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An observational study to assess awareness of cervical cancer among the adult women of field practice area of urban health training center in Kolkata

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ABSTRACT

Background: Cervical cancer is a major public health problem, especially worldwide. Lack of awareness about the risk factors, signs and symptoms, and danger signs has led to a rise in the prevalence of the disease in countries like India. **Aims and Objectives:** The aim of the study was to assess the awareness of cervical cancer and its risk factors among the adult female population residing in the urban slum of Kolkata Municipal Corporation area and their attitude toward the disease. **Materials and Methods:** A cross-sectional study was conducted among 720 adult female residents of the field practice area of the urban health training center of NRS Medical College using a predesigned pretested questionnaire. **Results:** In the current study, 58.3% of subjects were married at <18 years of age and 38.3% with >2 children. A significant association was found among inter-menstrual bleeding and persistent low back pain with a family history of cancer, persistent vaginal discharge, and postmenopausal bleeding with education, dyspareunia showed significant association with age, education, and family type, heavy menstruation with religion. Furthermore, the association between postcoital bleeding with education and blood in the urine or stool with marital status was found to be significant. A significant association was found between confidences about noticing a symptom with marital status ($P<0.05$). **Conclusion:** Unsatisfactory knowledge about cervical cancer among adult women in an urban slum poses the risk of the disease. Awareness of risk factors of cervical cancer, along with early diagnosis and treatment, can decline the burden of the disease.

Key words: Cervical cancer; Screening; Awareness

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INTRODUCTION

Worldwide, cervical cancer has emerged as an important public health problem. It accounts for 570,000 cases of cervical cancer worldwide with 311,000 deaths from the disease in 2018.[1] Together, India and China contributed more than a third of the global cervical cancer burden. There were 97,000 cases in India, with a fatality of 60,000. It mainly affects middle-aged women and is more prevalent in the lower socioeconomic group of the population.[1] Cervical cancer is the second-most common cancer among women in India. It contributes to 6–29% of all cancers among women in India. It is also found to be most prevalent among the 15–44 years of age group. Women aged 15 years and older constitute a vast population in India who are at risk of developing cervical cancer.[2,3] Since 1975, India has had a national program for cancer. Emphasis on primary prevention and early detection of cancer cases was given in 1984–1985, and the district cancer control program was developed in 1990–1991. Effect was found in the declining trend of cervical cancer by population-based registries but still, it remains a major public health problem.

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There are disparities in screening, treatment, and survival of patients in the absence of a nationwide screening program.[4]

Awareness of cervical cancer, its risk factors, and prevention is low among women in India, especially in the rural population. Illiteracy and ignorance are very important contributing factors in the development of cervical cancer. Risk factors such as poor hygienic conditions, early marriage, multiple pregnancies, and reproductive tract infection, especially Human Papillomavirus (HPV) infections are more prevalent among this disadvantaged group of people. Only 15% of women knew HPV infection as a risk factor for cervical carcinoma, as found by Singh et al. However, 79% knew inter-menstrual bleeding as a symptom of cervical cancer. Most of women are not even aware that screening for risk factors, and regular cervical cytological examination can prevent of carcinoma cervix.[5,6] Another study found that for those who are aware of cervical cancer (74.6%), their source of information was media and friends.[7] Arunadevi and Prasad found that 38% of the respondents knew that cervical cancer was the most common gynecological malignancy and 36% recognized it as the second-most common gynecological cancer causing death.[8] Thus, awareness of cervical cancer and its risk factors is very important in the prevention, early diagnosis, and treatment of cervical cancer. With this background, the current study was conducted with the objective to assess the awareness of cervical cancer and its risk factors among the adult female population residing in the urban slum of the Kolkata Municipal Corporation area and their attitude toward the disease.

Aims and objectives

To assess the awareness of cervical cancer and its risk factors among the adult female population residing in the urban slum of the Kolkata Municipal Corporation area and their attitude toward the disease.

MATERIALS AND METHODS

An observational cross-sectional study was conducted in the field practice area of the urban health training center of NRS medical college, located in ward no: 54 in the Kolkata Municipal area, over 10 months (January 2021–October 2021). All the adult women above 18 years of age residing in the ward for more than 6 months constituted the study population. Using the formula of Z^2PQ/L^2, taking prevalence (P) of 38% as the prevalence of awareness among the adult female population,[8] with α=0.05, an allowable error of 10%, and non-response rate of 10%; the sample size was estimated to be 720. The sampling frame consisted of the total number of houses. A simple random sampling technique was used to select the desired sample size. House numbers were selected randomly and the adult female residents of the selected houses were interviewed after obtaining informed written consent. This process was continued till the desired sample size was attained. Ethical permission was obtained from the Institutional Ethics Committee (No/NMC/7637 dated December 12, 2020).

