International Journal of Life Sciences, Biotechnology and Pharma Research Vol. 13, No. 12, December 2024 Online ISSN: 2250-3137
Print ISSN: 2977-0122

DOI: 10.69605/ijlbpr_13.12.2024.112

ORIGINAL RESEARCH

Cervical Cancer Awareness, Knowledge, Behavioural Patterns, And Practice of Screening among Health Care Worker

Dr. Komal Inani Jhanwar[1], Dr. Vidhi Goyal[2], Dr. Praveen Jhanwar[3]

[1,2]Associate Professor Department of Obstetrics and Gynaecology, Pacific Medical College and Hospital, Bhedla, Udaipur, India
[3]Associate Professor, Department of General Surgery, Pacific Medical College and Hospital, Bhedla, Udaipur, India

Corresponding Author
Dr. Praveen Jhanwar
Associate Professor, Department of General Surgery, Pacific Medical College and Hospital, Bhedla, Udaipur, India
Email: jhabbuu@gmail.com

Received Date: 27 October, 2024 Accepted Date: 30 November, 2024

ABSTRACT

Background: Cervical cancer remains a significant public health concern, particularly in developing countries like India, where awareness and uptake of preventive measures, such as screening and vaccination, are limited. Healthcare workers (HCWs) play a pivotal role in disseminating knowledge and promoting cervical cancer prevention strategies. **Methods:** A descriptive, cross-sectional study was conducted at the Department of Obstetrics and Gynecology, Pacific Medical College and Hospital, Udaipur, Rajasthan, from January 2022 to December 2023. A structured questionnaire assessed the knowledge, attitudes, and practices (KAP) regarding cervical cancer prevention among 100 female HCWs, including doctors, nurses, and paramedical staff. Data were analyzed using descriptive and inferential statistics, with a significance level of $p < 0.05$. **Results:** The majority of participants (83%) recognized the importance of cervical cancer screening, yet only 30% had undergone a Pap smear. Awareness of HPV vaccination was high (78%), but vaccination uptake was low (29%). While 90% acknowledged cervical cancer as a leading cause of cancer-related deaths in India, gaps in knowledge about risk factors, such as smoking (87%) and multiple sexual partners (88%), were observed. Nurses demonstrated lower KAP scores compared to medical doctors. Barriers to screening included perceived discomfort, with 62% reporting Pap smear tests as painful. **Conclusion:** Although healthcare workers displayed moderate awareness of cervical cancer symptoms and preventive measures, significant gaps in knowledge, attitudes, and screening practices were identified. Tailored interventions and educational campaigns are crucial to address these deficiencies and improve cervical cancer prevention efforts among healthcare professionals.

Keywords: Cervical cancer, healthcare workers, knowledge, attitudes, practices, Pap smear, HPV vaccination, cervical cancer screening, prevention, tertiary care hospital.

INTRODUCTION

Awareness of cervical cancer screening and vaccination is significantly higher in developed countries than in developing countries. A study revealed that 96.6% of respondents possess substantial knowledge regarding cervical cancer screening; however, a significant majority (98.9%) of women have never received the cervical cancer vaccine, and 82.2% have not participated in cervical cancer screening [1]. It was disclosed that 91.2% of participants were aware that cervical cancer could be managed and identified the Pap smear as a diagnostic test for cervical cancer (80.9%) [2]. Likewise, certain authors have recognised that,30.4% of respondents have refrained from cervical cancer screening due to apprehension regarding the procedure. [3]The major sources of information about cervical cancer screening and vaccination in the study were from friends and relatives as indicated by 42.8% of the respondents.Conversely, certain studies have demonstrated that the awareness of cervical cancer screening and vaccination among Asians is low. In India, it was found that over fifty percent of participants possessed inadequate knowledge concerning cervical cancer screening and vaccination [4]. Furthermore, a study conducted in India determined that only 36% and 15% of participants reported awareness of the HPV vaccine and cervical

DOI: 10.69605/ijlbpr_13.12.2024.112

cancer screening, respectively [5]. Nevertheless, merely 5% of these women had received a Pap smear, and 4% perceived themselves as at risk of contracting HPV.In the study, 42.8% of cervical cancer screening and vaccination information was derived from friends and relatives. The participants Conversely, certain studies have demonstrated that, the The awareness level of cervical cancer screening and vaccination among Asians is low. In India, it was found that over fifty percent of participants possessed inadequate knowledge concerning cervical cancer screening and vaccination [4]. Furthermore, a study conducted in India determined that only 36% and 15% of participants reported awareness of the HPV vaccine and cervical cancer screening, respectively [5]. Nevertheless, merely 5% of these women had received a Pap smear, and 4% perceived themselves as at risk of contracting HPV.

