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## A cross-sectional study on knowledge and attitude towards cervical cancer screening methods among women of reproductive age group in an urban area

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### ABSTRACT

Cervical cancer, a malignant tumour of the cervix, the lowermost part of the uterus, is usually associated with Human Papilloma Virus (HPV) infection. Asymptomatic in early stages, it becomes symptomatic as the disease progresses. Cancer cervix can be prevented with HPV vaccines and regular screening practices like the Pap smear test. Poor awareness, lack of knowledge on risk factors, signs and symptoms and socioeconomic limitations serve as barriers for women to take up cancer screening. This study was done to assess the knowledge and attitude towards cervical cancer screening practices among women. A cross-sectional study was conducted using a self-structured questionnaire among urban women of reproductive age group. Data were recorded, tabulated and analysed. Of the 248 women of the reproductive age group who were interviewed, 63% knew that cervical cancer is a leading cause of death among Indian women. Although 68.5% knew that HPV is the causative organism, only a quarter of them knew about the vaccination schedule. Only 42% of those who were aware of the Pap smear test knew the age at which screening had to be started. In conclusion, most of the participants knew about cervical cancer and its causative organism. However, their knowledge on preventive measures, HPV vaccine and Pap smear test was poor.

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### INTRODUCTION

Cervical cancer is a malignant neoplasm arising from cells originating in cervix uteri. Almost all cervical cancer cases are associated with high-risk Human Papilloma Virus (HPV) infection, a common

virus that is usually transmitted through sexual contact (Cooper and McGee, 1997). Effective primary preventive approaches will help in preventing most cervical cancer cases. When diagnosed, cervical cancer is one of the most successfully treatable forms of cancer, as long as it is detected early and managed effectively (Cancer, 2020).

Cancer cervix may be completely asymptomatic in the early stages. In advanced stages, it may present as persistent pelvic pain, unexplained weight loss, bleeding between periods, unusual vaginal discharge, bleeding, and pain after sexual intercourse. Infection with HPV types 16 and 18 cause 75% of cervical cancer globally (Kumar *et al.*, 2007). Risk factors for cervical cancer are many. They include HPV infection, sexual intercourse before 18 years of age, having multiple sexual partners, delivery of the first baby before 20 years of age, poor personal hygiene, Sexually Transmitted Dis-

eases (STD), low socioeconomic status, tobacco and drug abuse (Kaku *et al.*, 2008).

According to reports from the World Health Organization (WHO), cervical cancer is the fourth most common cancer in women. In India, the prevalence of cervical cancer, one of the leading cause of death among women of reproductive age group, ranges between 6-29% (Bobdey *et al.*, 2016). Cancer cervix is a preventable disease. But inadequate knowledge and awareness on cervical cancer, its screening and other preventive measures among women have been responsible for the rise in the number of cases each year (Raychaudhuri and Mandal, 2012). Preventive measures for cervical cancer can be primary and secondary measures. They include the administration of the HPV vaccine (primary) and regular screening practices (secondary). Screening methods include Pap smear test and colposcopy. Access to the HPV vaccine and early detection has helped in preventing a large number of cases of cervical cancer. Pap smear test has been found to show a significant reduction in the number of cases of cervical cancer in developed countries (Gadducci *et al.*, 2011). Unfortunately, despite the availability of prevention methods, the majority of women in India have never been screened for cervical cancer.

This study aims at assessing the awareness, knowledge and attitude towards cervical cancer screening and preventive methods among women of reproductive age group.

## Methodology

### Study design

A cross-sectional study was conducted to assess the knowledge and attitude towards cervical cancer screening methods among women of the reproductive age group who belonged to the urban population in Kancheepuram district. The study duration was three months, with data collection followed by discussion and analysis.

### Inclusion criteria

Responses from women belonging to the reproductive age group (15 to 50 years), who were willing to be a part of this study were only taken into account.