All the adult female residents giving consent to participate in the study were included and ladies, who were currently suffering from cervical cancer and had not been residents for the last 6 months were excluded from the study. Predesigned pretested semi-structured questionnaire having two parts with a consent form attached to it was used. The first part contained information regarding sociodemographic profile, and personal history and the second part contained questions on their knowledge about symptoms, risk factors of developing cancer, warning signs, preventive measures, and their health-seeking behavior.

Analysis

Data were compiled, and analysis was done with the help of MS Excel and Epi Info: Version: 7.2.2.6/February 2, 2018. Chi-square tests were applied where necessary.

RESULTS

Majority of the study population were in the age group of 20–34 years (357, 49.6%), and most of them were of Muslim religion (554, 76.9%). Most of the study subjects were from nuclear family (470, 65.3), homemaker (637, 88.5%) and attained primary level (379, 52.6) of education. Majority of the women were married (686, 95.3%) the age of marriage being <18 years (420, 58.3%), and the number of children being >2 in 271 (37.6%) of cases. Six hundred and sixty-nine (92.9%) women had no addiction. Three hundred and seventy-three (52.8%) women did not have any history of contraceptive use. Family history of cancer in 1st-degree relatives was absent in 657 (91.3%) women. Four hundred and eighteen (58.1%) of them heard about cancer cervix and majority of them 560 (77.7%) were of the opinion to contact a doctor as soon as possible if there is a symptom.

Coming to agreement of study participants regarding risk factors which increase a woman's chance of developing cervical cancer, maximum women agreed that smoking any cigarettes at all, having a weakened immune system (for example, because of HIV/AIDS, immunosuppressant drugs, or having a transplant) and having many sexual partners could increase the risk of cervical carcinoma (Figure 1).

Among the warning signs of cervical cancer, maximum women had knowledge about vaginal bleeding between periods, persistent vaginal discharge that smells unpleasant, and menstrual periods that are heavier or longer than usual unexplained weight loss as warning signs. However, majority of women did not consider persistent lower back pain, vaginal bleeding during or after sex, vaginal bleeding after menopause, and blood in the stool or urine as dangerous signs of cancer cervix. Most of the women could not comment on the possibility of discomfort or pain during sex and persistent diarrhea as warning signs (Table 1).

Majority (52%) of study subjects were not very confident about noticing symptoms of CA cervix such as postcoital bleeding, intermenstrual bleeding, foul-smelling vaginal discharge, dyspareunia, postmenopausal bleeding and only 1% were very confident regarding the same (Figure 2).

Among the symptoms of CA Cervix, vaginal bleeding between periods and persistent low back pain were significantly associated with women with a family history of cancer in 1st degree relatives. Persistent vaginal discharge that smelt unpleasant and vaginal bleeding after menopause showed significant association with education, discomfort, or pain during sex showed significant association with age, education, and type of family. Menstrual periods that are heavier or longer than usual were significantly associated with religion, whereas persistent diarrhea was significantly associated with age, religion, education, type of family, and family history of cancer in 1st degree relatives. Vaginal bleeding during or after sex showed a significant association with education and marital status and blood in the urine or stool was significantly associated with marital status (Table 2).