A study in Nigeria indicated that slightly more than half (51.8%) of the respondents possessed adequate knowledge regarding cervical cancer screening and vaccination, primarily derived from educational institutions [6]. Nevertheless, certain authors determined that awareness of cervical cancer screening is unlikely to result in the use of screening services, as their participants exhibited sufficient knowledge of cervical cancer yet demonstrated a negative attitude towards screening. [7]Researchers in Hungary discovered that certain participants exhibited inadequate knowledge concerning CCS and vaccination [8]. Furthermore, over fifty percent of women in a particular study provided inaccurate responses regarding the advantages of the Pap smear, including misconceptions about uterine cleansing, treatment of sexually transmitted infections, and infertility.[9] Cervical cancer screening programs in sub-Saharan Africa exhibit inadequate coverage [10]. A study indicated that cervical cancer screening coverage in sub-Saharan Africa ranged from 2 to 20% in urban areas and from 0.4 to 14% in rural areas [11]. Sixty to eighty percent (60–80%) of women diagnosed with cervical cancer in sub-Saharan Africa reside in rural areas, where there is insufficient awareness regarding cervical cancer screening and a lack of opportunities to participate in such screenings [12].

MATERIALS AND METHODS

Study Design

This was a descriptive, cross-sectional study conducted in the Department of Obstetrics and Gynecology at the Pacific Medical College and Hospital, Udaipur, Rajasthan. The study period extended from January 1, 2022, to December 31, 2023.

Study Population

The study targeted health care workers (HCWs) in the hospital, including doctors, nurses, and paramedical staff, involved in patient care.

Inclusion criteria were

1. HCWs directly or indirectly involved in patient care.
2. Willing to participate and provide informed consent.
3. Employed at the study institution during the data collection period.

Exclusion criteria were

1. HCWs unwilling to participate or not available during the study period.
2. Those with a known history of cervical cancer or screening during the study period.

Sample Size

A total of 100 health care workers were included in the study. The sample size was determined based on the feasibility of data collection within the study timeframe and the size of the population at the institution.

Data Collection Tool

A structured questionnaire was developed to assess cervical cancer awareness, knowledge, behavioral patterns, and screening practices. The questionnaire was validated by experts in gynecology and public health for clarity and relevance. It consisted of the following sections:

1. Demographic details: Age, gender, profession, years of service, and education level.
2. Knowledge of cervical cancer: Risk factors, symptoms, prevention, and the importance of screening.
3. Behavioral patterns: Personal beliefs, perceived barriers, and attitudes toward cervical cancer prevention.
4. Screening practices: Awareness and uptake of Pap smear, HPV testing, and visual inspection with acetic acid (VIA).

Data Collection Method

The questionnaire was distributed to HCWs in person. Respondents were briefed about the study purpose and assured of confidentiality. Completed questionnaires were collected on-site to ensure high response rates.

Ethical Considerations

Ethical approval was obtained from the Institutional Ethics Committee of Pacific Medical College and Hospital. Written informed consent was obtained from all participants. Anonymity and confidentiality of responses were maintained throughout the study.

Statistical Analysis

Data were entered into Microsoft Excel and analyzed using free available stat calc. Descriptive statistics (frequencies, percentages, mean, and standard deviation) were used to summarize data. Associations between variables were assessed using the chi-square

DOI: 10.69605/ijlbpr_13.12.2024.112

test, with a p-value < 0.05 considered statistically significant.