### Exclusion criteria

People with psychiatric illness and those who attained menopause were excluded from the study.

Taking prevalence of knowledge and attitude on cervical cancer to be 17.1% (Raychaudhuri and Mandal, 2012) and assuming 95% confidence limit with 5% allowable error, with the formulae  $N = 4PQ/L^2$ , the sample size was found to be  $N = 225$ . To account for the non-response rate (about 10%), a total of 248

subjects were interviewed for the study. Women between the age group of 15 to 50 years were interviewed in the study. Convenience sampling method was followed. Before beginning the study, ethical approval was obtained from the institutional ethical committee. The purpose of the study was explained to the participants, and written informed consent was obtained from them. A structured and pre-tested questionnaire with 20 questions was prepared and distributed among study participants. The responses, along with necessary sociodemographic details, were collected, recorded and analysed. The questions were based on cervical cancer screening practices, importance, and necessity. Questions on cervical cancer, Pap smear test, HPV vaccine were also included. The questions were of multiple choice type, and participants had to choose the right option for each question.

## Statistics

Data obtained was entered into Microsoft Office Excel Spreadsheet, and then analysis was done using SPSS software. Response to each question was tabulated, analysed, and percentage for the same was also calculated. Chi-square test was used to determine the association between categorical variables. P-value was calculated at a 95% confidence interval with significant levels at  $p < 0.05$ .

## RESULTS AND DISCUSSION

A total of 248 responses were obtained from women aged between 15 and 50 years. Majority of them were in the age group of 18 to 22 years (Table 1). Mean age was  $28 + 10.4$  years (Mean + SD).

Among them, 222 (89.5%) have heard about cervical cancer, and 157 (63.3%) knew that cervical cancer is a leading cause of death among women in India. However, 78 (31.5%) did not know that HPV is the causative organism for cervical cancer; 193 (77.8%) knew the expansion of HPV, Human Papilloma Virus. Altogether 132 (53.2%) knew about HPV vaccine. Among those who were aware, only 71 (53%) knew that both males and females should get vaccinated and 93 (70.4%) knew the right age for vaccination; only 59 (23.8%) knew the correct dose schedule. Overall, 179 (72.2%) respondents have heard about the Pap smear test. Among those who were aware of Pap smear test, 145 (81%) knew that it was a screening test for cervical cancer and 110 (61.4%) had an idea about the interval at which the test should be done. Only 76 (42.4%) knew about the right age at which Pap smear screening had to be started. Although Primary Health Centers (PHC) provide facilities for cervical cancer screening (Pap

**Table 1: Demographic characteristics of respondents**

Characteristics		N (%)
Age	15 - 29 years	168 (67.7%)
	30 - 45 years	55 (22.2%)
	>45 years	25 (10.1%)
Marital status	Unmarried	156 (62.9%)
	Married	92 (37.1%)
Education	Intermediate/ Diploma	26 (10.8%)
	Graduate	143 (57.7%)
	Professional degree	78 (31.5%)

**Table 2: Frequency of knowledge distribution**

Characteristics		N (%)
Risk factors for cervical cancer	Don't know	66 (26.6%)
	Improper personal hygiene	20 (8.1%)
	Having multiple sexual partners	26 (10.5%)
	Both	136 (54.8%)
Causative organism	Don't know	68 (27.4%)
	HPV	170 (68.5%)
	Mycobacterium	5 (2%)
	Treponema pallidum	5 (2%)
Pap smear is done for	Don't know	62 (25%)
	Cervical cancer	158 (63.7%)
	Fungal infection	7 (2.8%)
	STD	21 (8.5%)
A dose of HPV vaccination	Don't know	146 (58.9%)
	Single-dose	28 (11.3%)
	Two doses one month apart	15 (6%)
	Two doses six months apart	59 (23.8%)
In addition to cervical cancer HPV vaccine protects against	Don't know	117 (47.2%)
	Warts	62 (25%)
	Breast cancer	34 (13.7%)
	Anal cancer	35 (14.1%)

