Research Article

AGE, PARITY AND STAGE OF CERVICAL CANCER AMONG CERVICAL CANCER PATIENTS ATTENDING ONCOLOGY DEPARTMENT; AN OBSERVATIONAL CROSS SECTIONAL STUDY

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ABSTRACT:
Cervical cancer is one of the common cancers in women worldwide. This study was conducted to determine age, parity and stage of cervical cancer patients in Pakistani population. This was a prospective cross-sectional study, conducted in the Oncology Department of Jinnah Postgraduate Medical Center, Karachi during October 2023 to January 2024. A total of 92 women of age 18 years or above, presenting with biopsy proven cervical cancer were recruited. The mean age of study participants was 53.4 years SD± 10.9 years. The highest proportion of cases were recorded between 47 to 57 years of age with a proportion of 37.0% (n=34). Among the study participants 62% (n=57) had a history of multiparty with at least five or more children and 65% (n=60) were postmenopausal women, while 59.8% (n=55) were found to have Stage-II and Stage-III disease at the time of diagnosis. Histopathologically Squamous Cell Carcinoma was the most frequent histopathological type reported. In conclusion the highest burden of cervical cancer was found to be present among the women of age group 47 to 57 years. Cervical cancer was most prevalent among women with higher parity or having five or more children. Squamous cell carcinoma was the most frequently occurring histopathological type, while most patients were diagnosed at the stage-II disease.

Key Words: Cervical Cancer, Age, Parity, Cancer, Epidemiology.

BACKGROUND:

Cervical cancer is globally recognized as one of the common cancers among women. The burden of cervical cancer related mortality is relatively much higher in Asian countries due to lack of public awareness regarding Human Papilloma Virus (HPV) infection and screening as well as unavailability of vaccine to general public in most Asian countries (1,2). Pakistan is an Asian country where cervical cancer burden is still on rise (3). Studies conducted at tertiary care hospitals in Sindh and Punjab have identified cervical cancer as the second most common gynecological malignant disorder among females in Pakistan (4-6). However, the knowledge about prevention of cervical cancer and related practices is still unsatisfactory. A recent study, conducted in Karachi has reported low frequency for cervical cancer screening and poor knowledge of the disease including awareness regarding vaccination against HPV (7). A small scale study previously conducted in 2009 at the Nuclear Institute of Medicine and Radiotherapy (NIMRA) found that cervical cancer was relatively more common among women of age 40 years and above and women having five to seven children. The study also found that almost 80% of the cervical cases were presented with advanced disease in the stage-II, III and IV (8). Moreover, despite being recognized as the common gynecological cancer still there is dearth of local data regarding distribution of cervical cancer according to women's age, parity and severity of the disease. Identification of disease patterns in context of basic social demographic characteristics among cervical cancer patients in the local population will help in identification of women at high risk of the disease in our community. Hence, this study aimed to determine the pattern of age, parity and stage of cervical cancer among patients attending oncology department at Jinnah Postgraduate Medical Center, Karachi, Pakistan. Findings from this study may help in improving cervical cancer screening and related prevention efforts in Pakistan.

METHODS:

This was a prospective cross-sectional study conducted in the Oncology Department of Jinnah Postgraduate Medical Center (JPMC), Karachi, Pakistan during October 2023 to January 2024. The JPMC is one of the biggest tertiary care public hospitals in Karachi offering oncology services for all kinds of cancers including cervical cancer. The patients from all over the province of Sindh as well as other provinces visit this facility for the treatment cancers. For this study, women of age 18 years or above, presenting at Oncology Out Patient Department (OPD) of JPMC and with biopsy proven recent diagnosis of cervical cancer were approached and invited to participate in this study. The study participants were recruited by applying a convenient sampling technique. However, written informed consent was obtained from each study participant at the time of enrollment in the study and data collection. Any eligible woman who was not willing to provide written informed consent was excluded from the study. The ethical approval for this study was obtained from the Institutional Review Board of Jinnah Postgraduate Medical Center, Karachi. The sample size for this study was calculated using OpenEpi software for an approximate finite population of 120 cervical cancer patients attending JPMC Oncology department in a year. Hence, at a 5% level of significance, precision of 5% and anticipated population proportion of 46%, a sample size of 92 was calculated (3,8).