RESULT

Table 1: Demographic Characteristics of Healthcare Workers

Variable	Categories	N	%
Age (years)	**<30**	**71**	**71.0**
	≥30	**29**	**29.0**
Marital Status	**Married**	**44**	**44.0**
	Unmarried	**13**	**13.0**
	Single (sexually active)	**43**	**43.0**
Education	**High school/Diploma**	**48**	**48.0**
	Bachelor	**30**	**30.0**
	Master	**22**	**22.0**
Number of Pregnancies	**0**	**73**	**73.0**
	1	**17**	**17.0**
	2	**10**	**10.0**
Designation	**Medical Doctors**	**20**	**20.0**
	Nurses	**52**	**52.0**
	Others	**28**	**28.0**

Table 1 presents the demographic characteristics of healthcare workers. Regarding age, 71% were under 30 years, while 29% were 30 years or older. In terms of marital status, 44% were married, 13% were unmarried, and 43% were single but sexually active. Education levels showed that 48% had a high school diploma or equivalent, 30% held a bachelor's degree, and 22% had a master's degree. Regarding the number of pregnancies, 73% reported having no pregnancies, 17% had one, and 10% had two. For designation, 20% were medical doctors, 52% were nurses, and 28% belonged to other professional categories.

Table 2: Knowledge Regarding Symptoms and Preventive Measures of Cervical Cancer

Questions	Yes	%	No	%
Menstrual abnormality	78	78.0	22	22.0
Bleeding after intercourse	62	62.0	38	38.0
Foul Smelling Vaginal Discharge	78	78.0	22	22.0
Avoid early intercourse	75	75.0	25	25.0
Avoid multiple sex partners	88	88.0	12	12.0
Avoid Cigarette Smoking	87	87.0	13	13.0
HPV Vaccination	78	78.0	22	22.0
Screening for Cervical Cancer	83	83.0	17	17.0

Table 2 highlights knowledge regarding symptoms and preventive measures of cervical cancer among participants. Regarding symptoms, 78% recognized menstrual abnormalities, and the same percentage acknowledged foul-smelling vaginal discharge as potential signs, while 62% identified bleeding after intercourse. Preventive measures were well understood, with 75% agreeing that avoiding early intercourse helps prevent cervical cancer, and 88% recognizing the importance of avoiding multiple sexual partners. Additionally, 87% identified avoiding cigarette smoking as a preventive measure, while 78% were aware of HPV vaccination as a preventive tool. Lastly, 83% acknowledged the role of cervical cancer screening in prevention.

Table 3: Attitude Towards Cervical Cancer

Questions	Agree	%	Disagree	%
Cervical cancer is highly prevalent and is a leading cause of death among all cancers in India	90	90.0	10	10.0
Any woman including you can acquire cervical cancer	75	75.0	25	25.0
Cervical cancer cannot be transmitted from one person to another	62	62.0	38	38.0
Screening helps in the prevention of cervical cancer	96	96.0	4	4.0
Screening causes no harm to the patient	82	82.0	18	18.0

Table 3 illustrates attitudes towards cervical cancer among participants. A significant majority (90%) agreed that cervical cancer is highly prevalent and a leading cause of cancer-related deaths in India, while 10% disagreed. Regarding susceptibility, 75% believed that any woman, including themselves, could acquire cervical cancer, whereas 25% disagreed. Opinions on transmission were divided, with 62% agreeing that cervical cancer cannot be transmitted from one person to another, and 38% disagreeing. Most participants (96%) strongly agreed that screening helps prevent cervical cancer, and 82%

DOI: 10.69605/ijlbpr_13.12.2024.112

believed that screening causes no harm to the patient, while 18% held opposing views.

Table 4: Practice Towards Cervical Cancer

Questions	Yes	%	No	%
Have you ever undergone a PAP smear test	30	30.0	70	70.0
PAP smear test is painful	38	62.0	62	38.0
Whether you have been vaccinated for HPV	29	29.0	71	71.0

Table 4 outlines practices related to cervical cancer among participants. Only 30% reported ever undergoing a PAP smear test, while 70% had not. Regarding perceptions of the PAP smear test, 62% found it painful, whereas 38% did not share this sentiment. When asked about HPV vaccination, only 29% reported being vaccinated, while the majority (71%) had not received the vaccine.

