infection which is sexually transmitted to both male and female is a global epidemic. Most of the HPV infections are asymptomatic and transient, however, symptomatic infection may result in genital (most commonly associated with HPV serotypes 6 and 11) or cervical, penile, anal warts, and several can lead to high-grade lesions and eventually to HPV-associated cancers. It is estimated that about 530.000 new cases of invasive cervical cancer were diagnosed worldwide in 2013, and an estimated 270.000 women died of this disease (1).

In recent years, the most important strategy for the prevention of HPV infection and associated diseases is the primary prevention, which includes both elimination of sexual risk factors and vaccination. HPV vaccines are recommended to individuals from both genders between 9-26 years of age worldwide and before the first sexual experience. There are three types of HPV vaccines: the 9-valent vaccine (Gardasil 9) which protects against HPV types 6, 11, 16, 18, 31, 33, 45, 52, 58, the quadrivalent vaccine (Gardasil) which protects against HPV types 6, 11, 16, 18, and the bivalent vaccine (Cervarix) which protects against HPV types 16 and 18 only. In recent years a number of countries have rolled out national HPV vaccination programs for girls, and, more recently, boys (2-3). But, it is not included in Turkey's national immunization programme. The cost, potential side effects of HPV vaccine and suspicious vaccine safety and negative news on all vaccines prevent the generalization of HPV vaccination (4). In order to prevent these, not only the healthcare workers but also parents should have the necessary and sufficient knowledge about HPV infection. It is important to determine the current levels of knowledge, awareness, attitudes to provide the necessary trainings and carry out awareness studies on this subject.

The purpose of this study is to determine the level of knowledge, attitude, and behaviors about HPV infection and vaccination from parents of children aged 9-18 years.

Materials and Methods

This study was approved by the Medical Research Ethics Committee of Yıldırım Beyazıt University with the number of 2017/25. The study was designed as cross-sectional and descriptive. The study included 1000 volunteering parents with children aged 9-18 years who were admitted to the pediatric

Sonuç: Olumlu sosyoekonomik koşullara ve ulaşılabilir sağlık hizmetlerine sahip örneklem grubumuzda dahi, HPV enfeksiyonu ve aşısı hakkında farkındalığın düşük olması ülke genelinde sonuçların daha olumsuz olduğunu düşündürmektedir.

Anahtar Kelimeler: İnsan papilloma virüs, HPV aşısı, farkındalık, Türkiye

outpatient clinics in Ankara Yıldırım Beyazıt University Yenimahalle Training and Research Hospital between September 2017 and February 2018. Only the mother or father of a child was interviewed. The inclusion criteria were as follows: 1) being older than 18 years old, 2) having at least one child between the ages of 9-18, 3) volunteering to participate in the study.

Study Instrument

The questionnaire form used for data collection was developed by the researchers after reviewing the literature. A pilot study was conducted on 10 volunteers in order to evaluate the feasibility and comprehensibility. No changes were made in the questionnaire form following the pilot study. The study questionnaire included open and closed questions. The questionnaire form consisted of three parts. In the first part, in addition to general sociodemographic variables (age, sex, residency, education level, marital status, number of child, employment, income and family history of cervical cancer), the questionnaire also enquired into parents knowledge and behaviours concerning vaccines (whether the optional vaccines were known, which optional vaccines had been administered, source of information and relevant factors). In the second part of the questionnaire, whether the parents previously heard/knew about HPV infection and HPV vaccine, and if yes, from which source they obtained this information and whether they were previously vaccinated for HPV were questioned. In this part, the questionnaires of the individuals who answered no to the question about hearing /knowing about HPV infection and HPV vaccine were terminated. The third part of the questionnaire was administered to the individuals who answered yes to any of the items of HPV infection or HPV vaccine. In the third part of the questionnaire, the knowledge of the individuals about HPV infection and HPV vaccine was questioned with a sentence including 24 statements about HPV infection and HPV vaccine. They were asked to respond to these sentences by choosing one of the options of "true, false, don't know". As this part was not a scale assessment with its current status, the answers of the individuals were evaluated separately for each statement. In the last section of the third part of the questionnaire, the opinions of the individuals about HPV infection and HPV vaccine were questioned with a sentence including thirteen different statements. The individuals were asked to answer as "agree, disagree, no idea". In this part, each sentence was evaluated individually.

