

AN EPIDEMIOLOGICAL STUDY OF CERVICAL CANCER AND ITS SCREENING IN HYDERABAD, TELANGANA STATE, INDIA

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ABSTRACT

Although the incidence of cervical cancer among women reduced, but still it is a significant problem in developing countries. Among the women living in low-income urban community in southern part of India, we sought to determine the prevalence of screening and assess women's cervical cancer knowledge.

As per the WHO number of global cancer deaths rising significantly every year, we conducted a cross-sectional survey to evaluate and make them aware about the cervical cancer prevalence among the women aged 25–70 living in Hyderabad, Telangana.

To achieve effective screening towards reducing the burden of cervical cancers, we developed questionnaires to investigate socio-economic, demographic, bio-medical, and residence. The present study attempts to address some of these research gaps among women to reduce the prevalence of cervical cancer in women. In a subset of 105 women, we conducted a 57 questions survey regarding women's knowledge of cervical cancer screening. It was reported that 38% of surveyed women had good awareness regarding cervical cancer and a relative precision rate of 20%.

We also assessed knowledge of cervical cancer, screening and the HPV vaccine in a subset of 175 women in the same age range to identify the HPV vaccine ratio among women living in Hyderabad, Telangana.

Keywords: Cervical cancer, Knowledge, Awareness, Screening, Telangana State, India

INTRODUCTION

Cancer is one of the primary causes of mortality and morbidity causes of death worldwide. The World Health Organization (WHO) projects that global cancer deaths will rise by 45% between 2008 and 2030 [1]. In contrast to developed countries, cervical cancer is a public health problem in developing countries like India. The official data revealed that India alone accounts for one-quarter of cervical cancers worldwide burden of cervical cancers [2]. Around 17% of all cancer deaths among women belong to the aged group between 30 and 69 years. It is estimated that cervical cancer will occur in approximately 1 in 53 Indian women during their lifetime compared with 1 in 100 women in more developed regions. India accounts for nearly one-fourth of the world's cervical cancer deaths, with 60,078 deaths and 96,922 new cases in 2018 [3]. In recent years the burden of cervical cancer reduced due to Human Papilloma Virus (HPV) vaccination and screening campaigns. Vaccination of adolescents against HPV 16 and HPV 18 reduces the majority of cervical cancer cases and decreases the numbers up to 70% [4].

To achieve effective screening towards reducing the burden of cervical cancers, we developed a questionnaire to investigate socioeconomic, demographic, bio-medical, and residence-related characteristics

associated with the screening of the cervix [5]. The likelihood of a woman receiving a Pap test depends on many aspects such as age, marital status, income level, education, and health status, education and higher incomes [6]. Employed females are more inclined to go for screening because of their higher opportunity cost, higher incomes, and ability to afford the out-of-pocket expenditure. On the other hand, rural women are less likely than urban women to go for cervical and screening [7]. The risk of infection with Human papillomavirus (HPV) and cervical cancer depends on the number of sexual partners, age at first intercourse, and sexual behaviour of the woman's male partner [8]. Additional risk indicators for cervical cancer are several live births, long-term oral contraceptives, and cigarette smoking [9]. Besides socioeconomic and demographic characteristics, risk factors accountable for breast cancer are alcohol, obesity, prolonged use of oral contraceptives, early onset of menstrual periods, etc.

The present study attempts to address some of these research gaps among the woman's to reduce the prevalence of cervical cancer in women's.

METHODOLOGY

Setting and Participants

This community-based cross-sectional study was conducted among women ages 25–70

who live in Hyderabad, Telangana. This study aims to identify factors affecting cervical cancer screening in urban women of Hyderabad and to develop a comprehensive assessment to determine the awareness about cervical cancer in women living in Hyderabad or adjust district of Hyderabad Telangana. It is crucial to note that any aggregation of socioeconomic, demographic or health variables over a geographic space tends to

manifest a spatial pattern or spatial clustering. In such a case, spatial autocorrelation creates a problem for statistical testing as the autocorrelated data violates the assumptions of classical statistics, one of them being the independence of the observations [10]. Prevalence and knowledge data were collected at these outreach clinics and via home visits. This study was conducted from June 2019 to March 2021.

