

Awareness and Practice of Female Beauty Salon Staff about Human Papilloma Virus and Its Transmission in Pubic Hair Removal Using Wax in Shiraz, Southwest of Iran

Abstract

Background: The most common sexually transmitted infection is infection by human papilloma virus (HPV). Although the main transmission route of HPV is through sexual intercourse, the contact of the skin with the genital area skin is another known method for transmission. This study aims to examine the awareness and practice of female beauty salon staff about HPV and its transmission in pubic hair removal using wax. **Materials and Methods:** This cross-sectional study was conducted on 200 female beauty salon staff who do bikini waxing in Shiraz, Iran. Demographic information, awareness, and practice of them were gathered using the researcher-constructed questionnaire. The statistical analysis was performed using the SPSS software version 18. **Results:** Mean awareness and practice scores of beauty salon staff about HPV and its transmission in bikini waxing were 26.6 ± 12.8 and 5.5 ± 0.8 , respectively, and in average range. The results showed that there was a significant relationship between practice and education ($P = 0.04$), but the relationship between the awareness and education was not seen ($P = 0.72$). There was no statistically significant relationship between age and work experience with awareness and practice of staff ($P > 0.05$). **Conclusion:** The awareness and practice of beauty salon staff about HPV and its transmission in bikini waxing are moderate. Therefore, it seems that the implementation of continuous educational program by the Union of women's beauty salons is necessary to increase and improve the awareness and practice of female beauty salon staff.

Keywords: Awareness, epilation, hair removal, human papilloma virus, practice

Introduction

Cervical cancer is the fourth-most common cancer of women throughout the world and one of the leading causes of early death in women of reproductive age. Annually, about 569,847 new cases of cervical cancer and 311,365 deaths caused by it occur throughout the world.^[1] Human papilloma virus (HPV) is one of the major causes of cervical cancer. Based on HPV Information Center, 917 women in Iran are diagnosed with cervical cancer each year, and nearly half of them die due to the disease. Cervical cancer is the 16th common cancer among women in Iran and 10th common cancer in reproductive age. Nearly 3% of women are infected by HPV-16/18. This is important because half of invasive cervical cancer is related to HPVs 16 or 18.^[2]

There is little information about the prevalence of HPV in Iran. In this regard, a study was conducted from 2010 to

2012 in Iran that identified 19 different types of HPV in 265 cases (31.1%) from 581 patients. The highest infection caused by HPV was seen in 18–25 years' old women. The prevalence of HPV types 16 and 18 was 7.3% and 2.8%, respectively.^[3]

Although the main transmission route of HPV is sexual intercourse, the contact with the skin of genital area is another common way to transmit HPV.^[4] Pubic hair removal using wax and shared equipment in this method can increase the risk of transmission of HPV to the clients of beauty salons. On the other hand, pubic hair removal can lead to small scratches in the skin and exposes the individual to the risk of transmission of certain types of sexually transmitted diseases by skin contact, including HPV.^[5]

Recent studies have shown that more than 70% of adolescent girls remove the hair of

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Zare A, Janghorban R. Awareness and practice of female beauty salon staff about human papilloma virus and its transmission in pubic hair removal using wax in Shiraz, Southwest of Iran. *Adv Biomed Res* 2020;9:24.

Received: 11 January 2019
Revised: 03 July 2020
Accepted: 18 April 2020
Published: 27 June 2020

Atefeh Zare,
Roksana
Janghorban¹

From the Department of Midwifery, School of Nursing and Midwifery, Shiraz University of Medical Sciences, ¹Department of Midwifery, School of Nursing and Midwifery, Community-Based Psychiatric Care Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

Address for correspondence:
Dr. Roksana Janghorban,
Department of Midwifery,
School of Nursing and
Midwifery, Community-Based
Psychiatric Care Research
Center, Shiraz University of
Medical Sciences, Shiraz, Iran.
E-mail: janghorban@sums.ac.ir

