KNOWLEDGE AND AWARENESS OF FEMALE SEX WORKERS TOWARDS HUMAN PAPILLOMAVIRUS INFECTION IN TURKEY

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SUMMARY

Objective: The aim of this study was to determine the knowledge and awareness of female sex workers (FSWs) about human papillomavirus (HPV) infection in Turkey.

Methods: 239 brothel-based FSWs were recruited for an interview. A questionnaire was completed by face to face interview. The demographic features, the level of knowledge, and awareness about HPV infection of the participants were recorded.

Results: A total of 152 (63.6%) were over 30 years of age, and 210 (87.9%) completed primary education. 122 FSWs (50.9%) were using condom, and about one third had high frequency of sexual contacts. Knowledge scores were ≤4 in 181 (75.7%) FSWs. Low education and higher age group were not significant predictors of low knowledge scores. Low education was not an independent risk factor for awareness but higher age group participants were significantly less aware of risks associated with HPV infection ($p = 0.019$) although overall score was very poor (0.60 ± 0.68).

Conclusions: The knowledge and awareness about HPV infection and its possible consequences (cervical cancer) as well as the utility of screening methods among FSWs in Turkey are extremely poor. HPV-focused educational programmes for targeted populations, e.g. FSWs and young adults prior to their sexual activity, should be launched urgently to increase awareness of the risks associated with HPV infection and thus reducing the incidence of cervical cancer in Turkey in the future.

Key words: human papilloma virus, sex workers, knowledge

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INTRODUCTION

Cervical cancer, the second most common cancer in women in developing regions, is the 10th most common cancer in developed regions worldwide (1–3). Approximately 9,000 women develop cervical cancer and about 4,600 die from the disease each year in Southeast Europe (4). It ranks the ninth most common cancer among women in Turkey (5).

Cervical cancer is one of the most preventable cancers. Elucidation of the casual role of oncogenic HPV types in cervical cancer has led to rapid advances in HPV testing and vaccination to improve cervical cancer prevention (4). Genital HPV types have been subdivided into low-risk types, which are found mainly in genital warts, and high-risk types (HR–HPV), which are frequently associated with invasive cervical cancer (1). Based on HPV type-specific odds ratios and HPV prevalence among patients and controls, Munoz et al. identified 15 HPV types as high-risk types (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 68, 73, and 82) (1). Types 16 and 18 are the most dangerous ones and together account for over 70% of cervical cancer cases (2). The most common types were types 16, 45, 18, and 31 among Turkish females living in south-eastern region (6).

Sex workers represent the high risk group for all sexually transmitted diseases and especially HPV infection is significantly more prevalent among FSWs than control groups (7). HR–HPV types are high in FSWs than in women from the general population. Therefore, they comprise the priority group for active surveillance against HPV infection and cervical cancer (7–10).

A quadrivalent vaccine against HPV types 6, 11, 16 and 18 was approved by the United States (US) Food and Drug Administration (FDA) on June, 2006, and a bivalent vaccine against types 16 and 18 was approved by the European Commission in September, 2007 (11, 12). Previous studies demonstrated that the knowledge and awareness about HPV infection and its consequences, and about screening methods for cervical cancer and attitudes toward vaccination were generally low (13−15). Onan et al. from Turkey demonstrated also that women in general population required more information about both HPV infection and vaccine-related issues (16).

An effective preventive programme assumes widespread use of Pap smear and/or HPV DNA testing, use of barrier methods, increasing the public understanding about HPV, implementation of vaccination programmes for a naive population, and for females who are not yet sexually active, because the vaccines have the

potential to improve cervical cancer control through primary prevention (13, 17). Preventive programme should be supported by health promotion activities aimed at better understanding and awareness of the general public about the relation between HPV and cervical cancer (7).

This study was designed to measure the knowledge and awareness of FSWs about HPV infection and its possible consequences in Turkey. This study, the first of its kind in our country, aimed to clarify the necessity for well-designed, HPV-focused educational programmes in Turkey, and in developing countries.

MATERIALS AND METHODS

Study Population

Ethical approval was obtained from local Ethical Committee of our centre. A total of 239 FSWs were included in the study. After obtaining informed consent, each participant completed a questionnaire designed to collect information. The questionnaire was administered through a physician as the authors expected low education levels among the FSWs. The participants were ensured confidentiality.

The questionnaire consisted of questions on demographic characteristics, sexual activities, use of contraceptive methods, assessing knowledge, and awareness about HPV infection risks. The number of sexual contacts per year was calculated by multiplying self-reported working days in the last year by the number of self-reported clients per day, and classified in two groups as expression of median.

