ISSN: 0975-3583, 0976-2833 VOL15, ISSUE3, 2024

Original Research Article

ASSESSING THE AWARENESS AND KNOWLEDGE OF CANCER CERVIX IN PUBLIC

Dr. Maneesha Jain[1] (Consultant Gynaecologist & Infertility Expert), Dr. Ritika Agarwal[2] (Associate Professor) & Dr. Sameer Jain[3] (Consultant Surgeon)

Galaxy Hospital, Moradabad[1&3]
Venkateshwara Institute of Medical Sciences, Rajabpur, NH-24, Venkateshwara Nagar, Gajraula, Uttar Pradesh[2]

Corresponding Author: Dr. Ritika Agarwal

ABSTRACT

Background. Cervical cancer (cc) is the fourth most common cancers affecting women. Worldwide and is second most common in India. It being preventable, a robust and effective national education cum screening program is the key to curb its increasing incidence. Cervical cancer is a major cause of cancer mortality in women and more than a quarter of its global burden is contributed by developing countries. In India, in spite of alarmingly high figure, there is no nationwide screening program.

Objectives. This cross-sectional study was designed to investigate the knowledge, awareness, and perception (KAP) towards CC aetiology, its signs and symptoms and risk factors among general public.

Methods. Data was collected using predesigned and validated study questionnaire. The respondents' KAP were compared. A total of 1160 people responded to the survey, (22.1 %) were males, while (77.9%) were females with the mean age 30.36 (SD=1.74) years. Although 70% of the respondents had heard about CC, but only 27.9% and 18.6% knew that CC is common among women and it is transmissible, Additionally, the knowledge of relationship between viral infection and vaccination was also (34.1%) and only 18.6% of the people has knowledge that CC was a transmissible disease.

Conclusions. It was found that people had considerable low knowledge about CC, we identify the dire need to implement an effective education programs, activities, and awareness campaigns for general population to augment the learning process effectively about cancer cervix.

1. INTRODUCTION

Cervical cancer (CC) is one of the important gynaecological cancers which continue to be the significant global health problem worldwide affecting middle-aged women [1]. Cervical cancer represents the fourth most common cancer in women worldwide and second in India. In 2018, an estimated 5,70, 000 women were diagnosed with CC worldwide and about 3,11, 000 women died from the disease [1, 2]. Cervical cancer incidence varies widely among

ISSN: 0975-3583, 0976-2833 VOL15, ISSUE3, 2024

countries across all continents, with age- Standardized incidence rate (ASIR) of around 13.1 per 100,000 globally and the average age at diagnosis being 53 years. Incidence is highest in Africa, Southeastern Asia, eastern Europe, the Caribbean, and South America (ASIR> 11-15 per 100000). Cancer cervix has reported to be the leading care of deaths in women in lower-resource countries amounting to approximately 84% of all cancer cervix cases and 88% of all deaths. (2-4)

Cervical cancer is one of the preventable gynaecological cancers with an identifiable etiological factor of infection by human papilloma virus (HPV) especially the high-risk subtypes - HPV-16 and HPV-18, which are responsible for approximately 70% of CC cases [6-8]. Therefore, provided that the HPV infection is detected and established early, this cancer is easily curable. Thus, the knowledge and awareness about the various risk factors, infection by HPV, early warning signs, and symptoms of cervical cancer are highly crucial for its early diagnosis [4, 8] There are numerous important identifiable barriers for the early detection, diagnosis, and treatment of the disease [9, 10]. To add to the complication, there also exists a huge gap in the knowledge and practice for HPV Vaccination and a structured CC screening programs among the general masses, 14, 8, 10-18].

As already mentioned, the prevention of CC critically depends on the basic factoid knowledge within the general population about the aetiology and risk factors and an awareness of the screening program and techniques provided by the government including the various vaccination and treatment modalities [8, 10, 11, 13, 15, 17, 18). An easy way to mitigate it is by providing extensive and regular awareness among communities through well-designed educational programs on cancer screening and prevention covering the aspects of preventable risk factors, benefits of early diagnosis, and various government screening services provided to the general mases especially sexually active women of critical age[18-20].

