The determination of the knowledge level and behavior of Turkish women from various occupations about human papillomavirus, cervical cancer, and pap smear test

ABSTRACT

Background: Cervical cancer is one of the most common types of cancer among women. Early diagnosis and effective treatment are possible with Pap smear test. However, women should be informed about human papilloma virus (HPV), cervical cancer, and Pap smear test to protect against cervical cancer.

Aim: The aim of this study is to identify knowledge level and behavior of women from various occupations, who reside in a city in the south of Turkey, about HPV, cervical cancer, and Pap smear test.

Materials and Methods: The study was conducted with 753 women consisting of 228 nurses, 28 doctors, 135 teachers, 20 academicians, 21 policewomen, and 321 homemakers. The data were collected with face-to-face interview method using survey form and attitude scale related to early diagnosis of cervical cancer.

Results: Of the women whose age average is 34.7 ± 7.51, 79% are married, 52.9% have middle income, 62.5% live in towns, and 58.6% are primary school graduates. It was determined that 69.2% of these women had gynecological examination, 27.8% had Pap smear test, and 1.3% had HPV vaccination. About 59.5% of these women stated not having heard of HPV, 61.3% of HPV vaccination, and 41.9% that HPV causes cervical cancer. Those women who have a good education and income level and who live in the city are found to have higher knowledge levels of HPV, HPV vaccination, Pap smear test, and cervical cancer (P<0.05). Among the occupational groups, it was determined that the nurses are the ones who have least gynecological examination had and the doctors are the ones who have the most number of Pap smear tests had. It was found that average point that women got from the attitude scale of early diagnosis of cervical cancer was 101.91 ± 10.77 that the doctors and nurses had the highest points, 105.29 ± 11.65 and 103.15 ± 9.92, respectively, and that police officers had the lowest points by 93.42 ± 16.50.

Conclusion: It was determined that the knowledge level and attitudes of the participant women about HPV, cervical cancer, and Pap smear test were insufficient.

KEY WORDS: Behavior, cervical cancer, human papillomavirus, knowledge level, Pap smear test

INTRODUCTION

Human papillomavirus (HPV) is one of the most widespread sexually transmitted infections, whose >100 genotypes have been identified until now, and at least 13 of them are identified to cause cancer. High-risk HPV types are 16, 18, 31, 33, 35, 39, 45, 51, 52, 56 and 58, and HPV 16 and HPV 18 are responsible for 70% of cervical cancers and precancerous lesions. Although most of the HPV infections are asymptomatic, the virus can cause vaginal, penile, anal cancers, different types of benign and malignant tumor on the skin and mucosa such as common warts on the skin, anogenital warts, oral and pharyngeal papilloma, and recurrent respiratory papillomatosis.1,2

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Cervical cancer is one of the most common cancer types in women and is the second most common cancer type in less developed countries, and fourth most common in the whole world. According to the 2012 World Health Organization (WHO) data, 530,000 new cases and 270,000 deaths occur every year because of cervical cancer and >85% of them consist of people living in less developed countries. In the 2012 report of the GLOBOCAN (cancer incidence, mortality, and prevalence Worldwide) published by the WHO International Agency for Research on Cancer, Turkey is shown among countries with a cervical cancer incidence of <7.9 in 100,000 and mortality <2.4.

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Despite the fact that all efforts (Pap smear and HPV test, vaccination) to prevent cervical cancer, the rate of having Pap smear test taken differs in developed and undeveloped countries. Although 85% of women in developed countries have Pap smear test taken at least once in their life, this rate is only 5% in less developed countries. According to 2010 data, the population of women who had Pap smear test taken in the past 3 years in USA is 77.3%. According to a research conducted in Canada, the rate of having Pap smear test taken in a lifetime is 93.4%. According to the Ministry of Health-Turkey Health Statistics 2013, nearly 71% of women population between the ages of 20 and 69 have never had Pap smear test. In research conducted in Hatay, 150 women who are aged between 35 and 40 were scanned regarding cervix cancer, and it was detected that none had given smear samples before.

In Cervix Cancer National Screening Program, which was initiated in our country by Cancer Control Department of the Ministry of Health of Turkey in 2009, cervical scanning is recommended to begin at the age of 30 and end at the age of 65. When the infrastructure and opportunities of Turkey are taken into consideration, the optimal screening interval for cervical cancer with HPV or Pap smear test is once in every 5 years. National population-based cervical cancer screening in our country are exercised in cancer early diagnosis, screening, and training centers, a part of Family Health Centers and Community Health Centers. The number of women who have Pap smear test taken to detect cervical cancer with this program will increase in our country, but it is important that all women are informed, and awareness is raised about this program. Unfortunately, this program is either not known or ignored by most of the women in our country, despite the advantages of Pap smear test such as being cheap, easy to administer, acceptance by patients, and decreasing cervix cancer deaths by around 90% with being able to be used in community screenings.