Access this article online

Website: www.advbiores.net

DOI: 10.4103/abr.abr_241_19

Quick Response Code:



pubis by shaving or using wax.^[6] The results of a national study on 7580 American woman showed that more than 84% of women use pubic hair grooming and this method is related to the HPV (genital warts) and herpes simplex virus (genital herpes).^[5] In addition, a review article on possible nonsexual modes of transmission of HPV showed that finger-genital contact could transmit the genital HPV types.^[7]

There are various case studies about the risks of some diseases by pubic hair removal waxing, such as risk of herpes simplex, streptococcus pyogenes, sudden outbreak of methicillin-resistant staphylococcus aureus, and HPV-related wart epidermis dysplasia.^[8-10]

The lack of information about contagious HPV is not only an important health problem in developing countries but also it is a concern for health policy-makers in the developed countries. Various studies have shown that even among women with university degrees and young women, health-care providers and students, the information about HPV and its transmission is not enough.^[11-14]

Despite the considerable advancement in research about HPV, most people are not aware of this virus.^[11] Most researchers and experts have raised concerns about the low awareness of people about HPV, and consequently, cervical cancer. This lack of information will lead to the expansion of the infection in the society.^[15]

Regarding the low awareness about this virus and its transmission in the population, the significant percentage of partial or full pubic hair removal waxing and problems caused by it, including the transmission of HPV, and the importance of observing health regulations by female beauty salon staff, we tried to measure the awareness and practice of them about the HPV and its transmission in pubic hair removal waxing.

Materials and Methods

This cross-sectional study was conducted from June to September 2018 on 200 female beauty salon staff who does pubic hair removal using wax in female beauty salons in Shiraz. The research project was approved by the Ethics Committee of Shiraz University of Medical Sciences (IR.SUMS.REC.1397.218). From 1473 registered beauty salons in the Website of the Union of Beauty Salons in Shiraz, the number of beauty salons in 11 districts of Shiraz was determined, and then, 200 beauty salons were randomly selected using the classification method from the districts. After referring to the beauty salons, explaining the purpose of the study and obtaining the written informed consent of participants, first, we gathered demographic data of them such as age, marriage status, educational level, work experience, and then, they completed researcher-constructed questionnaire for the assessment of their awareness and practice about HPV and its transmission during pubic hair removal waxing. The validity and reliability of awareness

questionnaire were measured based on the study of Nekooi *et al.* and questions that researchers raised based on the activity of samples in this study.^[16] The validity and reliability of this questionnaire were determined based on the related methods. First, questionnaire was given to ten faculty members of midwifery and reproductive health specialists to determine its validity. Then, researchers determined the validity of the questionnaire according to the expert opinions. Content validity coefficient and content validity index were calculated. Reliability was 0.88 using Cronbach alpha test.

The awareness of beauty salon staff about HPV and its transmission was measured by 35 questions. Their information was divided into four classes of “desired,” “moderate,” “poor,” and “very poor”. The evaluation of the scores was done as “yes,” “no,” and “I don’t know” such that the score of “yes” was 1 and the scores of “no” and “I don’t know” were zero. The total score of awareness ranged between 0 and 35. The scores of 27–35 showed “desired,” 18–26 was “moderate,” 9–17 showed “poor,” and 0–8 was “very poor” awareness.

The practice of beauty salon staff was evaluated in ten questions. Total score was classified as following according to Ataee *et al.*’s study: very desired (9–10), desired (7–8), moderate (5–6), undesired (3–4), and very undesired (0–2).^[17]

Data analysis was performed using SPSS 18 software (Chicago: SPSS Inc. IBM Corp.) using descriptive statistics (percentage and mean) and analytical tests including independent *t*-test, ANOVA, and Chi-square in 5% significance level.

Results

This study was conducted on 200 beauty salon staff in Shiraz. The mean age of participants was 32.9 ± 6.8 , and mean work experience was 8.9 ± 5.6 years. About 57.5% of participants had diploma and only 20.5% of them had bachelor degree. 32% and 68% were single and married, respectively. Mean number of their customers in a month was 79.8 ± 69.1 , and mean number of customers for pubic hair removal was 33.9 ± 10.8 . Disinfection equipment was present in 96% of beauty salons. Thirty-four participants (17%) observed genital wart in the genital area of the customers during their work.

