

# Cross sectional Study of Cervical Cancer in and around Madurai District, Tamilnadu, India

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**Abstract** – ‘Cervical Cancer’ is the cancer that forms in the tissues of the Cervix. It is usually a slow-growing cancer that may not have symptoms but can be found with regular Pap tests. Cervical cancer is caused by Human Papilloma Virus (HPV) infection. Worldwide, cervical cancer is the second most common and an important public health problem for adult women. Though there are many papers published on the multi-factorial causation, prevention, types of HPV, the role of National Program etc this paper attempts to give a cross sectional and statistical study of cervical cancer especially in the district of Madurai Govt Hospital, South Tamil Nadu. In the first phase of the study all women of age group 30 – 70 those who were admitted, were enrolled by circulating case study format and consent form substantiating the knowledge of the confirmed cervical cancer patients. The information and data were collected, analysed statistically and recorded. The report of the pre - diagnosis of cancer through the biochemical parameters helped to identify the patient’s clinical diagnostic status. Perfect care was taken to maintain the confidentiality of the case sheet format.

**Key Words** – Cervical cancer, HPV, Cervix, Biochemical Parameters.

## 1. Introduction

Cancer is the abnormal cell growth and is able to invade other tissues. It is also known as a malignant tumour or malignant neoplasm. As we all know cancer is one of the most severe health problems in both developing and developed countries. India alone accounts for one-fourth of the global cervix cancer burden<sup>1</sup>. In India every year 1, 22, 800 women are diagnosed with cervical cancer. Therefore 20% of the cervical cancers are accounted in India. Worldwide there are different types of cancer, most cancers are named for the organ or type of cell in which they start. Cervical Cancer occurs when abnormal cells develop and spread in the cervix, the lower part of the uterus and most cases are triggered by a type of virus. If it is found early is highly curable. Risk factor includes -Top cause of cervical cancer is Human Papilloma Virus (HPV) which infects the genital areas. Worldwide 90% of cervical cancers are caused by HPV infection in sexually active women with multiple partners. Signs and symptoms are unusual viz. vaginal discharge, vaginal bleeding between periods, bleeding after menopause, bleeding or pain during sex. Effective implementation of sustainable cervical cancer screening programmes using sufficiently sensitive and specific tests that covers minimum 70% of the targeted population through screening at least once in a lifetime along with effective treatment is vital in reducing the burden of cervix cancers<sup>2</sup>.

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## 2. MATERIALS AND METHODS

The data collected and consolidated reports have been reported in different ways. This result provides a unified analysis based on the parameters including a comparison against age group, family details, educational status, socio economic status, food habit, drugs, medication - treatment – diagnosis and clinical finding.

### 2.1. Case Study Format:

In majority of situations most women do not have any access to awareness, screening and treatment programs. The main purpose of this study is to find out the correlation between the factors of cervical cancer. This case study format is prepared in English by members of the Doctoral Committee, Medical Doctors and Practitioners. The main parts of the questionnaire are as follows:

1. Personal history
2. Family history of cancer
3. Precancerous lesion
4. Symptoms
5. Stage of cancer
6. Lab investigations
7. Type of treatment

### 2.2. Data Collection:

A cross sectional questionnaire based survey has been conducted on 100 women (both married and unmarried, covering both rural and urban areas). Research scholar and the medical practitioner were trained well to fulfill the data format from the patient with the consent of the patient’s guardian. The patients were given proper knowledge about the case study format and the main purpose of this study. The data of almost cervical cancer confirmed cases were totally included for this analysis. Awareness is given to

them towards the specific aspects of cancer and to safeguard their life by sharing about mode of transmission of HPV, Pap smear test, Screening programme, Vaccination, Cytological tests and other guidelines for Govtprogrammes. The choice of the test will depend on its technical performance, cost-effectiveness, the available resources and the socio cultural settings in which it is to be used<sup>3</sup>.