Despite the high prevalence of HPV infection and the relationship between cervical cancer and HPV infection’s attracting attention recently in the world and in our country, HPV, Pap Smear, and cervical cancer are known little in our country and by several groups of societies in other countries. Lack of knowledge in groups studied about HPV, Pap smear, and cervix cancer generally attract the attention, and it is seen that awareness about these issues has not been formed. Hence, it is important to determine the knowledge level of different groups in society and to make studies in these groups to increase the awareness of HPV, Pap smear, and cervical cancer, and to determine education needs.

The community-based cross-sectional study was carried out with a total of 753 women from the different occupational group (228 nurses, 28 doctors, 135 teachers, 20 academicians, 21 police officers, and 321 homemakers) living in Hatay city (İskenderun) in South of Turkey. The women were selected using stratified and simple random sampling method in this study. Data of the study were collected using several questionnaire forms, which will be explained in detail below, and which include information related to women, and the scale to determine attitudes toward early diagnosis of early diagnosis Attitude Scale for Early Diagnosis of Cervical Cancer (ASEDCC). Questionnaire form which includes the personal information, informative characteristics, and obstetric stories of attendant women is made up of totally 18 questions, and questionnaire form for determining the knowledge levels and attitudes of attendant women about...
HPV, Pap smear test, and cervical cancer is made up of totally 36 questions. Furthermore, attitude scale to determine the attitude of attendant women toward early diagnosis of cervical cancer, which was developed by Özmen and Özsoy in 2005 and prepared in Quintet Likert type and which consists of 30 questions, was applied.24 A preapplication was made on a total of 20 women before the study to evaluate the operability and understandability of the questionnaire form. Women who were taken into the preapplication of the survey are not included in the main application. Before the study, ethical approval was obtained from Mersin University Clinical Research Ethics Committee and approval of the participant women was taken during the study. Statistical analysis (descriptive tests and Chi-square) were performed by entering the data obtained in the Statistical Package for Social Sciences for Windows (IBM-SPSS 11.5, USA) package program and \( P \leq 0.05 \) was considered as meaningful.

RESULTS

The average age of the participant women was 34.7 ± 7.5 (age range: 18–64), 78.1% was married, 42.8% was university graduate, and 66.1% of them have an elementary family. It was identified that 62.5% of women spent the longest time of their lives in a town and that 52.8% of their income was equal to their expenses, and that 39.2% of their income is less than their expenses. About 42.6% of them were homemakers, 30.3% of them were nurses, 3.7% were doctors, 17.9% of them were teachers, 2.8% were police officers, and 2.7% of them were academicians. About 62.8% of the women stated that they had their first menstruation between ages 13 and 16, and 75% of them stated having had at least one pregnancy (maximum pregnancy number: 3), 51.4% of them stated not using any family planning methods, 38.6% of them were determined using preservative, 29.6% using intrauterine device, and 12.2% using withdrawal method. While 8.3% of the women stated being in menopause period, 54.2% of them stated menopausal age as 45 and above [Table 1].

When the distribution of knowledge level of the participant women about HPV was examined, it was determined that 40.6% of them heard of HPV, that 56.2% knew that HPV is contagious, that 68.5% heard that it is sexually transmitted, 41% that it leads to cervical cancer, 11% that it leads to vaginal infection, 43.6% that condom provides partial protection from HPV, and 38.7% having heard of HPV vaccination [Table 2].

The distribution of knowledge level of participant women about cervical cancer and Pap smear test is given in Table 3. While 71.8% of women stated that they have information about cervical cancer, 22% of the women answered the symptoms of cervical cancer as bleeding, 21.5% as discharge, 17% as wound in the uterus, and 16% as pain during sexual intercourse. While 36.2% of women stated polygamy as the biggest reason for cervical cancer, 11.5% answered as genetic, and 18.8% as HPV/wart/viral infection. About 28% of women