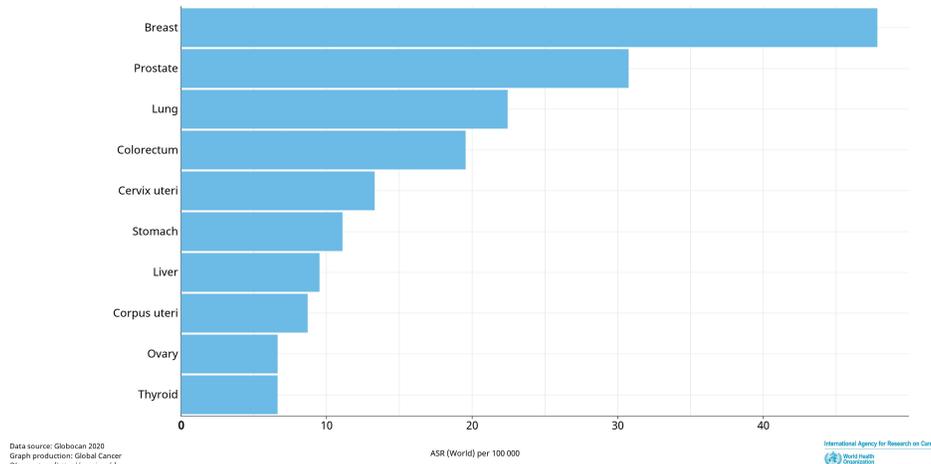


Figure 1: Different Cancer Incidence rates worldwide (Source- Global Cancer observatory)

This community-based study was divided into Six sections, Section- I contained demographic information, section-II knowledge & awareness levels before the educational intervention, section-III Attitudes toward cervical and breast cancer screening before educational Intervention, section- IV Influences & motivation for screening, Section- V Knowledge & awareness levels after educational intervention, Section- VI Attitudes toward cervical cancer screening after the educational intervention.

This survey included demographic data (age, education level, occupation, religion,

socioeconomic status, parity, age of marriage, exposure to healthcare), attitude towards cervical cancer before and after the educational intervention. Additionally, women were asked whether they had undergone a pelvic exam. Screening tests were performed, including Visual Inspection with Acetic Acid (VIA), Visual Inspection with Lugol's Iodine (VILI), and Cytology. Women were also asked for the results of the tests. The tests were performed at om sai hospitals to check subjects' eligibility before the study. Finally,

women were asked whether they were willing to be screened.

In a subset of 105 women, I conducted a more than 57 questions survey regarding women's knowledge of cervical cancer, screening, and the HPV vaccination. I determined that a sample size of 105 for the survey was adequate based on a study in Andhra Pradesh, which reported that 38% of surveyed women had good awareness regarding cervical cancer and a relative precision rate of 20%. Researcher obtained written informed consent from each participant.

Participants' knowledge of cervical cancer was checked by considering parameters like bleeding between periods, foul-smelling discharge, bleeding after intercourse, postmenopausal bleeding, urinary urgency, severe backache, lower abdominal pain, etc.

Risk factors play a crucial role in the development of cervical cancer, such as multiple sex partners, early sexual intercourse, acquiring HPV, cigarette smoking, young age at first birth, use of oral contraceptives for over five years, sexually transmitted diseases, poor menstrual hygiene, and more than five pregnancies.

In the final part of the survey, women were asked questions to determine their screening knowledge. Participants were given one point for each correct answer regarding types of screening tests, eligibility for screening (women age 25 years and above), location of screening (private and public hospitals) and

frequency of screening (once every three years or once every five years). One point was awarded if the participant knew details about the HPV vaccination. The maximum possible score was fifteen seven scores was zero.

Participants were then categorized based on their correct responses; a total score greater than or equal to 47-57 was considered good knowledge, 37-46 points implied moderate knowledge, and a score less than 27 points meant poor knowledge.

Data analysis

Responses for each knowledge survey question were recorded in Epidata (Version 3.1) and prevalence data were recorded in Microsoft Excel 2010. Both data were analyzed using SPSS 23. Descriptive statistics were calculated, including proportions for categorical variables and means (SD) for continuous variables. We used univariate analysis to determine the prevalence of cervical cancer screening, prevalence of positive test results, and treatment in this patient population. Chi-square tests were used to find if there is a significant association between age, religion, education, occupation, SES, parity and marital status with screening for cervical cancer [11].