Table 5: Comparison of Knowledge, Attitude, and Practice Scores Among Different Demographic Variables

Variable	Categories	Knowledge (Mean ± SD)	t/F value	p-value	Attitude (Mean ± SD)	t/F value	p-value	Practice (Mean ± SD)	t/F value	p-value
Age (years)	<30	6.31 ± 2.15	0.315	0.753	3.81 ± 1.09	4.52	0.000**	0.91 ± 0.87	0.185	0.854
	≥30	6.19 ± 2.76			4.56 ± 0.67			0.88 ± 0.93		
Marital Status	Married	6.57 ± 2.47	2.44	0.09	4.45 ± 0.7	12.84	0.000**	0.86 ± 0.84	14.42	0.000**
	Unmarried	6.78 ± 1.04			4 ± 0.74			1.74 ± 0.69		
	Single (sexually Active)	5.84 ± 2.46			3.64 ± 1.26			0.69 ± 0.84		
Education	High school/Diploma	6.08 ± 2.58	0.89	0.412	3.93 ± 0.88	6.14	0.003*	1.18 ± 0.91	8.58	0.000**
	Bachelor	6.29 ± 2.19			3.84 ± 1.41			0.65 ± 0.8		
	Master	6.69 ± 2			4.54 ± 0.6			0.64 ± 0.78		
Number of Pregnancies	0	6.43 ± 2.09	6.807	0.000**	3.79 ± 1.09	11.37	0.000**	0.86 ± 0.87	2.54	0.056
	1	4.79 ± 3.21			4.62 ± 0.49			0.79 ± 0.82		
	2+	7.62 ± 0.77			4.92 ± 0.28			1.54 ± 1.13		
Designation	Medical Doctors	7.26 ± 1.72	4.205	0.017*	4.77 ± 0.55	19.73	0.000**	0.63 ± 0.73	3.69	0.027*
	Nurses	6.14 ± 2.52			4.07 ± 0.85			1.07 ± 0.92		
	Others	5.83 ± 2.23			3.46 ± 1.3			0.79 ± 0.87		

Notes: Significant Levels: $p < 0.05$ ():* Significant at 5% level. $p < 0.01$ (**): Significant at 1% level. The table maintains alignment and consistency for easier comparison of means, t/F values, and p-values.

Table 5 presents a comparison of knowledge, attitude, and practice scores concerning cervical cancer across various demographic variables. For age, there were no significant differences in knowledge and practice scores between those younger than 30 and those 30 or older, though attitude scores were significantly higher for the younger group. Regarding marital status, married and unmarried individuals demonstrated significantly higher attitude and practice scores compared to sexually active singles. Education showed significant differences in both attitude and practice, with individuals holding higher educational

DOI: 10.69605/ijlbpr_13.12.2024.112

qualifications (Bachelor's or Master's) showing better scores, especially in practice. Number of pregnancies significantly influenced knowledge and attitude, with those having more pregnancies demonstrating better scores. Designation also had a notable impact, with medical doctors showing higher knowledge, attitude, and practice scores compared to nurses and other healthcare workers. These results highlight the importance of demographic factors in shaping healthcare workers' understanding and behaviors related to cervical cancer.

DISCUSSION

The prevention and control of cervical cancer rely on awareness of the disease, screening protocols, and preventive strategies.[13] This study is significant because cervical cancer is a prevalent gynaecological malignancy in developing countries, and cervical cancer screening is essential for disease prevention; however, there is a lack of understanding regarding its fundamental causes and effects.This study provides insights into the knowledge, attitudes, and practices regarding cervical cancer prevention among staff members of a tertiary care hospital, recognising the essential role of health workers in disseminating information about prevention strategies to the broader community. The survey comprised a total of 100 female health professionals. The mean age of research participants was 33.2 years, whereas the average age of participants in studies conducted by Zahedi and Khanna et al. was 34 years. [14,15] Conversely, the average age of participants in the studies conducted by Kashyap et al. and Easwaran was 19.77 ± 6.708 years and 54.3 ± 9.8 years, respectively.[16,17] Dhodapkar SB et al. reported that the majority of the 159 participants (79.5%) were females aged 20 to 24.[18]