The data was collected using a structured questionnaire which was translated into local language i.e. Urdu and pre-tested for cognitive validity as well as lingual validity before the start of actual data collection. The information was collected regarding the socio-demographic characteristics such as age, sex, literacy, marital status, number of marriages, age at first marriage, parity, ethnicity and occupation. The information regarding disease diagnosis including histopathology findings or type as well as stage of cancer were also gathered from the medical records available with the patient. The patients whose cancer staging or diagnosis was incomplete were followed on phone to collect the required information. All the data was collected by trained data collectors. Patients` privacy was maintained during the process of data collection while the confidentiality of the information related to each study participant was maintained throughout the study by following standard procedures and principles of biomedical ethics.

Statistical Methods

The data was analyzed using Statistical Package for Social Sciences version 24. Descriptive statistics were calculated for the socio-demographic and health related characteristics. Chi-square test of significance was applied to assess the possible differences in the presentation of disease due to differences in various socio-demographic characteristics. A p-value <0.05 was considered significant.

RESULTS:

In total 104 patients who visited the OPD at the Oncology Department at JPMC during the study period were approached and invited to participate in this study. However, only 92 of these women provided informed consent and participated in this study with a response rate of 88%. All the study participants were married Pakistani women from various ethnicities.

The mean age of the study participants was 53.4 years $\pm$SD 10.9 years and the youngest woman diagnosed with cervical cancer was 25 years of age. However, 4.3% (n=04) of all the cervical cancer patients who participated in this study were of age between 25 to 35 years. The highest proportion of the study participants was recorded for the age group between 47 to 57 years with a proportion of 37.0% (n=34) and the age group 58 years or above with a proportion of 34.8% (n=32). Majority of the study participants did not have formal education i.e. 67.4% (n=62). High proportion of women 94.6% (n=87) were unemployed while only 5.4% (05) were employed or working for income generation purposes. The most common ethnicity was Urdu speaking community followed by Sindhi with a proportion of 54.3% (50) and 28.02% (n=26) respectively. The mean duration of marriage as reported by the participants was 33.5 years $\pm$11.8 years. A 62% (n=57) of all the women participants had a history of multiparty with at least five or more children while 65% (n=60) of all the study participants were postmenopausal women. Stage II and Stage III was found in 59.8% (n=55) of all the study participants while Squamous Cell Carcinoma was identified as the most frequent histopathological diagnosis (Table: 1).

Table: 1 Socio-demographic and health-related characteristics of the study participants diagnosed with Cervical Cancer at Oncology Department JPMC, Karachi (n=92)

Variable	Frequency (n)	Percentage (%)
Mean Age:53.4(SD+10.9)		
Age (in completed years)		
25- 35 years	04	4.3
36 -46ears	22	23.9
47-57years	34	37.0
58 years and above	32	34.8
Education		
Illiterate	62	67.4
Literate	30	32.6
Occupation		
House maker	87	94.6
Employed	05	5.4
Ethnicity		
Sindhi	26	28.2
Urdu	50	54.3
Punjabi	06	6.5
Balochi	01	1.1
Pashto	06	6.5
Others	03	3.2
Age at first marriage (in completed years)		
Median age: 20 years (IQR: 3 years)		
< 18 years	06	6.5
18-23 years	79	85.9
24 years and above	07	7.6
Duration of marriage (in completed years)		
Mean Duration: 33.5 years (SD +11.8 years)		
10 years or less	02	2.2
11-20 years	10	10.9
21-30 years	26	28.3
31 years or more	54	58.7
Number of alive children /parity		
1-2 children	06	6.5
3-4 children	39	31.5
5 or more children	57	62.0
Reproductive Phase or Menstrual status		
Premenopausal Phase	32	34.8
Postmenopausal Phase	60	65.2
Cancer stage at the time of diagnosis		
Stage-I	15	16.3
Stage-II	30	32.6
Stage-III	25	27.2
Stage-IV	22	23.9
Histopathological diagnosis		
Squamous Cell Carcinoma	80	87.0
Adenocarcinoma	11	12.0
Others	01	1.1