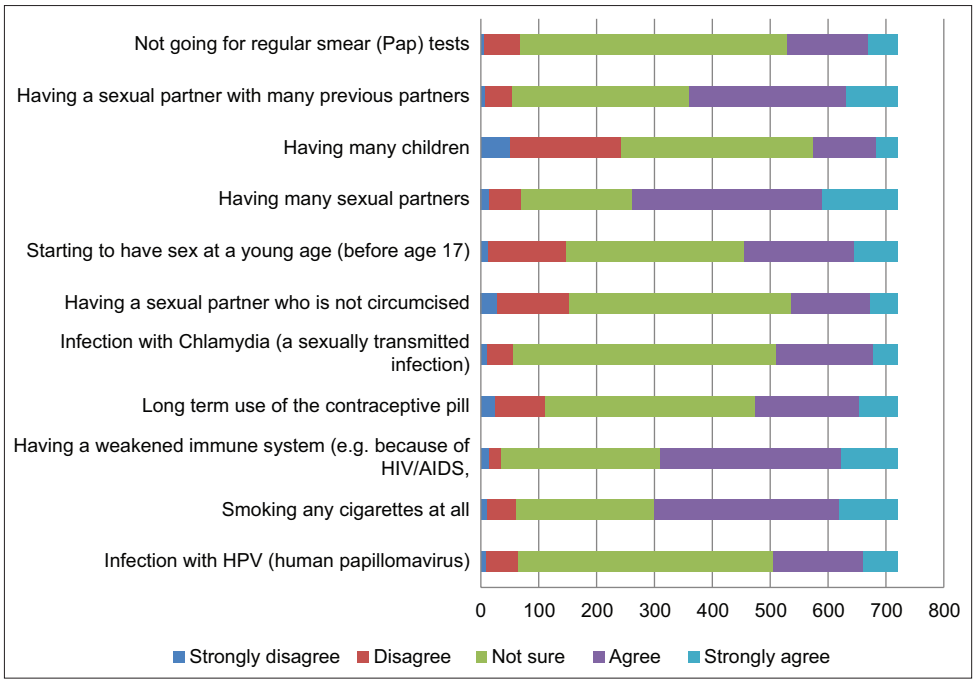

Figure 1: Distribution of study participants according to their agreement regarding factors increasing a woman's chance of developing cervical cancer, (n=720)

Table 1: Distribution of study subjects according to knowledge regarding warning signs of cancer (n=720)

Signs of vaginal cancer	Yes	No	Do not know
	No (%)	No (%)	No (%)
Vaginal bleeding between periods	373 (51.8)	307 (42.6)	40 (5.6)
Persistent lower back pain	134 (18.6)	576 (80.0)	10 (1.4)
Persistent vaginal discharge that smells unpleasant	632 (87.8)	3 (0.4)	85 (11.8)
Discomfort or pain during sex	210 (29.2)	5 (0.7)	505 (70.1)
Menstrual periods that are heavier or longer than usual	661 (91.8)	6 (0.8)	53 (7.4)
Persistent diarrhea	157 (21.8)	188 (26.1)	375 (52.1)
Vaginal bleeding during or after sex	232 (32.2)	464 (64.4)	24 (3.3)
Vaginal bleeding after the menopause	230 (31.9)	466 (64.7)	24 (3.3)
Blood in the stool or urine	54 (7.5)	661 (91.8)	5 (0.7)
Unexplained weight loss	409 (56.8)	156 (21.7)	155 (21.5)

Table 2: Distribution of study subjects according to determinants of knowledge about various warning signs of cervical cancer: (n=720)