| Table 1: The distribution of sociodemographic and obstetric characteristics of women |
|-----------------------------------------------|-----|-------|
| **Informative characteristics**              |     |       |
| Age (years), mean±SD                          | 34.7±7.5 |       |
| Age groups (years)                            |     |       |
| 20-30                                         | 232 (30.8) |       |
| 31-40                                         | 361 (47.9) |       |
| >40                                          | 160 (21.3) |       |
| Marital status                                |     |       |
| Married                                       | 588 (78.1) |       |
| Single                                        | 165 (21.9) |       |
| Educational status                            |     |       |
| Illiterate/literate                           | 48 (6.4) |       |
| Primary school                                | 188 (25.0) |       |
| High school                                   | 149 (19.8) |       |
| Graduate                                      | 323 (42.8) |       |
| Postgraduate                                   | 45 (6.0) |       |
| The longest place of residence in their lifetime |     |       |
| Village                                       | 49 (6.5) |       |
| Town                                         | 471 (62.6) |       |
| City                                          | 233 (30.9) |       |
| Number of family members                     |     |       |
| 1-3                                          | 498 (66.1) |       |
| 4-6                                          | 233 (30.9) |       |
| 7 and above                                   | 22 (3.0) |       |
| Occupation                                    |     |       |
| Housewife                                     | 321 (42.6) |       |
| Nurse                                        | 228 (30.3) |       |
| Doctor                                        | 28 (3.7) |       |
| Teacher                                       | 135 (17.9) |       |
| Academician                                   | 20 (2.7) |       |
| Police officer                                | 21 (2.8) |       |
| Employment status                             |     |       |
| Working                                       | 432 (57.4) |       |
| Not working                                   | 321 (42.6) |       |
| Professional experience (years)               |     |       |
| 1-5                                          | 117 (27.1) |       |
| 6-10                                         | 116 (26.8) |       |
| 11-15                                        | 88 (20.5) |       |
| 16-20                                        | 75 (17.5) |       |
| 21 and above                                  | 35 (8.1) |       |
| Income level                                  |     |       |
| Income equal to expense                       | 398 (52.8) |       |
| Income less than expense                      | 295 (39.2) |       |
| Income more than expense                      | 60 (8.0) |       |
| Obstetric characteristics                     |     |       |
| Menarche age (years)                          |     |       |
| 9-12                                         | 269 (36.4) |       |
| 13-16                                        | 465 (62.8) |       |
| 17 and above                                  | 6 (0.8) |       |
| History of pregnancy                          |     |       |
| Yes                                          | 565 (75.0) |       |
| No                                           | 188 (25.0) |       |
| Number of pregnancies                         |     |       |
| 1-3                                          | 420 (74.3) |       |
| 4-6                                          | 140 (24.8) |       |
| >7                                           | 5 (0.9) |       |
| Previous pregnancy outcomes                   |     |       |
| Live birth                                    | 525 (88.3) |       |
| Spontaneous abortion                          | 120 (15.6) |       |
| Curettage abortion                            | 83 (10.8) |       |
| Stillbirth                                    | 41 (5.3) |       |
| The use of family planning method             |     |       |
| No                                           | 387 (51.4) |       |
| Yes                                          | 366 (48.6) |       |
| Family planning method                        |     |       |
| Preservative                                  | 141 (38.6) |       |

Contd...
in the study group regard themselves as well-informed about protection from cervical cancer, and 37.6% of them regard condom, and 36.2% regard vaccination as a way of protection. About 88.8% of them do not think of themselves as risky about cervical cancer, 29% of them regard themselves as risky due to being female, whereas 22.5% of them assess themselves under risk because of polygamy. On the question about the treatment of cervical cancer; nearly 35% of participants responded that they do not know the treatment of cervical cancer, 53.5% of the ones who know about it stated it is surgical, 29.9% of them stated it as chemotherapy, and 16.5% of participants answered as radiotherapy. When the knowledge level of participant women about Pap smear test is considered, it was detected that 41.2% of women do not know the name of, and 51.3% of them do not know when it is applied. 69.3% of women who know about it stated the reason for having Pap smear test as cancer, but 6.2% of them answered it as HPV [Table 3].

About 95.5% of women stated that they did not have HPV vaccination, and more than half of them (51.5%) gave the reason of not having vaccination as lack of knowledge about it. 69.2% of women had gynecological examination, and 50.1% of them stated the frequency of having gynecological examination as when needed. It was determined that only 27.8% of women have Pap smear test taken, and 72% of them stated the number of it as once or twice and 28% said it was three or four times. About 2.3% of women expressed having applied to a doctor because of sexual-contagious diseases [Table 4].

When the points that the participant took from “perceived sensitivity,” “perceived seriousness,” “perceived obstacle,” and “perceived benefits” sub-dimensions of the ASEDCC are examined, it was identified that the women have a positive attitude toward early diagnosis of cervical cancer, but that it is not on the desired level [Table 5].

When it was examined according to occupations, it was detected that the ones who heard most about HPV were doctors that 74.6% of nurses heard about HPV, the ones who know least about HPV were teachers (37.8%). It was detected that 90.1% of homemakers did not hear about HPV (P = 0.001). It was determined that those who know most about HPV among women are, respectively, doctors (92.9%), academicians (75%), and nurses (68.0%) and that 91% of homemakers did not hear about HPV vaccination (P = 0.001). It was identified that doctors (100%) and nurses (75.0%) have more knowledge about the contagiousness of HPV than all other occupations (P = 0.001). It was detected that 42.9% of police officers, 38.3% of homemakers, and 12.3% of nurses have no information about cervical cancer (P = 0.001). When the situation of thinking herself as being risky regarding cervical cancer and occupations were compared, no statistically meaningful relation was found (P = 0.462). When the situation of knowing the name of Pap smear test was compared to the occupations of women, it was found that nearly all of the doctors (89.3%), 70% of academicians, 66.3% of nurses, and 43.7% of teachers know the name of the Pap smear test, and police officers and homemakers are detected as the ones who