In developed countries like USA, CC screening programs have successfully reduced the incidence of invasive lesions up to 80% [2]

The objectives of this study were to assess the knowledge, awareness, and attitude of public regarding the cervical cancer, its risk factors, the screening methods available for the early detection, and the vaccination for preventing CC.

2. MATERIAL AND METHODS

1. Study Design:- This study is a cross sectional, which was carried during the four months period, i.e., June, July, August, September 2023,
2. Study Sample:- For calculation, the estimated prevalence of awareness about the HPV and CC was kept at 50.0%; confidence level was kept at 90% and margin of error at ±5%. Total 1160 people from the general public attending OPDs were included in the study.
3. Consent:- An informed consent was taken from all the participants before participation.
4. Questionnaire:- The questionnaire used in this study was carefully developed after an extensive literature survey (18, 10, 12, 15, 23-25). It constituted of specific sections for the cervical cancer (CC), its early warning signs and various risk factors of CC.

ISSN: 0975-3583, 0976-2833 VOL15, ISSUE3, 2024

The three sections of the survey were
Section A:- Constituting questions regarding the demographics of participating People,
Section B:- Contained queries regarding cervical cancer (CC),
Section C:- Contained statements about various early warning signs of CC, and
Section D:- Contained statements about various risk factors of CC. For each question, three options were as: yes (true), no (false), and do not know.
5. Data and Statistical Analysis. The results of this study were expressed in frequencies and percentages for qualitative variables. Independent *t*-test was conducted to compare the awareness and knowledge scores between the participants. For frequencies and percentages, a detailed descriptive analysis was done. Comparison of the categorical variables was made using chi-square (x^2) test, and a statistical significance was kept at a p value of ≤ 0.05.

3. RESULTS

1. Demographic profile of Participants. A total of 1160 people responded positively to the survey, out of them (22.1%) were males, while (77.9%) were females with a ratio of 1:0.28. The mean age of the respondents was 30.36 (SD=1.74). Furthermore, 95.9% (556) of the respondents were Married, 2.4% (14) were Single, 1.4% (8) divorced, and 0.3% (2) widow (er). Demographic characteristics of the participants are presented in table (1).

Table 1: Demographic data of the participants (n=1160).

Variable			
	n	**Mean**	**SD**
Age	1160	30.36	1.74
Variable		n	%
Gender	Male	256	22.1
	Female	904	77.9

2. Knowledge about the Cervical Cancer. With regards to possessing the knowledge of CC, out of total 1160 respondents, 812 (70%) had heard about cervical cancer, and majority of them identified that CC was not the frequent cancer in women (42.4%); it affects only old women (53.1%) and it is preventable disease (46.9%). However, majority of the respondents did not know that CC occurs more common in young women (62.8%), is transmissible (42.4%), is viral infection (48.3%), is bacterial infection (54.8%), and is caused by HPV infection (38.3%). Also, they had no knowledge about CC is being the rare cancer affecting women, with 960 (41.4%) of them choosing false option. Table 2 provides the frequency of responses to the knowledge domain of the questionnaire.

ISSN: 0975-3583, 0976-2833 VOL15, ISSUE3, 2024

Table2: Responses of the participants regarding the knowledge and awareness of the aetiology of cervical cancer (n=1160).