Sociodemographic variable	Vaginal bleeding between periods	Persistent low back pain	Persistent vaginal discharge that smells unpleasant	Discomfort or pain during sex	Menstrual periods that are heavier or longer than usual	Persistent diarrhea	Vaginal bleeding after the menopause	Vaginal bleeding during or after sex	Blood in the stool or urine	Unexplained weight loss
	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)
Age (years)										
20–34	189 (52.9)	75 (21.0)	316 (88.5)	104 (29.1)	328 (91.9)	88 (24.6)	116 (32.5)	118 (33.1)	28 (7.8)	211 (59.1)
35–49	143 (50.5)	50 (17.7)	252 (89.0)	95 (33.6)	259 (91.5)	55 (19.4)	90 (31.8)	90 (31.8)	24 (8.5)	156 (55.1)
50–64	34 (52.3)	8 (12.3)	53 (81.5)	9 (13.8)	61 (93.8)	12 (18.5)	23 (35.4)	23 (35.4)	5 (7.7)	35 (53.8)
≥65	7 (46.7)	1 (6.7)	11 (73.3)	2 (13.3)	13 (86.7)	2 (13.3)	1 (6.7)	1 (6.7)	0 (0.0)	7 (46.7)
	P=0.749	P=0.269	P=0.074	P=0.014	P=0.408	P=0.023	P=0.308	P=0.294	P=0.906	P=0.431
Religion										
Hindu	75 (49.0)	36 (23.5)	134 (87.6)	50 (32.7)	138 (90.2)	34 (22.2)	59 (38.6)	59 (38.6)	15 (9.8)	92 (60.1)
Muslim	293 (52.9)	96 (17.3)	487 (87.9)	158 (28.5)	511 (92.2)	123 (22.2)	168 (30.3)	170 (30.7)	41 (7.4)	308 (55.6)
Christian	5 (38.5)	2 (15.4)	11 (84.6)	2 (15.4)	12 (92.3)	0 (0.0)	3 (23.1)	3 (23.1)	1 (7.7)	9 (69.2)
	P=0.139	P=0.419	P=0.977	P=0.133	P=0.007	P=0.030	P=0.295	P=0.329	P=0.902	P=0.613
Education										
Illiterate	56 (46.7)	16 (13.3)	96 (80.0)	22 (18.3)	107 (89.2)	26 (21.7)	30 (25.0)	30 (25.0)	11 (9.2)	65 (54.2)
Primary	189 (49.9)	68 (17.9)	347 (91.6)	112 (29.6)	346 (91.3)	66 (17.4)	129 (34.0)	129 (34.0)	23 (6.1)	209 (55.1)
Secondary	107 (58.2)	44 (23.9)	157 (85.3)	66 (35.9)	175 (95.1)	51 (27.7)	62 (33.7)	63 (34.2)	20 (10.9)	113 (61.4)
Higher secondary and above	21 (56.8)	6 (16.2)	32 (86.5)	10 (27.0)	33 (89.2)	14 (37.8)	9 (24.3)	10 (27.0)	3 (8.1)	22 (59.5)
	P=0.308	P=0.284	P=0.006	P=0.014	P=0.172	P=0.023	P=0.001	P=0.001	P=0.594	P=0.575
Type of family										
Nuclear	248 (52.8)	86 (18.3)	421 (89.6)	155 (33.0)	423 (90.0)	98 (20.9)	159 (33.8)	161 (34.3)	33 (7.0)	272 (57.9)
Joint	125 (50.0)	48 (19.2)	211 (84.4)	55 (22.0)	238 (95.2)	59 (23.6)	71 (28.4)	71 (28.4)	24 (9.6)	137 (54.8)
	P=0.665	P=0.222	P=0.120	P=0.006	P=0.052	P=0.001	P=0.120	P=0.103	P=0.457	P=0.674
Marital status										
Married	350 (51.0)	128 (18.7)	602 (87.8)	202 (29.4)	630 (91.8)	151 (22.0)	220 (32.1)	222 (32.4)	50 (7.3)	393 (57.3)
Unmarried	2 (50.0)	2 (50.0)	4 (100.0)	2 (50.0)	4 (100.0)	1 (25.0)	4 (100.0)	4 (100.0)	2 (50.0)	3 (75.0)
Separated	17 (73.9)	3 (13.0)	20 (87.0)	5 (21.7)	20 (87.0)	5 (21.7)	5 (21.7)	5 (21.7)	3 (13.0)	12 (52.2)
Widow	4 (57.1)	1 (14.3)	6 (85.7)	1 (14.3)	7 (100.0)	0 (0.0)	1 (14.3)	1 (14.3)	2 (28.6)	1 (14.3)
	P=0.350	P=0.719	P=0.993	P=0.347	P=0.596	P=0.671	P=0.044	P=0.045	P=0.000	P=0.062
Family history of cancer in 1st degree relative										
Present	45 (71.4)	19 (30.2)	51 (81.0)	23 (36.5)	61 (96.8)	10 (15.9)	16 (25.4)	16 (25.4)	4 (6.3)	36 (57.1)
Absent	328 (49.9)	115 (17.5)	581 (88.4)	187 (28.5)	600 (91.3)	147 (22.4)	214 (32.6)	216 (32.9)	50 (7.6)	373 (56.8)
	P=0.000	P=0.046	P=0.105	P=0.255	P=0.300	P=0.000	P=0.118	P=0.111	P=0.731	P=0.824

Confidence about identifying a cervical cancer symptom was maximum in the 20–34 years age group, married women, and those without a family history of cervical cancer. A significant association was found between confidence about the identification of a symptom with marital status (Table 3). Knowledge about the HPV vaccine for the prevention of CA cervix showed only 21.8% of study participants had the knowledge that HPV prevents cervical cancer.

