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The Effects of HPV Test on Anxiety, Emotion and Depression in Women

HPV Testinin Kadınlardaki Anksiyete, Duygu Durum ve Depresyon Üzerine Etkileri

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ABSTRACT

Objective: Human papillomavirus (HPV) test is an important health screening test included in most national screening programs covering millions of women worldwide. HPV is a sexually transmitted virus, which may cause anxiety and depression in women. This study aimed at comparing the anxiety levels using a Hamilton Anxiety Rating scale and the depression levels using a Beck Depression Inventory between women who tested positive for HPV and those who tested negative.

Methods: Three hundred women who underwent HPV testing between 01.08.2017-01.11.2017 were randomly selected. The subjects were scored on the Beck Depression Inventory and Hamilton Anxiety Rating scale by the investigator through a face-to-face interview.

Results: No statistically significant differences were observed between 187 HPV (+) and 113 HPV (–) patients with respect to the depression and anxiety scores (p=0.183 and p=0.306, respectively). While a weak negative but significant correlation was found between the time from the HPV test report date and the anxiety scores, a moderate, negative correlation was observed between the length of this time period and the depression scores. Furthermore, strong negative correlations were observed between the times elapsed from the diagnosis and the anxiety and depression scores in patients who received their results at a family health center.

Conclusion: The most serious impact of getting a positive test result for HPV occurred during relatively earlier periods and in those who received their results at a family health center. Unwanted HPV-related effects may be prevented by giving appropriate support to the right population at the very beginning.

Keywords: HPV, anxiety, depression

ÖZ

Amaç: Human papilloma virüs (HPV) testi günümüzde tüm dünyada milyonlarca kadın üzerinde uygulanmakta olan, ulusal tarama programları içinde yer alan bir sağlık tarama testi olarak oldukça önem arz eder. HPV cinsel temas ile bulaşan bir virüs olmasından dolayı kadınlarda anksiyete ve depresyona sebep olabilmektedir. Bu araştırmadaki amacımız HPV testi pozitif ve negatif olan kadınların anksiyetelerinin Hamilton Anksiyete skorlaması ile depresyon açısından ise Beck Depresyon skorlaması ile karşılaştırılmasıdır.

Yöntemler: Çalışmada 01.08.2017-01.11.2017 tarihleri arasında hastanemize başvuran hastalardan HPV testi yapılan 300 kadın hasta rastgele seçildi. Bu hastalara çalışmacı tarafından yüz yüze görüşme metodu ile Beck Depresyon Envanteri ve Hamilton Anksiyete Değerlendirme ölçeği uygulandı.

Bulgular: HPV (+) 187 hasta ile HPV (–) 113 hastanın depresyon ve anksiyete skorları açısından aralarında istatistiksel olarak anlamlı bir farklılık izlenmemiştir (sırasıyla; p=0,183, p=0,306). Test sonucu alındıktan sonra geçen süre incelendiğinde anksiyete skoru ile HPV süresi arasında negatif yönde zayıf derecede anlamlı korelasyon saptanmıştır. Depresyon skorları arasında da negatif yönde orta derecede anlamlı korelasyon olduğu belirlenmiştir. Ayrıca HPV sonucunu aile sağlığı merkezinde almış olan hastalarda HPV tanı süreleri ile anksiyete ve depresyon skorları arasında negatif yönde güçlü derecede ilişki olduğu belirlenmiştir.

Sonuç: HPV pozitifliğinin öğrenilmesinin psikososyal yönden en olumsuz sonuçları erken dönemde görülmektedir ve aile sağlığı merkezlerinden sonuçlarını alanlarda görülmektedir. Erken dönemde gerekli desteğin doğru şekilde verilmesi ve doğru hasta grubuna verilmesi ile HPV'ye bağlı istenmeyen durumlardan korunmuş olacaktır.

Anahtar kelimeler: HPV, anksiyete, depresyon

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INTRODUCTION

Cervical cancer is one of the prominent malignancies of female genital tract. Although the importance of smear tests is surely incontestable, the importance and value of Human papillomavirus (HPV) screenings are also gradually increasing. Currently, HPV screening and vaccination programs are running in many countries (1-6).

Overall, testing positive for HPV is considered to have mental, physical, familial, or even social consequences on women. However, these consequences have been investigated by only a limited number of studies so far.

Although underestimated, several previous studies have emphasized the importance of psychosocial impact of HPV tests and the need for further studies. As mentioned earlier, cervical cancer screenings are included in most national programs worldwide, and the significance of HPV tests for public health has been strongly emphasized (7).