Mean awareness score of beauty salon staff about HPV and its transmission was 26.6 ± 12.8 which was moderate. Mean score of their practice about HPV transmission during pubic hair removal waxing was 5.5 ± 0.8 that was moderate. The classification of awareness and practice of samples are presented in Table 1.

According to Table 2, 93.5% of beauty salon staff had suitable awareness about the “transmission of HPV through vaginal intercourse.” The next item was “transmission of

Table 1: Classification of awareness and practice of female beauty salon staff about human papilloma virus and its transmission in pubic hair removal waxing

Variable	Score	n (%)
Awareness	Very poor (0-8)	0 (0)
	Poor (9-17)	59 (29.5)
	Moderate (18-26)	101 (50.6)
	Desired (27-35)	40 (19.9)
Practice	Very undesired (0-2)	0 (0)
	Undesired (3-4)	17 (8.3)
	Moderate (5-6)	172 (86.1)
	Desired (7-8)	11 (5.6)
	Very desired (9-10)	0 (0)

HPV by extramarital sex and multiple sex partners” that 93% were aware of. “Awareness about the genital wart and transmission of virus though using shared spatula” was another item that 85% were aware of.

According to Table 3, 99.5% of beauty salon staff changed blanket for each customer and 99% of them washed their hands before and after pubic hair removal waxing.

As shown in Table 4, there is no significant relationship between age and awareness, age and practice, work experience and awareness, work experience and practice ($P > 0.05$). There was also not a statistically significant difference between marital status and awareness and

Table 2: Awareness of beauty salon staff about human papilloma virus and its transmission in pubic hair removal waxing

Questions	Yes, n (%)	No, n (%)	I don't know, n (%)
1. Have you seen genital warts in the genital area of your customers during your work?	34 (17)	165 (82.5)	1 (0.5)
2. Have you heard anything about genital wart?	185 (82.5)	15 (7.5)	0
3. Do you know the virus that causes genital wart?	42 (21)	158 (79)	0
4. Does the virus that causes wart on the hand also cause genital wart?	41 (20.5)	94 (47)	65 (32.5)
5. Can HPV be transmitted through using shared dish?	101 (50.5)	63 (31.5)	36 (18)
6. Can HPV be transmitted through kissing?	23 (11.5)	118 (59)	59 (29.5)
7. Can HPV be transmitted through sneezing and coughing?	16 (8)	135 (67.5)	49 (24.5)
8. Can HPV be transmitted through contact with body fluids or blood?	138 (69)	8 (4)	54 (27)
9. Can HPV be transmitted through sitting toilet?	128 (64)	20 (10)	52 (26)
10. Can HPV be transmitted through vaginal sex?	187 (93.5)	13 (6.5)	0
11. Can HPV be transmitted through oral sex?	129 (64.5)	19 (9.5)	52 (26)
12. Can HPV be transmitted through anal sex?	159 (79.5)	4 (2)	37 (18.5)
13. Can HPV be transmitted through the contact between skin and the genital area?	123 (61.5)	32 (16)	45 (22.5)
14. Can HPV be transmitted through using shared razor for pubic hair removal?	165 (82.5)	4 (2)	31 (15.5)
15. Can HPV be transmitted by using shared spatula for warming wax and transferring it onto the skin in pubic hair removal waxing?	173 (86.5)	4 (2)	23 (11.5)
16. Can HPV be transmitted though using a shared container for warming wax in pubic hair removal waxing?	159 (79.5)	16 (8)	25 (12.5)
17. Can HPV be transmitted through using shared gloves for customers in pubic hair removal waxing?	168 (84)	8 (4)	24 (12)
18. Can HPV be transmitted to customers through not washing hands before and after pubic hair removal waxing?	159 (79.5)	12 (6)	29 (14.5)
19. Does extramarital sex increase the risk of having HPV?	186 (93)	1 (0.5)	13 (6.5)
20. Does having multiple sex partners increase the risk of HPV?	186 (93)	1 (0.5)	13 (6.5)
21. Does smoking increase the risk of genital wart?	16 (8)	88 (44)	96 (48)
22. Can HPV have no symptoms?	85 (42.5)	40 (20)	75 (37.5)
23. Can a person carry HPV for several years without being informed of it?	103 (56.5)	33 (16.5)	64 (32)
24. Does HPV lead to cervical cancer?	131 (65.5)	9 (4.5)	60 (30)
25. Does HPV cause gastric cancer?	10 (5)	84 (42)	106 (53)
26. Does HPV cause anal cancer?	75 (37.5)	34 (17)	91 (45.5)
27. Does HPV cause pharynx and larynx cancer?	23 (11.5)	75 (37.5)	102 (51)
28. Does HPV cause penile cancer?	63 (31.5)	56 (28)	81 (40.5)
29. Does HPV make the person susceptible to HIV?	50 (25)	79 (35.5)	71 (35.5)
30. Is there any vaccine for HPV?	84 (42)	32 (16)	84 (42)
31. Can using a condom prevent the risk of HPV completely?	62 (31)	99 (49.5)	39 (19.5)
32. Is HPV diagnosed with Pap-smear test?	89 (44.5)	18 (9)	93 (46.5)
33. Is HPV curable?	126 (63)	20 (10)	54 (27)
34. Can HPV be cured without treatment?	2 (1)	157 (78.5)	41 (20.5)
35. Can genital warts be cured with antibiotic?	28 (14)	79 (79.5)	93 (46.5)