**3. Sources of information - Diagnostic Distribution:**

**3.1. Age Group:**

Characteristics	Rural (%)	Urban (%)	Total (%)	P value
<b>Age Distribution</b>				
30 – 40	10	2	12	0.317
40 – 50	24	16	40	
50 – 60	18	19	37	
60 –70	3	2	5	
70 above	3	3	6	

**Table: 1- Age Group**

In an estimated survey with reference to 100 women upholding age group as the criterion, it is observed that about 58% of rural women and 42% of urban women had undergone the affliction. The analysis exposes 10 rural women and 2 urban women as victims of age group 30-40, summing up to a total of 12. Women of age group 40-50, in the rural areas are so oblivious to health issues that the report unfurls a high number – about 24 as affected and 16 women of the urban domain are reported to be affected (40 in total). Of the age group 50-60, an equal distribution is reported, viz 18 and 19 in the rural and urban belts respectively thus portraying a total of 37. Of the age group

60-70, the analysis reveals scarce number of affected women viz 3 in the rural and 2 in the urban zone, with a total of 5. The 70 and above age group shows equal numbers of victims, 3 each in the rural as well as urban sectors, summing up to a total of 6.

**Marital status**

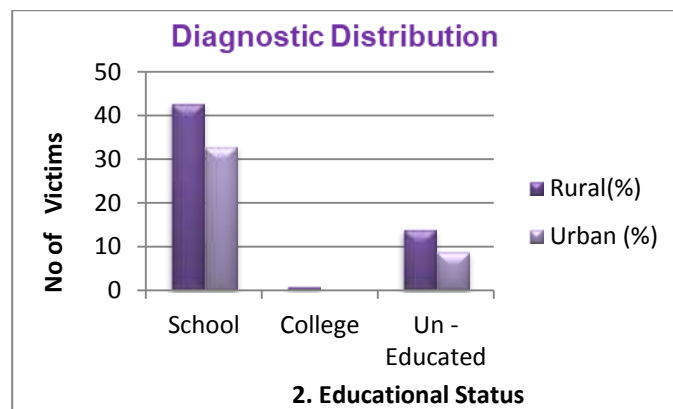
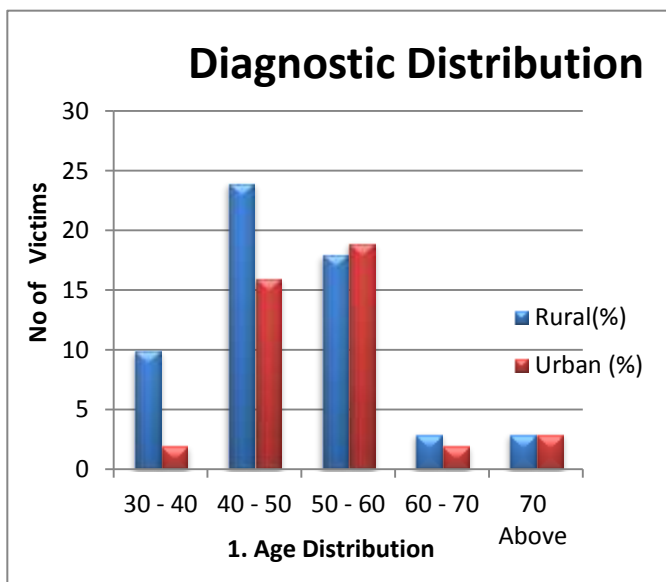
In an analysis with reference to married women, 58 of the rural inhabitants and 42 of the urban inhabitants are afflicted. The report reveals a neutral standpoint in the case of the unmarried irrespective of whether they hail from the rural or urban domain.

**3.2. Education Status**

Characteristics	Rural (%)	Urban (%)	Total (%)	P value
School	43	33	76	0.648
College	01	-	01	
Un - Educated	14	09	23	

**Table: 2 Education Status**

In an analysis with reference to the data of victims who had the access for school education alone, 43 women of the rural areas and 33 women of the urban areas (a total of 76 women) are reported to be afflicted. In the analysis with reference to those with the access for collegiate education, only 1 case is reported from rural lineage and no case is reported from urban lineage thus conforming to the perspective that awareness connects individuals to serendipitous avenues, as a part of the drive to ensure good health. Of the uneducated lot 14 women of the rural setting and 9 women of the urban setting are reported to be victims (a total of 23 women).