Twelve questions were designed to assess knowledge and to be answered "yes/no" or "no idea". Each correct answer was scored as 1, overall knowledge scores were classified to be very poor (0–3), poor (>3–6), moderate (>6–9) and high (>9–12).

Four questions were asked to collect information about awareness. The participants were requested to categorize themselves as "high", "moderate", "low", and "dont know" groups regarding risks of HPV infection, cervical cancer and of abnormal results of pap smear. They were scored from 1 to 4 (0–1 = very poor, >1–2 = poor, >2–3 = moderate, >3–4 = high) and the same method applied for the knowledge score. The results were expressed as mean ± standard deviation (SD).

Statistical Analysis

Statistical analysis was made using SPSS 15.0 software (Chicago, IL,USA). Evaluation of independent variables was determined by logistic regression analysis. The comparison of variables was analyzed by Pearson's χ^2 test. P-value of <0.05 was considered statistically significant.

RESULTS

The demographic and sexual characteristics of brothel-based FSWs included in the study are given in Table 1.

A total of 152 FSWs (63.6%) were over 30 years of age. Out of 239 women, 210 (87.9%) had completed primary education. The median number of sexual contacts per year was 768 (range, 576–1,440). More than half of FSWs (59.0%) had not used any barrier method. Approximately 62.0% smoked. As a barrier method, 122 (51%) reported use of condom.

The rate of correct answers concerning the knowledge was generally lower than 20.0%, as shown in Table 2. Almost 70.0% of the participants knew that condom is a barrier method, and smoking increases cervical cancer risk. A total of 159 (66.5%) FSWs had heard about sexually transmitted diseases in general, but considerably less (23.0%) heard of HPV infection.

The knowledge score about HPV infection, the consequences of HPV infection, prevention, and pap smear screening were poor (3.66 ± 1.34), and 75.7% of all FSWs had score of ≤4. The score did not differ significantly with regards to the education level of participants (p = 0.318). Logistic regression analysis revealed no significant predictability of low education regarding the knowledge of HPV infection risks, i.e. there were no statistically significant differences between women who had less than primary education versus those who had higher education (p = 0.99). The knowledge scores were not significantly different between FSWs aged ≤30 and more than 30 years of age (p = 0.427).

The ratio of answers to the questions that measure the awareness of participants about the risks of HPV infection, cervical cancer, and of abnormal pap smear results are shown in Table 3. The awareness score was very low, for a mean of 0.60 ± 0.68, and did not differ significantly between educational groups (p = 0.238). Logistic regression analysis did not reveal low education level to be significant predictor of a very poor awareness (p = 0.863). Although overall awareness score was low for all FSWs, the difference was statistically significant between age groups (p = 0.018).

Table 4 summarises frequencies of the scores, and statistical data of questionnaire according to age and education.

Table 1. *Demographic and sexual characteristics of FSWs*

Parameters	Number (% of total FSWs)
Age (years)	
≤30	87 (36.4)
>30	152 (63.6)
Education level	
Primary school	210 (87.9)
Secondary and/or high	29 (12.1)
Smoking	
Yes	148 (61.9)
No	91 (38.1)
Contraception methods	
Condom use	122 (51.0)
Oral contraceptive use	39 (16.3)
Intra uterine device (IUD) use	27 (11.3)
No contraception	142 (59.4)
Total number of sexual contacts per year (median)	
≤768	166 (69.5)
>768	73 (30.5)

Table 2. *Knowledge about HPV infection*

Questions (correct answers)	Number of correct answers (% of total)	Number of false or no idea (% of total)
Have you heard about HPV? (Yes)	55 (23.0)	184 (77.0)
Are hepatitis, syphilis, and AIDS sexually transmitted diseases? (Yes)	159 (66.5)	80 (33.5)
Is HPV a virus that may cause genital warts and cervical cancer? (Yes)	21 (8.8)	218 (91.2)
Can HPV infection be prevented? (Yes)	30 (12.6)	209 (87.4)
Does the risk of HPV infection increase with multiple factors? (Yes)	37 (15.5)	202 (84.5)
Does smoking increase the risk of cervical cancer? (Yes)	167 (69.9)	72 (30.1)
Is condom a barrier method? (Yes)	169 (70.7)	70 (29.3)
Is cervical cancer the most common preventable cancer in women? (Yes)	40 (16.7)	199 (83.3)
Is vaginal discharge a common sign of cervical cancer? (No)	47 (19.7)	192 (80.3)
Should pap smear be done in the absence of any complaint? (Yes)	83 (34.7)	156 (65.3)
Does abnormal pap smear indicate cervical cancer? (No)	44 (18.4)	195 (81.6)
Is a vaccine present for prevention of HPV? (Yes)	46 (19.2)	193 (80.8)