A positive HPV test may cause fear, anxiety, stress, and sexual dysfunction, as well as raise accusations and questions about trust in relationships (8-11). Women who have tested positive for HPV may feel stigmatized and experience a feeling of guilt, sadness, and shame while indulging in sexual act (7,9,11,12). Moreover, experiencing troubles with explanations, disclosures, and trust in relationships may eventually increase anxiety (9). Also, the association between adequate public awareness of HPV and cervical cancer have not been fully understood (13-15).

Reports from several studies have indicated that initially, a positive HPV test is more likely to bring psychological problems than an abnormal smear result (7,11); this is because unlike women who have an abnormal Pap smear result, HPV (+) women are more prone to feel stigmatized and shame (16).

Finally, the approach to an HPV (+) woman should differ from that to a woman with an abnormal smear test result. In our country, an HPV test has a widespread use and is included in routine screening programs. Therefore, we believe that it is pertinent to increase the public understanding of the effects of this test on women and appropriate approaches to this issue.

In this study, we aimed at assessing the effects of testing positive for HPV on anxiety, mood, and depression in women.

METHODS

This cross-sectional and observational study included women who were directly referred to the Outpatient Clinics of Obstetrics and Gynecology of our hospital for an HPV testing and the HPV (+) women referred from other health centers during the study period (1 August, 2017 to 11 November, 2017).

A total of 187 HPV (+) women, aged 20-70 years, who met the inclusion criteria were included in the study group, while 113 HPV (–) aged-matched women were included in the control group. The exclusion criteria of the study included chronic diseases, the use of medicines that might affect the mood including antidepressants, antipsychotics, and sedatives, alcohol and/or any chemical substance addiction, and any other conditions that might lead to sexual dysfunction including vaginal stenosis, vagina dryness, active vaginitis, vaginismus, hymenal stenosis, and vagina atrophy.

Furthermore, the study data were collected by the investigator through face-to-face interviews conducted between 1 August, 2017 and 11 November, 2017. All subjects in both the study and control groups completed two psychiatric questionnaires including the Beck Depression Inventory and the Hamilton Anxiety Rating scale.

While the dependent variables in this study consisted of anxiety and depression in HPV (+) subjects, the independent variables included sociodemographic and biodemographic characteristics (such as age, educational attainment, income level, occupational status, number of children) and time from HPV test report date.

The study protocol was submitted to the Institutional Review Board and ethics approval was obtained on July 25, 2017 [Institutional Review Board (approval number: 2017/514/111/6)]. A written informed consent form was obtained from all patients prior to the study.

Statistical Analysis

Data were analyzed using the SPSS software version 17.0. The normality of the variables was assessed using histogram graphics and the Kolmogorov-Smirnov test. The descriptive statistics included means, standard deviation, minimum, and maximum. Moreover, the 2×2 contingency Pearson's chi-square and Fisher's exact tests were used for the comparisons. Additionally, while the Mann-Whitney U test was used for the comparisons of non-normally distributed (non-parametric) data between two groups, the Kruskal-Wallis test was used to compare more than two groups. Besides, the Spearman's Correlation test was used for intergroup comparisons of numerical data. A p-value <0.05 was considered as statistically significant.

RESULTS

Of the 300 studied subjects, 35.67% were elementary school graduates, 77% were married, 49% were unemployed, and 48.33% had a monthly income ranging from 1,500 to 4,500 TL. The mean age of the participants was 42.19±9.29 years and the mean number of children per subject was 1.98±1.27.

Interestingly, the analysis of the demographic characteristics by HPV results did not reveal any statistically significant associations between HPV results and age, educational attainment, marital status, number of children, income level, Beck Depression Inventory, and Hamilton Anxiety Rating scale scores (p>0.05).

In addition, no statistically significant associations were observed between the analysis of Beck Depression Inventory and Hamilton Anxiety Rating scale scores by HPV results (p>0.05).

Moreover, the analysis of the distribution of demographic characteristics by HPV results indicated that the rates of HPV (+) subjects were higher among employees (58.33%), unemployed women (53.74%), and pensioners (60%) than in students (0%) (p:0.009) (Table 1).

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The analysis of the mean age, number of children, and Beck Depression Inventory and Hamilton Anxiety Rating scale scores by the HPV results revealed that Beck Depression Inventory scores were lower in HPV (–) subjects (11.93±8.86) compared to the HPV (+) subjects (14.13±9.08) (p=0.029) (Table 2).