Statistical Analysis

The statistical analyses were performed using the SPSS v.15 (Statistical Package for the Social Sciences, Chicago, IL, USA). In the study, numerical data were expressed as mean and standard deviation, and categorical data were shown as frequency and percentages. The chi-square test was used for categorical data. In all statistical analyses, a p value of <0.05 was considered statistically significant.

Results

Demographic Data of the Parents

The study population consisted of 238 (23.8%) males and 760 (76%) females with a mean age of 37.7 ± 6.4 years for both males and females. 306 (30.6%) of the parents in our sample had an educational level of primary and secondary school, and 694 (69.4%) had an educational level of high school and university. Of the mothers, 503 (66.0%) were high school and university graduates and 191 (80.2%) of the fathers were high school and university graduates. Of the parents, 524 (52.4%) were employed, 476 (47.6%) were unemployed. The majority of the unemployed group consisted of mothers. 456 mothers were unemployed. The income of 215 (21.5%) parents was less than their expenditure, the income of the 642 (64.2%) parents were equal to their expenditure and the income of 143 (14.3%) parents were higher than their expenditure. Of the study population, 964 (96.4%) did not have a family history of cervical cancer. The distribution of the sociodemographic characteristics of the parents are presented in Table 1.

HPV Infection and HPV Vaccine Awareness

Of the parents included in the study, 269 (26.9%) had heard/read about HPV infection and 220 (22%) had heard/read about the HPV vaccine. The awareness about HPV vaccine was higher in mothers (22.0%) than in fathers (17.0%) ($p=0.038$). The high school and university graduate parents were highly aware of HPV vaccine ($p<0.001$). The rate of hearing/ knowing about HPV vaccine was higher in the parents who previously had their children get any optional vaccine than in the parents who did not previously had their children get any optional vaccine, which yielded a statistically significant correlation between them ($p<0.005$). The awareness of the parents who were healthcare personnel was high ($p<0.001$). Family history of cervical cancer did not affect the awareness of parents about HPV infection and vaccine ($p=0.62$).

Attitudes Regarding HPV and Other Optional Vaccination

Of the parents, 198 (19.8%) had their children inoculated with any optional vaccine not included in the national immunization programme. Rotavirus ($n=76$, 7.6%) and meningococ ($n=31$, 31.0%) were mostly implemented vaccines. There were only 2 (0.2%) parents who had their children inoculated with HPV vaccine. There were only 14 (1.4%) parents who were vac-

inated against HPV. When we questioned the reasons why parents did not have their children get any optional vaccine, 480 (48.0%) parents stated that they did not approve the vaccines not included in the national immunization programme. Of the parents, 255 (25.5%) reported that they were not informed by pediatrician and 263 (26.3%) reported that they were not informed by family physician.

Information Acquisition Sources

Of the parents included in the study, 220 (22%) had heard/read about the HPV vaccine. When the information acquisition sources of the parents who were aware of HPV vaccine were evaluated, it was found that of the parents, 84 (8.4%) were informed by written and visual media, 62 (6.2%) by gynecologists and obstetricians, 59 (5.9%) by social environment, 41 (4.1%) by family physician, 14 (1.4%) by pediatrician and 37 (3.7%) were informed by other health professionals (One parent can report more than one source).

