



## **Knowledge of Cervical Cancer Screening among Women in Rural Areas**

**K. Kannan<sup>1\*</sup>, S. Rajini<sup>1</sup>, P. Padma Sundari<sup>1</sup>, D. Ramraj<sup>1</sup>, A. N. Nivethidha<sup>1</sup> and R. E. Saranya<sup>1</sup>**

<sup>1</sup>Department of Community Medicine, Sri Lakshmi Narayana Institute of Medical Sciences Affiliated to Bharath Institute of Higher Education and Research, Chennai, Tamilnadu, India.

### **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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### **ABSTRACT**

**Introduction:** Cervical cancer is the most preventable and successfully treatable form of cancer, as long as it is detected early and managed effectively. Cancers diagnosed in late stages can also be controlled with appropriate treatment and palliative care. Screening is therefore an important tool in detecting cancer. The objective of this research is to find about the depth of knowledge about cervical cancer among rural women. This is a cross – sectional study done in rural areas of Pondicherry (Koodapakkam and Katterikuppam) (around 10 Km). Our subjects were patients and attenders attending the PHC OPD in between January and March 2021. Women attending OPDs of PHC in and around Koodapakkam and Katterikuppam who are > 15 years of age were the study sample excluding pregnant women, lactating women, mentally ill women and post hysterectomy patients with sample size of 300 using a questionnaire. Our study Signifies that among 277 Hindu women, 68.59% were aware of Cervical cancer screening. Among 12 Muslims 75% were aware of Cervical cancer screening. Among 11 women following Christianity 63.63% were aware of cervical cancer screening. This proves that there is no significant association between religion and awareness. (p=0.43) In our study, among 67 illiterates, 64.17% were aware of Cervical cancer screening. Among 81 women with primary school education ,65.43 % were aware of Cervical

cancer screening. Among 57 women who went to high school 77.19% were aware of Cervical cancer screening. Among 38 women with higher secondary education, 68.42% were aware of Cervical cancer screening. among 49 graduates, 71.42% were aware of Cervical cancer screening. Among 8 post graduates 37.5% were not aware of Cervical cancer screening. There is association between education and awareness. ( $p=0.001$ ). Totally, among 208 women under 45 years of age, 73.07% were aware of Cervical cancer screening and among 92 women more than 45 years of age 58.69% were aware of Cervical cancer screening. There is significant association between age and awareness ( $p=0.005$ ).

*Keywords: Cervical cancer; screening; rural women.*

## 1. INTRODUCTION

Cervical cancer is abnormal growth/proliferation of cells in the woman's cervix (cervix is the connection between vagina and uterus). Long lasting infection with certain types of HPV is the main cause of cervical cancer (transmitted mainly by sexual contact). It is usually slow growing cancer that may not have symptoms but can be found with regular PAP tests.

Cervical cancer is the fourth most common cancer among women. In 2018, an estimated 5,70,000 women were diagnosed with cervical cancer worldwide and about 311000 women died from the disease [1]. Women living with HIV - six times more likely to get cervical cancer. Recent studies state that the burden of cervical cancer is increasing in India. More than three-fourth of these patients are diagnosed in advanced stages leading to poor prospects of long-term survival and cure.

Effective primary (HPV Vaccination) and secondary prevention approaches (screening for and testing precancerous lesions) will prevent most cervical cancer cases. Screening is one method of diagnosing cervical cancer at an early stage [2]. Though screening for cervical cancer is present for quite a long time, knowledge about it is very less. Uneducated people and women living in rural areas have less or no idea about this already existing PAP smear. It is a non-invasive test and a effective method in diagnosing cervical cancer. New treatment methods have been developed in treating the cancer.

It is the most preventable and successfully treatable form of cancer, as long as it is detected early and managed effectively. Cancers diagnosed in late stages can also be controlled with appropriate treatment and palliative care. Screening is therefore an important tool in detecting cancer.

