

## Sociodemographic and Clinical Profile of Cervical Cancer Patients Visiting in a Tertiary Care Hospital in India

### Abstract

**Context:** Cancer of the cervix is the most common genital tract malignancy in the female and is a major public health problem in the developing countries. Study of the sociodemographic and clinical profile of patients is the first step in planning control measures and treatment facilities. **Aims:** The aims of the study were to determine the sociodemographic and clinical profile of cervical cancer patients and study their association with other tumor-related factors. **Settings and Design:** This is a record-based retrospective study from a single institution. **Subjects and Methods:** The data on sociodemographic and clinical factors of 765 cervical cancer patients visited and treated at tertiary care cancer hospital in Mumbai in 1 year period were analyzed. **Statistical Analysis:** Data were analyzed using descriptive statistics. Kruskal–Wallis and Chi-square test were used to assess relationship between variables. **Results:** The median age of the cohort was 54 years and interquartile range was 16 years. Nearly 53.6% of patients were illiterate. About 88.10% of patient's had squamous cell carcinoma. Only 13% of cases had early stage disease and 77% of patient's had not taken any treatment before coming to the hospital. Of the total, about 26% patients also had concomitant comorbidities, of which hypertension was found to be the leading comorbid condition. Stage of disease was found to be significantly ( $P < 0.05$ ) associated with age and educational status. **Conclusion:** This study highlights certain important baseline characteristics of cervical cancer patients. This basic information on profile of patients can help plan and optimum utilization of hospital services, especially in resource-poor countries like India.

**Keywords:** Cervical cancer, clinical characteristics, sociodemographic

### Introduction

Cancer of the cervix is the most common genital tract malignancy in the female and is a major public health problem in the developing countries.<sup>[1]</sup> Worldwide, about half a million new cases are seen each year, with majority coming from the developing nations. In India, more than 1.2 lac new cases of cancer of cervix uteri occurred in the year 2012 with age-specific incidence rate of 22 per 100,000.<sup>[2]</sup> 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 of the world. At current incidence rates, the annual burden of new cases in India is projected to increase to 225,000 by 2025.<sup>[3]</sup>

The exact cause of cervical cancer remains unknown. However, it is now well recognized that cervical cancer is more common among women living in poor conditions, with low-income levels and lack

of education. There are abundant studies on risk factors related with cervical cancer. In addition to human papillomavirus, there are various risk factors associated with cervical cancer such as early age at marriage, early age at first sexual intercourse, more number of sexual partners, high parity, and smoking.<sup>[4-7]</sup> However, information about patients profile and utilization of hospital services is scarce.

In India, huge section of the population is from below poverty line who are neither aware nor have accesses to cervical cancer screening, diagnosis, and treatment facilities. Furthermore, despite cervical cancer being the leading cause of cancer mortality in India, accounting for 17% of all cancer deaths among women aged 30–69 years.<sup>[3]</sup> There has been no synchronized national initiative from public health authorities. Study of the sociodemographic profile, additional comorbidities, and patient presentation is the first step in planning control measures

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and treatment facilities. Hence, in light of the above, the present study was planned to study the sociodemographic and clinical profile of cervical cancer patients visiting a tertiary care hospital in Mumbai.

## Subjects and Methods

### Study design

This is a retrospective study based on hospital records of Tata Memorial Hospital, Mumbai, India.

### Study population

Medical records of 765 cervical cancer patients reported to Tata Memorial Hospital, Mumbai, in 1 year period from January 1, 2007 to December 31, 2007 and treated were retrospectively analyzed. Patients who were registered before the study period and already on treatment were excluded from the study.

### Data collection

The sociodemographic and clinical details obtained from the hospital records were age, residential address, religion, marital status, education, occupation status, treatment history, stage, tumor histology, performance status (score), and presence of comorbid conditions.

### Statistical analysis

Data were analyzed using descriptive statistics. Kruskal–Wallis and Chi-square test were used to assess relationship between variables. All the analyses were done using Statistical Package for Social Science program (IBM SPSS Statistics for Windows, version 20.0. Armonk, NY: IBM Corp.).  $P < 0.05$  was considered statistically significant.