DISCUSSION

Cancer awareness generation and risk factor detection are important steps in cancer prevention. A current study was conducted to assess the awareness of cervical cancer and its risk factors among the adult female population residing in the urban slum of Kolkata. It was found that 58.1% of the study subjects heard about cancer cervix and 77.7% were of the opinion of advice from a doctor. Majority of women in the current study were not aware of HPV infection as an important risk factor for cancer cervix. However, awareness about multiple sex partners, smoking, and weakened immune systems like HIV infection as risk factors for cancer cervix were present. A study conducted in India by Taneja et al., found that 40.22% of young adult women were aware of cervical cancer. They mentioned early age of marriage (32.68%) and early sexual activity (23.01%) as risk factors for cervical cancer.[9] Research conducted among undergraduate college students observed that girls had 1.2–3 times higher knowledge that boys. Girls had more knowledge of cervical cancer (82.45%), HPV (45.61%), and HPV vaccine (44%).[10] Knowledge of female college students of Kolkata was assessed for cervical cancer and its risk factors, Papanicolaou smear testing for screening, HPV vaccination, etc. Only 20% of the students identified cervical cancer as a public health problem. However, many considered early sexual activity (41%), and multiple sex partners (29%) as risk factors. Very few (15%) were aware of multiparity as a risk factor. Although 75% of the students desired to have protective vaccination.[11] A study in Botswana found that 54% of the public health clinic attendees were not aware of the causes of cervical cancer.[12] A survey was conducted on awareness of cervical cancer among female university students in South Africa, which had a higher prevalence of cervical cancer. It was found that overall knowledge was poor.[13] Awareness about cervical cancer was found to be 58% among refugee women in the United States. Only 45% identified the virus as one of the causative agents of cancer cervix.[14]

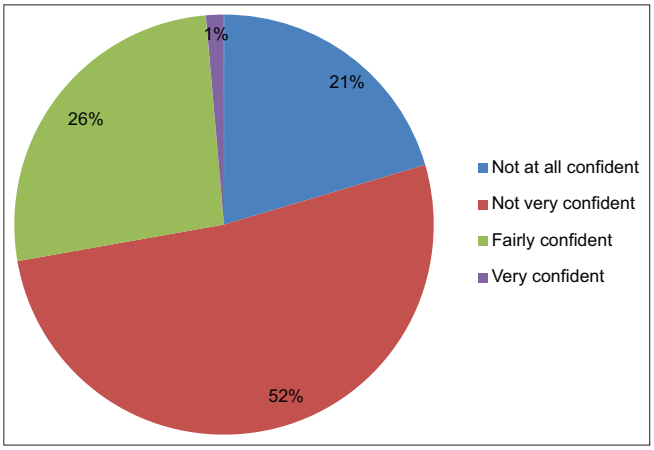

Figure 2: Distribution of study participants according to their confidence in noticing symptoms of CA cervix, (n=720)

Table 3: Distribution of study subjects according to determinants of confidence about noticing a cervical cancer symptom (n=720)

Sociodemographic variable	Determinants of Confidence about noticing a cervical cancer symptom			
	Not at all confident	Not very confident	Fairly confident	Very confident
	No (%)	No (%)	No (%)	No (%)
Age (years)				
20–34	99 (52.1)	58 (39.5)	195 (52.3)	5 (50.0)
35–49	74 (38.9)	63 (42.9)	143 (38.3)	3 (30.0)
50–64	13 (6.8)	20 (13.6)	30 (8.0)	2 (20.0)
≥65	4 (2.1)	6 (4.1)	5 (1.3)	0 (0.0)
		P=0.097		
Marital status				
Married	178 (93.7)	140 (95.2)	358 (96.0)	10 (100.0)
Unmarried	0 (0.0)	0 (0.0)	4 (1.1)	0 (0.0)
Separated	6 (3.2)	6 (4.1)	11 (2.9)	0 (0.0)
Widow	6 (3.2)	1 (0.7)	0 (0.0)	0 (0.0)
		P=0.038		
Family history of cancer in 1st degree relative				
Present	12 (6.3)	10 (6.8)	41 (11.0)	0 (0.0)
Absent	178 (93.7)	137 (93.2)	332 (89.0)	10 (100.0)
		P=0.144		

Most adult female participants in Uganda had heard about cervical cancer. Risk factors such as multiple sexual partners (88%), HPV infection (82%), and early onset of sexual activity (78%), were recognized by the study subjects. 63% of participants considered prolonged use of family planning pills and injections as a risk factor for cervical cancer.[15]