**3.3. Habitual Action**

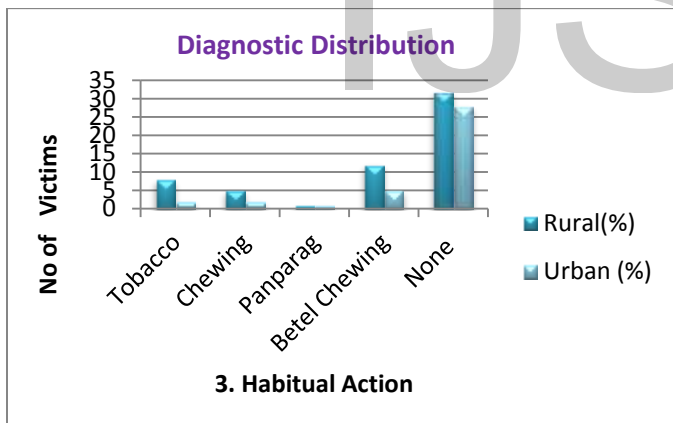
In the case of the women who make it habitual for side-stepping good habits, the menace of addiction to tobacco, chewing, panparag and betel – chewing has imprinted

dreadful consequence of its own kind, thus engendering the disease.

Characteristics	Rural (%)	Urban (%)	Total (%)	P value
Tobacco	08	02	10	0.253
Chewing	05	02	07	
Panparag	01	01	02	
Betel Chewing	12	05	17	
None	32	32	60	

**Table: 3 – Habitual Action**

The afflicted tobacco users are 8 and 2 in number, in the rural and urban areas respectively (10 in total). Of those enfeebled by the habit of chewing 5 and 2 are reported as victims in the rural and urban domain respectively (a total of 7). The report of those addicted to panparag, shows 1 each in rural and urban zones (a total of 2). Betel chewing victimized 12 women in the rural and 5 women in the urban habitation, thus enhancing the total to 17. Chronic infection with oncogenic HPV is necessary, but insufficient cause for the development of cervical cancer. Presence of co-factors such as high parity smoking nutritional deficiency, hormonal contraceptive use and presence of other sexually transmitted infections increases the risk<sup>4</sup>.



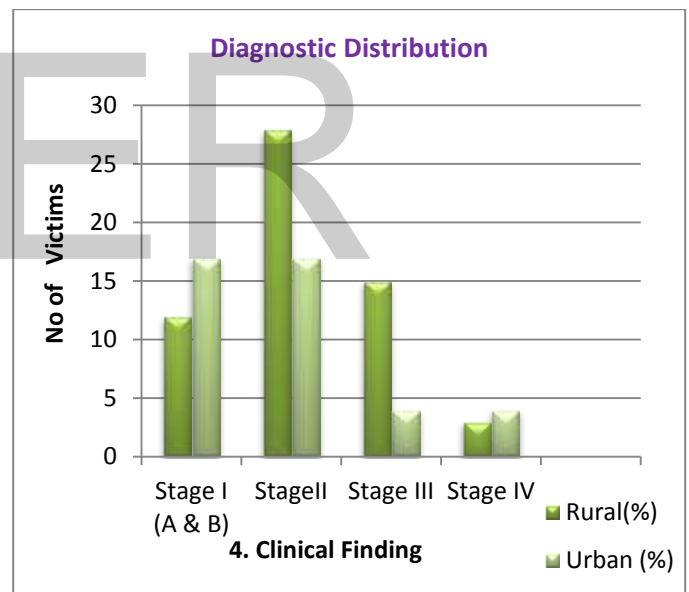
**Food**

Of the women who consume vegetarian and non-vegetarian foods, the vegetarians both rural and urban inhabitants seem to have very scarce chance of being victimized in comparison with the non-vegetarians who run a very high risk. About 6 and 4 vegetarians in the rural and urban habitations respectively, are reported to be victims (a total of 10 victims). The non-vegetarians hailing from the rural as well as urban habitations are victimized in great numbers, viz 52 in the rural and 38 in the urban limits.

**3. 4. Clinical Finding**

The Clinical Finding reveals that cervical cancer is detected in stage I (A & B) in 12 rural and 17 urban patients (a total of 29). Early detection happens scarcely in stage I. In stage II clinical finding reveals more victims viz 28 in the rural and 17 in the urban (45) habitations. In stage III the finding reveals 15 rural and 4 urban victims(19). In stage IV (advanced stage) 3 rural victims and 4 urban victims are revealed (7)

Characteristics	Rural (%)	Urban (%)	Total (%)	P value
Stage I(A &B)	12	17	29	0.0526
Stage II	28	17	45	
Stage III	15	04	19	
Stage IV	03	04	07	



