

KNOWLEDGE, ATTITUDE, AND PRACTICE TOWARDS CERVICAL CANCER AMONG HEALTH CARE WORKERS OF UTTARAKHAND

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Abstract

Background: Cervical cancer, a leading global concern among women, places a substantial strain on public health systems, persisting as a prevalent issue, especially in developing nations where the risk is notably elevated; this study specifically explores the pivotal role of healthcare workers in preventing cervical cancer by assessing their knowledge, attitudes, and practices. The primary objectives are to assess healthcare workers' knowledge, attitudes, and practices regarding cervical cancer and explore the influence of demographic variables on their understanding and behaviours. **Materials and Methods:** The present study is based on a cross-sectional study involving female healthcare professionals with at least one year of clinical experience. The survey, developed based on existing research, ensured reliability with a Cronbach's alpha exceeding 0.70. The participants, categorized into physicians, nurses, and allied healthcare workers, were selected randomly. The survey covered sociodemographic details and information on cervical cancer knowledge, attitudes, and practices. **Result:** The study comprised 173 participants, primarily nurses, with a significant proportion aged over 30 and married. Respondents exhibited substantial knowledge, with a majority recognizing multiple sexual partners and smoking as cervical cancer risk factors. Positive attitudes towards screening and vaccination were prevalent, although actual screening rates were relatively low at 30.1%. **Conclusion:** In conclusion, the study highlights the pivotal role of healthcare workers in cervical cancer prevention and emphasizes the need for targeted awareness campaigns. While there is a commendable level of awareness, disparities in practices indicates the necessity for tailored interventions to bridge knowledge gaps and promote preventive measures among healthcare professionals. These insights contribute to the development of effective strategies for cervical cancer prevention.

INTRODUCTION

Cervical cancer stands as a formidable global health challenge, exerting a profound impact on the lives of millions of women worldwide.^[1] As one of the top five prevalent cancers affecting women, it imposes a significant burden on public health systems, necessitating robust strategies for prevention, early detection, and treatment. The origin of cervical cancer lies in the cervix, the lower part of the uterus, with persistent infection by high-risk human

papillomavirus (HPV) types being a frequent precursor. Despite strides in healthcare, cervical cancer remains pervasive, transcending socioeconomic and geographic boundaries.

In the year 2020 alone, there were a staggering 604,127 reported instances of cervical cancer globally, resulting in 341,831 fatalities. In the hierarchy of cancers affecting women, cervical cancer secured the fourth position, trailing behind breast cancer (2.26 million cases), colorectal cancer (0.86 million), and lung cancer (0.77

million).^[2][Figure 1] Disturbingly, it claims the unenviable spot as the second most prevalent female cancer among women aged 15-44 in India, where an estimated 662,903 new cases and 77,348 deaths annually reflect the gravity of the situation. Although cervical cancer incidents are on the decline in developed regions, they persist as a substantial global burden, particularly in developing countries. The risk of developing cervical cancer in these nations is 35% higher than in developed counterparts, with India alone accounting for 23% of global mortality attributed to cervical cancer.^[3]

The role of healthcare workers emerges as pivotal in the comprehensive strategy against cervical cancer.^[4] Their knowledge, attitude, and practices play a central role in ensuring effective screening and treatment. A nuanced understanding of the disease, strict adherence to screening guidelines and a compassionate attitude collectively contribute to favourable patient outcomes. Healthcare workers assume critical roles in organizing and implementing screening programs, administering vaccinations, and educating patients on preventive measures. Their proficiency in communication and cultural competence becomes instrumental in engaging diverse populations and fostering participation in screening initiatives. Collaborative efforts within multidisciplinary teams led by healthcare workers ensure a holistic approach to cervical cancer care, with a focus on prevention, early detection, and patient-centered treatment strategies.

Understanding the knowledge, attitude, and practices of healthcare workers becomes imperative for refining and optimizing cervical cancer prevention and management. Their insights into the intricacies of the disease and their commitment to screening programs are fundamental elements in the broader public health response to cervical cancer. Ascertaining the factors that influence healthcare workers' perceptions and behaviours contributes significantly to developing targeted interventions aimed at enhancing cervical cancer prevention and control.

This study endeavors to delve into the realms of healthcare workers' knowledge, attitudes, and practices regarding cervical cancer. By conducting a cross-sectional study at Dr. K.K. Bhatnagar Memorial Hospital Subharti Medical College in 2023, the research focuses on female healthcare professionals with a minimum of one year of clinical experience, spanning physicians, nurses, and allied healthcare workers. The survey instrument meticulously developed based on existing research and ensuring reliability with a Cronbach's alpha exceeding 0.70, serves as the tool for data collection. Through random selection, participants are categorized into their respective professions, and the survey covers a spectrum of sociodemographic details and information on cervical cancer knowledge, attitudes, and practices.