The study participants reported a variety of symptoms related to cervical cancer. Most frequently reported symptom was pain in the lower abdomen reported in 54.3% (n=50), followed by postmenopausal bleeding in 47.8% (n=44), while 35.9% (n=33) of the study participants reported having vaginal discharge (Figure 1).
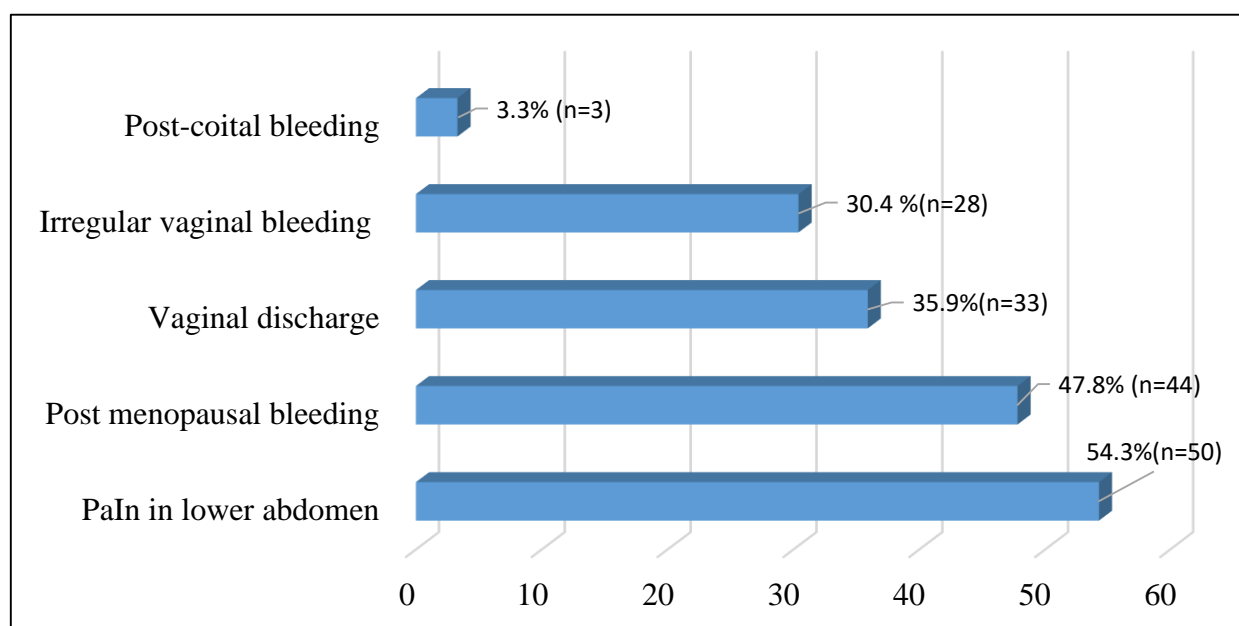

Figure 1: Frequency of presenting signs and symptoms reported by patients with Cervical Cancer visiting OPD at Oncology Department JPMC, Karachi (n=92)

The study also compared various social demographic and disease related characteristics among women in different age groups (Table: 2). The study found statistically significant differences in literacy, marriage duration, parity and reproductive phase or status (p-value $\leq$ 0.05).

DISCUSSION:

This study aimed to see the pattern of cervical cancer presentation among women diagnosed with cervical cancer with respect to age, parity and stage of disease. In our study, the average age of women who were diagnosed with cervical cancer was 53.4 years. This is comparable to the previous estimates for the age of cervical cancer diagnosis from Pakistan as well as countries like India, Morocco, Tanzania and Kenya (8-12). Literature supports that age is more than 50 years, less education and parity more than five among the common risk factors for the development of cervical cancer. Moreover, age older than 50 years is found to be associated with cervical cancer. The advanced stage at diagnosis among older women can be explained by the limited financial and social empowerment of older women as well as reduction in number of visits to healthcare facilities once they complete their family or reach menopause; hence limited chances of Pap smear test for cervical cancer screening. The older women become much more dependent on others for their healthcare needs in countries where healthcare is expensive or health insurance is not provided by the government. However, in some populations the diagnosis is delayed even in younger women due to lack of awareness regarding disease and related signs and symptoms (12-14). The evidence from Pakistan reports severe lack of awareness regarding cervical cancer and available screening tests among women as a major barrier to cervical cancer screening; hence resulting in diagnosis in advanced stages of the disease (15). This also supports a considerably lower number of study participants in the youngest age group i.e. 25 to 35 years.

In this study the average age at first marriage or at the time of first intercourse was 20 years which is in line with the previous studies (8,9). Majority of the women with cervical cancer diagnosis were uneducated, had parity more than 5 children, postmenopausal and diagnosed at Stage-II and Stage III. Hence, these findings are in line with the previous studies conducted in Pakistan and similar populations as well as populations from a different genetic and socio-cultural background such as Nigeria (16-20).