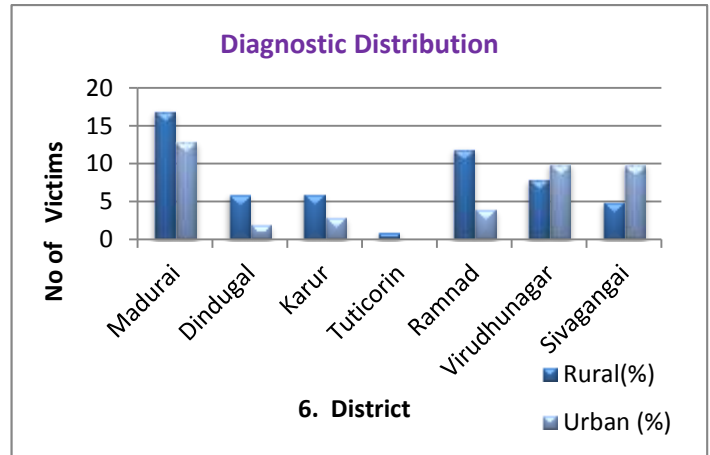
**Table: 4 – Clinical Finding**

**3. 5. Treatment**

In the criteria concerned with treatment nobody undergoes surgery in the rural limits but only 1 undergoes surgery in the urban limits. Radiotherapy seems to be very much welcomed by 34 patients in the rural and 24 patients in the urban zone (58) Chemotherapy is undergone by 18 rural and 8 urban patients (26). Combination is not opted in more numbers. It is undertaken by 2 patients in rural and 3 in the urban zone (5). Symptomatic treatment is administered on 2 rural and 6 urban patients (10).

Characteristics	Rural (%)	Urban (%)	Total (%)	P value
Surgery	-	01	01	0.315
Radiation Therapy	34	24	58	
Chemotherapy	18	08	26	
Combination	02	03	05	
Symptomatic treatment	04	06	10	

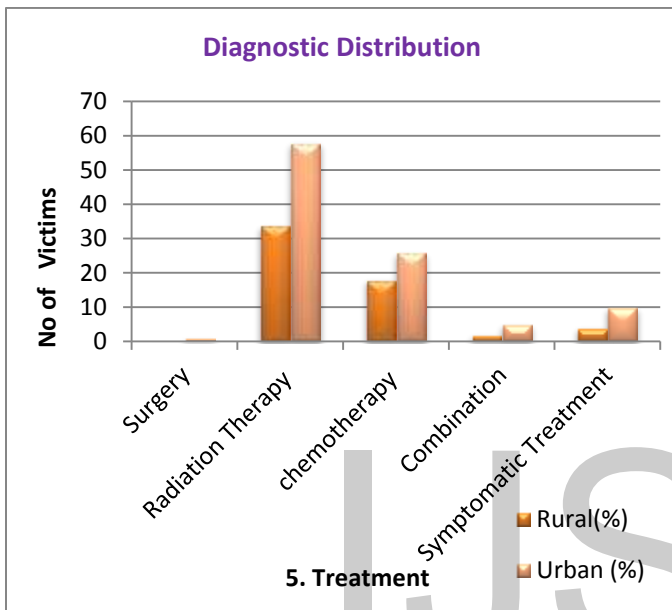
Table: 5- Treatment



#### 4. Discussion

In our study of cross sectional questionnaire based survey conducted on 100 women, covering both rural and urban areas 58% of rural lot and 42% of the urban lot were enrolled to fulfill the analysis report. Though the literary rate is high among the women lot considered for analysis the awareness about cervical cancer is lower than expected. In India, cancer of the cervix is number one killer cancer among women. It comes to 23.3 percent of all cancer deaths in women and about 11.4 percent of total cancer deaths in the country<sup>5</sup>. The result of cluster randomized controlled trial in southern India, after a single round of screening using VIA (followed by treatment in the same visit) when appropriate show a significant 25% reduction in cervical cancer incidence and a significant 35% reduction in cervical cancer mortality at the end of seven years of follow up. The cross sectional study concludes that parallel testing with both VIA and VILI should be considered where good quality cytology is not feasible and that the sensitivity of cytology and HPV testing can be significantly increased by adding the visual test<sup>6</sup>.