Measures of central tendency and standard deviation were calculated for the aggregate scores on knowledge. We examined the relationship between knowledge of cervical cancer screening and demographic data using chi-squared tests. A p-value of <0.05 was considered as significant.

RESULTS

Screening Prevalence

During my research work there are 297 women aged 25–70 years in the population

visited by the Om sai hospital Hyderabad. Among them, 105 women participated in our study. data regarding screening was available for 105 (35.35%) women (**Table 1**).

Table 1: Screening Knowledge Awareness Attitudes by Sociodemographic Characteristics

Characteristic	n (%)	Positive Screening Post- intervention n (%)	Negative Screening Post-intervention n (%)	χ^2	df	p
Total	105 (100)	78 (74.28)	27 (24.72)			
Age group (yr)(n=105)				24.5	1	0.05
< 40	87 (82.85)	73 (69.5)	14 (13.3)			
> 40	18 (17.15)	5(4.7)	13 (12.3)			
Education(n=105)				1.8	1	0.1
< Primary	12 (11.42)	7 (6.67)	5 (4.7)			
> Secondary	93 (88.57)	71 (67.6)	22 (20.9)			
Family income (INR/Month) (n = 105)				1.8	1	0.1
< 10,000	12 (11.42)	7 (6.7)	5 (4.7)			
> 10,000	93 (88.57)	71 (67.6)	22 (20.9)			
Literacy Hindi or Telgu (n = 105)				5.3	1	0.02
Literate	94 (89.52)	73 (69.5)	21 (20)			
Illiterate	11 (10.47)	5 (4.7)	6 (5.7)			
Screeninghistory (n=105)				3.4	1	0.06
Ever Screened	10 (9.53)	5 (4.7)	5 (4.7)			
Never Screened	95 (90.47)	73 (69.5)	22 (20.9)			
Employment(n = 105)				2.6	1	0.1
Employed outside The home	41 (39.04)	34 (32.3)	7 (6.6)			
employed outside the home	64 (60.95)	44 (41.9)	20 (19.1)			
Individual income (INR/Month) (n = 60)						
≤ 10,000	46 (43.80)	40 (38.0)	6 (5.7)	6.8	1	0.09
> 10,000	59 (56.1)	28 (26.6)	31 (29.5)			

Table 2: Knowledge of Cervical Cancer Among Respondents (n=105)

Response	Pre-intervention n (%)	Post-intervention n (%)
Yes	59 (56.77)	78 (74.28)
No	46 (43.23)	27 (25.72)
Aware of cervical cancer	63 (60)	76 (72.3)
Not aware of cervical cancer	42 (40)	29 (27.7)
Aware of someone diagnosed with cervical cancer	75 (71.42)	78 (74.3)
Not aware of someone diagnosed with cervical cancer	30 (28.57)	27 (25.7)
Any knowledge about cervical cancer	94 (89.52)	94 (89.5)
No knowledge of cervical cancer	11 (10.47)	11 (10.5)
Anatomical location		
Cervix/Uterus	38 (36.19)	81 (77.1)
Did not know anatomical location	67 (63.80)	24 (22.8)
Etiologic cause/mode of transmission		
Mentioned correct etiologic cause or mode of transmission:	11 (10.47)	33 (31.4)
HPV 16 and HPV 18	2 (0.19)	5 (4.7)
Virus	7 (6.67)	11 (10.4)
Infection	8 (7.61)	8 (7.6)
Sexual intercourse	0 (0.0)	4 (3.8)
Mentioned incorrect etiologic cause or mode of transmission:	5 (4.76)	4 (3.8)
Excess/abnormal vaginal bleeding	2 (0.19)	1 (0.9)
Irregular menstruation	8 (7.61)	6 (5.7)
Poor hygiene	9 (8.57)	5 (4.7)
Hereditary factors	0 (0.0)	0 (0.0)
Did not know etiologic cause or mode of transmission	53 (50.47)	28 (26.6)

