

# Knowledge and interest of Turkish women about cervical cancer and HPV vaccine

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## Summary

**Objective:** We aimed to evaluate the knowledge and interest level of Turkish women about HPV, HPV vaccines and cervical cancer using a questionnaire. **Method:** A 25-item questionnaire was distributed to women in three different cities located in separate socio-cultural locations. **Results:** At the closure of the study 143 women responded and returned the survey. Of the participants 62.2% (89) had a university degree, 36.4% (52) a high school education, and 1.4% (2) had lower school degrees; 98.5% of the women would consent to have their daughter vaccinated for HPV and 94.7% would consent to have their son vaccinated if vaccine provided prevention against cancer and related diseases. However in both cases women gave importance to the “cost” - unless vaccine could be free. On logistic regression analyses none of the variables (i.e., questions) in the survey predicted women's willingness to accept the vaccine for themselves or their children. **Conclusions:** Women in Turkey would be willing to have themselves and their children receive HPV vaccine against cervical cancer and related diseases.

**Key words:** Cervical cancer; Human Papillomavirus; HPV; Vaccine.

## Introduction

Cervical cancer is the second most common cause of cancer-related death in women worldwide. Five hundred thousand new cases of cervical cancer are diagnosed and more than 280,000 deaths occur worldwide [1]. Any prevention method that leads to a decreased incidence of cervical cancer together with preinvasive cervical diseases is very important for public health and health economy. Cervical mass screening using the Pap smear was the only way of effective prevention and early diagnosis until 2006 when HPV prophylactic vaccines became available.

Human Papillomavirus (HPV) is the most common sexually transmitted infection (STI) and a known risk factor for cervical cancer [2, 3]. Approximately 5.5 million people develop genital infections each year in the USA [4]. Although most infections are transient, persistent HPV infections can lead to anogenital warts, cervical intraepithelial neoplasia (CIN), and cervical cancer [2, 5, 6]. The highest rates for HPV occur in women between the ages of 18 and 28 [4]. It is estimated that 24% of 15-year-old girls, 38% of 16-year-old girls and 62% of 18-year-old women have had sexual intercourse in the USA [7]. These figures are nearly the same in Turkey according to recent public statistics giving the result that the age at first intercourse is 17.5 for men and 18.5 for women [8]. Persistent HPV infection and preinvasive cervical diseases are more frequent in girls who have their first sexual intercourse at early ages because of cervical immaturity [9]. Currently we know that up to

80% of patients with intraepithelial neoplasia and almost all cases of invasive squamous cell cervical cancer are associated with HPV infections [10-13].

HPV prophylactic vaccine became available in 2006 with the main aim of vaccination of preadolescent girls before the first sexual intercourse which will result ideally with an immunized female population against HPV high-risk types. Efficacy and prevention of vaccines have been very good and acceptable in clinical trials which report nearly 100% [14]. The vaccine type in public usage now is providing immunity against four HPV types. The two most prevalent anogenital condyloma causing types (HPV Type 6 and 11) and the two most prevalent CIN and cervical cancer causing types (HPV Type 16 and 18) [1].

There is no doubt that universal immunization of HPV-negative women and men would reduce the incidence of cervical cancer worldwide [15]. In Turkey, Gardasil (Merck Sharp Dohme) has just gone on the market. We still have no mass cervical cancer screening program used nationwide but we have a very effective national vaccination program for childhood diseases. Currently in Turkey, about 1,400 cases of cervical cancer are diagnosed each year, and the prevalence of HPV infection is estimated to be lower than Europe or the USA [16]. Whether or not the vaccine should be compulsory has caused a polarizing debate on cost-effectiveness, potential social barriers and religious conservatism. Previously, many authors reported different aspects of vaccine acceptance and different knowledge levels about HPV, HPV-related diseases, vaccine and cancer politics in different countries [17-22].

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The primary objective of this study was to evaluate the knowledge status and potential acceptance of HPV vaccination by women in different geographical areas of Turkey.

**Methods**

A survey was distributed to women admitted to outpatient gynecology clinics in three different cities before HPV vaccine became available in Turkey commercially. The cities were selected to represent different socio-economic and geographic locations in Turkey (Istanbul, Erzurum and Kahramanmaras). The main characteristic of the end-responders was aimed at women who had social security and did not have any HPV-related disease. Those who were unable to read or write were excluded.