		n	%
Ever heard of cervical cancer	Yes No Do not Know	812 287 6	70.3% 24.7% 5%
Most frequently occurring cancer in women is cervical cancer	True False Do not Know	323 491 346	27.8% 42.3% 29.9%
Cervical cancer only affects old women	True False Do not know	132 616 412	11.4% 53.1% 35.5%
Cervical cancer is more common in young women	Ture False Do not know	176 256 728	15.5% 22.1% 52.6%
Cervical cancer is one of the rare cancer affecting women	Ture False Do not know	264 480 416	22.8% 41.4% 35.9%
Cervical cancer is preventable disease	True False Do not Know	544 160 456	46.9% 13.8% 39.3%
Cervical cancer is transmissible disease	True False Do not Know	216 452 492	18.6% 39.0% 42.4%
Cervical cancer is caused by viral infections	True False Do not Know	480 120 560	1.4% 10.3% 48.3%
Cervical cancer is caused by bacterial infections	True False Do not Know	168 336 636	16.2% 29.0% 54.8%
Cervical cancer is caused by HPV infection?	True False Do not Know	352 364 444	30.3% 31.4% 38.3%
Ever heard of HPV vaccination?	True False	396 520	34.1% 45.2%

ISSN: 0975-3583, 0976-2833 VOL15, ISSUE3, 2024

	Do not Know	240	20.7%

3. Regarding knowledge about signs and symptoms of CC, only five of the eleven provided symptoms were identified correctly by the majority (>42%) of the respondents-bleeding between periods (612; 52.8%), persistent pelvic pain (584; 50.3%), foul smell discharge (576; 49.7%), discomfort during sexual intercourse (552, 47.6%), and postcoital discharge/bleeding (484; 41.7%). However, majority of respondents did not know about the false symptoms of the CC. So, majority of the respondents were not aware of the signs and symptoms of cervical cancer. Table 3 provides the frequency of responses to the signs and symptoms portion of the questionnaire.

Table 3: Responses of the participants regarding the knowledge and awareness of the signs and symptoms of cervical cancer (n=1160).

		n	%
Bleeding in between menstrual periods	Yes	612	52.8%
	No	152	13.1%
	Do not Know	396	34.1%
Foul-smelling vaginal discharge	True	756	49.7%
	False	172	14.8%
	Do not Know	412	35.5%
Discomfort during sexual intercourse	True	552	47.6%
	False	176	15.2%
	Do not know	452	37.3%
Post coital discharge/bleeding	Ture	484	41.7%
	False	180	15.5%
	Do not know	496	42.8%
Persistent pelvic pain	Ture	584	50.3%
	False	188	16.2%
	Do not know	388	33.4%
Unexplained weight loss	True	584	37.6%
	False	188	20.3%
	Do not Know	388	42.1%
Blood in stool or urine	True	428	36.9%
	False	232	20.0%
	Do not Know	500	43.1%
Lower back pain	True	456	39.3%

ISSN: 0975-3583, 0976-2833 VOL15, ISSUE3, 2024

	False Do not Know	220 484	19.0% 41.7%
Persistent diarrhea	True False Do not Know	256 288 616	22.1% 24.8% 53.1%
Pain in the breast or armpit	True False Do not Know	364 276 520	31.4% 23.8% 44.8%
Occasional constipation	True False Do not Know	376 264 660	20.3% 22.8% 56.9%

Awareness and Perception about the Cervical Cancer. Regarding awareness of the respondents about various risk factors of CC, only eight out of total twenty listed risk factors were correctly identified by the majority (>43.4%) which were aging (572, 49.3%), family history (544, 46.9%), smoking (504, 43.4%), immunosuppression (512, 44.1%), multiple sexual partners (586, 50.3%), recurrent/chronic cervix diseases (576, 49.7%), viral infections (564, 48.6%) as true positive, and breastfeeding (544, 46.9%) as true negative. For the rest of the twelve risk factors, majority of the respondents chose either "No" as the answer or they simply were not aware of them being a risk factor. And as already mentioned, out of four false risk factors (obesity, lack of physical exercise, breastfeeding, and early marriage), respondents were able to distinguish only one as false (breastfeeding) one from the rest. Table 4 provides the frequency of responses to the risk factors of CC portion of the questionnaire.

