



## Knowledge and Attitude of Midwifery Students toward Human Papilloma Virus Infection and Cervical Cancer at Ahvaz Jundishapur University of Medical Sciences, Iran

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### Abstract

**Background:** Human papillomavirus (HPV) is one of the most important causes of cervical cancer. It is essential to evaluate the knowledge and attitude of people about HPV infection in the community, especially among midwifery students who will act as health professionals in the society. This study aimed to determine the knowledge and attitude of midwifery students toward HPV infection and cervical cancer.

**Methods:** This cross-sectional study was done on midwifery students at Jundishapur University of Medical Sciences in Ahvaz (Iran) in 2019. 141 midwifery students were recruited through census. The knowledge and attitude of 112 eligible midwifery students toward HPV infection were assessed using a self-administered questionnaire. The validity and reliability of the questionnaire were confirmed. Data were analyzed in SPSS16 using the chi-square test and the Pearson's correlation coefficient at statistical significance of 0.05.

**Results:** Mean age of midwifery students was 21.6±2.4 years. Of 112 students, only 38 (33%) had desirable knowledge about HPV infection. The majority of students (77.7%) had a positive attitude towards HPV infection. The knowledge and attitude of midwifery students in different academic years did not differ significantly ( $P>0.05$ ).

**Conclusion:** There is insufficient knowledge about HPV infection and cervical cancer prevention among midwifery students at the Jundishapur University of Medical Sciences in Ahvaz. Therefore, it is recommended to incorporate HPV-related educational programs in order to increase students' awareness.

### Highlights:

#### What is current knowledge?

Studies have shown that the level of knowledge and attitude about HPV and cervical cancer among Iranian students has been poor. According to the existing literature, no study has examined the level of knowledge and attitude about HPV and cervical cancer among Midwifery students in Khuzestan province.

#### What is new here?

This study shows that the knowledge of most midwifery students at the Ahvaz Jundishapur University of Medical Sciences about HPV infection and cervical cancer is poor.

### Introduction

Human papillomavirus (HPV) infection is the most prevalent sexually transmitted infection in men and women. Although HPV infection is often asymptomatic and self-limiting, persistent infection with some HPV types may cause pre-cancerous lesions, especially in women, which can lead to cervical cancer if left untreated. The HPV types 16 and 18 are responsible for about 70% of all cervical cancer (1-3).

Evidence suggests that 30-60% of all sexually active adults acquire HPV during their reproductive lives. The World Health Organization (WHO) has reported an average incidence rate of 11.7% (1.6-41.9%) for HPV in women worldwide. However, this rate varies in different parts of the world from 14% in Southeast Asia to 24% in Africa (4). In Iran, incidence rate of 7.8-10.3% has been reported for HPV infection, which is below the average global rate (5, 6).

Infection with HPV is responsible for almost 5% of all cancers worldwide (7). Cervical cancer is the third most common cancer among women, with an estimated 569,847 new cases and 311,365 deaths in 2018. This type of cancer is more prevalent in developing countries (8, 9). According to the WHO estimations, cervical cancer will be responsible for the death of more than

474,000 women by year 2030, 95% of which will occur in low- and middle-income countries. Such high mortality rates in developing countries are due to the lack of awareness among individuals, especially women, on consequences of HPV infection and its prevention methods as well as lack of effective screening programs (10).

According to research, young people in different societies have different awareness levels about HPV infection (11). Only a limited number of studies have been carried out on the awareness and attitude of Iranian women about HPV infection. In a previous study, more than half of medical students in an Iranian university had poor knowledge and attitude toward HPV infection (12). Another study in the Alborz Province reported poor awareness about HPV among over two-thirds of female students (66.8%) in a nursing midwifery school (13). An investigation on Turkish midwifery students reported that only 33.7% of students had good awareness about HPV (14). Studies on female students in Spain (15) and India (16) indicated that 89.9% and 94.3% of students had a good level of awareness about HPV, respectively.

Despite the high prevalence of HPV infection and importance of its consequences, studies show negligible awareness of the community, especially educated people, about this health problem. Since midwifery students will be in contact with many people in future, it is essential to evaluate their knowledge and attitude towards HPV infection. Raising awareness of these students could help prevent incidence of HPV infection, especially in pregnant women. The aim of this study was to determine knowledge and attitude of midwifery students in Ahvaz Jundishapur University of Medical Sciences toward HPV infection and cervical cancer.

