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Clinical and Demographic Characteristics of Cervical Cancer Patients Attending a Tertiary Care Hospital in Eastern UP

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ABSTRACT

Background: Cervical cancer is a significant health burden among Indian women, especially in rural and low-resource settings. Understanding the demographic profile and symptom distribution is essential for guiding early detection and intervention strategies. The study aims to examine the demographic characteristics and symptom patterns of cervical cancer patients and assess the association of key symptoms with demographic factors.
Methods: This cross-sectional study included data from 648 cervical cancer patients. Frequencies and percentages were calculated for demographic variables and clinical symptoms. Chi-square test was used to determine associations between clinical characteristics and demographic factors such as age, religion, marital status, and place of residence.
Results: Most patients were Hindu (96.5%), married (71.8%), and from rural areas (62.2%), with the majority residing in Uttar Pradesh (67.9%). Common symptoms included bleeding per vagina (78.5%), discharge per vagina (79.0%), and lower abdominal pain (37.0%). A significant association was found between discharge per vagina and place of residence ($p = 0.046$). Bleeding per vagina showed a significant association with marital status ($p = 0.041$), being more prevalent among married women.
Conclusion: The study highlights that discharge and bleeding per vagina are the most common symptoms among cervical cancer patients. These symptoms are significantly associated with residence and marital status, respectively. These findings emphasize the need for improve awareness, early symptom recognition, and accessible screening services, particularly in rural areas and among married women.

Key words: Cervical cancer, treatment of cervical cancer, symptoms of cervical cancer

INTRODUCTION

Cervical cancer is a largely preventable disease, yet it continues to be a major contributor to cancer-related morbidity and mortality among women globally. It ranks as the fourth most common cancer in women worldwide, with an estimated 661,021 new cases and 348,189 deaths reported in 2022 [1]. Alarmingly, nearly 90% of these deaths occur in low- and middle-income countries (LMICs) [2] where healthcare systems often face challenges in implementing widespread

cervical cancer screening and vaccination programs. In India, despite efforts to implement population-based screening programs, the disease continues to be diagnosed at advanced stages in many women, leading to higher morbidity and mortality.

India bears one of the highest burdens of cervical cancer globally, contributing to nearly one-fifth of the global cervical cancer deaths. According to GLOBOCAN 2020, cervical cancer is the second most common cancer among Indian women, following breast cancer [3]. The disease typically affects women in their reproductive or peri-menopausal years, often when they are playing crucial social and economic roles within families and communities. This not only affects individual health and well-being but also has cascading impacts on family structures and socioeconomic development, particularly in resource-constrained settings.

Sociodemographic factors such as religion, marital status, place of residence, and geographic origin can influence awareness, access to care, and timely diagnosis [4-5]. Similarly, the nature and frequency of initial clinical symptoms, such as abnormal vaginal bleeding or abdominal pain, can provide important insights into health-seeking behavior and the stage at which patients present for care [6]. Understanding the demographic characteristics and presenting symptoms of cervical cancer patients is crucial for developing targeted public health strategies.

In study published by Singh S et al., (2018), there are 79% females have vaginal bleeding between menses as symptom of cervical cancer, and 66% knew symptom as foul-smelling vaginal discharge. 42% of females are complaining of lower abdominal pain, 41% of females have loss of appetite and weight, while 26% of females have the symptom of postcoital bleeding [7]. A previous study reported that the most commonly experienced symptoms among cervical cancer patients were white vaginal discharge (63%), itching in the genital region (45.65%), and foul-smelling vaginal discharge (28.86%). The most frequent presenting complaints included unusual vaginal discharge (73.13%), bleeding after menopause (55.10%), and abdominal pain (44.77%) [8]. In terms of socio-demographic characteristics, the majority of the patients were Hindu (91.04%), and most were currently married (73.13%), with the remaining being widowed [8].

Early symptoms of cervical cancer such as abnormal vaginal bleeding, foul-smelling discharge, pelvic pain, and urinary discomfort are often underreported or normalized until the disease progresses. Several studies have shown that Indian women frequently present to hospitals only after symptoms have persisted for extended periods, by which time the cancer may have reached an advanced, less treatable stage. The delay in presentation is often due to a lack of awareness, prioritization of family responsibilities over personal health, and the stigma associated with gynecological diseases.