Table4: Responses of the participants regarding the knowledge and awareness of the risk factors of cervical cancer (n=1160).

n %			
Aging	Yes No Do not Know	572 256 332	49.3% 22.1% 28.6%
Family history of breast cancer	True False Do not Know	544 324 292	46.9% 27.9% 25.2%
Having a close relative with breast cancer	True	392	33.8%

ISSN: 0975-3583, 0976-2833 VOL15, ISSUE3, 2024

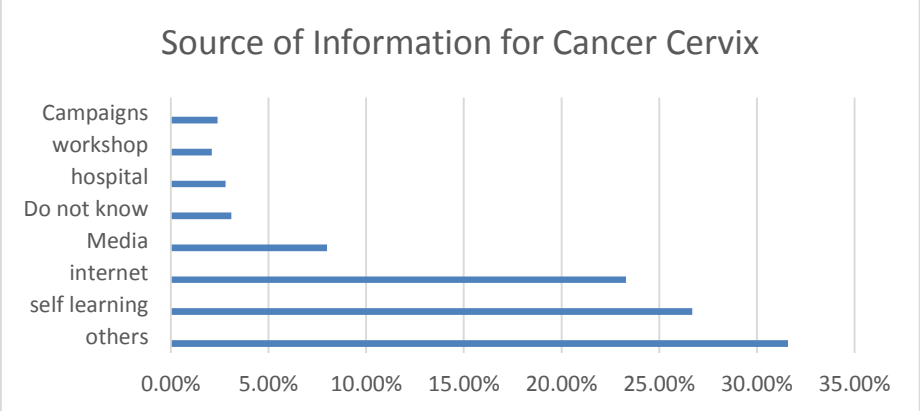
	False	380	32.8%
	Do not know	388	33.4%
Smoking	Ture	504	43.4%
	False	308	26.6%
	Do not know	348	30.0%
Marrying late	Ture	220	19.0%
	False	504	43.4%
	Do not know	436	37.6%
Early menarche	True	272	23.4%
	False	348	30.0%
	Do not Know	540	46.6%
Late menopause	True	308	26.6%
	False	320	27.6%
	Do not Know	532	45.9%
Having children later on in life or not at all	True	284	24.5%
	False	396	34.1%
	Do not Know	480	41.4%
High number of births	True	220	19.0%
	False	456	39.3%
	Do not Know	484	41.7%
Hormone replacement therapy	True	420	36.2%
	False	208	17.9%
	Do not Know	532	45.9%
Use of oral contraceptives	True	336	29.0%
	False	216	18.6%
	Do not Know	608	52.4%

Immunosuppression	True	512	44.1%
	False	168	14.5%
	Do not Know	480	41.4%
Multiple sexual partners	True	584	50.3%
	False	182	16.6%
	Do not Know	384	33.1%
Recurrent/chronic cervix diseases	True	576	49.7%
	False	156	13.4%
	Do not Know	428	36.9%

ISSN: 0975-3583, 0976-2833 VOL15, ISSUE3, 2024

Bacterial infections	True	256	22.1%
	False	336	29.0%
	Do not Know	568	49.0%
Viral infections	True	564	48.6%
	False	180	15.5%
	Do not Know	416	35.9%
Obesity	True	326	28.3%
	False	372	32.1%
	Do not Know	460	39.7%
Lack of physical exercise	True	360	31.0%
	False	344	29.7%
	Do not Know	456	39.3%
breastfeeding	True	180	15.5%
	False	544	46.9%
	Do not Know	436	37.6%
Early marriage	True	200	17.2%
	False	444	38.3%
	Do not Know	516	44.5%

4. Sources of Information for Cervical Cancer. With regards to the sources of information about CC, the respondents opted self-learning (308, 26.7%), internet (268, 23.3%), media (92, 8.0%), never heard (36, 3.1%), and others (369, 31.6%) in decreasing order. The comparisons between the various sources of information are provided in Table 5.