**Methods**

This cross-sectional study was conducted in August 2019 on midwifery students at Ahvaz Jundishapur University of Medical Sciences in the city of Ahvaz, southwestern Iran. Inclusion criteria were studying at the university and willingness to participate in the study. Overall, 141 midwifery students were recruited through census. The knowledge and attitude of 112 eligible midwifery students toward HPV infection were assessed. After explaining the research objectives, written consent was taken from all participants. Data were collected using a self-administered questionnaire to assess the students' knowledge and attitude toward HPV infection. The questionnaire consisted of grouped questions on demographic characteristics, knowledge (10 items) and attitude (10 items) toward HPV infection, cervical cancer and vaccination. Finally, there was a question about HPV vaccine history. Content validity of the questionnaire was confirmed with the help of seven experts in the field including health educators, midwives and physicians. Reliability of the questionnaire was also confirmed via a pilot study and achieving a Cronbach's alpha coefficients of 0.74. The level of knowledge was calculated based on the scores assigned to each correct answer. The questions related to knowledge were answered with Yes, No or Do not know. Accordingly, one point was given to each correct answer and incorrect answers received zero point. The total scores were calculated and classified into "low" (score of 0–3), "moderate" (score of 4–6) and "high" (score of 7–10) knowledge level. The results were analyzed according to a previous study (17).

Items about attitude towards HPV infection and vaccination were scored using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Accordingly, a higher overall score indicated a more positive attitude. An 'overall attitude score' was used for analysis, which referred to the actual total score of attitudes from 10 questions for each respondent, divided by the expected total maximum score of attitudes multiplied by 100. Attitude scores between 0 and 59 indicated negative attitude and scores between 60 and 100 indicated positive attitude (18).

The data were analyzed using the SPSS software (version 16). Normality of data distribution was assessed using the Kolmogorov-Smirnov test. Data were expressed using descriptive statistics including mean, standard deviation and frequency. The Pearson correlation test was used to analyze the correlation of quantitative variables. The chi-square test was used to evaluate the relationship between qualitative variables. A statistical significance level of 0.05 was considered for all analyses.

**Results**

Of 141 midwifery students, 112 filled the questionnaire completely (response rate: 79.4%). All participants were female. Mean age of the respondents was 21.6±2.4 years. Only 33% of the students had desirable knowledge about HPV infection. The knowledge of midwifery students in different academic years did not differ significantly (Table 1).

**Table 1: Knowledge towards HPV infection among midwifery students based on academic years**

Academic year	Number of students	Knowledge level			P-value
		Low N (%)	Moderate N (%)	High N (%)	
First	26	18 (69.2)	7 (26.9)	1 (3.9)	0.98
Second	26	16 (61.5)	8 (30.8)	2 (7.7)	
Third	35	24 (68.6)	8 (22.9)	3 (8.6)	
Fourth	28	17 (68.0)	6 (24.0)	2 (8.0)	
Total	112	75 (67.0)	29 (25.9)	8 (7.1)	

Overall, the attitude of students about HPV vaccines was overwhelmingly positive. The majority of participants (77.7%) indicated a positive attitude toward a preventive HPV vaccine that could reduce the risk of cervical cancer. Students in higher academic years had higher attitude towards HPV vaccination but this difference was not statistically significant (Table 2).

**Table 2: Attitude towards HPV infection among midwifery students based on academic years**

Academic year	Number of students	Attitude		P-value
		Negative N (%)	positive N (%)	
First	26	5 (19.2)	21 (80.8)	0.89
Second	26	7 (26.9)	19 (73.1)	
Third	35	7 (20.0)	28 (80.0)	
Fourth	25	6 (24.0)	19 (76.0)	
Total	112	25 (22.3)	87 (77.7)	

Based on the results, only three students (2.7%) had been vaccinated against HPV.

According to results of the Pearson's correlation test, students' knowledge and attitude about HPV had no significant association with their age and grade point average (GPA) (Table 3).

