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Original Research Article

## Awareness of cervical cancer and its screening methods in Indian women

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### ABSTRACT

**Background:** In spite of effective screening methods, cervical cancer continues to be a major public health problem in India. Therefore, the present study was carried out to assess the knowledge of cervical cancer and its screening among women, it also focuses on the reasons for not undergoing regular screening and the effect of counseling for the same.

**Method:** 400 women were randomly enrolled from the women attending/visiting/working at a tertiary hospital. They were asked questions related to cervical cancer. All answers were obtained verbally and recorded in the questionnaire by the same investigator.

**Results:** Out of 400 women, only 103 were aware of cervical cancer as well as its screening, and only 10 of them were undergoing regular screening. Among those who were aware of cervical cancer, majority (95.14%) were health care workers and most of them got this knowledge from their textbooks. After counseling, all except 6 women were willing for regular screening. The reason for refusal for the same was either they believed they were not at risk or they found pelvic examination uncomfortable.

**Conclusions:** The study found that women had poor knowledge about cervical cancer and its screening. Awareness was higher among the women who had received higher education or were healthcare workers. However, cervical cancer screening rate was low even in these women. Government and health care professionals need to actively promote awareness of the risk factors of cervical cancer and encourage women to undergo regular Pap smear as a cervical cancer screening method.

**Keywords:** Awareness, Cervical cancer, Screening, Educational status, Counseling, Health care workers

### INTRODUCTION

The insight that the etiopathogenesis of cervical cancer is due to prolonged Human Papilloma virus infection has resulted in the development of assays that detect nucleic acids of virus and the prophylactic vaccines. Using these assays and technologies, medical science is in the position to detect persistent HPV infections and precancerous lesions, which when treated accurately and promptly results in near hundred percent prevention from cervical cancer. In spite of effective screening method and availability of HPV vaccine as primary prevention, cervical cancer continues to be a major public health problem in developing countries like India. In 2008, there were 1,34,000 cases and 73000 deaths in India due to

cervical cancer<sup>1</sup> while in 2018 there were 97000 cases and 60000 deaths in India due to cervical cancer.<sup>2</sup> The above data implies that we have not been able to decrease the burden of cervical cancer in our society significantly even though the advances in the understanding and prevention of cervical cancer were such that they had a potential for near eradication. Cervical cancer-related deaths among women in India are often due to late diagnosis of the disease. Public awareness about the disease and its early screening is the most effective measure for cervical cancer prevention and treatment. The survival rate of a person becomes better if cervical cancer is diagnosed and treated at an early or pre-cancer stage. As Indian women often do not seek treatment for early symptoms, most cases of cervical cancer in India are diagnosed at advanced stages

which reduces the survival rate of the women. To tackle this issue, it is essential to find out the present status of our society in terms of knowledge about cervical cancer and its screening methods and then find out ways to overcome the hurdles in the process of eradication of cervical cancer.

Present study is to assess the knowledge of cervical cancer among women attending gynecological OPD at a tertiary care centre of national capital Delhi. It also focuses on the reason for not undergoing regular screening. The effect of imparting knowledge of cervical cancer and its screening methods to study population has also been studied.

## METHODS

It is a cross sectional observational study done on a study population of 400 women, conducted between 1<sup>st</sup> November 2018 and 31<sup>st</sup> March 2020. Study participants were randomly enrolled from the women attending/visiting/working at Dr. Ram Manohar Lohia hospital, New Delhi who fulfilled the inclusion and exclusion criteria.

### Inclusion criteria

All women between 18-45 years of age attending/visiting/working at Dr. Ram Manohar Lohia hospital were included in the study.

### Exclusion criteria

Women already diagnosed and treated for cervical cancer were excluded from the study.

All the participants were explained about this study prior to their participation and approval was taken in written informed consent in their own language. The occupation and educational status of all participants were recorded. Then they were asked questions related to cervical cancer. All answers were obtained verbally and recorded in the questionnaire by the same investigator (Table 1).

**Table 1: Table of questionnaire.**

S. no.	Questions
1	Have you ever heard about cervical cancer as a disease
2	Have you ever heard about PAP smear as cervical cancer screening
3	What was the source of information
4	What according to you are the causes of cervical cancer
5	Are you undergoing regular cervical cancer screening
6	(After counselling) Willingness to undergo regular screening in future and reason for refusal.

After recording all answers, unaware participants were given information regarding prevention and screening

modalities available. Readiness to accept screening and preventive methods was noted. Reasons or fears for refusal were also asked and recorded. Complete confidentiality of all the information obtained was maintained. The data was analyzed and compared by making groups based on occupation and educational status of the study participants.