HPV: Human papilloma virus

Table 3: Practice of beauty salon staff about human papilloma virus transmission in pubic hair removal waxing

Questions	Yes, n (%)	No, n (%)
1. Do you wash your hands before and after pubic hair removal waxing?	198 (99)	2 (1)
2. Do you use gloves for pubic hair removal waxing?	179 (89.5)	21 (10.5)
3. Do you use latex gloves for pubic hair removal waxing?	20 (10)	180 (90)
4. Do you use a new blanket for each customer before pubic hair removal waxing?	199 (99.5)	1 (0.5)
5. Do you use the same container for warming the wax for customers?	32 (16)	168 (84)
6. Do you use warm wax with disposable spatula on the skin of customers?	40 (20)	160 (80)
7. Do you use remained wax for the next customer?	3 (1.5)	197 (98.5)
8. Do you dispose of the remained wax used for a customer?	185 (92.5)	15 (7.5)
9. Do you use the same container for warming the wax for the next customer after pubic hair removal waxing?	48 (24)	152 (76)
10. Do you perform pubic hair removal waxing for customer with genital wart?	22 (11)	178 (89)

Table 4: The relationship between demographic characteristics of beauty salon staff and their awareness and practice about human papilloma virus and its transmission in pubis hair removal waxing

Variables	Mean±SD	Awareness	Practice
Age	32.9±6.8	r=0.004* P=0.095	r=0.015* P=0.84
Work experience	8.9±5.6	r=0.1* P=0.15	r=0.01* P=0.88
Education, n (%)			
Under diploma	19 (9.5)	P=0.72	P=0.04**
Diploma	115 (57.5)		
Associate degree	25 (12.5)		
Bachelor degree	41 (20.5)		
Marital status, n (%)			
Single	64 (32)	P=0.78	P=0.76***
Married	136 (68)		

*Pearson correlation coefficient, **ANOVA, ***Independent t. SD: Standard deviation

practice ($P > 0.05$). There was a significant relationship between practice and education and based on Tukey test, this difference was caused by the difference between the practice of those with under diploma and diploma degrees. This means that those with higher education had better practice, but there was no significant difference between awareness and education ($P > 0.05$).

One hundred and four participants (52%) received their information through their friends and 96 subjects (48%) from the Internet. The data indicated that there was no significant relationship between the information source, awareness, and practice score ($P > 0.05$).