Women who are sexually active should be screened for abnormal cervical cells and pre-cancerous lesions starting from 30 years. Women who are sexually active and living with HIV should start screening once they have tested positive for HIV [3].

The objective of this research is to find about the depth of knowledge about cervical cancer among rural women.

## 2. MATERIALS AND METHODS

**Data Sources:** The literature search was conducted in 2010 - 2020, using the following databases: PubMed, Google Scholar, Embase, and CINAHL. The following terms and keywords were used: 'cervical cancer,' 'India,' 'South Asia,' 'knowledge,' 'attitudes,' 'screening,' 'vaccine,' 'barriers to cervical cancer screening.' Literature published between 2010 and 2020 was reviewed.

**Subjects and Methods:** This is a cross – sectional study done in rural areas, in and around Koodapakkam and Katterikuppam (around 10 Kms). Our subjects were patients and attenders attending the PHC OPD in between January and March 2021.

**Study Time:** The study was conducted in the months of January and March 2021.

**Study Subjects:** Women attending OPDs of PHC in and around Koodapakkam and Katterikuppam.

**The inclusion criteria were:** Women who are > 15 years of age, Post-menopausal women, Women who have given consent for participation in the study.

**The exclusion criteria were:** Pregnant women, lactational women, mentally ill women and post hysterectomy patients.

**Sample size:** Around 300 patients were studied

**Sampling Technique:** Convenient samples

**Study instrument:** A questionnaire was devised collecting following components of information from the subjects: Basic sociodemographic profile like age, occupation income, etc.

The information given by respondents was kept confidential. All data are collected from patient using face to face interview method. Data was analyzed using SPSS version 18. In descriptive statistics frequency table and mean was used. In inferential statistics chi-square test was used.

### 3. RESULTS

Table 1 shows the frequencies of socio demographic profile in a study of cervical cancer awareness. The study comprised of 300 women from the rural area aged between 20 and 70 years. Of these, women aged >45 were 208 (69.3%) and aged above 45 were 92 (30.7%) mean age of the participants was 38.6 years (mean +/- SD) with the majority of them currently married 237 (79%), followed by being single 29 (9.7%), widower 25 (8.3%) and divorced 9 (3%). Regarding the educational status of the participants, about 81 (27%) were had primary schooling, after which 57(19%) had only high schooling, 49 (16.3%) were graduates, 38 (12.7%) were had went higher secondary schooling and only 8 (2.7%) are post- graduates. According to occupational status, about 168 (56%) were home maker, around 116 (38.7) are currently employed, over 16 (5.3%) are students. Of these participants nearly 277 (92.3%) are Hindus, subsequently 12 (4%) are Muslims and 11 (3.7%) are Christians. Majority of the participants are from rural area 261 (87%) and only about 39 (13%) are from urban area. Based on modified BG Prasad scale, among 300 participants, most of them 111 (37%) belongs to class 2 (Upper middle class) following that 83 (27.7%) belongs to class 3(Middle class), 50 (16.7%) belongs to class 1 (Upper class), 44 (14.7%) belongs to class 4 (Lower middle class) and the rest 12 (4%) belongs to class 5 (Lower class).

Table 2 describes their awareness about cervical screening. About 108 (36%) study participants had heard about the term "Cervical screening" and hence only they could answer the subsequent questions regarding cervical screening. Source of information regarding