As the study unfolds, the aim is twofold: firstly, to assess healthcare workers' knowledge, attitudes, and practices concerning cervical cancer, and secondly, to investigate the influence of demographic variables on their understanding and behaviours. This multifaceted exploration is poised to provide nuanced insights into the dynamics shaping healthcare workers' roles in cervical cancer prevention. The study holds the promise of unravelling critical information that can inform targeted interventions, ultimately contributing to the refinement and enhancement of cervical cancer prevention strategies among healthcare professionals.

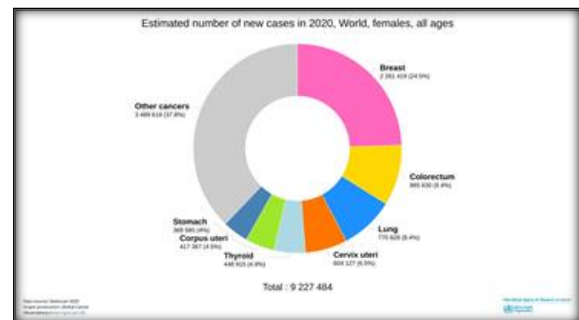


Figure 1: Estimated Number of New Cases of Cancer in 2020 among females

Aim & Objective(s)

The main aims of the study are:

1. Assessing the knowledge, attitude, and practices regarding cervical cancer among healthcare workers.
2. Investigating the impact of demographic variables such as age, education, marital status, etc., on the understanding, outlook, and behaviours of healthcare workers regarding cervical cancer.

MATERIALS AND METHODS

A cross-sectional study was conducted at Gautam Buddha Chikitsa Mahavidyalaya in 2023. The research focused on women in the healthcare profession who possessed a minimum of one year of clinical expertise, encompassing physicians, nurses, and other allied health professionals. The survey was crafted based on existing research findings [3,7,8,9,13,22] following a thorough examination of the literature. Findings from both the pilot and the current research indicated that Cronbach's alpha exceeded 0.70.^[5]

The research participants were categorized based on their professions into three distinct groups: physicians, nurses, and allied healthcare workers. Participants for the study were chosen through a random selection process within each profession. Each questionnaire was accompanied by a survey cover sheet outlining the study, and individuals who voluntarily signed it proceeded to the subsequent stage of completing the questionnaire. The survey

did not include subject identifiers, ensuring the preservation of confidentiality. A dedicated research assistant, trained for the task, facilitated the enrolment of willing participants who completed and returned the questionnaire.

The survey encompassed a comprehensive range of information, covering sociodemographic characteristics, knowledge, attitudes, and practices related to cervical cancer screening. To gauge participants' knowledge of cervical cancer, questions were posed regarding aspects such as menstrual abnormalities, bleeding after intercourse, foul-smelling vaginal discharge, and the importance of avoiding early intercourse, among other factors affecting women's vulnerability. For assessment of attitude five statements of the following, were asked 1. Cervical cancer is highly prevalent and is a leading cause of death among all cancers in India 2. Any woman including you can acquire cervical cancer 3. Cervical cancer cannot be transmitted from one person to another 4. Screening helps in the prevention of cervical cancer and 5. Screening causes no harm to the patient. Participants' practices were assessed by asking specific questions about practices regarding cervical cancer. Respondents were asked whether they had they had undergone Pap smear testing, Pap smear test is painful and whether they had they had been vaccinated for HPV vaccine Respondents were provided with two response options, "Yes" or "No," for each item. The scale was subsequently dichotomized, assigning a value of 1 to "Yes" and 0 to "No." Prior to enrolment, explicit consent was secured from each participant, ensuring their informed agreement to participate in the study.

SPSS, version 26 is used for the statistical analyses in our study.^[6] To assess the normality of distribution for knowledge, attitude, and practice scores, we employed a one-sample Kolmogorov-Smirnov test. Descriptive statistics, such as mean±SD for measurement data and frequency with percentage for categorical data, were employed. Pre-intervention, parametric tests including t-tests and ANOVA were applied to compare different subgroups of participants. Furthermore, independent samples t-tests and one-way ANOVA were conducted to examine KAP scores variations across

student groups categorized by age, marital status, education, designation and number of pregnancies. The statistical significance level was set at $\alpha=0.05$."