A significant proportion of the female healthcare workers in this study—44, or 44%—were married, whereas a study by Khanna et al. reported that 93.1% of female healthcare workers were married. According to research by Eswaran et al., 97.1% of them were unmarried.[17] 52 participants, constituting 52.0%, were nurses. Catherine et al. similarly discovered that midwives and nurses constituted the predominant proportion of respondents (59%) in a healthcare context.[13]In contrast to Khanna et al.'s study, which reported that 93.1% of female healthcare workers (HCWs) were married, a notable segment of the current study's female HCWs—44, or 44%—were married. Nevertheless, a study conducted by Eswaran et al. indicated that a predominant 97.1% of the participants were unmarried.[15,17]

Among the study participants, the majority, (52.0%), were nurses. Similarly, Kress et al. found that in a healthcare setting, the predominant respondents were nurses or midwives (59%).[19]

In this study, approximately (78.0%) of healthcare professionals recognised that menstrual irregularity is a prevalent symptom associated with the potential development of cervical cancer later in life. This finding aligns with a study conducted by Khanna et al., which noted that 183 (66.1%) of health workers were aware of the symptoms of intermenstrual bleeding. [21]Further investigations by Singh et al. and James et al. similarly revealed that 83% and 79% of the participants, respectively, recognised that vaginal bleeding during menstruation could indicate cervical cancer.[14] Gupta et al. found that merely 132 (38.9%) of research participants recognised that irregular menstrual cycles could contribute to cervical cancer.[22] In the current study, (62%) of health workers recognised that post-coital bleeding is a significant symptom of cervical cancer. Similar results were reported by Khanna et al., with (61.7%), and by James et al., who observed 93%. Conversely, Singh et al. found that only 52 (26.0%) females were aware of post-coital bleeding as a risk factor for the development of cervical cancer later in life.[15][21]

A study conducted by Pooja et al. revealed that 59% of participants were cognisant of the symptoms, with 46.5% aware of post-coital bleeding, 36% knowledgeable about intermenstrual bleeding, and 44.5% recognising altered colour and malodorous cervical discharge among medical and paramedical personnel.[16]In the current study, 78 participants (78.0%) recognised that foul-smelling discharge is a prevalent symptom associated with the development of cervical cancer.Consistent with this study, Singh and James et al. also noted that 132 (66%) and 83% of health workers possessed this knowledge, respectively.[14,15] Numerous studies indicate that women with multiple sexual partners face an elevated risk of HPV acquisition and cervical cancer. Remschmidt, C., & Clements, A. E.[17,18] This study found that 88 (88%) health care workers were knowledgeable about avoiding multiple sexual partners, while 75 (75%) were aware of the importance of refraining from early sexual intercourse. James et al. also noted that nearly all participants, 283 (99%), accurately recognised that having multiple sexual partners and early sexual debut, reported by 92% of females, constitutes a risk factor for cervical cancer.[15]Zahedi et al. similarly found that 83.3% of study participants accurately recognised HPV infection and multiple partners as risk factors for cervical cancer.[14]

Numerous studies have consistently demonstrated that smoking elevates the risk of cervical cancer, irrespective of geographical location. IARC, Guillaud M, Roura E.[25-27] The International Agency for Research on Cancer determined that smoking is positively associated with the incidence of cervical cancer and increases the risk of the disease, especially in women who are HPV-positive. This information was obtained from a pooled analysis of a multicentric case-control study. Plummer.[23] In this study, 87 participants (87%) believed that cessation of smoking would diminish their risk of developing cervical carcinoma. James et al. discovered that in 120 cases

DOI: 10.69605/ijlbpr_13.12.2024.112

(42%), participants perceived tobacco use as a risk factor for cervical cancer; conversely, a study by Heena et al. revealed that 39 participants (9.9%) were unaware of this association.[15]

In this study, 78 respondents (78%) demonstrated awareness of the protective benefits of HPV vaccination, consistent with the findings of Chawla et al.[24]It was also noted that HPV vaccination can diminish the incidence of cervical cancer in India by over 75 percent. In contrast, a study conducted by Swaranpriya et al. revealed that only 44.9% of medical and paramedical students were aware of HPV vaccination. Furthermore, research by Singh et al. indicated that a mere 22 respondents (11%) recognised the HPV vaccine as a preventive measure. (Singh S et al.)[20]

Cervical cancer screening is an essential and the most effective approach for the early identification and management of precancerous lesions, thereby reducing cervical cancer mortality.