### Table 1: Contd...

| HPV knowledge level | n (%) |
|---------------------|-------|
| Heard of HPV        |       |
| No                  | 447 (59.4) |
| Yes                 | 306 (40.6) |
| Contagiousness of HPV |     |
| Participant knows   | 423 (56.2) |
| Participant does not know | 330 (43.8) |
| Mode of transmission* |   |
| Sexual              | 403 (65.5) |
| Close touch         | 102 (16.5) |
| Inhalation          | 72 (11.7) |
| Environmental       | 33 (5.4) |
| Other               | 6 (0.9) |
| Symptoms of HPV      |       |
| Participant knows   | 361 (63.4) |
| Participant does not know | 208 (36.6) |
| Answers to symptoms of HPV* | |
| Discharge, itch     | 129 (35.7) |
| Wart, lesion, herpes, swelling, papilloma | 82 (22.7) |
| Pain/pain during sexual intercourse | 53 (14.7) |
| Fever               | 33 (9.1) |
| Bleeding            | 32 (8.9) |
| No symptom          | 32 (8.9) |
| Diseases resulting from HPV* | |
| Participant does not know | 360 (41.9) |
| Cervical cancer     | 352 (41.0) |
| Vaginal infection   | 95 (11.0) |
| Infertility         | 27 (3.1) |
| Anus cancer         | 17 (2.0) |
| Throat cancer       | 9 (1.0) |

### Table 2: Distribution of the knowledge level of women about human papilloma virus

| HPV knowledge level | n (%) |
|---------------------|-------|
| Heard of HPV        |       |
| No                  | 447 (59.4) |
| Yes                 | 306 (40.6) |
| Contagiousness of HPV |     |
| Participant knows   | 423 (56.2) |
| Participant does not know | 330 (43.8) |
| Mode of transmission* |   |
| Sexual              | 403 (65.5) |
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| Other               | 6 (0.9) |
| Symptoms of HPV      |       |
| Participant knows   | 361 (63.4) |
| Participant does not know | 208 (36.6) |
| Answers to symptoms of HPV* | |
| Discharge, itch     | 129 (35.7) |
| Wart, lesion, herpes, swelling, papilloma | 82 (22.7) |
| Pain/pain during sexual intercourse | 53 (14.7) |
| Fever               | 33 (9.1) |
| Bleeding            | 32 (8.9) |
| No symptom          | 32 (8.9) |
| Diseases resulting from HPV* | |
| Participant does not know | 360 (41.9) |
| Cervical cancer     | 352 (41.0) |
| Vaginal infection   | 95 (11.0) |
| Infertility         | 27 (3.1) |
| Anus cancer         | 17 (2.0) |
| Throat cancer       | 9 (1.0) |

*More than one choice was preferred. HPV=Human papilloma virus
Table 3: Distribution of the knowledge level of women about cervical cancer and Pap smear test

| Knowledge level                                      | n (%) |
|------------------------------------------------------|-------|
| Hearing of cervical cancer                           |       |
| Yes                                                   | 541 (71.8) |
| No                                                    | 212 (28.2) |
| Answers to the symptoms of cervical cancer           |       |
| Bleeding                                              | 500 (22.2) |
| Discharge                                             | 484 (21.5) |
| Wound in uterus                                       | 384 (17.0) |
| Painful sexual intercourse                            | 363 (16.0) |
| Wart                                                  | 309 (13.8) |
| Myoma                                                 | 215 (9.5)  |
| Answers to the reasons*                               |       |
| Polygamy/prostitution                                 | 158 (36.2) |
| HPV/wart/viral infection                              | 82 (18.8)  |
| Genetic                                               | 50 (11.5)  |
| Carcinogenic materials                                | 34 (7.8)  |
| Lack of hygiene habits                                | 33 (7.6)  |
| Smoking                                               | 26 (6.0)  |
| Frequent and excessive number of birth                | 23 (5.3)  |
| Early marriage/sexuality                              | 17 (3.8)  |
| Unprotected sexual intercourse                        | 13 (3.0)  |
| Knowledge of protection ways                          |       |
| Participant does not know                             | 545 (72.4) |
| Participant knows                                     | 207 (27.6) |
| Answers to protection ways                            |       |
| Safe sex/condom                                       | 78 (37.6) |
| HPV vaccination                                       | 75 (36.2) |
| Regular control/Pap smear test                       | 19 (9.1)  |
| Hygiene                                               | 19 (9.1)  |
| Regular nutrition                                     | 11 (5.3)  |
| Staying away from carcinogenic materials              | 5 (2.4)  |
| Risk status in terms of cervical cancer               |       |
| Does not think of herself as risky                    | 669 (88.8) |
| Thinks of herself as risky                           | 62 (8.3)  |
| No idea                                               | 22 (2.9)  |
| Reason for being risky of cervical cancer             |       |
| Being female                                          | 18 (29.0) |
| Polygamous life                                       | 14 (22.5) |
| Exposure to environmental factors                     | 11 (17.7) |
| Old age/ menopause                                    | 10 (16.1) |
| Sexually active/being married                         | 6 (9.6)  |
| Genetic factors                                       | 3 (5.1)  |
| Treatment of cervical cancer*                         |       |
| Knows                                                 | 568 (65.5) |
| Does not know                                         | 367 (35.5) |
| Knowledge status of the treatment given               |       |
| Surgical treatment                                    | 304 (53.5) |
| Radiotherapy                                          | 170 (29.9) |
| Chemotherapy                                          | 94 (16.5) |
| Knowledge of the name “Pap smear test”                |       |
| Does not know                                         | 443 (58.8) |
| Knows                                                 | 310 (41.2) |
| When Pap smear test is applied                        |       |
| Does not know                                         | 386 (51.3) |
| Knows                                                 | 367 (48.7) |
| Why Pap smear test is applied                         |       |
| Knows                                                 | 612 (81.3) |
| Does not know                                         | 141 (18.7) |
| The aim of the application of test*                   |       |
| Cancer diagnosis-treatment                            | 574 (93.8) |
| HPV                                                   | 38 (6.2)  |

