



## A community based cervical cancer screening program and its association with socio demographic profile using camp approach among women in urban and rural setup in India

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### ABSTRACT

Cervical cancer is the commonest malignancy among women in India. Cytological screening (PAP Smear) has claimed to reduce the incidence and mortality of cervical cancer significantly. This cross – sectional study was conducted on 96 women attending screening camps to determine the prevalence rate of cervical cancer and to find out the association between cervical cancer and socio – demographic variables. Chi – Square test was used to find out the association between cervical cancer and socio – demographic variables. The prevalence of cervical cancer was found to be 14.4%, out of which 12.2% being *carcinoma in situ* and 2.2% high grade neoplasia. Statistically significant association was found between cervical cancer and age at marriage (< 18 years) and high parity (>3), (p<0.05). Prevalence of risk factors for cervical cancer in this study was high. This study concludes that community based cancer awareness camp approach is an effective method in screening cervical cancer and is an indispensable method to reduce mortality due to cervical cancer in India.

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### Introduction

Cervical cancer is the commonest malignancy among women in India. [1] Cervical cancer is the fourth most common cancer in women, and the seventh overall, with an estimated 528,000 new cases in 2012. There were an estimated 266,000 deaths from cervical cancer worldwide in 2012, accounting for 7.5% of all female cancer deaths. Almost nine out of ten (87%) cervical cancer deaths occur in the less developed regions. It is estimated that 123000 cases were reported in India in 2012 and 67000 deaths are due to cervical cancer in India [2]. It is estimated that approximately one in every 29 women in their lifetime may develop this form of cancer. [3] Worldwide, Papanicolaou (Pap) testing rates among women remain low. [4] Without urgent action, death burden due to cervical cancer is projected to rise globally. [5]

Cervical cancer is largely preventable by effective screening programmes and considerable reduction in cervical cancer incidence and deaths has been achieved in developed nations with systematic cytological smear screening programmes. [6] The Pap smear test, a cytological screening test, involves scraping cells from the cervix, during a vaginal speculum examination to detect abnormal cell changes in the cervical mucosa. [3,4] However, while the screening test has achieved tremendous success in industrialized countries through public health program, it has failed to reach a significant proportion of women in developing countries. [6] Many studies have shown that carcinoma in situ can be detected for several years before it progresses to invasive cancer by cytological screening. [1,5] Thus there is a need to sensitize women through awareness campaigns to undergo cervical screening at regular intervals. [1]

The present study was undertaken with the objectives to find out the number of cervical cancer suspects/cases among volunteers reporting to health care camps through screening program. An association between diagnosed morbidity and socio

### Methodology

The Cancer Awareness camps were organized in the field practice areas attached to the department of Community Medicine, PES Institute of Medical Sciences and Research, Kuppam, at monthly intervals during the period between March 4, 2010 to June 24, 2010 at two centres namely Urban Health Centre, Kuppam and Rural Health Training Centre, Venkatagiri. Kota in Chittoor district of Andhra Pradesh in South India.

A total of 96 female patients attended these camps. All the volunteers were examined by a specialist. The socio – demographic variables and clinical profile was obtained using a questionnaire. PAP smears were collected from volunteers after obtaining written informed consent. The patients not willing for PAP smear and with gynaecological abnormalities not permitting the procedure were excluded. The cytological diagnosis was confirmed by a pathologist by examining the PAP smears. Data was statistically analysed with SPSS version 16.

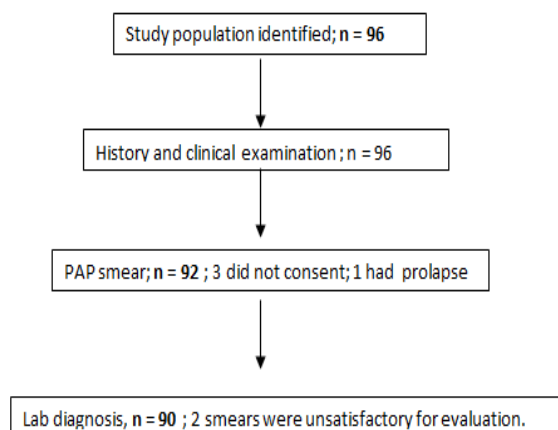


Figure 1. Flow chart showing the study design

**Table 1. Socio demographic characteristics of study population**

Characteristics	No. Of subjects (n = 96)	%
<b>Age (years)</b>		
15 – 24	6	6.25
25 – 34	45	46.87
35 – 44	25	26
45 – 54	13	13.54
55 – 64	6	6.25
>65	1	1.04
<b>Education status</b>		
Illiterate	82	85.4
Primary (<5 th std)	8	8.3
Matriculation (5-10 <sup>th</sup> std)	3	3.12
Senior secondary(+1,+2)	2	2
Graduate and above	1	1.04
<b>Socio – economic status</b>	Kuppuswamy	BG Prasad
I	0	0
II	32	14
III	51	19
IV	13	51
V	0	12

**Table 2. Laboratory findings in PAP smear**

PAP smear result	No. Of subjects (n=92)	%
Normal	23	25
Inflammatory smear	15	16.3
Atrophic smear	8	8.7
Bacterial vaginosis	17	18.48
Trichomonas vaginalis	12	13
Candida infection	2	2.2
Unsatisfactory for evaluation	2	2.2
CIN positive	13	14.13

**Table 3. Association of cancer cervix with age at marriage and parity**

Age at marriage	CIN +	CIN -	Total	X <sup>2</sup> value	p value
< 18 years	12	42	54	5.12	< 0.05
>18 years	01	35	36		
Total	13	77	90		
Parity	CIN +	CIN -	Total	X <sup>2</sup> value	p value
1 – 3	1	66	67	31.6	< 0.001
>3	12	11	23		
Total	13	77	90		

## Results

The socio demographic characteristics of the study population are depicted in table 1. Majority of the women attending the camp were in the reproductive age group (15-44 years) – 79.12%. 85.4 % of the women were illiterates. Many of them belonged to Kuppuswamy – III and II socio-economic status in rural area and BG Prasad – IV and III socio-economic status in urban area. It was observed that 72.9% of the women had minimum one but less than three children. About 26% of the women had more than three children born in their reproductive period. About 62.5% of the women were married at < 18 years of age and 37.5% of women married after 18 years.

