

# A CROSS SECTIONAL STUDY ON THE KNOWLEDGE AND ATTITUDE TOWARDS CERVICAL CANCER SCREENING AND ACCEPTABILITY OF HPV VACCINES AMONG WOMEN ATTENDING THE NCD CLINICS AT TERTIARY CARE HOSPITAL

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## ABSTRACT

**Background:** Most of the cervical cancer cases are diagnosed late leading to poor health outcomes. Very few studies have explored the awareness of women about cervical cancer and HPV vaccines in India. Hence, this study was conducted with the aim to assess the knowledge and attitudes of women about cervical cancer and its screening and to explore the acceptability of cervical cancer screening and HPV vaccine.

**Methods:** This was a questionnaire based cross-sectional study conducted among the women between 30 to 59 years of age attending the Non-Communicable Disease (NCD) clinic at a tertiary care hospital in Chennai. Sample size was calculated to be and participants were selected consecutively. After obtaining permission from Institutional Ethics Committee, the questionnaire was administered to the women

in the local language. Data was entered and analysed using SPSS Version 20.

**Results:** A majority of the women have poor knowledge about cervical cancer (81.9% [82/105]) and its screening (85.5% [84/105]). Only about 0.06% of the participants had undergone screening. Social stigma was the most common deterring factor (27.1%) for screening and 13.2% of the participants mentioned that social stigma was the reason for unacceptability for HPV vaccine.

**Conclusion and Recommendations:** Majority of women had poor knowledge. Mass media could be used to educate the women. There is a need to conduct a community-based study to know the practices of doctors to assess if they are educating and offering recommendations for screening.

**Keywords:** Knowledge, attitude, cervical cancer screening, acceptability, HPV vaccine

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## INTRODUCTION

According to Globocan 2020, there were 604,100 new cases of cervical cancer found worldwide in 2020, and the disease was responsible for 341,831 fatalities. Cervical cancer constituted 9.4% of all cancers and 18.3% (123,907) of newly diagnosed cases in India in 2020. In low- and middle-income nations, it remains one of the most common malignancies. In India, it is the primary cause of cancer-related deaths among women [1]. Despite a significant decline in the age-standardized incidence rate of 39.7% (95% UI 26.5–57.3) between 1990 and 2016, cervical cancer remains the second most common cause of cancer-related deaths among females in twelve Indian states [2]. This issue has been made worse in developing nations by late discovery brought on by nonexistent or insufficient screening choices and unavailable or prohibitively expensive standard therapy. In India, about 76.7% of cases of cervical cancer are caused by HPV serotypes 16 and 18 [3]. Due to the disease's astounding resource consumption in terms of missed productivity, medical expenses, and non-medical spending, society is severely burdened.

Cervical cancer is caused by the human papillomavirus (HPV). These are viruses made of deoxyribonucleic acid (DNA), and their classification is based on the DNA sequence. There are about 100 known HPV serotypes, with 18 of them classified as high-risk. According to molecular research, types 16 and 18 are the most carcinogenic, with type 16 being the most common. Both invasive cervical cancer and intraepithelial neoplasia can be caused by an HPV infection. [4] HPVs are classified as either cutaneous or mucosal forms, and they can infect basal epithelial cells found in the skin or inner lining of tissues. While HPV infection is thought to be necessary for the transformation of cervical epithelial cells, it is insufficient, and the disease's future development and progression are influenced by a number of cofactors and molecular events. [5]

Cervical cancer can be detected using a variety of screening tests. WHO released guidelines for women's precursor lesion screening. This comprises HPV DNA testing, basic visual examination using acetic acid (VIA), and cytological screening using the Papanicolaou or Pap test. Of them, the Pap test has the lowest sensitivity (57%) while the visual inspection with acetic acid (VIA, 72%) has the highest

sensitivity. Furthermore, cytological screenings need a well-established laboratory, cytotechnologists with extensive training, and a maximum of three visits to test and assess cytologic abnormalities [6]. As a result, it is challenging to adopt and maintain in environments with little funding. In conjunction with the existing screening methods, the hybrid capture II assay HPV test exhibits significant promise for early identification and, consequently, the prevention of cervical cancer. Large-scale routine screening is challenging in poor nations like India, though. Therefore, there is a lot of hope for an efficient vaccination against high-risk HPV strains in the current environment. Two internationally licensed vaccines are available in India: the bivalent vaccination Cervarix™, marketed by GlaxoSmithKline, and the quadrivalent vaccine Gardasil™, marketed by Merck. [7]

Notwithstanding the threat that cervical cancer poses, one of the biggest obstacles to the disease's prevention is public ignorance and a lack of acceptance toward screening and vaccination. It has been discovered that the implementation of population-based screening reduced the yearly incidence and prevalence of cervical cancer by 50% to 70% in many developed nations [8]. Hence this study was conducted with the following objectives.