Table 3. *Awareness about HPV infection and cervical cancer*

Questions (correct answers)	No. of "high" (%)	No. of "moderate" (%)	No. of "low" (%)	No. of "do not know" (%)
What is your risk of HPV infection ? (High)	31 (13.0)	24 (10.0)	26 (10.9)	158 (66.1)
What is your risk of cervical cancer? (High)	50 (20.9)	35 (14.6)	36 (15.1)	118 (49.4)
What is your risk of abnormal pap smear result? (High)	31 (13.0)	21 (8.8)	35 (14.6)	152 (63.6)
What is the causative risk between HPV and cervical cancer? (High)	31 (13.0)	19 (7.9)	17 (7.1)	172 (72.0)

Table 4. *Frequencies and statistics of scores according to age and education levels*

	Freq. of the awareness scores		p-value	Freq. of the knowledge scores		p-value
	0–6	>6		0–2	>2	
	no. (%)	no. (%)		no. (%)	no. (%)	
Education						
Primary school	203 (96.6%)	7 (2.9%)	0.318	186 (77.8%)	24 (10.0%)	0.863
Over	29 (12.1%)	0 (0.0%)		26 (10.8%)	3 (1.2%)	
Age						
≤30 years age	86 (35.9%)	1 (0.4%)	0.427	83 (34.7%)	4 (1.6%)	0.018
>30 years age	146 (61.0%)	6 (2.5%)		129 (53.9%)	23 (9.6%)	

DISCUSSION

The results presented in this study provide a first insight into FSWs' knowledge and awareness about HPV infection and its consequences in Turkey. No data about this issue has been published in our country so far, and this kind of study has also been rarely published. By the way of increasing FSWs' knowledge about HPV infection and its consequences, the incidence rate of cervical cancer could be reduced in the future.

HPV infection is one of the most common sexually transmitted infections and high-risk types of HPV are a necessary cause of cervical cancer (1, 4, 15, 18). Approximately 500,000 women develop cervical cancer each year worldwide (3). Over 80% of cervical cancer cases and deaths can be prevented by effective, organized screening programmes (4). The prevalence of HPV infection among women in the general population in Turkey varies according to geographical region, from 2% to 20% (5, 6). It is a major issue in our population as the incidence of cervical cancer reported by the Ministry of Health increased from 0.7/100,000 in 1996 to 3.9/100,000 in 2007 (16).

FSWs represent a group at the highest risk for HPV infection, and the increased risk has been attributed to a high number of

sexual contacts, unsafe sex behaviour, smoking, and low socio-economic status (10, 13, 19). In our country, the prevalence of HPV infection among FSWs in the region, where the prevalence in women in the general population is relatively low (2%), has been found to be 20% (unpublished data). The study conducted among women of the general population in Turkey revealed that the rate of knowledge about HPV infection and awareness about the existence of HPV vaccine was 24% (16). In this study we found that majority of participants were not aware of the risk of HPV infection and its consequencies. Although about 70% of FSWs correctly answered the question about the relation between smoking and cancer, this was not beyond the level of general public information. In our study, the rate of participants with primary school education level was quite high (88% of all FSWs) and the rate of those who never heard of HPV was also remarkable (77%). In the study from Thailand, the rate of low educated participants was similarly high (55%), and low education was an independent predictor of very low knowledge scores (7). On the other hand, in the study reported from Peruvian FSWs, the rate of participants that completed secondary and superior education was 94% of which 96% had heard of HPV (13). It was surprising that our analysis indicated that there was no association between the knowledge scores and the education level. This anomaly may be related to the lack of education on sexual health and related issues at school in our country, and to the lack of information provided through the different types of electronic media, particularly on TV. It is also noteworthy that special education techniques are required to transfer essential information to FSWs with low literacy skills.

A high level of disease awareness is a key indicator of the success of any programme (20, 21). Consequently, low level of awareness can impede any preventive measures to be taken, such as screening and vaccination. Therefore, effective interventions like launching targeted national informative campaigns and updating the knowledge of both primary healthcare workers and target populations on HPV infection and its consequences will promote awareness.

In conclusion, we suggest that FSWs' knowledge and awareness about HPV infection in Turkey require urgent intervention. It is important that women and men understand the implications of HPV infection. Strategies for reduction of HPV infection rate in targeted populations need to be developed. All sexually active women should be encouraged to have regular cervical cytology. Health professionals, schools and the media should collectively distribute information about the prevention of HPV infection and cervical cancer. Efforts should be made to design HPV-targeted educational programmes for all levels of the community.

Conflict of interests

None declared

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