Table 3: Awareness of Cervical Cancer Among Respondents

	Pre-intervention	Post-intervention
Awareness of cervical cancer	59 (56.77)	78 (74.28)
Not aware of cervical cancer	46 (43.23)	27 (25.7)
Awareness of general risk factors	75 (71.42)	78 (74.3)
Not aware	30 (28.72)	27 (25.7)
Awareness about tests for diagnosis		
Pap test	28 (24.94)	61 (57.9)
Biopsy	24 (21.07)	16 (15.1)
CT/MRI	53 (50.47)	28 (26.6)

Table 4: Attitude towards Cervical Cancer Among Respondents

Attitude towards breast cancer	Pre intervention n (%)	Post intervention n (%)
Response		
Willing to be screened	63 (60)	76 (72.3)
Not willing to be screened	42 (40)	29 (27.7)
Screened for any type of cancer	94 (89.52)	94 (89.5)
Not screened for any type of cancer	11 (10.47)	11 (10.5)
Outlook towards screening		
Positive	38 (36.2)	81 (77.1)
Negative	67 (63.8)	24 (22.8)
Place of screening		
Government hospital	22 (20.95)	27 (25.71)
Village health camp	9 (8.58)	9 (8.58)
Private hospital	4 (3.80)	5 (4.76)
Not screened	70 (66.67)	64 (60.95)

Table 5: Comparison of mean pre test and post test knowledge scores obtained on knowledge questionnaire

KNOWLWDGE	MEAN	SD	Mean Difference	't' VALUE
PRE TEST	56.7	24.07	22.3	14.9
POST TEST	81.9	10.56		

Table 6: The relationship between the mean post test scores of knowledge, awareness and attitude

Post test mean score	t-value	'r'
81.9	14.9	0.4

DISCUSSION

The present study was carried out to check the impact of awareness about cervical cancer in women living in Hyderabad. We selected and took the consent of 105 women of different ages 25–70 living in Hyderabad, Telangana. We found that only 60% of women were aware of cervical cancer and less than 30% knew of symptoms, risk factors, or preventative measures.

The pre test and post test mean was calculated in the population before and after intervention respectively. The mean of the pre-test in women was 56.7 and the mean score of the post test was 81.9. The mean difference between these pre test and post test scores was found to be 22.3. The standard deviation was 24.07 in the pre test

and 10.56 in the post test. 't' value (t=14.9) shows that there is a significant difference. This infers that the obtained mean difference between the pre test and post test scores is a true difference and not by chance. Pre and post intervention statistics also showed a significant difference between the knowledge, awareness and attitude of women.

In pre test, 63 (60%) were aware, and only 28 (24.94%) respondents had knowledge about the risk factors of cervical cancer, whereas in post test 76 (72.3%) were aware and 61 (57.9%) respondents could identify the risk factors correctly.

The chi square values in all sociodemographic characteristics indicate

no significant association between mean post test scores with education, family income, screening history and employment. However, there is a significant association between mean post test scores with age, literacy and individual income.

The correlation coefficient 'r' value showed that there is a statistically significant relationship between the mean post test scores of knowledge, awareness and attitude, after the awareness program as evident from 'r' value of 0.4 for degrees of freedom 76 at 0.05 level of significance.*

No women in our study received the HPV vaccine, and almost no women knew of the vaccination. We found that HPV vaccination was introduced in India in 2008, but most women are still unaware of it. Indian government should launch an awareness program in India to make aware women of the importance of HPV vaccination [12].

We observed that multiple factors affect women's ability and desire to participate in screening during our study. Screening is a preventative service that is not a priority for asymptomatic and low-income people struggling with more acute day-to-day problems [13]. Despite these limitations, we believe that we could gain unique access to this population due to the active engagement and ongoing relationships between the patients and hospital staff [14].

This opportunity enhance our community-level awareness and streamline screening processes.

Ethics and Consent

The study was conducted with approval from the Om Sai Hospital's institutional review board (IRB Min. No- OMSAI/2019/006 dated 26.03.2019).

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Competing Interests

The authors have no competing interests to declare.

Declaration

All authors had full access to the data in the study. Ms Ch Shilpa and other authors have responsibility for the integrity of the data and the accuracy of the data analysis, design of the study, collection and management of the data.

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