## OBJECTIVES

To assess the knowledge and attitude of women about cervical cancer and its screening and

To explore the acceptability of cervical cancer screening and HPV vaccine

## MATERIALS AND METHODS

**Study method:** QUESTIONNAIRE BASED CROSS SECTIONAL STUDY

**Study centre:** NON-CLINICAL DISEASE OPD IN A TERTIARY CARE HOSPITAL

**Study duration:** 2 months (1<sup>st</sup> July 2022 to 1<sup>st</sup> September 2022)

**Sample size and sampling:**

Formula for infinite population,

$$N = Z^2 \times \frac{p \times q}{d^2}$$

Where,

$N$  = Sample Size

$Z$  = Z score

$P$  = Population proportion

$Q = 1 - P$

$d$  = Margin of error

Here,  $Z = 1.96$

$P = 0.84$

$d = 0.07$

$N = \text{approx. } 105$

Sampling was done by consecutive sampling where eligible participants were selected consecutively till the sample size is reached.

### **INCLUSION CRITERIA**

1. Women who are between 30 and 59 years of age (according to the guidelines) [8]
2. Women who have given consent for participation in the study.

### **EXCLUSION CRITERIA**

1. Women who did not give consent for participation in the study.
2. Women aged younger than 30 and older than 59 years old.

### **METHODOLOGY**

#### **Study instrument**

A questionnaire was developed collecting the following components of information from the subjects:

- Basic socio demographic profile like age, occupation income, etc.,
- Questions to assess knowledge about cervical cancer
- Question to assess the knowledge about cervical cancer screening
- Sources of knowledge and the role of doctor (like whether doctor educated about cervical cancer, its screening, suggested test for cervical cancer screening during a visit any time in the last 1 and 5 years)
- Problems in undergoing screening.
- Problems in acceptability of HPV vaccines

#### **Scoring of questions**

Knowledge about cervical cancer was assessed if the answer to first screen question (Have you heard of/do you know about cervical cancer?) was "yes." Two components of knowledge were assessed:

- Symptoms/manifestations of cervical cancer (multiple response question): Irregular menstrual bleeding, bleeding after sexual activity, weight loss, difficulty in passing urine, blood-stained discharge from vagina
- Risk factors for cervical cancer (multiple response questions): Early start of sexual activity, multiple sexual partners, multiparity and infection with virus. Each response was given 1 mark. So, the maximum was nine and minimum was zero. The knowledge was graded as:  $<4$  being poor knowledge; 5-6 being satisfactory knowledge and  $\geq 7$  being good knowledge.

About screening for cervical cancer: Knowledge about screening for cervical cancer was assessed if the answer to first screen question (Have you heard of/do you know that it is possible to detect cervical cancer early?) was "yes." Four questions were asked:

- Who should get tested (married, unmarried, any female)
- At what age is it advisable to get tested (old women  $>60$  years, young women 20-50, adolescent girls 12-19 years)
- Where do you think the testing is done (multiple responses permitted [government hospitals, maternity hospitals, private hospital, nursing homes, private hospitals with attached maternity hospital, women's hospital])
- A positive result means presence of cervical cancer (yes, no, don't know). Correct response for question 1, 2, 4, and each response for 3 carried 1 mark. So, the maximum was 9 and minimum was 0. The knowledge was graded as:  $<4$  being poor knowledge; 5-6 being satisfactory knowledge and  $\geq 7$  being good knowledge.

We also enquired among these participants whether they thought that cervical cancer was preventable and did they know about the HPV vaccine.

**Instrument development**

The questionnaire was scrutinized by the Department of Community Medicine, Government Medical College, Omandurar Government Estate. The questions were scored to help in grading the knowledge. The instrument was translated to local language [Tamil].

**Pretesting**

The study instrument was tried on 30 women who were attending NCD Clinic to check for feasibility and reliability. Changes were made to suit the study objectives.