5. DISCUSSION

This prospective cross-sectional study aimed to measure the levels of knowledge, awareness, and attitude of people towards cervical cancer (CC) aetiology, its signs and symptoms, and risk factors. The results of our cross-sectional study found a poor level of knowledge among people. These results do clearly demonstrate that there exist large knowledge gaps with regards public knowledge of CC, its signs and symptoms and risk factors. The results are in

ISSN: 0975-3583, 0976-2833 VOL15, ISSUE3, 2024

concordance with the previous studies across the world where participants have demonstrated a poor total knowledge of CC [10, 11, 19, 26-29]. In this study, the correct response rates were lower than 40%, ranging from 18.6% to 50%. A total of 46.9% and 41.4% of participants provided correct answers to the items on preventable nature of CC, and it is caused by viral infection, respectively. Altamimi reported that most participants in her study had poor knowledge about CC and its prevention, with 819 of participants (84.8%) showing poor scores [19].

For most of the items of the cervical cancer questions, less than 30% of the respondents were able to respond correctly like, only 30.0% of respondents considered CC caused by HPV infection, and 29.0% of them correctly identified the false statement of CC caused by bacterial infections (see table 2-4). Additionally, the relationship between HPV infection and its vaccination was also dismally poor (34.1%), only 18.6% of the public had knowledge that CC was a transmissible disease.

These results were similar to the results of already published studies in KSA [15,30]. Dhaher in her study in Women in the Southern Region of KSA reported that only 43% of the women surveyed were answer of cervical cancer, its etiology and link to HPV infection as risk factor. Altamimi recently reported that the majority of the People (67%) were unaware of the availability of the HPV vaccine, and around 41% knew that HPV infection was risk factor for CC [19]. In a similar study by Baloch et al in Chinese women [31], Authors reported a maximum of 77% of respondents to have some knowledge of CC, while as high as 35% knew that HPV was a causative agent of CC, and a maximum of 19.4% were aware that CC can be prevented by using HPV vaccine. Also, in his study on health students, Rajiah et al. reported the majority of respondents knew that HPV infection is preventable (88.6%) and that HPV is a cause of CC (80.2%), and these results are much huger than what we found in the current study [23].

For the identification of the signs and symptoms and the related risk factors of CC the awareness among respondents was also dismal (see Table 3). For the topmost correctly identified signs and symptoms factors for CC, the response frequency ranged from 41.7% to 52.8%, and that for risk factors it varied from 44.1% to 50.3%. Our results were similar to that of the Al-Shaikh et al. [15] and Salem et al. [20] from KSA. Salem et al. reported that about two-thirds of the respondents were not knowledgeable about CC-related risk factors, signs, and symptoms and only one-quarter knew that infection with HPV (human papilloma virus) is a risk factor for CC [20]. However, contrarily, Al-Darwish et al., in their study in KSA, had reported that 41% of his respondents were aware of HPV and 41.5% of smoking being one of the risk factors for CC [8].

The current study revealed that “Bleeding in between menstrual periods,” “Foul smelling vaginal discharge.” “Discomfort during sexual intercourse.” “Post coital discharge/bleeding,” and “Persistent pelvic pain” were the most identifiable sign and symptoms; while as “Aging,” “Family history of breast cancer,” “Smoking,” “immunosuppression,” “Multiple sexual partners,” “Recurrent/Chronic Cervix Diseases.” And “Viral Infections” were the most identifiable risk factor of CC made by our respondents (for percentages, see Tables 2-4). A number of studies have already established these as most important signs, symptoms, and risk

ISSN: 0975-3583, 0976-2833 VOL15, ISSUE3, 2024

[8,10,12,15,21,23-25]. Numerous studies published previously have found that lack of knowledge regarding risk factors of CC is the single most important factor for the women not opting for the screening tests. This emphasizes the need for dedicated national screening programs and public education campaigns which would enable women to be aware of the disease's risk factors [4,10,18,31,33-35]. Pandey et al. have also identified that chief obstacle in implementation of the HPV vaccination program is inadequate information among the population. Thus, medical education had a definitive impact on the understanding of the CC, with regards to its etiology, vaccine availability, and its preventive efficacy [32].