cervical screening it was claimed to be through Health camps contributed to about 41 (13.7%) while from doctors 24 (8%) and mass media contributed to about 21 (7%) and through friends and relatives 7 (2.3%) of the information. Noticing the knowledge about the risk factors, a greater number of 233 (77.7%) are unaware and the remaining 67 (22.3%) aware to the following, multiple partners 36 (12%), OCP and smoking 24 (8%), Multiple pregnancies 21 (7%), Early marriage 19 (6.3%), Early child birth 9 (3%), Early menarche 7(2.3%) and Late menopause 7 (2.3%) and finally unprotected coitus 5 (1.7%). Counting the knowledge about the awareness of age of screening almost 177 (59%) women prefer to do at 45-60 years, followed by 117 (39%) at 15-45 years and 6 (2%) at 10-20 years. In addressing the awareness about signs & symptoms, About 257 (85.7%) had no idea about signs & symptoms were only 43 (14.3%) had an idea about signs & symptoms. Of these (14.3%) participants, about 32 (11.3%) knew unusual vaginal discharge as a sign of cervical cancer, after this 22 (7.3%) knew weight loss as a sign, post menopausal bleeding 6 (2%), postcoital bleeding 6 (2%) and breast tenderness 2 (0.7%). Witnessing the awareness of hereditary factors 182 (60.7%) did not know about the hereditary factors whereas 103 (34.3%) were aware and 14 (4.7%) were not aware and only 1 (0.3%) did not participate. A total of 232 (77.3%) have not heard about pap smear, were the remaining 68 (22.7%) women said pap test could be used for detection of cervical cancer.

Signifies that among 277 Hindu women , 68.59% were aware of Cervical cancer screening. Among 12 Muslims 75% were aware of Cervical cancer screening. Among 11 women following Christianity 63.63% were aware of cervical cancer screening. This proves that there is no significant association between religion and awareness.(p=0.43)

Shows that among 67 illiterates, 64.17% were aware of Cervical cancer screening. Amid 81 women with primary school education, 65.43 % were aware of Cervical cancer screening. Among 57 women who went to high school 77.19% were aware of Cervical cancer screening. Between 38 women with higher secondary education, 68.42% were aware of Cervical cancer screening. Among 49 graduates, 71.42% were aware of Cervical cancer screening. Among 8 post graduates 37.5% were not aware of Cervical cancer screening.

**Table 1. Frequencies of socio demographic profile in a study of awareness of cervical cancer**

<b>Contents</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
<b>AGE</b>		
Age<45	208	69.3
Age>45	92	30.7
<b>MARITAL STATUS</b>		
Single	29	9.7
Married	237	79
Divorced	9	3
Widower	25	83
<b>EDUCATION</b>		
Illiterate	67	22.3
Primary	81	27
High school	57	19
Higher secondary	38	12.7
Graduate	49	16.3
Post graduate	8	2.7
<b>OCCUPATION</b>		
Student	16	5.3
Employed	116	38.7
Homemaker	168	56
<b>RELIGION</b>		
Hindu	277	92.3
Muslim	12	4
Christianity	11	3.7
<b>SOCIOECONOMIC STATUS</b>		
Class 1	50	16.7
Class2	111	37
Class3	83	27.7
Class4	44	14.7
Class5	12	4

There is association between education and awareness ( $p=0.001$ ).

Our study depicts that among 116 employed women 64.65% were aware of Cervical cancer screening. Between 16 students 56.25 %were aware of Cervical cancer screening. Between 168 home workers 72.61% were aware of Cervical cancer screening. This shows that there is no significant association between occupation and awareness ( $p=0.60$ ).

Our study explains that between 39 women from urban area, 53.99% were aware of Cervical cancer screening. Amid 261 rural women 70.88% were aware of Cervical cancer screening. There is no significant association between locality and awareness. ( $p=0.095$ )

Summaries that amongst 208 women under 45 years of age, 73.07% were aware of Cervical cancer screening and amongst 92 women more than 45 years of age 58.69% were aware of PAP

test. There is significant association between age and awareness ( $p=0.005$ ).

Our study describes that midst 50 women under class 1 SES, 66% were aware of Cervical cancer screening. Between 111 women under 62.16% were aware of Cervical cancer screening. Among 91 women under class 3, 64.83% were aware of cervical cancer screening. Between 44 women under class 4 SES, only 16% were not aware of cervical cancer screening. There is no significant association between socioeconomic status and awareness. ( $p=0.063$ ).