Table 4: Distribution of findings toward the behavior of women toward human papillomavirus vaccination, gynecological examination, Pap smear test

| Behavior                                      | n (%) |
|-----------------------------------------------|-------|
| Having had HPV vaccination                    |       |
| No                                            | 719 (95.5) |
| Yes                                           | 10 (1.3)  |
| Does not know                                 | 24 (3.2)  |
| Reason for not having HPV vaccination*        |       |
| Does not know                                 | 86 (51.5) |
| Lack of financial conditions                  | 24 (14.4) |
| Since the vaccination is new                  | 22 (13.2) |
| Thinking of it as unnecessary                 | 19 (11.4) |
| Adverse effect                                | 16 (9.5)  |
| Having had gynecological examination          |       |
| Yes                                           | 521 (69.2) |
| No                                            | 232 (30.8) |
| The frequency of gynecological examination    |       |
| In case of a need                             | 261 (50.1) |
| Once in a year                                | 133 (25.5) |
| Once in 2 years                               | 91 (17.5)  |
| Once in 6 months                              | 36 (6.9)  |
| Having Pap smear test taken                   |       |
| No                                            | 544 (72.2) |
| Yes                                           | 209 (27.8) |
| Number of having Pap smear test taken         |       |
| 1-2                                           | 147 (72.0) |
| 3-4                                           | 57 (28.0)  |
| Consulting a doctor because of STDs           |       |
| No                                            | 724 (96.1) |
| Yes                                           | 17 (2.3)  |
| No answer                                     | 12 (1.6)  |

Table 5: Distribution of the points women took from Attitude Scale for Early Diagnosis of Cervical Cancer and its sub-dimensions

| Sub-dimensions of ASEDCC                         | n  | Average±SD | Minimum | Maximum |
|--------------------------------------------------|----|------------|---------|---------|
| Perceived sensitivity                            | 753| 30.1±4.29  | 9       | 45      |
| Perceived seriousness                            | 753| 27.2±4.64  | 10      | 40      |
| Perceived obstacle                               | 753| 21.8±3.05  | 7       | 31      |
| Perceived benefit                                | 753| 22.6±3.87  | 6       | 30      |
| ASEDCC total point                               | 753| 101.9±10.77| 32      | 147     |

ASEDCC=Attitude Scale for Early Diagnosis of Cervical Cancer, SD: Standart deviation

When the occupations of women and their some behaviors are compared, it was detected that doctors (71.4%) and nurses (59.6%) have gynecological examination less than homemakers (76.6%); on the other hand, the doctors have Pap smear test taken the most by 60%, the second one was teachers (36.3%), and the rate of having HPV vaccination was identified as low in all occupations [Table 7].

The distribution of the ASEDCC point averages according to the occupations of women is given in Table 8. It was detected that the doctors had the highest average points on the scale for early diagnosis of cervical cancer by 105.29 ± 11.65, and that academicians with 103.15 ± 9.92 and nurses with 102.69 ± 10.55 followed them, respectively. It was identified that police officers had the lowest point from the scale by 93.42 ± 16.50. When the occupation groups and
Cimke and Borekci: Turkish women's knowledge about HPV, cervical cancer and pap smear test

Table 6: Comparison of the occupations of women with the knowledge levels on human papillomavirus, cervical cancer, and Pap smear test