RESULTS

A large proportion of our respondents were nurses 90 (52.0 %), with age greater than 30 (70.5%), were married (43.9%). The majority of our respondents were high school / Diploma holders (48.0 %). [Table 1]

More respondents had correct knowledge of cervical cancer screening. The majority of our respondents agreed that having multiple sex partners is the underlying cause of cervical cancer 152 (87.9%) and cigarette smoking is another cause of cervical cancer 150(86.7%). Many respondents knew Cervical Cancer screening 143(82.7%) and about HPV Vaccination 134(77.5%). [Table 2]

[Table 3 and Table 4] depict the attitude and practice towards cervical cancer. The majority had a positive attitude towards cervical cancer. 166 (96.0%) had a positive attitude towards screening can help in the prevention of cervical cancer along with 141(81.5%) who were aware that Screening causes no harm to the patient. 156 (90.2%) had a better attitude that Cervical cancer is highly prevalent and is a leading cause of death among all cancers in India.

[Table 5] describes the score of knowledge, attitude, and practices towards cervical cancer concerning socio-demographic variables such as age, marital status, education, number of pregnancies, and designation. The mean knowledge scores of the females who had 2+ pregnancies were higher than others also mean knowledge scores of medical doctors were highest, and the difference in score was significant ($P>0.05$). A higher score of attitude was observed in females age ≥ 30 , married, master's degree holders, medical doctors, and females who had 2+ pregnancies than their counterparts. The difference in each category was found to be significant ($P<0.05$). In addition, the difference in practice score was significant between marital status, education, and designation ($P<0.05$).

Table 1: Demographic characteristics of healthcare workers

Variable	Categories	N	%
Age (years)	<30	122	70.5
	≥ 30	51	29.5
Marital Status	Married	76	43.9
	Unmarried	23	13.3
	Single (sexually Active)	74	42.8
Education	High school/Diploma	83	48.0
	Bachler	51	29.5
	Master	39	22.5
Number of Pregnancies	0	127	73.4
	1	29	16.8
	2	17	9.8
Designation	Medical Doctors	35	20.2
	Nurses	90	52.0
	Others	48	27.7

Table 2: Knowledge regarding symptoms and preventive measures of cervical cancer

Questions	Yes		No	
	N	%	N	%
K1. Menstrual abnormality	135	78.0	38	22.0
K2. Bleeding after intercourse	108	62.4	65	36.6
K3. Foul Smelling vaginal Discharge	135	78.0	38	22.0
K4. Avoid early intercourse	130	75.1	43	24.9
K5. Avoid multiple sex partners	152	87.9	21	12.1
K6. Avoid Cigarette Smoking	150	86.7	23	13.3
K7. HPV Vaccination	134	77.5	39	22.5
K8. Screening for Cervical cancer	143	82.7	30	17.3

Table 3: Attitude towards cervical cancer

Questions	Agree		Disagree	
	N	%	N	%
A1. Cervical cancer is highly prevalent and is a leading cause of death among all cancers in India	156	90.2	17	9.2
A2. Any woman including you can acquire cervical cancer	129	74.6	44	25.4
A3. Cervical cancer cannot be transmitted from one person to another	107	61.8	66	38.2
A4. Screening helps in the prevention of cervical cancer	166	96.0	7	4.0
A5. Screening causes no harm to the patient	141	81.5	32	19.5

Table 4: Practice towards cervical cancer

Questions	Yes		No	
	N	%	N	%
P1. Have you ever undergone a PAP smear test	52	30.1	121	69.9
P2. PAP smear test is painful	54	62.4	119	36.6
P3. Whether you have been vaccinated for HPV	50	28.9	123	71.1

Table 5: Comparison of knowledge, attitude, and practice scores among different demographic variables

Variable	Categories	Knowledge			Attitude			Practice		
		Mean±S D	t/F value	p- value	Mean±S D	t/F value	p- value	Mean±S D	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**
	Bachler	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		

*Significant at 5% level of significance, **Significant at 1% level of significance

DISCUSSION

Prevention and control of cervical cancer depend on awareness of the disease, screening procedures, and preventive measures.^[7] The current study is significant since cervical cancer is a frequent gynaecological cancer in developing nations and cervical cancer screening is a crucial impediment to illness prevention, there is a dearth of knowledge regarding its basic causes and consequences. Since health workers are crucial in disseminating information about cervical cancer prevention strategies to a larger community, this study offers insights into the knowledge, attitudes, and practice of cervical cancer prevention among staff members of a tertiary care hospital in Dehradun.