**Informed consent and ethical clearance**

After the study protocol was approved by Institutional Ethical Committee of Government Medical College Omandurar Government Estate (IEC No: 67/IEC/GOMC/2022 dated 05/09/2022) the women who visited the NCD clinic were invited to participate in the study. The nature and purpose of the study was explained to the participants and their consent sought. It was made clear that participation in study is voluntary. Data was collected using face to face questionnaire method in local language.

**Service component**

After the collection of data, the women were informed about cervical cancer, the importance of its screening and facilities available for it. Implications of positive and negative results were also be explained.

**STATISTICAL ANALYSIS**

The data was checked for completeness and consistency. Data was entered and analyzed using SPSS version 20. Descriptive statistics like percentages were used.

**RESULTS**

Of the 105 women, majority (48.2% [51/105]) belonged to age group of 30-40 years. The demographic information of the participants is presented in Table 1. About 66.1% [69/105] had got married within the age of 17 – 26.

**Table 1 – sociodemographic characteristics of the participants (n=105)**

<b>DEMOGRAPHIC CHARACTERISTICS</b>	<b>n (%)</b>
<b>AGE</b>	
30 – 40	51 (48.2%)
40 – 50	40 (38.6%)
50 – 60	14(13.2 %)
<b>MARRIED</b>	
Yes	97 (92.8%)
No	8 (7.2%)
<b>AGE AT MARRIAGE</b>	
<16	13 (12%)
17 – 26	69 (66.1%)
>27	23 (21.7%)
<b>HAVE CHILDREN</b>	
Yes	97 (92.8%)
No	8 (7.2%)
<b>NO OF CHILDREN</b>	
1	20 (20.5%)
2	45 (47%)
>3	32 (25.3%)
<b>EDUCATION</b>	
Literate	72 (68.7%)
Illiterate	33 (31.3%)
<b>OCCUPATION</b>	
Working	43 (40.9%)
Housewife	62 (59%)
<b>MONTHLY INCOME IN RUPEES</b>	
<1000	28 (26.5%)
1001 – 5000	15 (14.5%)
50001 – 10000	13 (12%)
>10001	49 (47%)

A majority of the women ( 81.9% [86/105]) had poor knowledge about cervical cancer and its screening. The results are presented in Table 2. Majority of the women were not aware of facilities for screening.

**TABLE 2 - Grading of knowledge about cervical cancer and its screening (n=105)**

Grouping according to knowledge	n (%)
<b>Cervical cancer</b>	
Poor knowledge (<4)	86 (81.9%)
Satisfactory (5-6)	13 (12%)
Good (>7)	6 (6%)
<b>Knowledge about cervical cancer screening</b>	
Poor knowledge (<4)	90 (85.5%)
Satisfactory (5-6)	14 (13.3%)
Good (>7)	1 (1.2%)

Lack of knowledge is reflected in poor understanding of symptoms [Table 3]. The source of information was mainly mass media (14.5% [15/105] ) [Table 3].

**TABLE 3 - Knowledge and source of information about cervical cancer and its screening (n=105)\***

Knowledge about cervical cancer and screening	n (%)
<b>Knowledge about symptoms of cervical cancer*</b>	
Irregular menstrual bleeding	28 (26.5%)
Bleeding after sexual activity	10 (9.6%)
Blood stained discharge from vagina	26(25.3%)
Weight loss	20 (19.3%)
Difficulty in passing urine	15 (14.5%)
<b>Risk factors for cervical cancer*</b>	
Early start of sexual activity	24 (22.9%)
Multiple sexual partners	23 (15.7%)
Multiparity	11 (10.8%)
Viral infections	5 (4.8%)
<b>Mode of transmission</b>	
Sexually transmitted	34 (32.4%)
Genetically transmitted	24 (22.7%)

Transmitted by touch	4 (3.91%)
More than one stated cause	8 (7.6%)
Unknown mode of transmission	35 (33.4%)
<b>Who should get tested ?</b>	
Married women	21 (20.5%)
Unmarried women	14 (13.3%)
Any female	11 (10.8%)
<b>Appropriate age for getting tested</b>	
Old women >60	10 (9.6%)
Young women 20 -15	7 (7.2%)
Adolescent 12 – 19	4 (3.6%)
<b>Positive result means presence of cervical cancer</b>	
True	7 (7.2%)
False	4 (3.6%)
Don't know	94 (89.2%)
<b>Mode of prevention of cervical cancer</b>	
Like other STDs	40 (38.1%)
Vaccination	27 (25.6%)
Don't know	15 (14%)
<b>Sources of information*</b>	
Magazine	14 (13.3%)
Television	13 (12%)
Newspaper	15 (14.5%)
Medical practitioner	9 (8.4%)
Friends	5 (4.8%)
Internet	2 (2.4%)

\*Multiple responses permitted

Few 5.7% [6/105] women had undergone screening for cervical cancer. The reasons for not getting screened were as follows [n (%): fear of having a bad result [9 (8.8)] and embarrassment [28 (27.6)].