In the present study, most of the study population were aware of the warning symptoms of cervical cancer such as, menorrhagia (91.8%), foul-smelling discharge (87.8%), and intermenstrual bleeding (51.8%). However, they were less aware of the other danger signs and symptoms. An Indian study observed that intermenstrual bleeding (30.75%) and foul-smelling discharge (28.86%) were the two most commonly reported warning signs.[9] A study was conducted among the attendees of two public health clinics in Gaborone, the capital of Botswana. It was found that 77% of respondents in Botswana were aware of the symptoms of cervical cancer.[12] Knowledge of cervical cancer symptoms among Jamaican women attending health facilities such as health centers and hospitals was inadequate. Realization of symptoms such as pelvic pain (43.6%), dyspareunia (40.6%), blood in vaginal discharge (92.7%), postmenopausal bleeding (50.3%), intermenstrual bleeding (47.3%), postcoital bleeding (33.8%) were found to be insufficient for prevention of cervical cancer.[16] Majority (52%) of study participants in the present study were not very confident about noticing symptoms of cancer cervix and only 1% were very confident regarding the same.

Similarly, female university students in South Africa were able to identify the major risk factors of cervical cancer, but that did not translate into their realization of personal risk factors of cancer cervix.[13] Study population with a family history of cancer in 1st-degree relatives were aware of intermenstrual bleeding as warning symptoms of cervical cancer. Educated women in the current study knew foul-smelling discharge, dyspareunia, postcoital bleeding, and postmenopausal bleeding as warning symptoms. Married women were aware of the symptoms of cervical cancer, such as postcoital bleeding and bleeding with urine and stool. The majority of young participants from conflict areas of Uganda recognized symptoms of cervical cancer as inter-menstrual bleeding (85%), postmenopausal bleeding (84%), and offensive vaginal discharge (83%). Awareness was found to be high among those study participants.[15]

Confidence about noticing the symptoms of cervical cancer was more prevalent among the young age group (20–34 years), married women, and persons without a family history, as observed in the current study. A community-based survey was conducted among adult women in urban and rural areas of Uganda and South Africa. It was observed that many participants were unaware of HPV (23.7%), HIV (46.8%) infection, and not being screened (26.5%) possessed a risk of cervical cancer. Married women had higher knowledge of the risk factors of cervical cancer in Uganda. However, urban women had better knowledge of risk factors and symptoms of cervical cancer compared to rural women in South Africa.[17] A systematic review and meta-analysis concluded that the absence of women's formal education reduced perceived susceptibility to cervical cancer (POR=4.9, 95% CI: 3.67, 6.54), thus reducing cervical cancer screening utilization. Good knowledge regarding cervical cancer was more likely to utilize cervical cancer screening.[15] All college students agreed that girls should get vaccinated against HPV (P<0.001), according to a study in India.[18] About 70% of participants from Gulu, a post-conflict district in Uganda in 2012, believed that cervical cancer was preventable and 92% believed that it could be cured at an early stage.[10]

Limitations of the study

The study was conducted in a particular ward and could not be conducted in all the wards of the city because of limited resources. Results could be different because of different sociodemographic profiles. Information regarding sensitive topics such as reproductive health, contraceptive history was difficult to procure.

CONCLUSION

The study aims to assess the awareness about cervical cancer and found unsatisfactory knowledge among the adult women of an urban slum who are at risk of the disease. Awareness of risk factors of cervical cancer, genital hygiene, and early reporting of the pre-clinical stage to the hospital are important contributory factors for the control of carcinoma cervix. Thus, community-based health education programs might improve the awareness level among the beneficiaries. Targeted interventions can be developed for the availability of HPV vaccination, population-based cervical screening, and early diagnosis and treatment along with increasing awareness regarding the disease, which in the long-term can decline the morbidity and fatality of the disease.