Discussion

In this study that was conducted to examine the awareness and practice of beauty salon staff about HPV and its transmission in pubic hair removal waxing, the awareness score of them was moderate. Al-Rabeei *et al.* showed that the awareness of Yemeni beauty salon staff about the transmission of disease through the practice of them such as Hepatitis B and C was moderate. Only half of them

knew that hepatitis can be transferred sexually.^[18] The awareness of hepatitis and its transmission in Pakistani beauty salon staff in the study of Jokhio *et al.* and Ghanaian beauty salon staff in Mutocheluh *et al.*'s study were poor. Therefore, only 36.6% and 7% of them knew that this disease can be transmitted through hair-cutting equipment, respectively.^[19,20] It seems that the reason for the lack of information is the lack of a comprehensive educational program related to the transmission methods of these diseases for beauty salon staff.

However, Ataei *et al.* showed that the 65% awareness of Iranian barbers about the transmission of hepatitis C, B, and AIDS is desired.^[17] It seems that this difference in the result of awareness between barbers in this study and the previous studies is caused by the information of the subjects about AIDS is generally more than of HPV and hepatitis. Because AIDS is more serious and stigmatized than HPV and hepatitis by the general population, and their knowledge about its transmission is more. Consistent with this study, Amodio *et al.*'s study in Italy showed that the awareness of barbers about HIV, hepatitis, and their transmission risk is good.^[21]

Nearly 99.5% of the beauty salon staff used a new blanket for each customer and 99% of them washed their hands before and after pubic hair removal waxing. In Al-Rabeei *et al.*'s study about the practice of barbers regarding the transmission of hepatitis B and C, only 32% of them washed their hands before work.^[18] This difference is observed because the practice of beauty salon staff in the current study was focused on pubic hair removal, but in Al-Rabeei's study, the practice of barbers in terms of hair cutting was considered. The mean score of practice in 86.1% and 5.6% of beauty salon staff was moderate and desired, respectively, about HPV transmission in pubis hair removal waxing. In Ataei *et al.*'s study, the practice of 56.26 and 30.41 Iranian hairdressers in men's beauty salons was moderate and desired, respectively, about the transmission of hepatitis B, C, and AIDS.^[17] It seems that this difference between desired function in both studies is due to the assessment of the practice of barbers regarding the transmission of hepatitis B and C along with AIDS in

Ataee's study. It seems that high sensitivity about AIDS transmission has led to higher desired practice of barbers.

The results of this study showed that there is no significant relationship between the awareness and education. Various studies about the awareness of general population or educated people in different societies showed the lack of relationship between education with the awareness of people about HPV and its transmission.^[13,14,22-24] For example, in Mojahed *et al.*'s study, the awareness of nurses about HPV was relatively low.^[24] In Khan *et al.*'s study, the awareness of students in Lahore city in Pakistan was poor.^[13] It can be due to insufficient educational programs about the HPV for different groups of the society. The results of this study are not consistent with the results of Ataee *et al.* In Ataee's study, there was a significant relationship between the awareness of barbers about hepatitis B and C and AIDS and education.^[17] It seems that this difference is caused by better knowledge of hepatitis and its transmission ways compared to HPV for barbers with higher education.

There was a significant relationship between practice and education of beauty salon staff in this study. This means that staff with higher education had higher practice that was consistent with Ataee *et al.*'s study.^[17] It seems that beauty salon staff with higher education observed hygiene more in the services provided for their customers.

In this study, 17% of participants have observed the genital warts in customers and mean work experience of them was about 9 years. If we consider 25 years work experience as the minimum number of years for beauty salon staff retirement in Iran, and regarding their role in the prevention of HPV transmission and increase in HPV-infected customers, it is necessary to provide training for these staff to become familiarized with HPV and its transmission ways. It seems that the training could prevent HPV transmission to customers during pubic hair removal. The previous studies have shown that training has an important role in increasing the awareness of people about HPV.^[25-27]

In this study, 52% of participants received their information through their friends and 48% from Internet. Adoba *et al.*'s study showed that the radio was the major source of information among Ghanaian barbers on HBV and HCV infections^[28]. It seems that this difference is caused by the taboo around HPV in Iranian society compared with HBV and HCV and very limited medical educational programs in Iranian broadcasting about HPV.