In the current study, 96 (96%) of participants exhibit an attitude akin to that of 94.3% of healthcare professionals in a study by Easwaran et al., which posits that cervical cancer screening is effective for the prevention of cervical cancer. [17]Conversely, a study by Zahedi et al. revealed that half of the participants did not perceive any role of screening in the prevention of cervical cancer.Reference [14]

In the current study, 30 participants (30%) have undergone a PAP smear test, akin to the findings of Singh et al., who reported that respondents (27%) were aware that a PAP smear test serves as a screening tool for early-stage cervical cancer. In contrast, a study conducted in Uganda by James et al. revealed that 277 participants (97%) recognised early screening as a preventive measure for cervical cancer.[21]

In our study, general awareness of cervical cancer was elevated among all respondents, with (90%) recognising it as a significant cause of morbidity and a leading cause of mortality, which can affect any woman. In this study, 75 participants (75%) indicated that cervical cancer is a leading cause of death among women globally, consistent with findings by Zahedi et al.[14]. However, 71.4% of women reported not perceiving themselves as at risk for developing cancer.14]

Kress et al. reported that 81% and Gupta et al. indicated 80% of participants recognised cervical cancer as a significant cause of morbidity and mortality among women, whereas Ganje et al. and Tongtong et al. reported slightly lower awareness at 66% and 51.9%, respectively.[19, 30, 31] Easwaran et al. noted that 62.2% of participants concurred or strongly concurred that cervical cancer could result in mortality, and 57.9% of women believed it could affect individuals of any age; however, only 25.7% of study participants perceived a personal risk of developing cervical cancer.[17]

In the current study, a majority of participants, (96%), regarded screening as crucial for the prevention of cervical carcinoma, while (82%) perceived it as harmless. Conversely, a separate study by Easwaran revealed that only 71.5% acknowledged that cervical cancer screening aids in preventing cervical cancer.[17]

Kress et al. observed that 98% of respondents regarded it as a serious disease, and 97% believed that cervical screening should be an integral component of women's health in the prevention of cervical cancer.[19]James et al. discovered that 75% of female health workers self-reported having undergone cervical cancer screening.[27]

Numerous studies indicate a prevalent perception of the Pap smear as an uncomfortable and humiliating experience during the procedure. In the current study, participants (30%) underwent PAP smear testing, and the majority, participants (62%), reported experiencing pain. Heena et al. conducted a study revealing that participants (40%) experienced pain.[28]

The overall HPV vaccination rate among study participants was notably low, with only 29 individuals (29%) having received the vaccine. Heena et al.[29] reported that merely 22 participants (5.6%) were vaccinated against HPV, while Easwaran et al. discovered that a significant majority, 93.6%, had not received a cervical cancer vaccine. Uzunlar et al. and Bencherit et al. noted that the willingness to receive vaccination was notably low, at 33.7% and 26.7%, respectively, among participants in the nursing student cohort.[32,33]

CONCLUSION

This study assessed cervical cancer prevention knowledge, attitudes, and practices among 100 female healthcare workers, primarily nurses, in a tertiary care hospital. While most participants were aware of symptoms such as menstrual irregularities, postcoital bleeding, and malodorous discharge, gaps in knowledge regarding cervical cancer's etiology and risk factors, such as smoking and multiple sexual partners, were identified. Despite recognizing the importance of screening, only 30.1% underwent Pap smear tests, citing discomfort as a barrier. Awareness of HPV vaccination's protective role was high, but preventive practices need improvement. These findings underscore the need for targeted interventions to enhance awareness and screening behaviors among healthcare professionals.