Knowledge and Opinions on HPV Infection and Vaccine

The third part of the questionnaire was administered to the individuals who answered yes to any of the items of HPV infection or HPV vaccine. Of the parents, 220 responded this part by which we questioned the knowledge about HPV infection

Table 1. Baseline characteristic of parents

	n	%
Gender		
Female	762	76.2
Male	238	23.8
Age		
25-35	385	38.5
36-45	488	48.8
46-65	127	12.7
Educational Level		
Primary and secondary school	306	30.5
High school and university	694	69.5
Income		
Income less than expenditure	215	21.3
Income higher than expenditure	642	64.2
Income equal expenditure	143	14.3
Working Status		
Yes	524	52.4
No	476	47.6
Job		
Health personnel	136	13.6
Education personnel	85	8.1
Other	779	77.9
Number of children		
1	293	29.3
2	487	48.7
3 and above	218	21.8
Family history of cervical cancer		
Present	36	3.6
Absent	964	96.4

Table 2. The level of knowledge of the parents about HPV infection

HPV infection;	Yes, n (%)	I don't know, n (%)	No, n (%)
HPV is spread by women only	86 (8.6)	39 (3.9)	93 (9.3)
HPV is spread by men only	16 (1.6)	71 (7.1)	131 (13.1)
HPV is spread by women and men	91 (9.1)	79 (7.9)	49 (4.9)
HPV is spread through by airway	32 (3.2)	86 (8.6)	100 (10.0)
HPV is spread through by blood	100 (10.0)	77 (7.7)	42 (4.2)
HPV is spread through by contact with skin and secretions	122 (12.2)	40 (4.0)	8 (0.8)
HPV is spread through sexual relationship	172 (17.2)	40 (4.0)	8 (0.8)
HPV causes cervical cancer	164 (16.4)	52 (5.2)	3 (0.3)
HPV causes genital warts	118 (11.8)	82 (8.2)	19 (1.9)
There is no method of protection from HPV infection	23 (2.3)	68 (6.8)	128 (12.8)
HPV vaccine can protect against HPV infection	144 (14.4)	63 (6.3)	13 (1.3)
The risk of HPV infection decreases when a condom (preservative) is used during sexual intercourse	99 (9.9)	101 (10.1)	19 (1.9)
The risk of HPV infection decreases when a spiral (preservative) is used during sexual intercourse	19 (1.9)	106 (10.6)	94 (9.4)
The risk of HPV infection increases when numbers of sexual partner increase	103 (10.3)	85 (8.5)	31 (3.1)
HPV infection can be prevented by using medication	33 (3.3)	142 (14.2)	44 (4.4)
HPV infection is not a serious infection that requires vaccination	11 (1.1)	71 (7.1)	137 (13.7)

Table 3. The level of knowledge of the parents about HPV vaccine

HPV vaccine;	Yes, n (%)	I don't know, n (%)	No, n (%)
Only for married women	19 (1.9)	76 (7.6)	124 (12.4)
Sexually active anyone can be vaccinated	121 (12.1)	84 (8.4)	14 (1.4)
Vaccination for boys and girls older than 9 years	67 (6.7)	135 (13.5)	16 (1.6)
HPV vaccine was not found in the national vaccination program	80 (8.0)	125 (12.5)	14 (1.4)
HPV vaccine can protect against cervical cancer	142 (14.2)	74 (7.4)	3 (0.3)
HPV vaccine can protect against genital warts	103 (10.3)	111 (11.1)	5 (0.5)
The HPV vaccine is not protective	15 (1.5)	95 (9.5)	109 (10.9)

of individuals who heard of HPV infection from any source. Of the parents who answered the questions, 86 (8.6%) thought that HPV infection was seen only in females, 16 (1.6%) thought it was seen only in males, and 91 (9.1%) thought it was seen in both males and females. While there were 172 (17.2%) individuals who knew that HPV infection is sexually transmitted, there were 164 (16.4%) individuals who knew that HPV infection causes cervical cancer. Of the parents who participated in the study, 23 (2.3%) thought that there was no way to protect against HPV infection, while 144 (14.4%) knew that they could be protected by vaccination (Table 2).