Tertiary care hospitals serve as important referral centers, especially for women from rural and under-resourced regions. Hospital-based data provide a window into the epidemiological and clinical realities of cervical cancer in India, including demographic patterns, symptom profiles, and regional variations in patient load. However, such data are often fragmented or underutilized in designing preventive and curative strategies.

This study seeks to address this gap by analyzing the demographic characteristics and presenting complaints of cervical cancer patients attending a tertiary care hospital in Eastern UP, India. The analysis focuses on factors such as religion, marital status, place of residence, and geographic origin, as well as clinical symptoms like abnormal bleeding, pain, and systemic manifestations. This study aims to assess the demographic characteristics and clinical complaints of cervical cancer patients and the association between them who are attending a tertiary care hospital in Eastern UP, India. The findings can help identify high-risk

populations, improve early detection efforts, and contribute to the design of culturally and regionally appropriate interventions for cervical cancer control in underserved regions such as Uttar Pradesh and Bihar.

METHODS AND MATERIALS

Study Design:

This is a hospital-based retrospective cohort study design.

Study Setting:

The study was conducted at the Department of Radiotherapy & Radiation Medicine of Sir Sunder Lal Hospital in Varanasi, Uttar Pradesh, India. The hospital serves patients from multiple states, including Uttar Pradesh, Bihar, Jharkhand, and others.

Study Population:

A total of 648 women diagnosed with cervical cancer were included in the analysis. All patients who reported to the hospital between 2011 and 2021 were included, provided their basic demographic and clinical data were available.

Data Collection:

Data were extracted from OPD medical records and included the demographic and clinical complaint variables such as religion, marital status, place of residence, state of origin, and presenting symptoms.

Data Analysis:

Descriptive statistics were used to summarize frequencies and percentages. Analysis was performed using Excel and SPSS. Chi-square test was used to show the association between demographic and clinical profiling variables.

RESULTS

Table. 1: Distribution of demographic characteristics of cervical cancer patients

	Frequency	Percent
Age group (years)		
<46	194	29.9
46-60	345	53.2
>60	109	16.8
Religion		
Christian	1	0.1
Hindu	625	96.5
Muslim	22	3.4
Marital Status		
Married	465	71.8
Widowed	68	10.5
Unknown	115	17.7
Place of Residence		
Rural	403	62.2
Urban	130	20.1
Unknown	115	17.7
State		
Bihar	79	12.2
Jharkhand	8	1.2
Maharashtra	1	0.2
MP	4	0.6
UP	440	67.9
West Bengal	1	0.2
Unknown	115	17.7
Total	648	100.0