## Results

A total of 765 cervical cancer patients were included in this study. Table 1 portrays the sociodemographic profile of cervical cancer patients. Majority of the patients were in the age group of 45–54 (31.76%), followed by 55–64 (29.15%) and only one-fifth of the patients (19.87%) were below the age of 45. The median age of patients was found to be 54 years with interquartile range of 16 years. Most of the patients were Hindus (84.18%), followed by Muslims (8.89%) and very few (6.93%) were from other communities. More than half of the patients were illiterate (53.59%) and only 3.66% of the patients had completed college level education. Nearly 75.42% of patients were married, 23.79% were widows, and only 1 (0.13%) patient reported herself unmarried. Majority of the patients were homemakers (86.14%) and only 3.92% women reported to be employed in some job. Place of residence was categorized into two categories: Mumbai and outside Mumbai.<sup>[8-10]</sup> All those who were residing in Mumbai for more than 1 year were considered as resident of Mumbai. About 22% of patients were found to be resident of Mumbai. Out of total patients 23%

**Table 1: Sociodemographic profile of cervical cancer patients**

Sociodemographic factor	Number of patients (%)
Age group (Years)	
<35	18 (2.35)
35-44	134 (17.51)
45-54	243 (31.76)
55-64	223 (29.15)
65-74	121 (15.82)
75 and above	26 (3.4)
Religion	
Hindu	644 (84.18)
Muslims	68 (8.89)
Neo-Buddhist	23 (3.00)
Christian	20 (2.61)
Others*	10 (1.32)
Education level	
Illiterate	410 (53.59)
Primary	173 (22.61)
Middle	18 (2.35)
Secondary	136 (17.78)
College and above	28 (3.66)
Marital status	
Married	577 (75.42)
Widow	182 (23.79)
Others**	6 (0.78)
Occupation	
Homemakers	659 (86.14)
Service	30 (3.92)
Retired	8 (1.05)
Agriculture	20 (2.61)
Others <sup>+</sup>	48 (6.27)
Place of residence	
Mumbai	166 (21.70)
Outside Mumbai	599 (78.30)
Treatment history	
Prior treatment	173 (22.61)
No prior treatment	592 (77.39)

\*Others include Sikh, Jain, Parsi, and any other castes, \*\*Others include unmarried; divorcee, <sup>+</sup>Others include daily wage laborers, maids, small scale business from home

had already taken some kind of cancer treatment before coming to this center [Table 1].

Clinical stage of disease, tumor histology, performance status, and major comorbid conditions were considered to describe the clinical profile of patients. Stage-wise distribution of cervical cancer patients shows that a very small percentage of patients (13%) were diagnosed at early stage. Majority of the patients were diagnosed with Stage 2 (35%) or 3 (43.5%) disease. Nearly 88% of patients had squamous cell carcinoma. Performance status was recorded on the basis of Eastern Cooperative Oncology Group scale. The findings of performance status reveal that about 68% of patients were able to carry out all normal activities without restriction. Moreover, only a very small proportion (<1%)

were bedridden. History of hypertension, diabetes, heart disease, AIDS (HIV+ve), hepatitis (HBsAg+ve), asthma, and chronic pulmonary diseases was considered as the presence of comorbidity. About 26% of patients had one or more comorbid conditions, of which hypertension (13.98%) was the leading cause of comorbidity followed by diabetics (4.05%) [Table 2]. Furthermore, we tried to analyze if there is any association between stage of disease and sociodemographic factors such as age and level of education. Stage of disease was found to be significantly ( $P < 0.05$ ) associated with both age and educational status [Tables 3 and 4].

### Discussion

India is an ethnically diverse country with a growing population of 1.2 billion. In contrast to developed countries, cervical cancer is a major public health problem in India. In developed countries, conventional cytology screening programs have shown a marked decline in the incidence of cervical cancer.<sup>[11,12]</sup> However, the same not feasible in low-resource settings of our country where a high risk of cervical cancer is experienced. Therefore, a substantial part for cancer control is through early diagnosis and treatment of disease in tertiary cancer care institutes. To plan future control and treatment activities, correct data on patient's sociodemographic profile and clinical presentation are very essential. Hence, this study was conducted to assess various characteristics of patients visiting a tertiary care cancer hospital.

The median age of cervical cancer patients in our study was 54 years, which is similar (54.7 years) to the average age reported by Sankaranarayanan *et al.*<sup>[13]</sup> in his study of 452 cervical cancer patients in Kerala. The average age of patients in our study was found to be slightly higher than average reported by other researchers in Western literature.<sup>[14]</sup> This older age indicates a relative lack of awareness and nonavailability of screening facilities for about cervical cancer in our country.<sup>[15,16]</sup> However, when the patients were grouped age wise, majority of them belonged to 45–54-year followed by 55–59-year age groups. Similar age-wise distribution has been reported by many researchers.<sup>[17-22]</sup> Our study also found a significant difference in median age of patients when patients were categorized as per stage, i.e., median age of patients with higher stage disease was found to significantly higher than patients with lower stage disease. This finding has been also reported by Flores-Luna *et al.*<sup>[14]</sup> Late diagnosis of cervical cancer can be the likely explanation of higher median age of patients with advanced stage disease. Further, it is also likely that the findings reflect differences in awareness of cervical cancer symptoms in older women and/or differences in healthcare-seeking behavior.<sup>[23]</sup> This suggests that equipping older women with the knowledge, skills, and confidence to present promptly with cervical cancer symptoms might help