There were 219 parents who responded to the part by which the knowledge about HPV vaccine was questioned. Of these parents, 67 (6.7%) knew that HPV vaccine could be administered to girls and boys above 9 years of age. Of these parents, 142 (14.2%) knew that HPV vaccine was protective against cervical cancer (Table 3).

Of the parents who heard/knew about HPV vaccine, 90 (9%) stated that they found the vaccine reliable and 81 (8.1%) stated that they approve to get HPV vaccine. Of the parents, 65 (6.5%) found the vaccine expensive, 63 (6.3%) did not approve to get vaccines other than those included in the national immunization programme, 19 (1.9%) found unnecessary to get HPV vaccine, 16 (1.6%) stated that the vaccine was harmful, and 11 (1.1%) stated that the vaccine was not consistent with their religious values. The number of parents who believe that the vaccine will increase polygamy is 18 (1.8%) (Table 4).

Discussion

This is the largest study to determine parental knowledge, attitude and behaviour towards HPV infection and HPV vaccine in Turkey. We demonstrated that a large number of parents living in the capital city of Turkey did not have sufficient knowledge about HPV infection/vaccine and the rates of HPV vaccination were very low.

Table 4. Parents attitudes regarding HPV vaccination and barriers to vaccination

	Agree n (%)	No idea n (%)	Disagree n (%)
I want my children vaccinated against HPV infection	93 (9.3)	103 (10.3)	19 (1.9)
The pediatrician did not inform me enough about the HPV vaccine	39 (3.9)	61 (6.1)	115 (11.5)
The family physician did not inform me enough about the HPV vaccine	45 (4.5)	51 (5.1)	119 (11.9)
Vaccination of children against HPV infection is correct	81 (8.1)	110 (11.0)	24 (2.4)
HPV vaccine is reliable	90 (9.0)	107 (10.7)	19 (1.9)
Vaccinations outside the national vaccination program are not correct	63 (6.3)	57 (5.7)	95 (9.5)
HPV vaccine is unnecessary	19 (1.9)	86 (8.6)	110 (11.0)
HPV vaccine is harmful	16 (1.6)	99 (9.9)	100 (10.0)
HPV vaccine is not appropriate for my religious beliefs	11 (1.1)	56 (5.6)	148 (14.8)
HPV vaccine may be increase the number of sexual partners	18 (1.8)	63 (6.3)	134 (13.4)
I think that children may be start sexual activity early after the vaccination	19 (1.9)	67 (6.7)	129 (12.9)
After HPV vaccination, people may have negative thoughts about my child and my family.	26 (2.6)	56 (5.6)	133 (13.3)
HPV vaccine is expensive	65 (6.5)	118 (11.8)	32 (3.2)

We examined year 2013 census data (Turkey Demographic and Health Survey) to determine limitations in the generalizability of our results. Although we oversampled mothers who did not work outside the home, our sample was better than census data in terms of maternal employment. The employment rate of the mothers in our sample was 40%, while this rate is 31% across Turkey. In addition, the rate of individuals with high school and university education is 33.4% across the country, while it was 69.5% in our study. Sixty-six point two percent of the mothers and 80% of fathers had an educational level of high school and university. The educational and employment status of the parents was also higher than the overall Turkish population. These results indicate that the knowledge of the parents about HPV infection/vaccine and the rates of HPV vaccination may be even lower in less educated general population of Turkey (5). Our sample group had additional advantages besides high socioeconomic level. Most important of these is that they live in Ankara, the capital city of our country where healthcare services are provided in the best conditions.