The survey included 173 female health workers in total. The average age of research participants was

33.2 years, while the mean age of participants in studies by Zahedi and Khanna et al was 34 years. (8,9) In contrast, the mean age of participants in studies by Kashyap et al. and (Easwaran) was 19.77 ± 6.708 years and 54.3 ± 9.8 years, respectively.^[10,11] According to Dhodapkar SB et al., the bulk of the 159 participants (79.5%) were girls between the ages of 20 and 24.^[12]

A considerable percentage of the female HCWs in the current study—76, or 43.9%—were married, in contrast to a study by Khanna et al. that found 93.1% of female HCWs were married. However, 97.1% of them were single, according to research by Eswaran et al.^[11] Ninety (52.0%) of the study's participants were nurses. Similarly, Catherine et al. found that, in a healthcare setting, midwives and nurses made up the majority of responders (59%).^[13] In contrast to a study by Khanna et al. that indicated

93.1% of female HCWs were married, a significant portion of the current study's female HCWs—76, or 43.9%—were married. However, a study by Eswaran et al. revealed that the majority of them—97.1%—were single.^[9,11]

Out of the study participants majority, 90 (52.0%) were nurses, similar to this, Kress et al in a health care setting found majority of respondents were nurses or midwives (59%).^[13]

In this study around most of health care professionals 135 (78.0%) were aware that menstrual irregularity is a common symptom for chances of development of Cervical cancer later in life, similar to this study conducted by Khanna et al also observed that 183 (66.1 %) of health workers had knowledge of intermenstrual bleeding symptoms of ^[15].... Subsequent research by Singh et al. and James et al. likewise found that 83% and 79% of the participants, respectively, were aware that vaginal bleeding during menstruation could be a sign of cervical cancer.^[8] (James) Gupta et al. discovered that only 132 (38.9%) of research participants were aware that irregular menstrual cycles could be the cause of cervical cancer.^[16] In the present study 108 (62.4%) of health workers had knowledge that bleeding after intercourse is significant symptom of cancer cervix, similar findings, 171 (61.7%) and 93 % were observed by Khanna et al. and James et al observed in their study among health workers,^[9,15] however contrary to our findings study done by Singh et al observed that only 52 (26.0%) females had knowledge of post coital bleeding as a risk factor for development of cancer cervix in later life.^[9]

Study done by Pooja et al found that 59% were aware about its symptoms amongst them 46.5% were aware of post coital bleeding, 36% about intermenstrual bleed, 44.5% were aware about altered color and foul smelling cervical discharge in a study conducted on medical and paramedical staff.^[10] In the present study 135 (78.0%) knew that the foul smelling discharge is a very common symptom for development of cancer cervix .Similar to this study , Singh & James et al also observed that 132 (66%) and 83 % of health workers had this knowledge respectively.^[8,9] Many studies have also suggested that women with multiple sexual partners are at high risk for HPV acquisition and cervical cancer. (Remschmidt C, Clements AE).^[11,12] In this study knowledge regarding avoidance of multiple sexual partners and avoiding intercourse at early age was observed in 152 (87.9%) and 130 (75.1%) health care workers respectively. James et al also observed that nearly all participants 283 (99 %) correctly identified that having multiple sexual partners and early sexual debut by 92 % of females is a risk factor for cervical cancer.^[9] Similar findings were observed by Zahedi et al that 83.3% of study subject correctly identified HPV infection and multiple partners as risk factors for cervical cancer.^[8]

It has been repeatedly shown that smoking causes a higher risk of cervical cancer, regardless of the location.(IARC, Guillaud M, Roura E.).^[19-21] The International Agency for Research on Cancer found that smoking is positively correlated with the prevalence of cervical cancer and raises the risk of the disease, particularly in women who are positive for the human papillomavirus (HPV). This information was derived from a pooled analysis of a multicentric case-control research. (Plummer).^[17] In this study, 150 (86.7%) of the participants believed that quitting smoking would reduce their risk of developing carcinoma cervix. James et al. found that in 120 (42% of cases), participants thought that tobacco use was a risk factor for cervical cancer; however, a study by Heena et al. found that 39 (9.9%) of participants were unaware of this.^[9]

In this study 134 (77.5%) of respondents have knowledge regarding the protective role of HPV vaccination, similar to the study by Chawla et al,^[18]...also mentioned that HPV vaccination can reduce the burden of cervical cancer in India by more than 75 percent, contrary to this study done by Swaranpriya et al in their study observed that only 44.9% of the medical and paramedical students knew about HPV vaccination,^[25] however study by Singh et al observed that a very low 22 (11%) respondents knew about HPV vaccine as preventive measure. (Singh S et al).^[14]

Cervical cancer screening is a critical and the most effective method for early detection and treatment of precancerous lesions and mortality reduction of cervical cancer.