Furthermore, (26.7%), (23.3%), and (12.2%) of participants stated that their source of knowledge for CC was self-learning, internet, and media/Campaigns. These findings were in tune with the results reported by Alnafisah et al, Rajiah et al, and Al Shaman et al, in all of which the respondents had identified the mass media and internet as their prime source of knowledge [12,22,23]. However, the study by Jassim et al. [13] from Bahrain contrarily reported "gynaecologists" to be the primary source of information. A study by Al- Darwish et al.[8] KSA reported that self-learning, Media and internet to be first, second, and third top sources of information, respectively. Hence robust awareness campaigns and screening programs need to be designed to serve the two diverse purposes, one to promote knowledge and awareness about the disease itself helping in eliminating the negative perceptions, beliefs, and taboos associated with it and secondly to promote active participation by the members of the society enabling a better and successful health care system. Altamimi et al. also suggested that there is a dire need for the initiation of culturally accepted public education programs and awareness campaigns on CC and its prevention [4,10,12,18,21].

Study limitations

(1) Cross-sectional study design is highly sensitive to a variety of biases

(2) Data collection questionnaire was an online/offline administered one and hence has an inherent risk of recalling bias or contamination by the participants is there.

6. CONCLUSION

The prevalence of CC is growing so Clear policies, guidelines, and regulations should be framed to educate primary care physicians and carry out screening to vulnerable patients and prevent disease.

7. REFERENCES

1. WHO, "Cervical Cancer," 2020, June 2020, https://www.who.ont/helth-topics/cervical-cancer#tab=tab_1.
2. M. Arbyn, E. Weiderpass, I,. Bruni et al., "Estimates of incidence and mortality of cervical cancer in 2018. A worldwide ananysis," The Lancet Blobal Health, vol. 8, no. 2, pp. e191-e203,2020.