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REFERENCES

1. Arbyn M, Weiderpass E, Bruni L, de Sanjosé S, Saraiya M, Ferlay J, et al. Estimates of incidence and mortality of cervical cancer in 2018: A worldwide analysis. Lancet Glob Health. 2020;8(2):e191-e203.
   https://doi.org/10.1016/S2214-109X(19)30482-6
2. Available from: https://www.nhp.gov.in/disease/reproductive-system/female-gynaecological-diseases-/cervical-cancer [Last accessed on 2023 May 26].
3. Bobdey S, Sathwara J, Jain A and Balasubramaniam G. Burden of cervical cancer and role of screening in India. Indian J Med Paediatr Oncol. 2016;37(4):278-285.
   https://doi.org/10.4103/0971-5851.195751
4. Sreedevi A, Javed R and Dinesh A. Epidemiology of cervical cancer with special focus on India. Int J Womens Health. 2015;7:405-414.
   https://doi.org/10.2147/IJWH.S50001
5. Srivastava AN, Misra JS, Srivastava S, Das BC and Gupta S. Cervical cancer screening in rural India: Status and current concepts. Indian J Med Res. 2018;148(6):687-696.
   https://doi.org/10.4103/ijmr.IJMR_5_17
6. Singh S, Narayan N, Sinha R, Sinha P, Sinha VP and Upadhye JJ. Awareness about cervical cancer risk factors and symptoms. Int J Reprod Contracept Obstet Gynecol. *2018;7(12):*4987-4991.
   https://doi.org/10.18203/2320-1770.ijrcog20184953
7. Narayana G, Suchitra MJ, Sunanda G, Ramaiah JD, Kumar BP and Veerabhadrappa KV. Knowledge, attitude, and practice toward cervical cancer among women attending Obstetrics and Gynecology Department: A cross-sectional, hospital-based survey in South India. Indian J Cancer. 2017;54(2):481-487.
   https://doi.org/10.4103/ijc.IJC_251_17
8. Arunadevi V and Prasad G. Knowledge and awareness of cervical cancer among women in rural India. Int J Curr Res Rev. 2015;7(21):29-32.
9. Taneja N, Chawla B, Awasthi AA, Shrivastav KD, Jaggi VK and Janardhanan R. Knowledge, attitude, and practice on cervical cancer and screening among women in India: A review. Cancer Control. 2021;28:10732748211010799.
   https://doi.org/10.1177/10732748211010799
10. Rashid S, Labani S and Das BC. Knowledge, awareness and attitude on HPV, HPV vaccine and cervical cancer among the college students in India. PLoS One. 2016;11(11):e0166713.
    https://doi.org/10.1371/journal.pone.0166713
11. Saha A, Chaudhury AN, Bhowmik P and Chatterjee R. Awareness of cervical cancer among female students of premier colleges in Kolkata, India. Asian Pac J Cancer Prev. 2010;11(4):1085-1090.
12. Mingo AM, Panozzo CA, DiAngi YT, Smith JS, Steenhoff AP, Ramogola-Masire D, et al. Cervical cancer awareness and screening in Botswana. Int J Gynecol Cancer. 2012;22(4):638-644.
    https://doi.org/10.1097/IGC.0b013e318249470a
13. Buga GA. Cervical cancer awareness and risk factors among female university students. East Afr Med J. 1998;75(7):411-416.
14. Ornelas IJ, Ho K, Jackson JC, Moo-Young J, Le A, Do HH, et al. Results from a pilot video intervention to increase cervical cancer screening in refugee women. Health Educ Behav. 2018;45(4):559-568.
    https://doi.org/10.1177/1090198117742153
15. Mwaka AD, Orach CG, Were EM, Lyratzopoulos G, Wabinga H and Roland M. Awareness of cervical cancer risk factors and symptoms: Cross-sectional community survey in post-conflict Northern Uganda. Health Expect. 2016;19(4):854-867.
    https://doi.org/10.1111/hex.12382
16. Coronado IE, Anakwenze CP, Aung M and Jolly PE. Increasing cervical cancer awareness and screening in Jamaica: Effectiveness of a theory-based educational intervention. Int J Environ Res Public Health. 2015;13(1):ijerph13010053.
    https://doi.org/10.3390/ijerph13010053
17. Moodley J, Constant D, Mwaka AD, Scott SE and Walter FM. Mapping awareness of breast and cervical cancer risk factors, symptoms and lay beliefs in Uganda and South Africa. PLoS One. 2020;15(10):e0240788.
    https://doi.org/10.1371/journal.pone.0240788
18. Desta M, Getaneh T, Yeserah B, Worku Y, Eshete T, Birhanu MY, et al. Cervical cancer screening utilization and predictors among eligible women in Ethiopia: A systematic review and meta-analysis. PLoS One. 2021;16(11):e0259339.
    https://doi.org/10.1371/journal.pone.0259339

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