Table: 2 Socio-demographic and health-related characteristics of the study participants diagnosed with Cervical Cancer at Oncology Department JPMC, Karachi (n=92)

Variable	25- 35 years (n=4)	36 -46ears (n=22)	47-57 years (n=34)	≥58 years (n=32)	p-value
		Frequency (Percentage)			
Education					
Illiterate	04(6.5)	20(32.3)	25(40.3)	13(21.0)	0.001
Literate	0	02(6.7)	09(30.0)	19(63.3)	
Occupation					
House maker	0	01(20.0)	02(40.0)	02(40.0)	1.0
Employed	04(4.6)	21(24.1)	32)36.8)	30(34.5)	
Age at first marriage					
< 18 years	0	02(33.3)	02(33.3)	02(33.3)	
18-23 years	03(3.8)	18(22.8)	29(36.7)	29(36.7)	0.214
24 years and above	01(14.3)	02(28.6)	03(42.9)	01(14.3)	
Duration of marriage					
10 years or less	02(100.0)	0	0	0	
11-20 years	02(20.0)	08(80.0)	0	0	<0.001
21-30 years	0	14(53.8)	12(46.2)	0	
31 years or more	0	0	22(40.7)	32(59.3)	
Number of alive children /parity					
1-2 children	02(33.3)	01(16.7)	01(16.7)	02(33.3)	<0.001
3-4 children	02(6.9)	13(44.8)	13(44.8)	01(3.4)	
5 or more children	0	08(14.0)	20(35.1)	29(50.9)	
Reproductive Phase					
Premenopausal Phase	04(12.5)	22(68.8)	04(12.5)	02(6.3)	<0.001
Postmenopausal Phase	0	0	30(50.0)	30(50.0)	
Cancer stage					
Stage-I	02(13.3)	03(20.0)	05(33.3)	05(33.3)	
Stage-II	01(3.3)	09(30.0)	12(40.0)	08(26.7)	0.613
Stage-III	0	06(24.0)	11(44.0)	08(32.0)	
Stage-IV	01(4.5)	04(18.2)	06(27.3)	11(50.0)	
Histopathological diagnosis	04(5.0)	04(36.4)	03(27.3)	04(36.4)	0.55
Squamous Cell Carcinoma	0	01(100.0)	0	0	
Adenocarcinoma	0	17(21.3)	31(38.8)	28(35.0)	

This study did not find significant differences in the disease and social demographic characteristics of women with cervical cancer from different age groups except for literacy, parity and reproductive status. This can be explained largely by the smaller sample size of this study. Similarly, this study could not find any significant difference in the histopathological diagnosis among women with cervical cancer from different age groups which is contrary to previous evidence (21).

These findings can be explained by the limited sample size of this study. Moreover, the particular study setting of this study specifically represents the women from lower and lower-middle class of the society who cannot afford private cancer treatment. This warrants the need of large scale studies with sufficient sample size and probability sampling technique to obtain more reliable and valid estimates. Nevertheless, this study has provided a good

analysis in terms of epidemiology of cervical cancer among women in Pakistan presenting in one of the biggest tertiary care hospitals in Karachi; for the treatment from different ethnic and social backgrounds.

This study has limitation that the data was only collected from one public sector hospital of Karachi, Pakistan; thus its difficult to generalize its findings. Similarly, the average age at first marriage can be much lower than what is reported by this study for rural populations and women from specific cultural or ethnic backgrounds. Moreover, in this study every participant reported only one marriage in her lifetime. Similarly, again considering the cultural sensitivity we couldn't ask about the number of sexual partners or the questions about HPV infection and risk factors were not addressed in this study. In addition, this study didn't collect information about the history of past infection with HPV, screening for HPV infection, history of vaccination for HPV infection as well as history regarding use of cervical Pap smear for screening among the study participants. The availability of HPV vaccination and implementation of Pap smear for screening purposes have widely changed the epidemiology of cervical cancer in many developed as well as developing countries (22). Nevertheless, this study presents much needed evidence about cervical cancer epidemiology in the local context.

CONCLUSION:

The common age of presentation of cervical cancer is between age 47 to 57 years. And women with high parity at higher risk and squamous cell carcinoma are the most common pathological type while most patients had stage 2 disease.

CONFLICT OF INTEREST:

Authors declare no conflict of interest

ETHICAL CONSIDERATION

The study was approved by local Research Ethics Committee.

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