Fig. 1 & 2

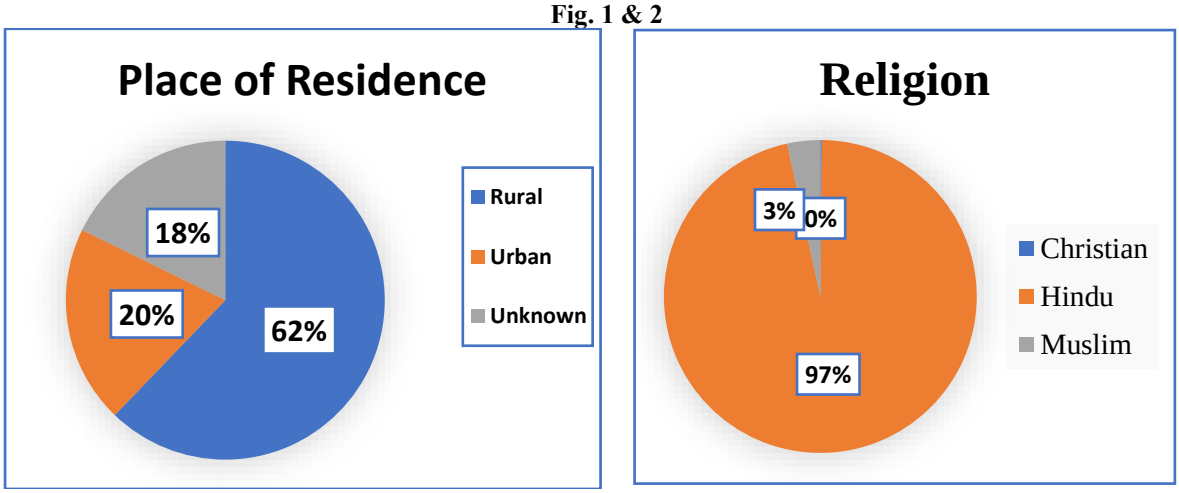

Table 1 presents the demographic profile of cervical cancer patients included in the study. The majority of cervical cancer patients (53.2%) were in the 46–60 years age group, followed by 29.9% under 46 years and 16.8% above 60 years. The maximum of patients were Hindu (96.5%), with a small proportion identifying as Muslim (3.4%) and only one patient identifying as Christian (0.1%). Regarding marital status, 71.8% of the women were married, while 10.5% were widowed. Notably, marital status was unknown for 17.7% of the patients, which may limit certain subgroup analyses. Regarding place of residence, most patients (62.2%) were from rural areas, and only 20.1% resided in urban locations, again with a notable 17.7% of patients having unrecorded residence information. The geographic distribution showed a strong concentration of patients from Uttar Pradesh (67.9%), followed by Bihar (12.2%) and smaller proportions from Jharkhand, Madhya Pradesh, Maharashtra, and West Bengal. The high proportion of rural patients and those from Uttar Pradesh may reflect both the population distribution and referral patterns to the treatment center.

Table. 2: Distribution of Complaints of Cervical Cancer Patients

	Frequency	Percent
Bleeding per vagina		
Yes	509	78.5
No	139	21.5
Discharge per vagina		
Yes	512	79.0
No	136	21.0
Lower abdominal Pain		
Yes	240	37.0
No	408	63.0
Lower back pain		
Yes	65	10.0
No	583	90.0
Pain Back		
Yes	17	2.6
No	631	97.4
Burning Micturition		
Yes	82	12.7
No	566	87.3
Loss of Appetite		
Yes	111	17.1
No	537	82.9
Total	648	100.0

Fig 3.

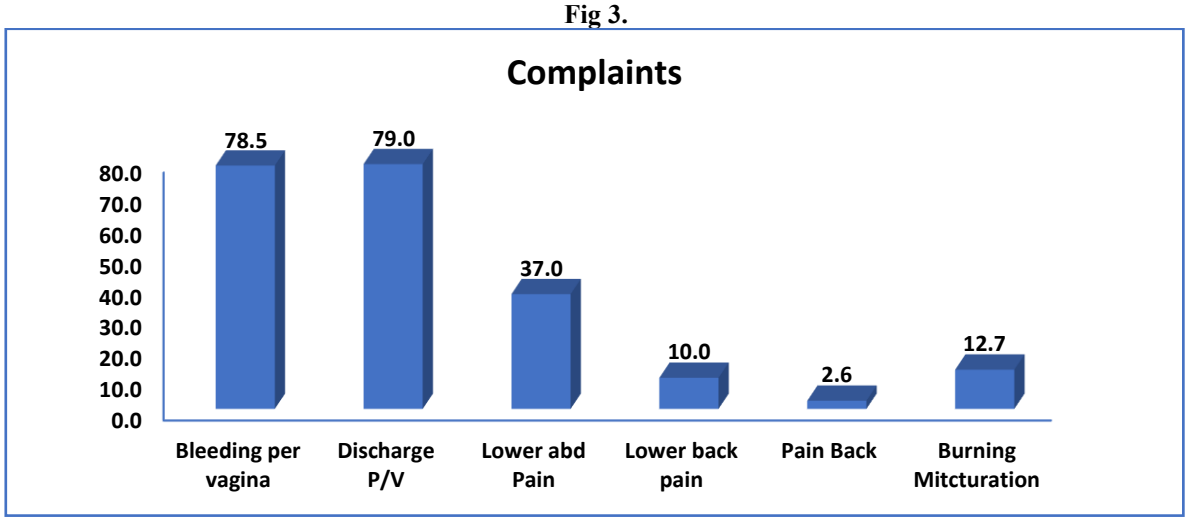

Table 2 highlights the presenting complaints among the cervical cancer patients. The most commonly reported symptom was vaginal bleeding, present in approximately 78.5% to 79.0% of cases, although there appears to be duplication or variation in how this symptom was recorded ("bleeding per vagina" and "bleeding P/V"), suggesting a need for standardization in clinical documentation. Lower abdominal pain was reported by 37.0% of patients, making it the second most common complaint. Other symptoms included lower back pain (10.0%), burning micturition (12.7%), and loss of appetite (17.1%). A small proportion of patients (2.6%) reported general back pain. These findings are consistent with the typical symptomatology of cervical cancer, with abnormal vaginal bleeding being the most prominent clinical sign. The presence of systemic symptoms such as loss of appetite and urinary symptoms like burning micturition may indicate disease progression in some patients.