REFERENCES

1. Arbyn M, Weiderpass E, Bruni L, et al. Estimates of incidence and mortality of cervical cancer in 2018: a worldwide analysis. Lancet Glob Health 2020; 8(2): e191–e203.
2. World Health Organization. Sexual and reproductive health—laying the foundation for a more just world through research and action: biennial report 2004-

DOI: 10.69605/ijlbpr_13.12.2024.112

2005. World Health Organization, 2006, https://apps.who.int/iris/handle/10665/43497
3. Kaarthigeyan K. Cervical cancer in India and HPV vaccination.Indian J Med Paediatr Oncol 2012; 33(1): 7–12.
4. Singh N. HPV and Cervical cancer-prospects for prevention through vaccination. Indian J Med Paediatr Oncol 2005; 26(1): 20–23.
5. Sankaranarayanan R, Budukh AM and Rajkumar R. Effective screening programmes for cervical cancer in low- and middle-income developing countries. Bull World Health Organ 2001; 79(10): 954–962.
6. Hakama M, Chamberlain J, Day NE, et al. Evaluation of screening programmes for gynaecological cancer. Br J Cancer 1985; 52(4): 669–673.
7. Arbyn M, Rebolj M, De Kok IM, et al. The challenges of organising cervical screening programmes in the 15 old member states of the European Union. Eur J Cancer 2009; 45(15): 2671–2678.
8. Mishra R. An epidemiological study of cervical and breast screening in India: district-level analysis. BMC Womens Health 2020; 20(1): 225.
9. Gedam JK and Rajput DA. Knowledge, attitudes, and practices among healthcare providers on cervical cancer, human papilloma virus and it's vaccine at ESI PGIMSR, MGM Hospital Parel Mumbai, India. Int J Reprod Contracept Obstet Gynecol 2017; 6(9): 3855–3860.
10. Abreu AL, Souza RP, Gimenes F, et al. A review of methods for detect human Papillomavirus infection. Virol J 2012; 9(1): 262.
11. Canavan TP and Doshi NR. Cervical cancer. Am Fam Physician 2000; 61(5): 1369–1376.
12. Saha A, Chaudhury AN, Bhowmik P, et al. Awareness of cervical cancer among female students of premier colleges in Kolkata, India. Asian Pac J Cancer Prev 2010; 11(4):1085–1090.
13. Narayana G, Suchitra MJ, Sunanda G, Ramaiah JD, Kumar BP, Veerabhadrappa KV. Knowledge, attitude, and practice toward cervical cancer among women attending Obstetrics and Gynaecology Department: A cross sectional, hospital based survey in South India. Indian J Cancer 2017; 54:481)
14. Zahedi L, Sizemore E, Malcolm S, Grossniklaus E, Nwosu O. Knowledge, attitudes and practices regarding cervical cancer and screening among Haitian health care workers. International journal of environmental research and public health. 2014 Nov;11(11):11541-52.
15. Khanna D, Khargekar N, Budukh A. Knowledge, attitude, and practice about cervical cancer and its screening among community healthcare workers of Varanasi district, Uttar Pradesh, India. Journal of Family Medicine and Primary Care. 2019 May;8(5):1715.
16. Kashyap N, Krishnan N, Kaur S, Ghai S. Risk factors of cervical cancer: a case-control study. Asia-Pacific journal of oncology nursing. 2019 Jul 1;6(3):308-14.)
17. Easwaran V, Shorog EM, Alshahrani AA, Mohammad AA, Sadiq MM, Alavudeen SS, Khan NA, Akhtar MS, Almeleebia TM, Alshahrani SM. Knowledge, Attitudes, and Practices Related to Cervical Cancer Prevention and Screening among Female Pharmacy Students at a Public University in a Southern Region of Saudi Arabia. InHealthcare 2023 Oct 22 (Vol. 11, No. 20, p. 2798). MDPI.
18. Dhodapkar SB, Chauhan RC, Thampy S. Knowledge and awareness of cervical cancer and its prevention among nursing staff of a tertiary care teaching institute in South India. Int J Reprod Contracept Obstet Gynecol. 2014;3(4):1056-60.