In the present study, 166 (96%) of participants have an attitude similar to 94.3% of health workers in a study by Easwaran et al that cervical cancer screening is apt for the prevention of cancer cervix,^[11] however,a study by Zahedi et al found that half of the participants didn't find any role of screening in prevention of cervical cancer.^[8]

In the present study 52(30.1%) have undergone a PAP smear test, similar to the study by Singh et al who found 54 (27%) respondents knew that a pap smear test should be done as a screening test to detect cervical cancer in early stage,^[14] contrary to this study in Uganda by James et al found that 277 (97%) participants knew that early screening is a preventive measure for cervical cancer screening.^[15]

In our study general awareness of cervical cancer was high among all respondents with 156 (90.2%) identifying cervical cancer as an important cause of morbidity and is a leading cause of death and it can be acquired by any woman 129 (74.6%), similar to this study done by Zahedi et al,^[8]found that 100% of participants correctly stated that cervical cancer is one of the leading causes of death in women worldwide, however, 71.4% of women stated that they don't consider themselves at risk for development of cancer.^[8]

In another study by Kress et al 81% and Gupta et,^[20] al 80 % identified cervical cancer as an important cause of morbidity and mortality for

women, compared to studies done by Ganje et al 66%, Tongtong et al 51.9% reported slightly lower awareness.^[13,27,28] Easwaran et al also observed that 62.2% of participants agreed or strongly agreed that cervical cancer may lead to death and 57.9% of women think that it can affect women of any age, only 25.7% of study participants thought that they would have a chance of getting cervical cancer.^[11]

In the present study majority of participants, 166 (96.0%) felt screening is important in the prevention of carcinoma cervix and 141 (81.5%) felt that it is harmless however only in another study by Easwaran found that only 71.5% stated that cervical cancer screening helps prevent cervical cancer.^[11]

Kress et al observed that 98 % of respondents found it to be a serious disease and 97% consider cervical screening should be an essential part of women's health in the prevention of cancer cervix.^[13] James et al found that (75%) of female health workers who self-reported to have ever been screened for cervical cancer.^[21]

Various studies show a widespread perception of the Pap smear as an uncomfortable and embarrassing event during the procedure. In the present study 52 (30.1%) of participants underwent PAP smear testing and most of them 54(62.4%) found it to be painful. In a study done by Heena et al found that 156 (39.5 %) of participants found it to be painful.^[22]

Overall vaccination for HPV was very low among study participants, only 50 (28.9%) have received vaccination, Heena et al,^[22] also observed that only 22 (5.6%) were vaccinated against HPV, Easwaran et al found that majority of participants 93.6% had not received a cervical cancer vaccine,^[17] Uzunlar et al and Bencherit et al observed that the rate of willingness to be get vaccinated was very low 33.7% and 26.7% among study participants in the nursing student group.^[29,30]

CONCLUSION

In conclusion, this study on the knowledge, attitudes, and practices of cervical cancer prevention among female health workers in a tertiary care hospital in Dehradun sheds light on critical aspects of cervical cancer awareness and prevention. The research encompassed 173 participants, predominantly nurses, revealing insights into their understanding and practices regarding cervical cancer. The findings underscore the significance of enhancing awareness among health workers, given their pivotal role in disseminating information about cervical cancer prevention. Notably, a considerable proportion of participants demonstrated awareness of key symptoms, such as menstrual irregularities, bleeding after intercourse, and foul-smelling discharge, aligning with existing literature on the subject. Crucially, the study highlighted gaps in knowledge, particularly regarding the causes and consequences of cervical cancer. While the majority

acknowledged the importance of screening, there was a notable disparity in actual screening practices, with only 30.1% undergoing PAP smear tests. This reflects potential barriers, including perceptions of discomfort and pain associated with screening procedures. Furthermore, the study unveiled variations in knowledge about risk factors, such as multiple sexual partners and smoking. Encouragingly, a significant majority recognized the protective role of HPV vaccination and the importance of quitting smoking in reducing cervical cancer risk. Despite the high general awareness of cervical cancer, the study revealed a need for targeted interventions to bridge knowledge gaps and promotes preventive practices among healthcare professionals. These insights are invaluable for developing tailored awareness campaigns and interventions aimed at improving cervical cancer prevention strategies among health workers.

Limitations

Limitations of the study include the reliance on self-reported data, potentially introducing response bias. The focus on a single medical institution limits the generalizability of findings. The cross-sectional design restricts the establishment of causal relationships. Additionally, the study lacks qualitative insights, hindering a deeper understanding of healthcare workers' perspectives. Future research with diverse populations and longitudinal approaches could address these limitations for a more comprehensive understanding.

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