#### **4. DISCUSSION**

Most women around 56 % were unemployed. From people who received information about cervical screening. Health camps contributed to 41 % and 24 % from doctors and 21 % from mass media. Similarly in a study conducted by Assoumou and et al. [4] the information obtained by the subjects was mostly from Mass media (28.5%).

**Table 2. Frequencies of awareness of cervical cancer screening among rural women**

SL. NO	Contents	Frequency (n)	Percentage (%)
1	Awareness of cervical screening		
•	Yes	108	36
•	No	192	64
<b>2</b>	<b>MODE OF AWARENESS</b>		
•	Not responded	216	72
•	Responded	84	28
•	From doctors	24	8
•	Mass media	21	7
•	Health camp	41	13.7
•	Friends and relatives	7	2.3
<b>3</b>	<b>RISK FACTORS AWARENESS</b>		
•	Known	67	22.3
•	Not Known	233	77.7
4	RISK FACTORS		
•	Not responded	233	77.7
•	Responded	67	22.3
•	Early marriage	19	6.3
•	Multiple pregnancies	21	7
•	Multiple partners	36	12
•	Early menarche	7	2.3
•	Late menopause	7	2.3
•	Early childbirth	9	3
•	Unprotected coitus	5	1.7
•	OCP & smoking	24	8
<b>5</b>	<b>AGE OF SCREENING</b>		
•	10 – 20	6	2
•	15 – 45	117	39
•	45 – 60	177	59
<b>6</b>	<b>AWARE OF SIGNS &amp; SYMPTOMS</b>		
•	Not responded	257	85.7
•	Responded	43	14.3
7	SIGNS & SYMPTOMS		
•	Not responded	229	76.3
•	Responded	71	23.7
•	Weight loss	22	7.3
•	Unusual vaginal discharge	34	11.3
•	Post menopausal bleeding	6	2
•	Post coital bleeding	6	2
•	Breast tenderness	2	0.7
<b>8</b>	<b>AWARENESS OF HEREDITARY FACTORS</b>		
•	No response	1	0.3
•	Aware	103	34.3
•	Not aware	14	4.7
•	Do not know	182	60.7
9	AWARENESS OF PAP TEST		
•	Aware	68	27.7
•	Unaware	232	77.3

Regarding the risk factors of cervical cancer, 36% responded being multiple partners, 8% being OCP & smoking, 7% as multiple pregnancies. The people had idea that the mean

age group for cervical cancer screening being 45 – 60 years (59%).

The knowledge and idea about signs and symptoms as elicited from the study shows that 11.3% thought unusual vaginal discharge as a symptom, 7.3% thought weight loss as a symptom and 2% as post – menopausal bleeding. Similarly in a study conducted by Bhishnu Kumar Shrestha & et al showed 84% thought it to be post – menopausal bleeding and 83 % thought as offensive vaginal bleeding [5] .

None of our study population has ever undergone screening test for cervical cancer prior to the survey. However many community based studies [6] from Cambodia, Nepal & Ethiopia reported a small proportion of women being screened for cervical screening with PAP test (7.1% to 13.6%) and also in the previously published Indian studies (6.9% - 13.4%)

Regarding the knowledge about the awareness of risk factors, more than half of the study participants, 233 (77.7%) were unaware about any risk factors of cervical cancer. Similarly in a study conducted by Supriti Gosh et al, almost half of the study population (79.4%) were unaware of risk factors [7].

Women who were employed were observed to lack adequate knowledge about cervical cancer and screening than those who were home makers. This contradicts the findings of a study conducted by At Meer & et al in Qatar [8].

Women belonging to Class 2 Socio – economic status displayed better knowledge score in the study. This is in concordance with the study by Narayan & et al where in participants with low income exhibited poor knowledge and unfavourable attitude towards cervical cancer screening [9].