ISSN: 0975-3583, 0976-2833 VOL15, ISSUE3, 2024

3. F. Bray, J. Ferlay, I. Soerjomataram, R.I. Siegel, I,. A Torre, and A. Jemal, “Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries,” CA: a Cancer Journal for Clinicians, vol. 68, no. 6, pp. 394-424, 2018.
4. S. Almazrou, B. Saddik, and H. Jradi, "Knowledge, attitudes, and practices of Saudi physicians regarding cervical cancer and the human papilloma virus vaccine," Journal of Infection and Public Health, vol. 13, no. 4, pp. 584-590, 2020.
5. GLOBOCAN, "Global Cancer Observatory (GCO). Cancer in Saudi Arabia," 2018, June 2020, https://gco.iarc.fr/today/data/factsheets/populations/682-saudi-arabia-fact-sheets.pdf.
6. WHO, "Human papillomavirus (HPV) and cervical cancer," June 2020, https://www.who.int/news-room/fact-sheets/ detail/human-papillomavirus-(hpv)-and-cervical-cancer.
7. "C.D.C. genital HPV infection," June 2020, https://www.cdc .gov/std/hpv/stdfact-hpv.htm.
8. A. A. Al-Darwish, A. F. Al-Naim, K. S. Al-Mulhim, N. K. Al-Otaibi, M. S. Morsi, and A. M. Aleem, "Knowledge about cervical cancer early warning signs and symptoms, risk factors and vaccination among students at a medical school in Al-Ahsa, Kingdom of Saudi Arabia," Asian Pacific Journal of Cancer Prevention, vol. 15, no. 6, pp. 2529-2532, 2014.
9. G. Alsbeih, "HPV infection in cervical and other cancers in Saudi Arabia: implication for prevention and vaccination," Frontiers in Oncology, vol. 4, no. 4, p. 65, 2014.
10. K. H. Sait, "Attitudes, knowledge, and practices in relation to cervical cancer and its screening among women in Saudi Arabia," Saudi Medical Journal, vol. 30, no. 9, pp. 1208-1212, 2009.
11. H. Jradi and A. Bawazir, "Knowledge, attitudes, and practices among Saudi women regarding cervical cancer, human papillomavirus (HPV) and corresponding vaccine." Vaccine, vol. 37, no. 3, 2019.
12. R. A. Alnafisah, R. Alsuhaibani, M. A. Alharbi, A. A. Alsohai- bani, and A. A. Ismail, "Saudi women's knowledge and attitude toward cervical cancer screening, treatment, and prevention: a cross-sectional study in Qassim region (2018-2019)." Asian Pacific Journal of Cancer Prevention, vol. 20, no. 10, pp. 2965-2969, 2019.
13. G. Jassim, A. Obeid, and H. A. Al Nasheet, "Knowledge, attitudes, and practices regarding cervical cancer and screening among women visiting primary health care centres in Bah- rain." BMC Public Health, vol. 18. no. 1. p. 128. 2018.
14. K. Sait, R. Turki, A. Abuzenadah, O. H. Jiffiri, A. Bohmaidah, and S. S. Sohrab, "Genetic diversity and phylogenetic analysis of HPV 16 & 18 variants isolated from cervical specimens of women in Saudi Arabia." Saudi Journal of Biological Sciences. vol. 26, no. 2, pp. 317-324, 2019.
15. G. K. Al-Shaikh, E. M. Almussaed, A. A. Fayed et al., "Knowledge of Saudi female university students regarding cervical cancer and acceptance of the human papilloma virus vaccine." Saudi Medical Journal, vol. 35, no. 10, pp. 1223-1230, 2014.

ISSN: 0975-3583, 0976-2833 VOL15, ISSUE3, 2024

16. R. Turki, K. Sait, N. Anfinan, S. S. Sohrab, and A. M. Abuzenadah, "Prevalence of human papillomavirus in women from Saudi Arabia," Asian Pacific Journal of Cancer Prevention, vol. 14, no. 5, pp. 3177-3181, 2013.
17. F. M. Al-Meer, M. T. Aseel, J. Al-Khalaf, M. G. Al-Kuwari, and M. F. Ismail, "Knowledge, attitude and practices regarding cervical cancer and screening among women visiting primary health care in Qatar," Eastern Mediterranean Health Journal, vol. 17, no. 11, pp. 855-861, 2011.
18. M. Manji, "Cervical cancer screening program in Saudi Arabia: action is overdue," ASM, vol. 20, no. 5-6, pp. 355-357, 2000.
19. T. Altamimi, "Human papillomavirus and its vaccination: knowledge and attitudes among female university students in Saudi Arabia," Journal of Family Medicine and Primary Care, vol. 9, no. 4, pp. 1849-1855, 2020.
20. M. R. Salem, T. T. Amin, A. A. Alhulaybi, A. S. Althafar, and R. H. Abdelhai, "Perceived risk of cervical cancer and barriers to screening among secondary school female teachers in Al Hassa, Saudi Arabia," Asian Pacific Journal of Cancer Prevention, vol. 18, no. 4, pp. 969-979, 2017.
21. S. Malibari, "Knowledge about cervical cancer among women in Saudi Arabia," Egyptian Journal of Hospital Medicine, vol. 70, no. 10, pp. 1823-1825, 2018.
22. F. M. Al Meer, M. T. Aseel, J. Al Khalaf, M. G. Al Kuwari, and M. F. Ismail, "Knowledge, attitude and practice regarding cervical cancer and its prevention among females at Tabuk Uni- versity, Saudi Arabia." International Journal of Advanced Research, vol. 4, pp. 344-355, 2016.
23. K. Rajiah, M. K. Maharajan, N. S. Chin, and K. S. Num, "Awareness and acceptance of human papillomavirus vaccination among health sciences students in Malaysia," Virus Dis ease, vol. 26, no. 4, pp. 297-303, 2015.
24. G. Narayana, M. J. Suchitra, G. Sunanda, J. D. Ramaiah, B. P. Kumar, and K. V. Veerabhadrappa, "Knowledge, attitude, and practice toward cervical cancer among women attending obstetrics and gynaecology department: a cross-sectional hospital-based survey in South India," Indian Journal of Cancer , vol. 54, no. 2, pp. 481-487, 2017.
25. M. A. Alsaad, K. Shamsuddin, and F. Fadzil, "Knowledge towards HPV infection and HPV vaccines among Syrian mothers," Asian Pacific Journal of Cancer Prevention, vol. 13, no. 3, pp. 879-883, 2012
26. M. M. Almehmadi, M. M. Salih, and A. S. Al-Hazmi, "Awareness of human papillomavirus infection complications, cervical cancer, and vaccine among the Saudi population. A cross-sectional survey." Saudi Medical Journal, vol. 40, no. 6, pp. 555-559, 2019.
27. A. K. Johargy, A. Jamal, and M. A. Garout, "Knowledge, attitudes and practices towards human papillomavirus among females in Saudi Arabia," International Journal of Tropical Diseases, vol. 20, no. 2, pp. 1-11, 2016.
28. W. Kamzol, K. Jaglarz, K. A. Tomaszewski, M. Puskulluoglu, and K. Krzemieniecki, "Assessment of knowledge about cervi- cal cancer and its prevention among female