Awareness has an important place in health behaviors, and awareness-raising studies in preventive health services are especially important. One of the main reasons for low HPV vaccination rate is the lack of awareness in this area. In a study by Onan et al. (6) on 1808 female participants in our country, of the participants, only 24.8% stated that they have heard of HPV infection, while 24% stated that they have heard of HPV vaccine. In various studies reported from the USA, it ranged from 49% to 91.7% (7,8). In our study, the rate of those who were aware of HPV infection was 26.9%, while the rate of those who have heard of HPV vaccine was 22%. Both rates are lower than those reported in the international literature. However,

it is parallel with other studies conducted in our country. This result is of importance in terms of showing the lack of awareness studies on HPV infection and vaccine in our country. In our study, we found that the educational levels and HPV vaccine awareness of the parents were related but the income level of the parents was not associated with the HPV vaccine awareness. Moreover, in our study, there was no difference between those with and without a family history of cervical cancer in terms of levels of awareness. Even the presence of a family member with cervical cancer, one of the leading cancers caused by HPV, did not raise the awareness of the individuals. It was concluded that there is a need to accelerate awareness studies on the subject in schools or visual-verbal media.

The US Centers for Disease Control and Prevention and the American Academy of Pediatrics recommend every adolescent aged 11-12 years to get vaccinated for HPV. In our study, the rate of the parents who had their children vaccinated was 0.2%. In a 2015 study by Reagen-Steiner et al. on 20,000 adolescents in the USA, the rate of HPV vaccination was 42% in boys and 60% in girls (9). In a 2011 study by Al-Naggar et al. on 612 individuals in Malaysia, it was found that the rate of having at least one dose of the vaccine in female adolescents aged 13-17 years was 77.9% (10). This rate was 64.8% in a study conducted in Japan, 59.8-94.4% in different studies conducted in the UK (11-13). When the scientific literature was reviewed, the lowest vaccination rates were reported as 3.3% in a 2015 study in Lithuania and 2.4% in a study in Hong Kong (14,15). In our study with a sample size of 1000 individuals, it was found that only 2 (0.2%) parents had their children get vaccinated. This rate is lower than all the studies in the literature. Considering that the majority of the study group (92.5%) lived in urban areas and in the capital of the country, this rate is

quite low. The reason why 19.5% of the parents had their children get any other optional vaccine but not the HPV vaccine can be explained by the low level of awareness in this respect. When the reasons of the parents for not having any optional vaccination are examined, the most common reason was not being in the national vaccination schedule. Many countries have included the HPV vaccine in their national vaccination schedule. In Australia, the HPV Immunisation Program was conducted between 2007 and 2009, and by 2009, 70% of adolescents aged 12-17 years were vaccinated (16). Such national vaccination policies have a great impact on vaccination. We can say that our country needs a national program to increase the rates of HPV vaccination.

In the literature, it was emphasized that some sociodemographic characteristics related to the development of vaccination behavior may also be effective. In a systematic review conducted by Fisher et al., it was shown that socioeconomic status has a limited effect on attitudes regarding the HPV vaccine. In addition, it is reported that individuals who are not covered by health insurance have low vaccination rates in the USA (17). Although the vaccines are administered within the scope of health programs in Denmark, it was observed that there was a relationship between socioeconomic level and vaccination rate (18). On the other hand, it has been observed in some studies that less-educated individuals were more easily convinced to have vaccination (10,19). In a study conducted in Hong Kong, it was found that as the education level of mothers increased, the rates of vaccination for their children increased (20). In our study, the factors related with the vaccination rate could not be evaluated statistically since the vaccination rate was very low.