Table 1. Demographic characteristics of patients according to the human papillomavirus results

		HPV result						p
		Positive		Negative		Positive at family health center		
		n	%	n	%	n	%	
Age	<40	73	(58.40)	40	(32.00)	12	(9.60)	0.059
	>40	95	(54.29)	73	(41.71)	7	(4.00)	
Education	Illiterate	5	(83.33)	1	(16.67)	0	(0.00)	0.820
	Primary school	58	(54.21)	39	(36.45)	10	(9.35)	
	Middle school	31	(55.36)	22	(39.29)	3	(5.36)	
	High school	41	(56.94)	28	(38.89)	3	(4.17)	
	University and above	33	(55.93)	23	(38.98)	3	(5.08)	
Marital status	Married	122	(52.81)	95	(41.13)	14	(6.06)	0.260
	Single	11	(64.71)	5	(29.41)	1	(5.88)	
	Widow	35	(67.31)	13	(25.00)	4	(7.69)	
Job	Working	77	(58.33)	48	(36.36)	7	(5.30)	0.009
	Not working	79	(53.74)	57	(38.78)	11	(7.48)	
	Retired	12	(60.00)	8	(40.00)	0	(0.00)	
	Student	0	(0.00)	0	(0.00)	1	(100.00)	
Number of children	2 and less	119	(57.77)	77	(37.38)	10	(4.85)	0.266
	3 and more	49	(52.13)	36	(38.30)	9	(9.57)	
Beck1	Normal	62	(52.10)	49	(41.18)	8	(6.72)	0.244
	Mild	56	(53.85)	43	(41.35)	5	(4.81)	
	Moderate	36	(63.16)	15	(26.32)	6	(10.53)	
	Severe	14	(70.00)	6	(30.00)	0	(0.00)	
Beck2	No depression	62	(52.10)	49	(41.18)	8	(6.72)	0.541
	There is depression	106	(58.56)	64	(35.36)	11	(6.08)	
Hamilton1	None	29	(48.33)	27	(45.00)	4	(6.67)	0.325
	Minor	84	(57.93)	49	(33.79)	12	(8.28)	
	Major	55	(57.89)	37	(38.95)	3	(3.16)	
Hamilton2	No anxiety	29	(48.33)	27	(45.00)	4	(6.67)	0.392
	There is anxiety	139	(57.92)	86	(35.83)	15	(6.25)	

HPV: Human papillomavirus

Table 2. Average of age, number of children, Beck and Hamilton values according to the human papillomavirus result

	HPV result				p
	Negative		Positive		
	Average	± SD	Average	± SD	
Age	42.41	±9.39	42.06	±9.25	0.469
Number of children	2.02	±1.21	1.96	±1.30	0.596
Beck	11.93	±8.86	14.13	±9.08	0.029
Hamilton	12.27	±8.17	11.97	±7.40	0.991

HPV: Human papillomavirus, SD: standard deviation

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Further, the analysis of age, educational attainment, number of children, income level, Beck Depression Inventory and Hamilton Anxiety Rating scale scores by the time from HPV testing revealed a very weak significant negative correlation (r= -0.167) between the time from HPV testing and Hamilton Anxiety Rating scale scores (p=0.004). However, no significant correlation was found between the duration of HPV infection and the mean age, educational attainment, number of children, income level, and Beck Depression Inventory scores (p>0.05).

The analysis of Beck Depression Inventory and Hamilton Anxiety Rating scale scores by the time from HPV testing in HPV (+) patients revealed significant correlations between the time from HPV testing and the Beck Depression Inventory and Hamilton Anxiety Rating scale scores: a statistically significant moderate negative correlation was found between the time from HPV test report date and the Beck Depression Inventory scores in HPV (+) patients (r= -0.404) (p<0.01), as well as between the time from HPV test report date and the Hamilton Anxiety Rating scale scores in HPV (+) patients (r= -0.436) (p<0.01).

The correlation analysis of the Beck Depression Inventory and Hamilton Anxiety Rating scale scores by the time from HPV testing in HPV (+) subjects who underwent an HPV testing at the Family Health Center (FHC) revealed a significant correlation between the time from HPV test report date and the Beck Depression Inventory and Hamilton Anxiety Rating scale scores. However, in patients who underwent HPV testing at the FHC, a strong negative correlation was found between the time from HPV test report date and the Beck Depression Inventory (r= -0.611) (p<0.01), as well as between the time from HPV test report date and the Hamilton Anxiety Rating scale scores (r= -0.436) (p<0.01).

DISCUSSION

In the present study, the states of depression and anxiety was assessed in a total of 300 subjects, including 187 HPV (+) women and 113 HPV (–) women. Moreover, no statistically significant differences were found between the HPV (+) and (–) women with respect to their depression and anxiety scores (p=0.183, p=0.306, respectively). Although the difference did not reach the level of significance, the higher numerical values detected in all HPV (+) groups in comparison to the HPV (–) groups were remarkable. While 73% of the subjects who scored in the moderate range and 70% who scored in the severe range on the Beck Depression Inventory were in the HPV (+) group, 66% of the subjects who scored in the minor anxiety range and 61% who scored in the major anxiety range on the Hamilton Anxiety Rating scale were in the HPV (+) group.