Employed women and women with college education had better knowledge about cervical cancer and its screening as compared to housewives and those with some schooling.

Table 4 – Factors influencing cervical cancer screening and acceptability of HPV vaccines

<b>Cervical cancer screening and acceptability of HPV vaccines</b>	<b>n (%)</b>
<b>Barriers for not attending cervical screening</b>	
Lack of knowledge about screening facilities	11 (10.9%)
Embarrassment	28 (27.6%)
Fear to give a pap smear	10 (9.8%)
Clinic is far away	7 (7.1%)
Long appointment queues	3 (3.3%)
Fear regarding the result	9 (8.8%)
Felt it was unnecessary	5 (5.4%)
Wished to go but never made an appointment	5 (5.1%)
Too busy lifestyle	7 (7.2%)
Too young for screening	6 (6.2%)
Had a negative past experience with screening	6 (5.8%)
Received treatment for a gynecological treatment in the past	3 (3.2%)
Had hysterectomy	6 (6.0%)
Others	0 (0%)
<b>Reasons making vaccine unacceptable</b>	
Social stigma	14 (13.2%)
Expensive	12 (11.5%)
Not genetically predisposed	31 (29.7%)
Concerns about post vaccination complication	43 (41.3%)
Multiple reasons	4 (4.1%)

## DISCUSSION

### Pap smear test

Only 7.2% of the women had ever undergone Pap smear testing. There is gap between awareness and behaviour change. The reason for not getting screened was embarrassment (27.6%).

### Knowledge of cervical cancer

Majority of the women had poor knowledge about cervical cancer (81.9%) and its screening (85.5%).

Majority of the study population belong to upper income class (47%). Employed women had higher education. Educated women had higher knowledge

than house wives. Community based studies from India have found that educated women have better health related knowledge.[9]

Role of health care provider and source of information

Those few women who had knowledge got it from mass media [Table 3]. Mass media seems to be important source of information even in rural areas as reported by studies conducted in rural parts of India. This also implies that perhaps doctors were not the common source of information when compared to mass media, which has been reported to be the source from studies conducted in different settings like “Rural communities” [9,10].

As majority of the women in our study had parity two or three they would have come in contact with health services. So, the contact would have provided opportunity for health care providers to educate their patients. This indicates that health care providers who did not educate their patients deprived them of the benefit of contact in terms of early diagnosis of cervical cancer. The results have two important implications:

- (1) The importance of using mass media for educating the public.
- (2) The need to study the practices of the doctors.

Although, majority of the sample population believed that cervical cancer was a preventable disease, most of them were unaware of the HPV vaccine.

Interestingly, participants felt that the acceptance level of HPV vaccines would increase considerably if the HPV vaccine was part of the National Immunization program. A major milestone in cervical cancer prevention in Delhi has been the introduction of HPV vaccine as a public health program for school children[11]. This corroborates well with the fact that Government sponsored immunization program has been a big success in India. In addition, the health-care providers play an influential role. Unfortunately, as has been suggested by Montgomery et al.,[12] the medical personnel has failed to spread much awareness about cervical cancer and HPV vaccine in India till date.

### Limitations

As it is a questionnaire based study there could be response bias. Due to feasibility reasons this study could not be conducted in the community and was

restricted to few women attending the MTM. It is possible that some women were educated and advised about cervical cancer and its screening, but there might have been recall bias. As these women came from different parts of our state and other states, we could not assess the knowledge of the doctors whom these women consulted. In addition, the study focused on acceptability of the HPV vaccine rather than its uptake. Moreover, the use of close-ended questionnaire may have excluded many potential reasons for nonacceptance of Pap smear test and HPV vaccines.

### **Conclusion and Recommendations**

Most of the women had poor knowledge and had not undergone screening for cervical cancer. As mass media was the common source of information, they could be used to raise the awareness of the women to promote early detection. There is a need for community-based study to know the practices of doctors and assess: (1) If they are educating the women about cervical cancer and its screening. (2) Whether they actually offered screening services to the eligible women who consulted them for any other health problem.

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**Conflict of Interest:** Nil

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