When the sources of information acquisition of the parents about the vaccines were reviewed, it was found that the written and visual media were in the first place, the information obtained from the obstetrician was in the second, and the information obtained from the social environment was in the third place. Only 55 (5.5%) of the parents stated that they obtained information from the pediatrician and family physician. First of all, it is of great importance that the sources of information acquisition are reliable. It is known that the information obtained from physicians is evaluated to be more reliable in the studies investigating patient perceptions in this respect. In a 2014 study by Quinn et al. (21), it was found that physicians do not recommend HPV vaccine to individuals. When the studies are reviewed carefully, it can be said that the most important reason for needing doctor's advice is the concerns of individuals about the safety of the vaccine (22,23). As in many countries in the world, it is observed in Turkey that there is a significant perception that vaccines may have serious side effects and they are not reliable. Physicians have an important responsibility to overcome negative attitudes and

behaviors against vaccination. One of the first steps to be taken is to measure the attitudes and behaviors of physicians or health professionals about the subject.

When the knowledge levels of parents are evaluated; only 16.4% knew that HPV infection could cause cervical cancer and only 14.4% knew that the vaccine could provide protection. In addition, of the parents only 1.6% knew that both males and females could be infected with HPV, 11.8% knew that it could cause genital warts, and 10.9% knew that the vaccine was protective. In numerous studies, it has been preferred to ask separate questions aiming to measure key information instead of using valid and reliable scales to measure the level of knowledge, as we did in our study. In a study by Ozyer et al., it was reported that the rate of those who knew that HPV causes genital warts was 14.2% and the rate of those who knew that it may cause cervical cancer was 33.3% (24). In a study conducted in England, it was emphasized that half of the participants had a low level of knowledge (25). Moreover, in many other studies, it was also stated that the level of knowledge was not at the desired levels (26,27).

In the study by McKian et al. investigating the causes of health behaviors, it was observed that one of the most effective ways of making positive changes in health behaviors is to increase the level of knowledge (28). In the light of these results, it can be speculated that the studies aiming to increase the level of knowledge have a critical role in increasing HPV vaccination.

Although there may be some factors that may positively affect the attitudes and behaviors towards the vaccine, there may also be obstacles to the formation of the behavior. The studies in the literature have shown that parents may be against HPV vaccination for personal, cultural, religious or medical reasons (29). In our study, the rate of those who did not find the HPV vaccine consistent with their religious values was 1.1%. Among the parents, the rate of those who thought that the HPV vaccine would increase polygamy was 1.8%. The rate of the parents with a concern of early sexual activity of their children was 1.9%. In the study by Rand et al. (30) on 430 parents and 230 adolescents, it was indicated that some cultural and ethnic characteristics affect the rejection of the vaccine. The researchers have reported that taking care of the safety of the vaccine and some cultural issues may increase the rate of the vaccine. In the study by Perkins et al. (8), the reasons for vaccine rejection were reported as insufficient information (21%), daughter's being too young (13%), and safety problems (11%). In the same study, it was observed that misconceptions like vaccination is not required before sexual intercourse were common.

The studies conducted not only in our country but also in many different cultures show that parents can think that

this vaccine will cause their children to start sexual activity early (31,32). However, when the longitudinal studies in the literature were reviewed, it was observed that there was no change in the sexual behaviors of immunized girls, such as sexual intercourse, number of partners, protective behaviors during sexual intercourse during the follow-up (33,34). In our study, the rate of those who did not find appropriate to be vaccinated due to social pressure was 2.60%. Social pressure is another factor that can be eliminated by various extensive information-oriented studies. Educational activities have an important role both in breaking negative attitudes of people in the environment and affecting vaccination behaviors of individuals.

Conclusion

In conclusion, it was found that awareness about HPV infection and vaccine was very low even in a sample with good socioeconomic level who can access health services under the most favorable conditions in our country. The rate of HPV vaccination is also very low. As part of the sexual education provided in schools, the modes of transmission of HPV should be addressed and conveyed by experts. The awareness of parents about HPV infection and vaccination should be increased and the vaccine should be administered at an early age, especially by increasing the communication between health professionals and parents.

Ethics Committee Approval: The approval for this study was obtained from Medical Research Ethics Committee of Yıldırım Beyazıt University (Decision No: 2017/25, Date: 19.09.2017).

Informed Consent: Patient consent was obtained.

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