| Knowledge                                      | Nurse, n (%) | Teacher, n (%) | Doctor, n (%) | Police officer, n (%) | Academician, n (%) | Housewife, n (%) | P*  |
|-----------------------------------------------|--------------|----------------|---------------|-----------------------|--------------------|-----------------|-----|
| Knows about HPV                               |              |                |               |                       |                    |                 |     |
| Knows                                          | 170 (74.6)   | 51 (37.8)      | 28 (100.0)    | 11 (52.4)             | 14 (70.0)          | 32 (9.9)        | 0.001|
| Does not know                                 | 58 (25.4)    | 84 (62.2)      | 0 (0.0)       | 10 (47.6)             | 6 (30.0)           | 289 (90.1)      |     |
| Knows about HPV vaccination                   |              |                |               |                       |                    |                 |     |
| Knows                                          | 155 (68.0)   | 52 (38.5)      | 26 (92.9)     | 14 (66.7)             | 15 (75.0)          | 29 (9.0)        | 0.001|
| Does not know                                 | 73 (32.0)    | 83 (61.5)      | 2 (7.1)       | 7 (33.3)              | 5 (25.0)           | 292 (91.0)      |     |
| Knows about contagiousness of HPV             |              |                |               |                       |                    |                 |     |
| Knows                                          | 172 (75.4)   | 65 (48.1)      | 28 (100.0)    | 17 (80.9)             | 15 (75.0)          | 126 (41.9)      | 0.001|
| Does not know                                 | 56 (24.6)    | 70 (51.9)      | 0 (0.0)       | 4 (19.1)              | 5 (25.0)           | 145 (58.1)      |     |
| Knows about cervical cancer                   |              |                |               |                       |                    |                 |     |
| Knows                                          | 200 (87.7)   | 89 (65.9)      | 26 (92.9)     | 12 (57.1)             | 16 (80.0)          | 199 (61.7)      | 0.001|
| Does not know                                 | 28 (12.3)    | 46 (34.1)      | 2 (7.1)       | 9 (42.9)              | 6 (20.0)           | 122 (38.3)      |     |
| Thinks of it as risky                         |              |                |               |                       |                    |                 |     |
| Yes                                            | 27 (11.8)    | 16 (11.8)      | 0 (0.0)       | 6 (21.4)              | 2 (10.0)           | 33 (10.2)       | 0.462|
| No                                             | 201 (88.2)   | 112 (88.2)     | 21 (100.0)    | 22 (78.6)             | 18 (90.0)          | 288 (89.7)      |     |
| Knows about the Pap smear test                 |              |                |               |                       |                    |                 |     |
| Knows                                          | 151 (66.2)   | 59 (43.7)      | 25 (89.3)     | 3 (14.3)              | 14 (70.0)          | 58 (18.1)       | 0.001|
| Does not know                                 | 77 (33.8)    | 76 (56.3)      | 3 (10.7)      | 18 (85.7)             | 6 (30.0)           | 263 (81.9)      |     |

*Chi-square tests (Pearson χ² and likelihood ratio Chi-squared test) were used. HPV = Human papillomavirus

Table 7: The comparison of women’s occupations and some behaviors

| Behavior                              | Nurse, n (%) | Teacher, n (%) | Doctor, n (%) | Police officer, n (%) | Academician, n (%) | Housewife, n (%) | P*  |
|---------------------------------------|--------------|----------------|---------------|-----------------------|--------------------|-----------------|-----|
| Having Pap smear test taken           |              |                |               |                       |                    |                 |     |
| Yes                                   | 66 (28.9)    | 49 (36.3)      | 17 (60.7)     | 4 (19.1)              | 4 (20.0)           | 69 (18.1)       | 0.001|
| No                                    | 162 (71.1)   | 86 (63.7)      | 11 (39.3)     | 17 (80.0)             | 16 (80.0)          | 252 (81.9)      |     |
| Having gynecological examination     |              |                |               |                       |                    |                 |     |
| Yes                                   | 136 (59.6)   | 91 (67.4)      | 20 (71.4)     | 16 (76.2)             | 12 (60.0)          | 246 (76.6)      | 0.001|
| No                                    | 92 (40.4)    | 4 (32.6)       | 8 (28.6)      | 5 (23.8)              | 8 (40.0)           | 75 (23.4)       |     |
| Frequency of having gynecological examination |          |                |               |                       |                    |                 |     |
| Once in 6 months                      | 42 (18.4)    | 12 (8.8)       | 4 (14.3)      | 8 (38.1)              | 2 (10.0)           | 12 (3.7)        | 0.001|
| Once in a year                        | 118 (51.8)   | 53 (39.2)      | 20 (71.4)     | 2 (9.5)               | 11 (55.0)          | 59 (18.5)       |     |
| Once in 2 years                       | 10 (4.3)     | 9 (6.8)        | 0 (0.0)       | 0 (0.0)               | 11 (3.4)           |                 |     |
| Once in 3 years                       | 0 (0.0)      | 2 (1.5)        | 1 (3.5)       | 0 (0.0)               | 2 (10.0)           | 2 (0.8)         |     |
| Does not know                         | 58 (25.5)    | 59 (43.7)      | 3 (10.8)      | 11 (52.4)             | 5 (25.0)           | 237 (73.8)      |     |
| Having HPV vaccination had            |              |                |               |                       |                    |                 |     |
| Yes                                   | 8 (3.5)      | 0 (0.0)        | 1 (3.6)       | 0 (0.0)               | 0 (0.0)            | 1 (0.3)         | 0.002|
| No                                    | 220 (96.5)   | 135 (100.0)    | 27 (96.4)     | 21 (100.0)            | 20 (100.0)         | 320 (99.7)      |     |

*Chi-square tests (Pearson χ² and likelihood ratio Chi-squared test) were used. HPV = Human papillomavirus