Moreover, the analysis of the depression scores by the age and number of children revealed significantly lower scores in the HPV (–) group in comparison to the HPV (+) group (p=0.029).

The time interval between the HPV test report date and the assessment date has been considered important in this patient group, as these patients may experience an acute anxiety and stress when they get test results. The fear of cancer may cause a tendency to undergo interventional procedures, colposcopic examinations, and biopsies in these patients, and they may even force their physician to perform these procedures. As a result, even the unnecessary interventions, and tissue sampling procedures may be performed.

A literature search revealed evidence from several studies indicating that the level of stress might be significantly increased initially after getting a positive HPV test result. Quantitative studies support that a positive HPV test is more likely to bring psychological load than an abnormal smear result and that this effect may lessen over time (17). In our study, the subjects were assessed at five different time intervals; "the first two weeks," "week 2 to week 4," "month 1 to month 3," "month 6 to month 12," and "after month 12." The assessment of anxiety and depression scores pointed out a negative, week but significant correlation between anxiety scores and the time from the HPV test report date. In other words, initial anxiety scores were significantly higher after getting a positive HPV test result. The assessment of depression scores by the same time intervals revealed a negative, moderate, significant correlation between the time from the positive HPV test report date and depression scores. In other words, initial depression scores were significantly higher after getting a positive HPV test result.

Furthermore, HPV positivity is typically associated with increased anxiety and depression scores, and intense fear and anxiety especially in the early period. This increasing fear and anxiety decreases with the help of researches, medical examinations, interviews, and explanations.

Another point to consider in this patient group is the site where the diagnosis was made. In our country, cervical HPV screening programs are performed by FHCs. All women over the age of 30 years are covered by routine screening programs and may undergo HPV testing. Test results are revealed to patients for the first time at FHCs. While women who test negative for HPV are not referred to other centers, those who test positive are referred to gynecologic oncology outpatient clinics at tertiary healthcare facilities. After getting a positive test result, patients are advised to contact a reference center. Negative interactions may be minimized if during this process, patients receive correct, and adequate information from a specialist in this field.

In this study, a strong negative correlation was also found between the test report date and anxiety and depression scores in subjects who were tested for HPV at an FHC. This finding might have resulted from inadequate information provided to the patients at FHCs as well as the inclusion of the patients from FHCs in the study in earlier periods after getting a positive test result.

In a study conducted in the United Kingdom in 2007, Waller et al. (18) informed 811 undergraduates about HPV and asked them to imagine themselves as being tested positive for HPV. Subsequently, they were asked about the levels of stigma, shame, and anxiety that they would experience. It was found that the awareness of

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high prevalence of HPV may reduce negative feelings and also anxiety, in general. They concluded that raising awareness of high prevalence of HPV through public health messages may alleviate negative psychosocial consequences (18).

In another study investigating the social and psychological consequences of HPV testing, McCaffery et al. (9) emphasized that the effects of abnormal smear tests had been adequately investigated until then, however, as a sexually transmitted disease, HPV might lead to anxiety and distress in addition to these negative effects. In particular, due fear of disclosure, patients experience difficulty explaining the situation to their spouse or even to their own family (9).

A sensitive approach is important even when informing patients about their positive HPV results to protect them from exposure to negative psychological effects. Kahn et al. (12) made recommendations on how to approach a patient at the time of HPV test result release. They recommended that correct information should be given in a sensitive and non-judgmental manner, and stated that an educational protocol might help women to understand HPV and its consequences. They emphasized that unwanted psychosocial consequences might be minimized by promoting health-improving behaviors, safe sexual habits, and regular cervical screening in adolescent girls (12).

Initially, a significant increase is observed in the anxiety and depression scores in patients who test positive for HPV. However, over time, these increased scores return to their normal levels.

We believe that patients can overcome these critical early periods of time with minimal negative impact if social factors are considered and correct and thorough information is provided at the very beginning with due diligence and a sensitive approach that would alleviate their fear.

In order to reduce depression and anxiety, it would be appropriate for the specialist obstetricians, psychologists, and psychiatrists to provide explanations and psychological support to patients.

CONCLUSION

When women first learn about their HPV carrier status, a significant increase in their anxiety and depression scores is observed at the beginning; however, this impact lessens over time. An appropriate support during this period is pertinent to protect patients from psychosocial traumas.

Ethics Committee Approval: The study protocol was submitted to the Institutional Review Board and ethics approval was obtained on July 25, 2017 (institutional review board approval number: 2017/514/111/6).

Informed Consent: A written informed consent form was obtained from all patients prior to the study.

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