## RESULTS

### Demographic characteristics of study population

Majority of women 299 (74.75%) who participated in the study were in the age group of 23-32 years. Median age was 28 and mean was 28.54±4.6 years. Out of a study population of 400, 209 (52.25%) were either illiterate or had partial or complete school education till 12<sup>th</sup> standard. They were put together in category of basic education. 191 (47.75%) had higher education like diploma, graduate or post graduate degree or were in the process of college education and were put together in the group of higher education. Those who had done post-graduation in obstetrics and gynecology were not given the questionnaire. Overall, 208 (52%) women were housewives, 153 (38.25%) were medical and paramedical staff that included MBBS doctors, nursing staff, lab technicians working in RML, and rest 39 women (9.75%) were non-medical professionals and college students. According to modified Kuppuswamy scale, 355 (88.75%) women belonged to upper middle class. 43 belonged to lower middle class and 2 were from upper lower class. Most of the women 351 (87.75%) visited gynecology OPD less than 5 times in last 5 years. Only 49 out of 400 women (12.25%) had met a gynecologist 5 times or more.

### Knowledge, attitude and practices

#### Awareness of cervical cancer and its causes

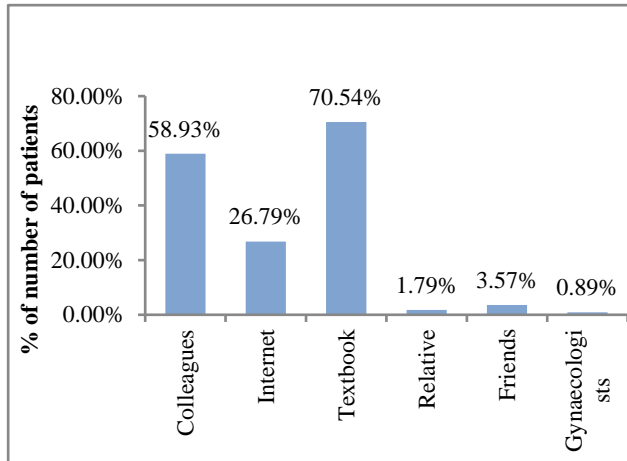
**Table 2: Distribution of cause of cervical cancer as understood by study subjects.**

Cause of cervical cancer	Frequency	Percentage (%)
HPV	102	99.03
Multiparity	39	37.86
Poor hygiene	25	24.27
Multiple sex partners	9	8.73
Unprotected sex	1	0.01
Infection (chlamydia, herpes etc.)	12	11.65
Family history	16	15.53
Sex at early age	13	12.62
Smoking	11	10.68
History of STD	1	0.01

In study group of 400 women, only 103 (25.75%) were aware of cervical cancer. Among these aware women, nearly all, 102 (99.03%) knew that HPV is the major cause of cervical cancer. Many of them said that there are

multiple risk factors for cervical cancer like multiparity (37.86%), poor hygiene (24.27%), family history (15.53%), sex at early age (12.62%), infections (11.65%), smoking (10.68%), history of STD (0.01%) (Table 2.)

*Awareness of cervical screening and its source of information*



**Figure 1: Distribution of source of information of cervical cancer screening.**

Only 103 (25.75%) women of total study population were aware about the screening methods for cervical cancer. When enquired about the source of their information, most of them said it was from textbooks and colleagues which is explained by the fact that 38.25% of the study population was related to health services. Many of them said they had

heard it from multiple sources. Unfortunately, only 0.89% had been informed by their gynecologist. Figure 1 summarizes the data on source of information of screening method for cervical cancer as told by study population.

*Association of awareness of screening with occupation and education*

Overall, there were 153 health care workers in the study out of which, 98 (64.05%) were aware of screening method. On the other hand, among non-healthcare workers only 5(2.03%) women were aware about screening method. This difference in awareness was statistically significant ( $p < 0.0001$ ) (Table 3).

Furthermore, association of awareness of screening with education was also studied and it was seen that, among women with higher education, 102 (53.40%) were aware about screening method for cervical cancer and among illiterate women or with basic education only 1 (0.48%) woman was aware about screening method. This difference in awareness between the two groups was statistically significant ( $p < 0.0001$ ) (Table 4).

*Number of women already undergoing regular screening and its association with education status*

Among 400 women, only 10 (2.5%) women were undergoing screening regularly and all of them belonged to higher education group. Among women with basic education, none had ever undergone cervical cancer screening. The difference was statistically significant ( $p = 0.0005$ ) (Table 5).