ISSN: 0975-3583, 0976-2833 VOL15, ISSUE3, 2024

students aged 17. 26 years," European Journal of Obstetrics, Gynecology, and Reproductive Biology, vol. 166, no. 2, pp. 196-203, 2013.

29. E. Arillo Santillan, E. Lazcano-Ponce, M. Peris, E. Salazar Martinez, J. Salmeron-Castro, and P. Alonso-De Ruiz, "Knowledge of health professionals about the prevention of cancer the cervix. Alternatives to medical education," Salud pública de México, vol, 42, no. 1, 2000.
30. E. A. Dhaher, "Knowledge, attitudes and practices of women in the southern region of Saudi Arabia regarding cervical cancer and the pap smear test," Asian Pacific Journal of Cancer Prevention, vol. 20, no. 4, pp. 1177-1184, 2019.
31. Z. Baloch, N. Yasmeen, Y. Li et al., "Knowledge and awareness of cervical cancer, human papillomavirus (HPV), and HPV vaccine among HPV-infected Chinese women," Medical Sci- ence Monitor, vol. 23, pp. 4269-4277, 2017.
32. D. Pandey, V. Vanya, S. Bhagat, B. Vs, and J. Shetty, "Aware- ness and attitude towards human papillomavirus (HPV) vac- cine among medical students in a premier medical school in India," PLoS One, vol. 7, no. 7, article c40619, 2012.
33. S. Aswathy, M. A. Quereshi, B. Kurian, and K. Leelamoni, "Cervical cancer screening: current knowledge & practice among women in a rural population of Kerala, India," The Indian Journal of Medical Research, vol. 136, no. 2, pp. 205- 210, 2012.
34. E. Were, Z. Nyaberi, and N. Buziba, "Perceptions of risk and barriers to cervical cancer screening at Moi Teaching and Referral Hospital (MTRH), Eldoret, Kenya," African Health Sciences, vol. 11, no. 1, pp. 58-64, 2011.
35. T. Nadarzynski, J. Waller, K. A. Robb, and L. A. Marlow, "Perceived risk of cervical cancer among pre-screening age women (18-24 years): the impact of information about cervical cancer risk factors and the causal role of HPV," Sexually Transmitted Infections, vol. 88, no. 6, pp. 400-406, 2012.