Table. 3: Association of discharge per vaginal with demographic characteristics

Discharge P/V						
	Yes		**No**		**chi-square value**	**p-value**
	Number	**%**	**Number**	**%**		
Age Group (years)						
<46	152	78.4%	42	21.6%	0.553	0.758
46-60	271	78.6%	74	21.4%		
>60	89	81.7%	20	18.3%		
Religion						
Hindu	493	78.9%	132	21.1%	0.111	.740
Muslim	18	81.8%	4	18.2%		
Marital status						
Married	363	78.1%	102	21.9%	0.087	0.767
Widowed	52	76.5%	16	23.5%		
Residence						
Rural	322	79.9%	81	20.1%	3.987	.046
Urban	93	71.5%	37	28.5%		

The association between discharge per vagina (P/V) and various demographic characteristics is presented in Table 3. The analysis revealed no statistically significant association between discharge P/V and age group ($p = 0.758$), religion ($p = 0.740$), or marital status ($p = 0.767$), suggesting that this symptom is commonly experienced across these demographic categories. However, a significant association was found with place of residence ($p = 0.046$), with a higher proportion of rural women (79.9%) reporting

discharge P/V compared to urban women (71.5%). This disparity may reflect differences in health awareness, access to healthcare facilities, or the stage of disease at presentation between rural and urban populations.

Table. 4: Association of bleeding p/v with demographic characteristics

Bleeding P/V						
	Yes		**No**		**chi-square value**	**p-value**
	Number	**%**	**Number**	**%**		
Age Group (years)						
<46	158	81.4%	36	18.6%	1.746	0.418
46-60	269	78.0%	76	22.0%		
>60	82	75.2%	27	24.8%		
Religion						
Hindu	491	78.6%	134	21.4%	0.021	.885
Muslim	17	77.3%	5	22.7%		
Marital status						
Married	372	80.0%	93	20.0%	4.178	.041
Widowed	47	69.1%	21	30.9%		
Residence						
Rural	321	79.7%	82	20.3%	1.065	0.302
Urban	98	75.4%	32	24.6%		

Table 4 explores the association of bleeding per vagina (P/V) with demographic characteristics. No significant differences were observed across age groups (p = 0.418) or between religious groups (p = 0.885), indicating that the experience of bleeding P/V is relatively uniform across these segments. However, a significant association was identified between marital status and bleeding P/V (p = 0.041). A larger proportion of married women (80.0%) reported this symptom compared to widowed women (69.1%), possibly due to differences in parity, sexual activity, or health-seeking behavior. Although bleeding P/V was more frequently reported among rural women (79.7%) than urban women (75.4%), this difference was not statistically significant (p = 0.302).

Table. 5: Association of lower abdominal pain p/v with demographic characteristics

Lower Abdominal Pain						
	Yes		**No**		**chi-square value**	**p-value**
	Number	**%**	**Number**	**%**		
Age Group (years)						
<46	78	40.2%	116	59.8%	2.433	0.296
46-60	128	37.1%	217	62.9%		
>60	34	31.2%	75	68.8%		
Religion						
Hindu	233	37.3%	392	62.7%	0.272	0.602
Muslim	7	31.8%	15	68.2%		
Marital status						
Married	165	35.5%	300	64.5%	0.042	0.837
Widowed	25	36.8%	43	63.2%		
Residence						
Rural	141	35.0%	262	65.0%	0.313	0.576
Urban	49	37.7%	81	62.3%		

In Table 5, the relationship between lower abdominal pain and demographic characteristics was examined. The results showed no statistically significant associations with age group (p = 0.296), religion (p = 0.602), marital status (p = 0.837), or place of residence (p = 0.576). Nevertheless, a decreasing trend in the reporting of abdominal pain with increasing age was observed, with 40.2% of women

under 46 years reporting pain compared to only 31.2% of those over 60 years. This may suggest age-related differences in pain perception, symptom awareness, or underlying pathology, although the differences were not statistically meaningful.