Table 8: Distribution of the average points women took from Attitude Scale for Early Diagnosis of Cervical Cancer according to their occupations

| Occupation          | n       | Average±SD     | P*   |
|---------------------|---------|----------------|------|
| Doctor              | 28      | 105.29±11.65   | 0.003|
| Academician         | 20      | 103.15±9.92    |      |
| Nurse               | 228     | 102.69±10.55   |      |
| Teacher             | 135     | 102.16±13.15   |      |
| Housewife           | 321     | 101.43±8.95    |      |
| Police officer†‡‡‡   | 219     | 3.42±16.50     |      |

*One-way ANOVA test was used for P value; when the differences are studied, it was detected that total point averages of all occupational groups are higher than those of the police officers and that the difference is meaningful (§Differences with doctor; †Differences with academician; ‡Differences with nurse; ¶Differences with teacher; ‡‡Differences with housewife. P values are: <0.001; 0.004; <0.001; 0.001 and 0.001, respectively). The differences in terms of total point averages of other occupational groups were not found meaningful. SD: Standart deviation

more than that of police officers and that the difference was meaningful (P < 0.05) [Table 8].

DISCUSSION

According to Turkish Statistical Institute (TurkStat) 2014 data, it was stated that women make up for the 49.8% of population, and the average age of them is 32.4.[27,28] According to Turkish Population Health Research Institution 2013 Report and woman labor force statistics, it was stated that 68% of women population are married, that 31.1% have high school degree or above, that 81.1% live in city, that 61% work in service industry and that 62% of them have not worked for the past 12 months.[27,28] According to our study results, it can be seen that the obtained findings regarding sociodemographic features of women such as age, education, and marital status are higher than the statistic results of TurkStat 2014 and Turkish Population Health Research Institution 2013 Report.
That cervix cancer is easily diagnosable and preventable with early diagnosis is important in terms of reducing mortality and morbidity. Developing an understanding for the individuals in the society on the importance of early diagnosis for protection from cancer would be possible by forming people's awareness of HPV, cervical cancer, and Pap smear test and by the increasing their knowledge level. When various studies in the world and in our country are analyzed, it can be seen that the knowledge levels about HPV, cervical cancer, and Pap smear test of various groups are different.[28-30] The knowledge level of HPV is 8.8%–85%. Four in the studies around the world and it is 26%–100% in our country.[20,33–36] Although there are many studies about the knowledge level of HPV of different groups in the world and in our country, the number of studies analyzing different occupations together as our study is very few.

In this study, 40.6% of women stated that they have heard about HPV, but it was seen that their knowledge level about the symptoms of HPV and the diseases resulting from it is very low. When the distribution of HPV knowledge level among occupations was examined, it was detected that the knowledge level of doctors was the highest as expected and that of homemakers was the lowest. The percentage of nurses who have heard about HPV was 74.6% in our research. In studies conducted in our country and in some other countries of the world, while the knowledge level of medical staff about HPV was found higher than other people in the society it was found fairly lower in some studies.[10,20,35–40] In a study conducted with Iranian nurses, it was found that only 36.7% of nurses have heard about HPV.[41] In another study in Nigeria, 44.4% of doctors knew that the cause of cervical cancer was HPV.[42] The knowledge level of the medical knowledge teachers in Korea was found quiet low.[39] In this study, it was determined that the knowledge level of the academicians was as high as medical staff (%70). Another study by Bekar conducted with 148 academicians determined that 82.4% of academicians know HPV.[19]

While the knowledge level of HPV vaccination was reported as 5.6%–91.6% in studies in various countries, it was reported as 26%–96% in studies in Turkey.[34,38,39,43] In our study, 38.7% of women stated that they heard about HPV vaccine, which was a very low percentage. When it is analyzed according to occupations, the first group who heard about HPV most were doctors (92.9%), academicians, and nurses (68%) and the last ones were teachers (38.5%) and homemakers (%9.0).

It was detected in our study that 71.9% of the women heard about cervical cancer, but they had less information about symptoms and protection ways. It was also determined that 92.9% of doctors, 87.7% of nurses, and 80% of academicians know about cervical cancer. The knowledge level of cervical cancer is 38.7%–95.4% according to the studies in different countries, whereas the range changes between 33% and 92.6% in those of Turkey.[23,37,40] It was expressed in a study in Malatya by Türkol et al. that 79.5% of married women between 15 and 49 ages heard about cervical cancer.[33] In another study, Ilter et al. showed that 70% of the 525 participants heard about cervical cancer.[10] Pinar et al. also stated in their study conducted with 471 women that 92.5% of women heard about cervix cancer, and 53.5% of them were informed about it.[40] In a study in India, Aswathy et al. showed in their study with 809 women that 72.1% of study group knew about the cervical cancer.[21] In another study focused on a group consisting of homemakers (60%) and unqualified workers (22.8%) in a low socioeconomic region of India, it was found that 83.7% of the women heard about cervical cancer and higher results than our study were reported.[22] The study results showed resemblance to that of Ilter et al.[10] and Aswathy et al.[21] The reason why cervical cancer is known better might be caused by the execution of health screening programs and it can be evaluated as the positive effect of health screening programs. However, it will be more beneficial to spread the health screening to reach more people and give more detailed information during the screening sessions.