Conclusion

The awareness and practice of beauty salon staff about HPV and its transmission in pubic hair removal waxing were moderate. Therefore, it seems that implementation programs by the Union of Beauty Salons are necessary to increase the awareness and improve the practice of these staff.

According to what we know, this is the first study about the awareness and practice of beauty salon staff toward HPV and its transmission in pubic hair removal waxing. Limitation of the study was using self-reported checklist for the assessment of the practice of beauty salon staff because it was not possible to observe the practice of them during pubic hair removal. This can provide some biases about the correctness of their answers due to the fear of financial punishment for not observing hygiene regulation in spite of giving researcher assurance.

Acknowledgment

Authors acknowledge the financial support of Shiraz University of Medical Sciences. The authors would also like to thank all female beauty salon staff who gave consent that led to their participation in this study.

Declaration of patient consent

The authors certify that they have obtained all appropriate participant consent forms. In the form, the participants have given their consent for their demographic information to be reported in the journal. The participants understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

This paper has been extracted from a research project was funded by the Vice Chancellor for Research, Shiraz University of Medical Sciences, Shiraz, Iran (grant No. 16550).

Conflicts of interest

There are no conflicts of interest.

References

1. Cervixuteri cancer. International Agency for Research on Cancer. Globocan; 2019. Available from: <http://gco.iarc.fr/today/data/factsheets/cancers/23-Cervix-uteri-fact-sheet.pdf>. [Accessed 2 Jan. 2019].
2. Human Papillomavirus and Related Diseases Report, Iran, Fact Sheet 2018. HPV Information Center; 2019. Available from: https://hpvcentre.net/statistics/reports/IRN_FS.pdf?t=1565079604487. [Accessed 5 Jan. 2019].
3. Shafaghi B, Jarollahi A, Yousefzadeh B, Ameri A, Moghadam S, Mostafavi M. Human papilloma virus prevalence and types among Iranian women attending regular gynecological visits. *Rep Radiother Oncol* 2013;1:73-9.
4. Human papillomavirus (HPV) and cervical cancer. World Health Organization; 2019. Available from: [https://www.who.int/en/news-room/fact-sheets/detail/human-papillomavirus-\(hpv\)-and-cervical-cancer](https://www.who.int/en/news-room/fact-sheets/detail/human-papillomavirus-(hpv)-and-cervical-cancer). [Accessed 5 Apr. 2019].
5. Osterberg EC, Gaither TW, Awad MA, Truesdale MD, Allen I, Sutcliffe S, *et al.* Correlation between pubic hair grooming and STIs: Results from a nationally representative probability sample. *Sex Transm Infect* 2017;93:162-6.
6. Bercaw-Pratt JL, Santos XM, Sanchez J, Ayensu-Coker L, Nebgen DR, Dietrich JE. The incidence, attitudes and practices