19. Kress CM, Sharling L, Owen-Smith AA, Desalegn D, Blumberg HM, Goedken J. Knowledge, attitudes, and practices regarding cervical cancer and screening among Ethiopian health care workers. International journal of women's health. 2015 Jul 31:765-72.
20. Singh S, Narayan N, Sinha R, Sinha P, Sinha VP, Upadhye JJ. Awareness about cervical cancer risk factors and symptoms. Int J Reprod Contracept ObstetGynecol2018;7:4987-91.
21. James ….Obol, J.H., Lin, S., Obwolo, M.J. et al. Knowledge, attitudes, and practice of cervical cancer prevention among health workers in rural health centres of Northern Uganda. BMC Cancer 21, 110 (2021). https://doi.org/10.1186/s12885-021-07847-z
22. Gupta P, Kaveeshwar M, Patil A. Awareness and knowledge of cervical cancer in medical and paramedical staff-an observational study. Indian J ObstetGynecol Res 2020;7(1):28-32
23. Remschmidt C, Kaufmann AM, Hagemann I, Vartazarova E, Wichmann O, Delere Y: Risk factors for cervical human papillomavirus infection and high-grade intraepithelial lesion in women aged 20 to 31 years in Germany. Int J Gynecol Cancer 2013, 23(3):519–526.)
24. Clements AE, Raker CA, Cooper AS, Boardman LA: Prevalence and patient characteristics associated with CIN 3 in adolescents. Am J ObstetGynecol 2011, 204(2):128. e1-7)
25. IARC: Monographs on the evaluation of carcinogenic risks to humans. Personal habits and indoor combustions-a review of human carcinogens. Vol 100E. Lyon, France: IARC Press; 2012)
26. Roura E, Castellsague X, Pawlita M, Travier N, Waterboer T, Margall N, Bosch FX, de Sanjose S, Dillner J, Gram IT, Tjonneland A, Munk C, Pala V, Palli D, Khaw KT, Barnabas RV, Overvad K, Clavel-Chapelon F, Boutron-Ruault MC, Trichopoulou A, Trichopoulos D, Klinaki E, Tumino R, Sacerdote C, Panico S, Bueno-de-Mesquita HB, et al: Smoking as a major risk factor for cervical cancer and pre-cancer: results from the EPIC cohort. Int J Cancer 2014, 135(2):453–466)
27. Guillaud M, Buys TP, Carraro A, Korbelik J, Follen M, Scheurer M, Storthz KA, van Niekerk D, MacAulay CE: Evaluation of HPV Infection and Smoking Status Impacts on Cell Proliferation in Epithelial Layers of Cervical Neoplasia. PloS one 2014, 9(9):e107088)
28. Heena H, Durrani S, AlFayyad I, Riaz M, Tabasim R, Parvez G, Abu-Shaheen A. Knowledge, attitudes, and practices towards cervical cancer and screening amongst female healthcare professionals: a cross-sectional study. Journal of oncology. 2019 Oct 17;2019.
29. Ganju SA, Gautam N, Barwal V, Walia S, Ganju S. Assessment of knowledge and attitude of medical and nursing students towards screening for cervical carcinoma and HPV vaccination in a tertiary care teaching hospital. Int J Community Med Public Health. 2017;4:4186–4193.
30. Liu T, Li S, Ratcliffe J, Chen G. Assessing Knowledge and Attitudes towards Cervical Cancer Screening

DOI: 10.69605/ijlbpr_13.12.2024.112

among Rural Women in Eastern China. Int J Environ Res Public Health. 2017;14(9):967.

31. Uzunlar Ö, Özyer Ş, Başer E, Toğrul C, Karaca M, Güngör T. A survey on human papillomavirus awareness and acceptance of vaccination among nursing students in a tertiary hospital in Ankara, Turkey. Vaccine. 2013 Apr 19;31(17):2191-5.
32. Bencherit D, Kidar R, Otmani S, Sallam M, Samara K, Barqawi HJ, Lounis M. Knowledge and awareness of Algerian students about cervical cancer, HPV and HPV vaccines: a cross-sectional study. Vaccines. 2022 Aug 29;10(9):1420.