Visual tests are not reliable in post menopausal women because of changes in the transformation zone of the cervix, the area in which precursors of cervical cancer arise<sup>7,8</sup>. Genital HPV infection is the most common viral sexually transmitted infection (STI) and affects roughly 80% of sexually active people. In most cases HPV infection is cleared by the cell mediated immune system within 1 – 2 years of exposure<sup>9</sup>. The median time of clearance of HPV infections detected during screening studies is 6 – 18 months<sup>10</sup>. The small proportion (about 10%) of carcinogenic infections persisting for several years is strongly linked to a high absolute risk of diagnosis of pre – cancer<sup>11</sup>. Less number of the respondent were aware that pap smear is the screening test for cervical cancer. Majority of the respondents were aware of the correct time to start screening which is after first coitus. Despite the low



5. Treatment

#### 3. 6. The District wise Data

The District wise data show the distribution in various districts like Madurai, Dindigul, Karur, Tuticorin, Ramnad, Virudhunagar and Sivagangai. Madurai accommodates 17 rural and 13 urban patients (30) Dindigul incorporates 9 rural and 2 urban patients (11) 6 rural and 3 urban patients (09) hail from Karur, 1 rural patient hails from Tuticorin whereas the urban zone of Tuticorin is neutral. Ramnad holds 12 rural and 4 urban patients (16) Virudhunagar accommodates 8 rural and 10 urban patients (18) Sivagangai holds 05 rural and 10 urban patients (15)

Characteristics	Rural (%)	Urban (%)	Total (%)	P value
Madurai	17	13	30	0.101
Dindugal	09	02	11	
Karur	06	03	09	
Tuticorin	01		01	
Ramnad	12	04	16	
Virudhunagar	08	10	18	
Sivagangai	05	10	15	

Table:6 –The District wise Data

consumable cost, high quality cytology is expensive in absolute terms and may not necessarily be the most cost-effective option for screening<sup>12</sup>. Of the women in the rural areas who were victimized by cervical cancer, vaginal menstrual irregular bleeding was noted in less individuals. Whereas the same symptom was not noted in the inhabitants hailing from urban areas. The symptom offensive / white vaginal discharge with the foul smell was not reported in the case of victim hailing from rural as well as urban settings. The symptoms viz difficulty in passing stools as well as ulcerative and bleeding on touch were also not reported in the victims hailing from both rural and urban regions. Leg pain was reported by one individual commonly in the rural and urban sector. With reference to lower abdominal pain few rural inhabitants exposed the symptoms whereas the same was not revealed in the case of urban inhabitants. Back pain was noted in individuals of the rural lot, where as it was not exposed in the case of urban women. The study reveals that rural women are sensitive to the cause and reveal the symptoms viz vaginal menstrual irregular bleeding, lower abdominal pain and back pain. Though literacy gives them an edge, the urban lot still stay immune to the exposure before them. They don't either confront the adversities boldly.

Among those who were aware of cervical cancer, biopsy was undergone by 17 rural women and 26 urban women. Those hailing from the urban domain were more likely to be aware of Biopsy for cervical cancer. Pop was undergone by 1 each in the rural as well as urban limits. Pop and MRI were undergone by 1 in the urban zone. Biopsy and in Situ were undergone by 1 in the rural limits. Pop smear and cervix biopsy were undergone by 14 in the rural zone whereas in the urban zone the report shows that these were undergone by 8 in the urban zone. Speculum Examination was undergone by 04 in the rural limits. VIA VALLI was undergone by 5 in the rural limits and 4 in the urban limits. Carcinoma in situ was undergone by 1 rural inhabitant. When the rest were asked about the reasons for not undergoing screening, no remarks were given by 2 of the urban lot. Pap test has repeatedly demonstrated good specificity ranging from 86% to 100%<sup>13</sup>. Cervical cancer is the third largest cause of cancer mortality in India accounting for nearly 10% of all cancer related deaths in the country. The relative five year survival averages to 48.7%<sup>14</sup>,<sup>15</sup>.

## 5. Conclusion

More than 85% cases and 88% deaths from cervix cancer occur in developing countries where women often lack access to cervical cancer screening and treatment. Choosing a suitable screening test with good efficacy and one which is replicable affordable feasible for implementation with

respect to available technical expertise and man power is an important aspect of a screening program. Highly effective HPV prophylactic vaccines are now available for prevention of cervix cancers. Hence early detection and treatment needs to be continued for millions of women who are already infected and who may not receive vaccination in the near future.

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