According to the studies in different counties in the world, the knowledge level of Pap smear test was 5.8%-88.7%, and it changes from 27.9% to 86.5% in our country.[19,21,33,40] In our study, 41.2% of women stated having heard of the name of Pap smear test and 51.3% of them stated not knowing when it is applied. When the occupations of women and the condition of knowing the name of Pap smear test is compared, it was seen that all of the doctors, 70% of academicians, and 66.3% of nurses known the name of Pap smear test, but this rate in police officers and homemakers was low. The knowledge level of Pap smear test of women from different occupations also varies worldwide. Tchounga et al. determined that 88.7% of 592 midwives know Pap smear test in Africa.[44] Ajah et al. that 69.4% of participants know Pap smear test in their study conducted with 412 teachers in Nigeria,[45] Gharoro and Ikeanyi stated the Pap smear test awareness of medical staff as 64%.[23] Lower results were recorded in different regions apart from these.[29,35,41] In our country, Karaca et al. claimed that 29.9% of women heard the name of Pap smear test in their study conducted with 834 women.[46] It was stated in a study with 362 women published by Gürçük that 49.4% of women have no idea about Pap smear test.[47] According to another study by Yükse1 et al., the level of knowledge of doctors and nurses of Pap smear test was found low.[48] Although our results on the knowledge level of the medical staff are higher than the results of Yükse1 et al.,'s, it is not at the desired level.

There are very different results about having Pap smear test in literature. The ratio of having Pap smear test taken is between 82.4% and 24.4% in the world, whereas it is between 59.2% and 7.8% in our country, which is lower than the other countries.[12,21,49,50] Only 27.8% of women in our study, which was very low, stated that they had Pap smear test taken. It was determined that 60.7% of doctors, 36.3% of teachers, and 28.9% of nurses had Pap smear test taken, and the rate of having the test taken was very low in other occupations. In the study by
Yüksel et al. on the medical staff, it was detected that 13.3% of doctors and 26% of nurses had Pap smear test. Pinar et al. stated in their study with nurses that 70% of nurses have never had Pap smear test taken before. In the studies in our country, the number of women who have Pap Smear test taken can be seen as quite low generally, including medical staff. These data obtained support our study and show that cervical screening program has not still reached to a large amount of the women.

Gynecological examination is an experience which is the first step of having Pap smear test taken, which constitutes the base of gynecological care, and which most of the women experienced. It was determined that 69.2% of women had gynecological examination in our study. The study results in our country showed that the rate of having gynecological examination is generally low in our country, although different results were obtained. It was found in our study that the ones who have gynecological examination the most are housewives, but the least gynecological examination rate belongs to nurses. This situation showed that nurses did not sufficiently benefit from screening tests, which is essential for early diagnosis of cervical cancer.

We found that only 1.3% of women in our study had HPV vaccination taken, and 51.5% of them are not aware of the vaccination. When the literature was analyzed, it was seen that the rate of having the vaccine is quite low or none. Among the reasons for low vaccination rate, ignorance, presence of drawbacks about HPV, and high expense of vaccination can be shown.

In our study, the point average women took from the ASEDCC is determined as 101.91 ± 10.77, and the attitude of women toward the early diagnosis of cervical cancer as positive. There are not so many studies about cervical cancer in our country and in the world conducted with ASEDCC, which was developed by Özmen. Akbaş et al. showed that ASEDCC total points of 649 women were 75.1 ± 11.0. Ulucak and Bekar also detected ASEDCC total points as 74.95 ± 7.28 in their study, which aimed to determine the attitudes of medical staff regarding early diagnosis of cervical cancer. The results obtained from our study showed that attitude scale point of women was higher than the others. This result might be a sign that women developed awareness toward cervical cancer. However, it can be seen that most of the women still do not have enough information on cervical cancer or they cannot transform their existing knowledge into behavior. It is possible to say that women have positive attitudes toward perceived sensitivity, perceived seriousness, perceived obstacle, and perceived benefit when the points taken from subdivisions of ASEDCC are interpreted. This situation may result from the high educational level (high school 19.8% and university 42.8%) of women who participated in our study.

When the average point of attitude scale toward the early diagnosis of cervical cancer is analyzed, it can be seen that police officers have the lowest attitude points (93.42 ± 16.50) and doctors have the highest ones (105.29 ± 11.65). Nurses were the second regarding attitude point. While no meaningful relationship was detected between the occupations which Ulucak and Bekar included in their studies and attitude point, a statistically meaningful relationship between the two variables was detected in our study. In Ulucak and Bekar’s study, a meaningful relationship was detected between educational status and ASEDCC attitude points.

CONCLUSION

As a result, it can be seen that women from different occupations, even the medical staff, do not benefit adequately from cervical screening program, in spite of the cervical screening program which has been conducted since 2012 in our country. The doctors and nurses working in all health centers, especially, health workers in family health centers and the media should take responsibility to create awareness and to reach all parts of the society about all efforts for prevention of cervical cancer.

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There are no conflicts of interest.

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