**Table 3: Comparison of awareness of cervical cancer screening method between healthcare workers and non-healthcare workers.**

Awareness of any screening method	Health care workers (%)	Non health care workers (%)	Total (%)	P value	Test performed
No	55 (35.95)	242 (97.97)	297 (74.25)	<0.0001	Fisher exact test
Yes	98 (64.05)	5 (2.03)	103 (25.75)		
<b>Total</b>	153 (100)	247 (100)	400 (100)		

**Table 4: Comparison of awareness about cervical cancer screening between women with basic education and higher education.**

Awareness of any screening method	Basic education (n=209)	Higher education (n=191)	Total (%)	P value	Test performed
No	208 (99.52)	89 (46.60)	297 (74.25)	<0.0001	Fisher Exact test
Yes	1 (0.48)	102 (53.40)	103 (25.75)		
<b>Total</b>	209 (100)	191 (100)	400 (100)		

**Table 5: Comparison of regular screening between women with higher and basic education.**

Getting any regular screening done	Basic education (n=209) (%)	Higher education (n=191) (%)	Total (%)	P value	Test performed
No	209 (100)	181 (94.76)	390 (97.5)	0.0005	Fisher exact test
Yes	0 (0)	10 (5.24)	10 (2.50)		
<b>Total</b>	209 (100)	191 (100)	400 (100)		

### *Effect of counselling on cervical cancer screening*

After counseling, 98.5% agreed to undergo regular screening in future. This emphasizes the fact that ignorance is one of the major hurdles in control and prevention of cancer cervix in India. Out of 6 women (1.50%) who refused future screening, 3 felt they were not at risk and 3 felt uncomfortable about getting pelvic examination done.

## **DISCUSSION**

The present study was conducted among randomly selected women from a tertiary care centre in Delhi. Subjects included both healthcare workers, working in the hospital and patients attending gynecological OPD as well as their attendants. The study population included individuals with different levels of education. Since the study group also included the medical and paramedical staff, it was possible to compare the awareness of cervical cancer and its screening, between healthcare workers and non-healthcare workers.

### *Awareness of cervical cancer and its causes*

In this study, only 103 (25.75%) women were aware of cervical cancer. In contrast, the study conducted by Krishnaveni et al in 2017 in Kerala showed that 98.4% women had knowledge about cervical cancer.<sup>3</sup> This may be due to higher literacy rate in Kerala. The lack of knowledge of cervical cancer in current study may be due to lack of awareness programs or lack of health education at school level.

While 102 (99.03%) of these women knew that HPV is the major cause of cervical cancer, many of them said that there are multiple risk factors for cervical cancer like multiparity (37.86%), poor hygiene (24.27%), family history (15.53%), sex at early age (12.62%), infections (11.65%), smoking (10.68%) and history of STD (0.01%). It was interesting to note that although cervical cancer awareness was present in only few women, the aware ones had in depth knowledge of the disease. This could be because, the source of information of the disease may have contained detailed information, but unfortunately this source of information was not accessible to all. On the contrary, in a study by Ramaiah et al, in Karnataka, in 2017, 27.7% women believed multiple sex partners to be the major risk factor of cervical cancer followed by sex at early age (16.5%) and only 1% of the women knew about HPV infection.<sup>4</sup> Likewise, in a study by Arumugam et al, in Karnataka, in 2013, only 5% women had heard of HPV infection.<sup>5</sup>

### *Awareness of cervical cancer screening and its source of information*

All those women who had knowledge of cervical cancer were also aware of its screening i.e., 103 (25.75%) women of the total study population were aware about the

screening methods for cervical cancer. When enquired about the source of information, majority of them said that they learnt it from their textbooks. Most of these women were healthcare workers and they said that the first information about cervical cancer was during their training, where they read it in their course book. A few had multiple sources of information, for instance, those who read it from internet had also heard it from colleagues or relatives. Overall, textbooks imparted the knowledge of cervical cancer in 70.54% women, colleagues in 58.93%, internet in 26.79%, friends in 3.57% and relatives in 1.79%. In contrast, only 0.89% women got the information from gynecologists. It was both surprising as well as shocking that so few women were informed by gynecologists about the disease and its screening despite mutual contact. In a similar study, conducted by Kumar and Tanya, the source of information was mainly mass media. Majority of the women who had approached the doctors in the last 1 year (89.3% [66/74]) or in the last 5 years (80.7% [67/83]) were not informed/educated about cervical cancer.<sup>6</sup> These facts are both alarming and an eye opener. Both mass media and treating doctors, be it a gynecologist or family physician, should play a more proactive role in spread of information and awareness amongst public. Mass media needs to be utilized much more, so that awareness of this preventable cancer reaches even the remotest areas of the country. Moreover, information from gynecologist should be improved by dedicated cervical cancer clinics, STD clinics, information charts in waiting areas, better communication and by organizing cervical cancer screening camps.

### *Association of awareness of screening with occupation and education*

In the present study, awareness of screening for cervical cancer was better in healthcare workers (64.05%) than in non-healthcare workers (2.03%) with  $p=0.0001$ . In study by Jassim et al in 2015, there were no statistical significance between the occupation and awareness of screening ( $p=0.26$ ).<sup>7</sup> Also, in the present study, awareness about screening for cervical cancer was better in women with higher education (53.40%) than in women with basic or nil education (0.48%) with  $p=0.0001$ . In contrast, in the study by Jassim et al in 2015, there was no statistical significance between the educational level and awareness of screening ( $p=0.050$ ).<sup>7</sup> The difference in awareness of cervical cancer and its screening between women with higher education and with basic education in current study, points to the fact that credit of knowledge goes more to the individual women rather than our health care systems. It is also highly desirable that the primary school education curriculum should include basics of preventive health education.