**Table 3: Correlation of age and GPA with midwifery students' knowledge and attitude toward HPV infection**

Variables	Test	Knowledge	Attitude
Age	Pearson coefficient (r)	-0.070	0.50
	Significance level (p value)	0.471	0.606
Grade Point Average	Pearson coefficient (r)	-0.109	-0.088
	Significance level (p value)	0.051	0.468

**Discussion**

According to the WHO report in 2019, Iran has the lowest incidence rate of cervical cancer in Asia (8). However, HPV remains an important health problem given the increasing spread of the virus worldwide, especially in developing countries. Therefore, it is necessary to assess the knowledge and attitudes of the community on HPV, especially medical students who will be responsible for public health in the future.

In this study, 67% of the students had lower than average awareness level about HPV infection, which is unfavorable. Two studies in Iran by Pourkazemi et al. (12) and Salehifar et al. (13) reported awareness level of 57.2% and 66.8% among university students, respectively. A study in Yazd (19) reported an even lower awareness level (36.7%) among nursing and midwifery students. The findings of most recent studies in Iran indicate a relatively low awareness level about HPV infection (20-23). Therefore, appropriate measures should be taken by the healthcare authorities to raise awareness about HPV among students before their graduation.

Although the average awareness score of midwifery students was higher among students in higher academic years, there was no statistically significant difference in awareness of the students in different academic years. This indicates the lack of sufficient information on HPV infection and its role in cervical cancer in the midwifery curriculum and education courses. Further consideration of authorities and proper planning to familiarize students with HPV and its consequences can help prevent its spread in the society.

Studies on the relationship between HPV awareness, age and study years have reported inconsistent findings. In a study by Vogtmann et al. on Mexican students, HPV awareness was higher among those in higher education years (24). Nevertheless, a study found no significant relationship between awareness level and age of medical students (25), which is in line with our findings. Presence or absence of appropriate educational programs in relation to HPV infection during the study period at some universities as well as lack of a national vaccination program against HPV may justify the discrepancy of results obtained in these studies.

Despite the low level of awareness about HPV infection in most studies, people's attitude toward HPV infection was relatively high and favorable. In this research, 58% of students had a favorable attitude toward HPV vaccine and prevention. In the study by Pourkazemi et al., 57.2% of subjects had a favorable attitude (12), which is consistent with our findings. We found no significant relationship between awareness and attitude of students towards HPV and cervical cancer. Similarly, Salehifar et al. did not report a significant relationship between awareness and attitude of female students towards HPV infection (13). In contrast, a study by Rashwan et al. in Malaysia reported a significant relationship between students' awareness and attitude towards HPV infection (26).

In this study, only three students (2.7%) had been vaccinated against HPV. In a study by Fakor et al., none of the subjects had received a HPV vaccine (27). Similar to our findings, Kang and Moneyham in South Korea (28) and Rashwan et al. (26) found that only 1.3% and 3.6% of the students had been vaccinated against HPV, respectively. This indicates poor performance of individuals in accepting HPV vaccine in different regions where there is no national immunization program for HPV.

In our study, most students had no awareness about HPV infection and vaccine. Given the important role midwives can play in promoting the acceptability of HPV vaccine in the community, it is recommended to improve their knowledge, attitude and practices regarding this issue.

The present study was conducted on a single university; therefore, the results cannot be generalized. Data collection was done using a self-report questionnaire, and some respondents may have not honestly answered the questions. Low sample size, census-based sampling and age restriction among midwifery students were other limitations of this research. It is suggested to carry out multi-center studies with a larger sample size consisting of students from different disciplines.

**Conclusion**

The majority of midwifery students had undesirable knowledge about HPV infection, which indicates the need for development of appropriate training programs. Since the syllabus is the main source of information for students during their study period, it is essential to pay more attention to curricula and educational content of midwifery students to promote awareness and attitudes of the students as future healthcare providers in the community. Considering the positive attitude of midwifery students towards HPV vaccination and the absence of a clear HPV vaccination plan in the country, health policymakers should design and

implement programs to raise people's awareness, especially through prevention programs.

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### Ethical statement

The study was approved by the Ethics Committee of Ahvaz Jundishapur University of Medical Sciences (ethical code: IR.AJUMS.REC.1395.172).

### Conflict of interest

The authors declare that there is no conflict of interest.

### Author contributions

AS and AG designed the study. MH and NJ gathered data collection. AS, MH and NJ contributed in Data analysis, interpretation and the writing of the manuscript. AG supervised the study. All authors read and approved the final manuscript.

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