**Table 2: Clinical profile of cervical cancer patients**

Clinical factors	Number of patients (%)
Stage	
Stage I	100 (13.07)
Stage II	268 (35.03)
Stage III	333 (43.53)
Stage IV	64 (8.37)
Histology	
Squamous	674 (88.10)
Nonsquamous	91 (11.90)
Performance status (score)	
Normal, asymptomatic (0)	522 (68.24)
Symptomatic, ambulatory (1)	106 (13.86)
Symptomatic, limited work (2)	17 (2.22)
Symptomatic, in bed ( $\geq 3$ )	6 (0.78)
Unknown	114 (14.90)
Comorbid condition	
Hypertension	107 (13.98)
Diabetes	31 (4.05)
Heart disease	13 (1.69)
AIDS/HIV+ve	19 (2.4)
Hepatitis/HBsAg+ve	14 (1.83)
Others**	30 (3.92)

\*\*Others includes asthma, chronic pulmonary diseases, or any other comorbid condition. 2% patients have more than one comorbid condition. AIDS – Acquired immunodeficiency syndrome; HBsAg – Hepatitis B surface antigen

**Table 3: Comparison of age with respect to stage**

Stage	Median age (years)	Range (years)	P
I	49	44	<0.001*
II	54	50	
III	56	55	
IV	58.5	52	
All stages	54	65	

\*Significant at 5% level of significance

**Table 4: Association between stage and education**

Stage	Illiterate, n (%)	Primary, n (%)	Secondary and above, n (%)	Total	P
I	40 (9.7)	33 (17.27)	27 (16.46)	100	0.010*
II	132 (32.2)	72 (37.69)	64 (39.02)	268	
III	200 (48.78)	74 (38.74)	59 (35.98)	333	
IV	38 (9.2)	12 (6.28)	14 (8.5)	64	
All stages	410	191	164	765	

\*Significant at 5% level of significance

downstage cervical cancer in older women and thereby improve their survival.

In our study, 54% of patients were illiterate, whereas only 4% have had qualification of college and above. We also found an association between educational status and stage. This finding is in consonance with many studies which has found illiteracy as a risk factor for cervical cancer.<sup>[24-26]</sup> Similarly, lack of education has also

been linked early marriage and high parity which are also considered as risk factors for cervical cancer, thus improving the educational status of women in our country is an essential component of holistic approach for cervical cancer control in India. In addition, improving in living standards and formulating public health policies aimed at increasing awareness and coverage of cervical cancer screening programs would go a long way in reducing cervical cancer in our country.<sup>[24]</sup> We found that 75.42% patients were currently married, which is higher than 62.4% reported by Sankaranarayanan *et al.*<sup>[13]</sup> but lower than 88.61% reported by Thulaseedharan *et al.*<sup>[18]</sup> Of the total, 26% patients also had concomitant comorbidities, of which hypertension was found to be the leading comorbid condition. Prevalence of comorbid conditions reported in this study was higher than reported by Ibfelt *et al.*<sup>[19]</sup> Distribution of religion reported in this study is similar to results obtained by other authors.<sup>[15]</sup>

In our study, 13% cases had early stage disease (Stage I) and more than 50% patients had presented with advanced stage disease (Stage III and IV). Similar stage-wise distribution has been reported by Nandakumar *et al.* in their population cancer registry-based study conducted in Bengaluru<sup>[16]</sup> and Shrivastava *et al.* in their retrospective study of 6234 patients.<sup>[27]</sup> Histologically, majority (88.10%) of our patients had squamous cell carcinoma which is similar to results obtained by many other researchers.<sup>[19,28]</sup> Nearly 68% of our patients were fully active (performance status 0); these figures are much lower than 81% and 91.82% fully active performance status reported by Sankaranarayanan *et al.*,<sup>[13]</sup> i.e., 81% by Vishma Baliyada Kaverappa *et al.* (2015)<sup>[26]</sup> 91.82%.

There were several limitations of our study which need to be acknowledged. Our study was not able to reflect some important characteristics such as patient's socioeconomic status and family income. Furthermore, this study failed to report time of incidence of comorbid conditions. These limitations are because the study was based on secondary data and only those factors which were recorded in the medical documents have been taken into consideration. Nevertheless, the strength of this study lies in the fact that there are very few Indian studies which have described patient's sociodemographic profile, and clinical profile as well as explore the relationship between patient's characteristics and tumor-related factors.

## Conclusion

In India, there are very few studies describing profile of cancer patients visiting health-care facilities. This basic information on profile of patients can help to plan and ensure efficient utilization of hospital services in resource-poor countries like India. Further, the scope of studying sociodemographic factors is not limited to hospital services, and this information can also be utilized

while making public health policies and implementation of cervical cancer control programs.

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## Conflicts of interest

There are no conflicts of interest.

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