The survey comprised 25 questions (Table 1). It was adapted from Solomovitz *et al.* with modifications [17]. Personal information of subjects was not collected, and the survey did not include any personal question that would make a woman's identity accessible. All participants received an educational component consisting of current knowledge about cervical cancer and HPV vaccine (Table 2) and then they responded to the questions (Table 1). Replies to the questionnaire were collected in sealed envelopes.

Table 1. — Survey questions.

1. Age
2. Place of birth
3. Highest level of education
4. Household income
5. Marital status
6. Number of children (if present)
7. Did your children receive all their regular vaccines?
8. Did your children have any adverse effects from vaccination?
9. At what age and by whom do you feel that sex education should be initiated?
10. What do you think about a premarital sexual relationship of your child?
11. With whom do you believe young men in our country have their first sexual intercourse?
12. Do you have any information about sexually transmitted diseases (STD)?
13. Do you know that STDs can be transmitted without intercourse by only skin to skin contact?
14. Do you believe that prohibition of premarital sexual intercourse is a way of preventing STDs?
15. Would you use a vaccine that will protect you against cancer?
16. Do you have your gynecologic examinations and Pap-smear tests regularly?
17. Did you have any abnormal Pap-smear test results before?
18. If you did, do you know what the abnormality was?
19. Did you ever had an examination named colposcopy?
20. Have you ever been operated on for your cervix?
21. Did you ever had a hysterectomy?
22. If yes, was the cause CIN or cancer?
23. If it was available for every age, would you use HPV vaccine?
24. Would you give consent for your daughter to receive the vaccine?
25. Would you give consent for your son to receive the vaccine?
Extra comments and questions:

Table 2. — Educational paragraph for the participants.

Human papillomavirus is a type of virus that causes cervical cancer. Recent progress against this virus brought about development of a vaccine. Anyone receiving this vaccine will be immune against the virus and will be protected from related diseases. This vaccination is advised before the beginning of sexual activity. Because of this fact, the vaccine should be given beginning from the age of 9. There are many women experiencing cervical cancer and precancer diseases in our country. Turkish women may be protected against these diseases and cancer by the usage of HPV vaccine. Vaccine may have minor side-effects like allergic reactions, pain and fever at the site of infection. All of these side-effects go away without a need for treatment.

Table 3. — Demographic information (n: 143 participants).

	n	(%)
<i>Median age</i>		
17-27	66	46.2
28-35	54	37.8
> 35	23	16.1
<i>Place of residence</i>		
Istanbul	40	28
Erzurum	63	44.1
Kahramanmarafl	40	28
<i>Household income</i>		
< 1000 USD	88	61.5
1000-1500 USD	24	16.8
> 1500 USD	31	21.7
<i>Education</i>		
University	89	62.2
High School	52	36.4
Lower education	2	1.4
<i>Marital status</i>		
Single	68	47.6
Married	75	52.4
<i>No. of children</i>		
0	88	61.5
≥ 1	55	38.5

Descriptive statistics were used to evaluate patient responses. A logistic regression analysis was performed to predict women's willingness to accept the vaccine for themselves and their children. Statistical analyses were performed with the SPSS 10.0 statistical package (SPSS Inc, Chicago, IL).

**Results**

At the closure of the study 143 women had responded and returned the survey. Table 3 gives the demographic information of the participants.

Thirty-six percent of the women (n = 51) had routine gynecologic controls annually and smear tests regularly. Of these six (4%) had had abnormal Pap smear results previously. There was no woman diagnosed with CIN or cervical cancer.

Ninety-six percent of women (n = 137) were willing to accept a vaccine that would protect them against cancer while only six women (4%) rejected this idea. Ninety-four percent of the women (n = 134) stated that they



Figure 1. — Locations of the cities where the survey took place.

would have themselves vaccinated if it were possible for prevention from cancer. Only 6% of the women (9) did not need such protection. Ninety-six percent of women ( $n = 38$ ) would consent to have their daughter vaccinated for HPV and 92% ( $n = 131$ ) would consent to have their son vaccinated if vaccine would provide prevention against cancer and related diseases.

Ninety-eight percent of mothers ( $n = 54$ ) have had their children fully vaccinated though the national vaccine program of Turkey. Ten percent of their children ( $n = 6$ ) experienced some side-effects from these vaccinations.