Over 90% subjects opened that regular screening services should be made available in their areas. This findings is consistent with result of studies done by Barsal & et al from Bhopal, Sheestha et al and Thapa et al from Nepal [10].

Regarding age category, younger women 45 years and below were observed to have 69.3% knowledge about cervical cancer. The higher levels of knowledge among the participants with young age would be due to the availability and ease of accessibility of information in this era of information technology. Similarly in a study

conducted by Ramaiah. R. et al. [11] with the age population younger women were observed to have higher scores (age>45).

Cervical cancer awareness and practice of PAP smear test among women with gynecological complaints revealed that women who were educated till primary level readily accepted which was significant (27%). This finding is consistent with the study conducted by Shrestha J, Saha R et al shows that women with illiteracy level were found to be with better knowledge [12].

Table 2 describes their awareness about cervical screening. About 108 (36%) study participants had heard about the term “Cervical screening” and hence only they could answer the subsequent questions regarding cervical screening. Source of information regarding cervical screening it was claimed to be through Health camps contributed to about 41 (13.7%) while from doctors 24 (8%) and mass media contributed to about 21 (7%) and through friends and relatives 7 (2.3%) of the information. Similarly a study conducted by Rai G with total of 150 women slightly more than one third (34.7%) of the women had knowledge about cervical cancer screening [13], below half (40.4%) of women got information from media followed by family/Friends (25%), health workers (19.2), course book/Newspaper (15.4) [13].

Noticing the knowledge about the risk factors, a greater number of 233 (77.7%) are unaware and the remaining 67 (22.3%) aware to the following, multiple partners 36 (12%), OCP and smoking 24 (8%), Multiple pregnancies 21 (7%), Early marriage 19 (6.3%), Early child birth 9 (3%), Early menarche 7 (2.3%) and Late menopause 7 (2.3%) and finally unprotected coitus 5 (1.7%). However in a study conducted by Supriyo Ghosh et al. [14], poor genital hygiene(38.2%) and early age at sexual intercourse(26.7%) were the most commonly quoted risk factors. Smoking 157 (16.6), High parity 111 (11.6), Use of oral contraceptives 81 (8.6), Multiple sexual partners 69 (7.3), Viral infection 66 (7.0), Condom use 34 (3.6), Do not know 467 (49.4) [14].

Counting the knowledge about the awareness of age of screening almost 177 (59%) women prefer to do at 45-60 years, followed by 117 (39%) at 15-45 years and 6 (2%) at 10- 20 years. In addressing the awareness about signs & symptoms, About 257 (85.7%) had no idea about signs & symptoms were only 43 (14.3%) had an idea about signs & symptoms. Of these (14.3%)

participants, about 32 (11.3%) knew unusual vaginal discharge as a sign of cervical cancer, after this 22 (7.3%) knew weight loss as a sign, post menopausal bleeding 6 (2%), post coital bleeding 6 (2%) and breast tenderness 2 (0.7%). Witnessing the awareness of hereditary factors 182 (60.7%) did not know about the hereditary factors whereas 103 (34.3%) were aware and 14 (4.7%) were not aware and only 1 (0.3%) did not participate.

A total of 232 (77.3%) have not heard about pap smear, were the remaining 68 (27.7%) women said pap test could be used for detection of cervical cancer. Similarly in a study conducted by Rai G, more than half (53.8%) of women didn't have knowledge about Pap smear [15].

## 5. CONCLUSION

Our country has an urgent need to develop health system capacity to ensure efficient cervical cancer screening by organizing more health camps and education to women in rural areas. Mass media being a great help in promoting the awareness of cervical cancer screening, encouraging people to undergo screening also helps in reducing the burden of cervical cancer.

## ETHICAL APPROVAL

We conducted our research after obtaining proper IEC approval.

## CONSENT

As per international standard or university standard, patients' written consent has been collected and preserved by the author(s).

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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