- of the removal of pubic hair as a body modification. *J Pediatr Adolesc Gynecol* 2012;25:12-4.
7. Sabeena S, Bhat P, Kamath V, Arunkumar G. Possible non-sexual modes of transmission of human papilloma virus. *J Obstet Gynaecol Res* 2017;43:429-35.
 8. Baxi LV, Dziadosz M. Complications following "Brazilian" waxing for pubic hair removal. *Am J Obstet Gynecol* 2014;211:713-4.
 9. Begier EM, Frenette K, Barrett NL, Mshar P, Petit S, Boxrud DJ, *et al.* A high-morbidity outbreak of methicillin-resistant *Staphylococcus aureus* among players on a college football team, facilitated by cosmetic body shaving and turf burns. *Clin Infect Dis* 2004;39:1446-53.
 10. Kirchhof MG, Au S. Brazilian waxing and human papillomavirus: A case of acquired epidermodysplasia verruciformis. *CMAJ* 2015;187:126-8.
 11. Waller J, McCaffery K, Forrest S, Szarewski A, Cadman L, Wardle J. Awareness of human papillomavirus among women attending a well woman clinic. *Sex Transm Infect* 2003;79:320-2.
 12. Marlow LA, Zimet GD, McCaffery KJ, Ostini R, Waller J. Knowledge of human papillomavirus (HPV) and HPV vaccination: An international comparison. *Vaccine* 2013;31:763-9.
 13. Khan TM, Buksh MA, Rehman IU, Saleem A. Knowledge, attitudes, and perception towards human papillomavirus among university students in Pakistan. *Papillomavirus Res* 2016;2:122-7.
 14. Bowyer HL, Marlow LA, Hibbitts S, Pollock KG, Waller J. Knowledge and awareness of HPV and the HPV vaccine among young women in the first routinely vaccinated cohort in England. *Vaccine* 2013;31:1051-6.
 15. Cunningham SD, Kerrigan D, Pillay KB, Ellen JM. Understanding the role of perceived severity in STD-related care-seeking delays. *J Adolesc Health* 2005;37:69-74.
 16. Nekooi MS, Ayazi S, Gandomi M, Moosavi SG, Fakhri A. Level of Knowledge about Human Papillomavirus Infection among Women of Kashan City, Iran. *Int Arch Health Sci* 2016;3:7-12.
 17. Ataei B, Shirani K. Evaluation of knowledge and practice of hairdressers in men's beauty salons in Isfahan about hepatitis B, hepatitis C, and AIDS in 2010 and 2011. *Adv Biomed Res* 2012;1:75.
 18. Al-Rabeei NA, Al-Thaifani AA, Dallak AM. Knowledge, attitudes and practices of barbers regarding hepatitis B and C viral infection in Sana'a city, Yemen. *J Community Health* 2012;37:935-9.
 19. Jokhio AH, Bhatti TA, Memon S. Knowledge, attitudes and practices of barbers about hepatitis B and C transmission in Hyderabad, Pakistan. *East Mediterr Health J* 2010;16:1079-84.
 20. Mutocheluh M, Kwarteng K. Knowledge and occupational hazards of barbers in the transmission of hepatitis B and C was low in Kumasi, Ghana. *Pan Afr Med J* 2015;20:260.
 21. Amodio E, Di Benedetto MA, Gennaro L, Maida CM, Romano N. Knowledge, attitudes and risk of HIV, HBV and HCV infections in hairdressers of Palermo city (South Italy). *Eur J Public Health* 2010;20:433-7.
 22. Farzaneh F, Shirvani HE, Barouti E, Salehpour S, Khodakarami N, Alizadeh K. Knowledge and attitude of women regarding the human papillomavirus (HPV) infection, its relationship to cervical cancer and prevention methods. *Med J Malaysia* 2011;66:468-73.
 23. Malakouti J, Mirghafourvand M, Gorbani M, Salehi-Poormehr H, Jafari shabiri M, Pourasad Shahrak S. Knowledge of human papillomavirus and its incidence among women referring to Al-Zahra and Taleghani Hospitals in Tabriz-Iran, 2014-2015. *Int J Women's Health Reprod Sci* 2017;5:143-6.
 24. Mojahed S, Karimi Zarchi M, Bokaie M, Salimi T. Attitude and knowledge of Iranian female nurses about human papilomavirus infection and cervical cancer: A cross sectional survey. *J Prev Med Hyg* 2013;54:187-90.
 25. Marlow LA, Waller J, Wardle J. Public awareness that HPV is a risk factor for cervical cancer. *Br J Cancer* 2007;97:691-4.
 26. Marshall H, Ryan P, Robertson D, Baghurst P. A cross-sectional survey to assess community attitudes to introduction of Human papillomavirus vaccine. *Aust N Z J Public Health* 2007;31:235-42.
 27. Tiro JA, Meissner HI., Kobrin S, Chollette V. What do women in the US know about human papillomavirus and cervical cancer? *Cancer Epidemiol Biomarkers Prev* 2007;16:288-94.
 28. Adoba P, Boadu SK, Agbodzakey H, Somuah D, Ephraim RK, Odame EA. High prevalence of hepatitis B and poor knowledge on hepatitis B and C viral infections among barbers: A cross-sectional study of the Obuasi municipality, Ghana. *BMC Public Health* 2015;15:1041.