### *Number of women already undergoing regular screening and its association with education status*

In the present study, only 2.50% women had ever undergone cervical cancer screening. Similarly, Ramaiah

et al in 2017 in Karnataka study showed that 9.5% women had ever been screened for cervical cancer.<sup>4</sup> In a study by Julia Mutambara et al, in 2015, in Zimbabwe, 16.8% women had undergone Pap testing.<sup>8</sup> Lack of awareness may be the reason for not undergoing screening. In the present study, the difference in the uptake of cervical cancer screening was significant between women with basic or nil education (none undergone screening) and women with higher education (5.24%) undergone screening) with  $p=0.0005$ . On the contrary, Jassim et al in 2015, did not find any statistically significant association between the educational level and regular screening ( $p=0.56$ ).<sup>7</sup>

### ***Effect of counselling on cervical cancer screening***

After counselling, nearly all women agreed to undergo regular screening. This shows counseling is the most important tool for prevention of cervical cancer. Out of 103 women who knew about cervical cancer screening, only 10 were actually undergoing the screening. Therefore, it is not enough to spread the knowledge of cervical cancer, it is also very important to make people understand that with simple examination and PAP smear test they can easily prevent a major disease like cancer. In a study by Krishnaveni et al in 2017 in Tamil Nadu, 72.3% were willing to get regular screening in future. The reasons why people refused were fear of procedure (30.4%), fear of bad result (18.7%), did not believe that they were at risk (13.5%).<sup>3</sup> Whereas, in study only 1.5% women refused to undergo screening in future even after counseling. The reason for refusal was not at high risk in 50% of them and uncomfortable pelvic examination in 50%.

### **CONCLUSION**

The study found that women had poor knowledge, but positive attitude towards the cervical Cancer screening and prevention. Overall, only 25.75% women had heard about cervical cancer. These women were also aware of its screening methods and that HPV is the cause of cervical cancer. Despite knowledge only 2.5% were undergoing cervical cancer screening. After counseling, nearly all agreed to undergo regular screening in future. The difference in the awareness of screening methods was statistically significant between health care workers and non-health care workers ( $p=0.0001$ ) as well as between women with basic and higher education ( $p=0.0001$ ). An effective strategy needs to be formulated for increasing awareness among the women to get them screened and vaccinated for cervical cancer. Effective use of media, health care programs and active participation of medical professionals will help in spreading awareness about

cervical cancer and its prevention. This study also created awareness among the study population about the cervical cancer screening.

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### **REFERENCES**

1. Arbyn M, Castellsague X, De Sanjose S, Saraiya M, Bray F, Felay J et al. Worldwide burden of Cervical Cancer in 2008. *Ann oncol.* 2011;22(12):2675-86.
2. Arbyn M, Weiderpass E, Bruni L, De Sanjose S, Sariya M, Ferlay J et al. Estimates of incidence and mortality of cervical cancer in 2018: a worldwide analysis. *Lancet global health.* 2020;8:191-203.
3. Krishnaveni K, Roy P, Sambathkumar R. Knowledge, attitude and practice related to cervical cancer and screening among women:community based cross-sectional study. *Int J Pharm Sci Res.* 2018;9(2):722-9.
4. Ramaiah R, Jayarama S. Knowledge, attitude and practices about cervical cancer among rural married women: a cross sectional study. *Int J Commun Medi Public Health.* 2018;5(4):1466-70.
5. Arumugam P, Habeebullah S, Parija SC. Knowledge and Awareness of Cervical Cancer, Human Papillomavirus (HPV), and HPV vaccine among Screening Women: A Cross-Sectional Study from a Tertiary Care Hospital in South India. *Int J Curr Microbiol App Sci.* 2018;7(3):2431-4.
6. Kumar HH, Tanya S. A study on knowledge and screening for cervical cancer among women in Mangalore city. *Ann med health sci res.* 2014;4(5):751-6.
7. Jassim G, Obeid A, Al Nasheet HA. Knowledge, attitudes, and practices regarding cervical cancer and screening among women visiting primary health care Centres in Bahrain. *BMC public health.* 2018;18(1):128.
8. Mutambara J, Mutandwa P, Mahapa M, Chirasha V, Nkiwane S, Shangahaidonhi T. Knowledge, attitudes and practices of cervical cancer screening among women who attend traditional churches in Zimbabwe. *J Cancer Res Practice.* 2017;4(2):53-8.

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