**Table 3: Relation between family history of cervical cancer and attitude towards screening**

Family history of cervical cancer	When was the last time you had a pap smear test done				Total	P value
	Never	2-5 years back	> 5 years back	2 - 6 months back		
Yes	4 (44.4%)	3 (33.3%)	0 (0%)	2 (22.2%)	9	*0.01
No	197 (82.4%)	22 (9.2%)	15 (6.2%)	5 (2%)	239	*0.01
Total	201	25	15	7	248	

\*Chi square value &lt;0.05 significant

**Table 4: Relation between educational qualification and knowledge level on cancer screening practices [score out of 10]**

		Education			P-value
		Up to Diploma	Graduate	Professional Degree	
Knowledge of cervical cancer	Good	19 (70.5%)	94 (65.7%)	55 (70.5%)	*0.0006
	Average	3 (11.1%)	37 (25.8%)	5 (6.4%)	
	Poor	5 (18.5%)	12 (8.3%)	18 (23%)	
Knowledge on HPV vaccine	Good	3 (11.1%)	36 (25.1%)	15 (19.2%)	0.06
	Average	2 (7.4%)	14 (9.75)	16 (20.5%)	
	Poor	22 (81.45)	93 (65%)	47 (60.2%)	
Knowledge on pap smear test	Good	10 (37%)	63 (44%)	38 (48%)	0.54
	Average	4 (14.8%)	12 (8.3%)	4 (5.1%)	
	Poor	13 (48.1%)	68 (47.5%)	36 (46.1%)	

\*Chi square value <0.05 significant

smear collection), 115 (46.4%) were not aware of it. Among all the respondents, 212 (85.5%) knew that cervical cancer is preventable. Of 145 people who were aware of the purpose of Pap smear test, only 40 (27.5%) were comfortable and wanted to get one done (Table 2).

Educational qualification of participants and their attitude towards screening practices were compared. A majority (81%) of those with higher education, despite having awareness on cervical cancer, its risk factors and cancer screening practices, have not done a screening test like Pap smear test in the recent past. Many have not even once done a screening test in their lifetime. Out of 80 participants aged more than 30 years, 47 (58.75%) had never done a Pap smear testing, 18 (22.5%) did it 2.5 years back, 10 (12.5%) did it more than five years ago, and only 5 (6.25%) had got one done 2-6 months back.

A total of 96.3% of the responders gave a negative family history of cervical cancer. Out of that, only 2% had got a Pap smear test done in the recent past (Table 3); 3.6% of the study population gave a positive history for cervical cancer in the family, out of which 44% had never been screened for cancer cervix in their lifetime.

Knowledge on cervical cancer, HPV vaccine and Pap smear test (Table 4) was determined and was scored on a scale from 0 to 10. The score of 7 and above indicated good knowledge, between 4 to 6 indicated average knowledge and below 4 showed poor knowledge. The mean knowledge on cervical cancer, HPV vaccine and Pap smear test was 7.45 + 3.2, 3.42 + 3.3 and 5.32 + 3.7 respectively (Mean + SD). The study showed that 67.7% of the participants had a good knowledge of cervical cancer, but knowledge about the HPV vaccine and Pap smear test was low

and unsatisfactory. Only 21.7% scored seven and above for knowledge on the HPV vaccine. Increasing educational level correlated significantly with the knowledge on cervical cancer ( $p=0.0006$ )

The study revealed that a good proportion of women are aware of cervical cancer, but they don't have adequate knowledge of cervical cancer screening practices. All women in the study have completed their schooling, and some even have completed their post-graduation. Despite good education, most of them don't have the necessary knowledge on preventive measures of cervical cancer. This study has shown poor knowledge of cervical cancer screening practices. Similar results were shown in a study from Nepal, where out of 105 respondents only 65.7% had heard about cervical cancer and only 42.9% and 18.1% had knowledge about screening for cervical cancer and Pap smear test respectively (Shrestha *et al.*, 2013).