DISCUSSION

This study analyzed the demographic and clinical characteristics of cervical cancer patients, along with the association of key symptoms namely bleeding per vagina, discharge per vagina, and lower abdominal pain with various demographic factors. The findings provide important insights into the symptom profile and socio-demographic distribution of cervical cancer in a hospital-based population.

Similar to other studies, the majority of cervical cancer patients in this hospital-based study belong to Hindu women (96.5%), with Christians and Muslims representing a small minority [8]. This distribution may reflect the underlying population composition of the catchment area, particularly in states like Uttar Pradesh and Bihar, which were the most commonly reported states of residence (67.9% and 12.2%, respectively). A significant proportion of patients (62.2%) resided in rural areas, highlighting the rural burden of cervical cancer and possibly the lack of early screening and awareness in these settings. According to other studies, Sociodemographic factors such as religion, marital status, place of residence, and geographic origin can influence awareness, access to care, and timely diagnosis [4-5].

Similarly, the nature and frequency of initial clinical symptoms, such as abnormal vaginal bleeding or abdominal pain, can provide important insights into health-seeking behavior and the stage at which patients present for care [6].

In the present study, the most commonly reported symptoms among cervical cancer patients were vaginal bleeding (78.5%) and vaginal discharge (79.0%), which are consistent with the classical clinical presentations of the disease. These findings align with existing literature, reinforcing that abnormal vaginal bleeding and discharge remain key early indicators of cervical malignancy. A considerable proportion of patients also experienced lower abdominal pain (37.0%), burning micturition (12.7%), and loss of appetite (17.1%), which may reflect disease progression or associated secondary infections or complications.

Interestingly, symptoms such as back pain (2.6%) and lower back pain (10.0%) were less frequently reported, which could be attributed to underreporting, variability in symptom perception, or cultural differences in expressing pain. In comparison, Singh et al. (2018) reported that 79% of women identified intermenstrual vaginal bleeding as a symptom of cervical cancer, and 66% recognized foul-smelling vaginal discharge. Moreover, 42% of participants reported lower abdominal pain, and 41% reported loss of appetite and weight, while 26% identified postcoital bleeding as a symptom [7].

Another study corroborates these findings, reporting that white vaginal discharge (63%), genital itching (45.65%), and foul-smelling discharge (28.86%) were among the most experienced symptoms. Furthermore, the most frequently reported presenting complaints included unusual vaginal discharge (73.13%), postmenopausal bleeding (55.10%), and abdominal pain (44.77%) [8].

Regarding the association between symptoms and demographic characteristics, a statistically significant association was observed between discharge per vagina and place of residence, with rural women more likely to report this symptom compared to their urban counterparts. This could indicate delayed diagnosis or more advanced disease stages in rural women due to limited access to healthcare and cervical screening services. Similarly, bleeding per vagina was significantly associated with marital status, being more prevalent among married women. This may reflect the cumulative effect of higher parity, prolonged sexual activity, and possibly lower uptake of preventive health services among this group.

CONCLUSION

Cervical cancer remains a significant public health concern in India, particularly affecting rural and socioeconomically disadvantaged women. This study reveals a disproportionate burden among married women from rural areas, with most cases presenting at advanced stages. The findings highlight the urgent need for enhanced awareness, routine screening, HPV vaccination, and the development of robust health information systems. Addressing these issues through targeted, sustained public health interventions is critical to reducing cervical cancer morbidity and mortality and improving women's reproductive health outcomes.

The considerable proportion of missing data on key variables such as marital status and residence points to limitations in hospital documentation, which can hinder accurate surveillance and the effective planning of control programs. Moreover, the observed demographic and clinical symptom patterns underscore the need for strengthened awareness initiatives in rural areas, regular gynaecological screening for married women, and improved medical record-keeping. Early detection and timely diagnosis are especially crucial in low-resource settings, where delayed healthcare-seeking behavior and limited access to screening often result in late-stage presentation.

Declaration by Authors

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