Regarding the reproductive tract morbidity and clinical diagnosis, 88 volunteers of 96 had one or the other complaint. WDPV and Pain Abdomen were the most common complaints, 53% and 39.5% respectively. Other complaints reported by the volunteers were menstrual irregularities (29.16%), backache (22.91%) and pruritus vulvae (15.625%). A few volunteers also complained of dyspareunia (8.33%) and dysuria (6.25%).

Among the 96 volunteers who were examined clinically, 13.54% were normal without any clinical abnormality. 27% had infections – bacterial vaginosis, trichomonas vaginalis or

candida infection. 20.8% showed a clinical picture of cervicitis, 18.75% of PID (Pelvic inflammatory disease) and 6.25% of DUB (Dysfunctional uterine bleeding). One volunteer had uterine prolapse. Malignancy of cervix was suspected in 12.5%.

Laboratory diagnosis by PAP smear was done on 92 test subjects. After examination of PAP smears, it was observed that 25% were normal, 16% benign inflammatory changes, 33.68% had infection – Trichomonas Vaginalis, Bacterial Vaginosis or candida, and 8.8% were atrophic smears. 2 smears were unsatisfactory for evaluation. 14.13% (13 out of 92 PAP smears) were positive for CIN (Cervical intraepithelial neoplasia).

The prevalence of Cancer Cervix in this study was found to be 14.13%.

Out of the 13 CIN positive smears, 10 were ASCUS (Atypical squamous cells of undetermined significance) and 2 as LSIL (Low grade squamous intraepithelial lesion) and 1 high grade neoplasia.

The association between age at marriage, parity and cancer cervix was determined. Most of the volunteers who had any type of PAP confirmed reproductive morbidity were married at an age below 18 years, had borne more than 3 children and were illiterate. The percentage of cases diagnosed to be suffering from

one or the other reproductive morbidity decreased with increasing age at marriage and literacy levels and also with decreasing parity. This study reported a prevalence of carcinoma in situ as 13.3% among women with high parity.

#### Discussion

The findings of the present study correspond with the results obtained from a study conducted in similar settings.<sup>[1,7]</sup> Cancer cervix is the most common cancer among Indian women due to the presence of several risk factors in the community. In this study, all women were married, of low socio – economic status, were illiterate and their average age was 38 years. (Median = 37)

It was observed that 72.9% of the women had at least one but less than three children. About 26% of the women had more than three children born any time in their reproductive period. The findings of the present study correspond with the results obtained from a study conducted in similar settings.<sup>[1,7]</sup> WDPV and Pain Abdomen were the most common complaints, 53% and 39.5% respectively. This reflects poor genital hygiene and presence of STDs which act as precursor to cancer cervix<sup>[7]</sup> and thus may require prompt treatment as reported in other studies also.<sup>[1]</sup>

About 62.5% of the women were married at < 18 years of age and 37.5% of women married after 18 years. The proportion of females married <18 years of age was over 88% during 1901 – 41 and about 45% in 1981.<sup>[8]</sup> There is an association between decrease age at marriage and literacy and increasing parity with increase in cancer cervix. This association has been documented well in other studies as well.<sup>[1, 7, 8]</sup>

The association between age at marriage and cervical cancer was statistically significant in this study. It has been observed in various other studies also.<sup>[1,7,8,9]</sup> Prabhakar A K et al, in their study on age at marriage and cervical cancer incidence in 1995, observed that women marrying earlier than 17 years of age are at higher risk of developing cervical cancer. Also they observed a relative risk of 2.0 for women marrying below 17 years of age and cervical cancer.<sup>[8]</sup> In a study conducted by Dutta et al, the estimated relative risk for cancer cervix among women getting married before 17 years of age has been reported to be 7.9<sup>[9]</sup>

This study reported a prevalence of carcinoma in situ as 13.3% among women with high parity. Similar observation was found in a study by Sharma et al with 10.7% prevalence<sup>1</sup> Similar to the observations in the present study, a significant association between high parity and cervical cancer has been reported with a relative risk of 2 in other studies also.<sup>[7]</sup>

#### Conclusions

Public health program such as screening women for precancerous changes, treating and follow-up care at early stages of the disease can potentially protect women from developing cervical cancer and thus reducing the incidence, morbidity and mortality from this condition. Increased awareness amongst women from health education and the media, reduced anxiety around having a smear taken, and the financial incentives to

general practitioners for achieving higher coverage targets within their populations have to be achieved.

A good prevention program needs locally understood messages to increase awareness regarding the disease; must reach a significant proportion of women in their 30s and 40s; motivate them to get tested atleast once; make healthcare facilities widely available and resourceful with appropriate follow-up and care. Since CIN takes a long time to become invasive, and it is easily and adequately treatable; Screening camps and programs for cervical cancer should be done more frequently and at regular intervals.

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