HPV is the most important etiological agent causing cancer cervix. A good proportion of the participants know that it causes cervical cancer and believe that improper personal hygiene and having multiple sexual partners are some of the risk factors for cervical cancer. This finding is different from the study done in Bhopal, where most of their respondents mentioned that having multiple sexual partners is the only common risk factor (Kokane *et al.*, 2015). Primary prevention of cervical cancer can be done with the HPV vaccine. It is advised that all adolescents or pre-adolescents receive the HPV vaccine to get protected against cervical cancer. Ideally, vaccination should be done at the age of 9 to 14 years. 2 doses of the vaccine at six months interval should be administered. The Centers for Disease Control and Prevention recommends all boys and girls get

HPV vaccine at age 11 or 12 (Asha sexual health, 2014). Males are at risk for HPV and related diseases, too, so boys and young men are also recommended to be vaccinated. Apart from cervical cancer, the HPV vaccine protects against warts also. It was evident from the study that almost half of the participants had no clue to why the vaccine is taken, who should get it, at what age should it be given. This concurred with the findings in the study from Kolkata, where a large number of students haven't even heard of HPV which is the single most important etiological factor for cervical cancer (Saha et al., 2010). Low levels of knowledge on HPV and cervical cancer was reported among undergraduate and graduate college women aged 18 to 30 years in the US (Ingledue et al., 2004). In another study in the US, it was found that 21.5% of the college women to have never heard of HPV (Lopez and McMahan, 2007).

Pap smear test is a screening test where cell samples are collected from the cervix and viewed under a microscope to check for precancerous cells. It is a simple procedure. According to the most recent guidelines from the US Preventive Services Task Force, it is recommended that women start screening with the Pap test at age 21 (Screening is not recommended for women under age 21). Starting at age 30, women have three options available for screening:

1. A Pap test alone every three years
2. Co-testing with a Pap and HPV test, every five years
3. An HPV test alone, every five years (Asha sexual health, 2014)

In India, it advised starting screening by the age of 30 years and repeat the same once in 3 years (World Health Organization, 2018). In this study, 63% knew what Pap smear test was and why it was done. Almost half of the participants were aware of the Pap smear test, its use, when it should be done and how often it should be done. These results slightly vary with the study that was undertaken in Uganda among medical workers, where it was found that attitude and practices towards Pap smear screening were poor (Mutyaba et al., 2006). When asked about how comfortable they would be when a Pap smear test is done, only 21% agreed to be feeling comfortable; 40% gave an opinion of feeling uncomfortable, and 38% weren't sure about it. It was probably since the majority of them had not undergone a pelvic examination. This was in contrast to the study from

Uttar Pradesh that showed out of 168 women previously who had a pelvic examination, 148 (88.1%) had a comfortable experience (Asthana and Labani, 2013).

When educational qualification and knowledge of cancer screening practices were compared, it was found that the more educated participants had a good idea of what cervical cancer was. However, their knowledge on HPV vaccine and Pap smear test was not satisfactory. Irrespective of their educational qualification, almost all women had a similar level of knowledge on cancer screening practices. Their knowledge on the Pap smear test was average, and that on HPV vaccine was too little.

## CONCLUSIONS

Cancer cervix is a preventable disease. This study revealed that though many women are aware of cervical cancer, their knowledge and attitude towards cancer screening practices are poor. Good education and creating awareness of cancer screening practices is necessary to overcome this. Though cancer screening facilities are available in public and private health setups, many are not aware. There are even some who hesitate to get a screening test done. Conducting awareness programmes at workplaces and emphasising the importance of cancer screening and preventive methods can help more women take up screening practices and vaccination, thereby contributing to a reduction in cancer burden in the country.

## Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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