Sixty-four percent of the women ( $n = 91$ ) believed that sexual education should be given by mothers, 5% ( $n = 7$ ) by fathers, 8% ( $n = 11$ ) by grand-parents and 24% ( $n = 34$ ) thought this sexual education should be given by the school.

Fifty-six percent of the women ( $n = 80$ ) believed that prohibition of premarital sexual intercourse is not a way to prevent sexually transmitted disease. Fifty-one percent of the women ( $n = 73$ ) believed that their children should not have sexual relations before marriage, 13% ( $n = 19$ ) said that it might happen but the child should not talk about it with the parents, and 36% ( $n = 51$ ) thought that it might happen, and that the child should speak about it with the mother.

Forty-five percent of women ( $n = 65$ ) believed that men in Turkey have their first sexual intercourse with paid sex, 26% (37) believed it happens when married, and 29% (41) believed that it is with girlfriends. Cumulatively 74% of men are believed to have their first intercourse before marriage.

On logistic regression analyses none of the variables (i.e., questions) in the survey predicted women's willingness to accept the vaccine for themselves and their children.

## Discussion

In the current study, an overwhelming ratio of women would accept a vaccine against cancer. Similarly, more than 90% of the women would accept HPV vaccination for themselves and for their sons and daughters. Nearly all women in the survey reported that their children had received all of the childhood vaccinations. Generally,

study participants believed that their children should not have sexual intercourse before marriage or did not want to be aware of this issue themselves. However, they pointed out that prohibition of sexual intercourse is not an effective way to impede engagement in sexual relations nor to prevent sexually transmitted disease. Similarly, most of the women believed that men in Turkey begin sexual activity before marriage. Many of the responders did not accept the idea of sexual education in schools. In light of these ideas most of the women in the survey seemed to have a conservative attitude about the sexual practices of their children but this did not affect their decision about HPV vaccination of their children. The final decision of the women about HPV vaccination seemed to be unaffected by their social or cultural attitudes.

HPV vaccine may be categorized as having been developed against a STD which might cause conservative groups and some non-governmental organizations to reject the vaccine with the claim of promoting safer sexual practices for adolescents. Parents also may feel that consenting to a vaccine for an STD may inadvertently encourage their adolescent children to engage in sexual intercourse. Current knowledge and surveys show that this can be surpassed by adequate and effective education [18, 23-26].

Successful and effective application and usage of a vaccine depends on public knowledge and acceptance in every country or culture. Public acceptance and usage of a prophylactic vaccine is related to the degree of knowledge about the disease or illness from which vaccine will protect from. This knowledge should normally be provided by healthcare professionals. High-risk HPV types (oncogenic types) have been shown to cause preinvasive cervical diseases (cervical intraepithelial neoplasia) and cervical cancer. A vaccine that protects women against these viral infections and cervical cancer is a totally new development that many medical professionals are still not aware of.

Education about HPV prophylactic vaccines, cervical cancer and related topics is needed in every country where vaccine is available commercially. Prophylactic vaccination against any disease – infectious or malignant – may only be possible if the target population has enough knowledge about causes, findings, diagnosis and treatment of disease.

Incidence of cervical preinvasive diseases and cervical cancer is strictly known in developed countries like European and North American societies, where they can make future projections about disease and treatment. This affords a good opportunity to evaluate the cost-effectiveness and public health usefulness.

Many similar studies about HPV prophylactic vaccines in different countries and cultures resulted with higher rates of unacceptance, although sexual relationships before marriage are considered socially normal [22]. There are studies reporting 55% refusal rates at the beginning but this number decreases to 35% after education of the parents [27]; refusal rate was only 1.5% in our survey.

One of the main rejection causes of vaccination in other countries is the belief that children will feel more secure about having sexual relationships since they would be protected by vaccine [27]. Whether Turkish women who replied to this questionnaire believe that the vaccine causes this secure feeling or not, they do believe their daughters should be protected from such a virus-causing cancer.

In contrast to other studies [17, 27-29], the parents did not point out possible "side effects" as a cause for rejecting vaccination. They trust in the vaccine in light of previous and current childhood vaccination program experiences.

As a result we want to state that Turkish women accept the idea of HPV vaccination to protect their children from cervical cancer. This acceptance rate will increase with optimal and detailed public education. The cost of the vaccine is still a problem for families and it seems nearly impossible to add HPV vaccine to the national childhood vaccination program, at least in the near future.

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