

# Study determining factors related to delayed diagnosis and late-stage presentation in patients of carcinoma of cervix in tertiary care hospital

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## ABSTRACT

**Background:** India contributes to one-fifth of the world burden and one-third of global deaths due to cervical carcinoma. As carcinoma cervix is a potentially preventable disease and has a long course from pre-invasive to invasive carcinoma, incidence of invasive carcinoma can be decreased by early detection of pre-invasive and early stages. Hence, it is imperative that the disease is detected in the early stages. To ensure early detection, the challenges leading to delayed diagnosis and late-stage presentation need to be understood. **Objective:** The present study aims to determine the factor related to delay in diagnosis and late-stage presentation. **Materials and Methods:** A cross-sectional study was undertaken in 230 participants with cervical carcinoma visiting radiotherapy department at tertiary care hospital of Bhopal. After taking all the details, participants were categorized into early and late in the three types of delays that are patient delay, health provider delay, and total delay. Moreover, early and late presenting on the basis at which stage their disease was diagnosed. Various factors affecting these delays and late presentation were analyzed. **Results:** The mean age of 230 study participants was found to be  $50.30 \pm 11.68$  years. Age, parity, and type of presenting symptoms were factors found to be significant for patient delay, and locality and education were found to be significant for late-stage presentation. **Conclusion:** Patient awareness and setting up standardized protocol in health facility will lead to early detection and treatment of the disease.

**KEY WORDS:** Carcinoma Cervix; Delay; Late Stage


## INTRODUCTION

Cervical carcinoma is the leading gynecological malignancy in the world. It is the second most common type of carcinoma in women worldwide and contributes to 12–15% of all carcinomas in women. India contributes to one-fifth of the world burden and one-third of global deaths due to cervical carcinoma.<sup>[1-5]</sup>

As carcinoma cervix is a potentially preventable disease and incidence of invasive carcinoma can be decreased by

early detection of pre-invasive and early stages. Studies have shown that late stage at diagnosis and thus delay in treatment are correlated with lower survival rates in patients with cervical carcinoma.<sup>[6-10]</sup> In India, more than 85% of the patients present in advanced stages.<sup>[11]</sup> What is the reason behind this delay? There might be different factors affecting delay in diagnosis, the delay may be patient delay, doctor delay, referral delay, or system delay. Each delay plays an important role in the prevention, diagnosis, and management of the disease.<sup>[12-20]</sup> The knowledge of these delays could be pivotal in building alternative strategies for the prevention of the advancement of the disease.<sup>[21-33]</sup>

Our study focuses on determining sociodemographic factors related to different types of delays (patient, health provider, and total) in diagnosis of the disease and stage of presentation in patients with carcinoma cervix.

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## MATERIALS AND METHODS

Patients of cervical carcinoma visiting the Carcinoma Ward of the Department for Radiation Therapy in Gandhi Medical College, Bhopal, M.P, were included in the study. A cross-sectional study was undertaken from the month of July 2015 to June 2016 for a period of 1 year. Sample size for the study was calculated on the basis of pilot study done for a month. A total of 230 participants were taken as study subjects. Written consent was obtained from the subjects after explaining them the nature and purpose of the study. They were assured that confidentiality would be strictly maintained. Those patients who were severely ill were excluded from the study. Permission to conduct this study was obtained from the Institutional Ethics Committee.

Participants were interviewed and their details recorded on a pre-designed, pre-tested, and semi-structured questionnaire and used for data collection. Personal details and information about various points in the history of disease, onset of symptoms, the time period from onset of symptoms to visiting health-care provider, the time period from visiting to health-care facility suspicion leading to an investigation of carcinoma, time taken for histopathological report to confirm the diagnosis, and number and type of health facilities visited till final diagnosis was done were taken by the patient, their caretaker presents at the time of interview. The previous prescriptions of whoever present were seen to confirm the time periods and whose previous prescriptions were not available, their details were taken on the basis of their memory.

Data were entered into MS Excel, analysis was done with the help of Epi-Info software. Online calculator such as GraphPad and Socios statistics was also used.

### Operational Definitions<sup>[8,10,34-41]</sup>

**Patient delay** – The time between onset of symptoms till their visit to the health-care provider.

**Short patient delay** – Time taken by the patient between onset of symptoms to the first visit to the health provider was <31 days.

**Long delay** – Time taken by the patient between onset of symptoms to the first visit to the health provider was more than 31 days.

**Health provider delay** – The time between first visits to the health provider to investigation of carcinoma.

**Short health provider delay** – The time between first visits to the health provider to investigation of carcinoma was <21 days.

**Long health provider delay** – The time between first visits to the health provider to investigation of carcinoma was >21 days.

**Time for HPE report** – The time period from the histopathological sample taken to the report to confirming the carcinoma.

**Total diagnostic delay** – Health provider delay + Time taken for HPE report.

**Total Delay** – Patient delay + Total diagnostic delay.

**Short total delay** – The time period from onset of symptoms to the confirm diagnosis of carcinoma was <71 days.

**Short total delay** – The time period from onset of symptoms to the confirm diagnosis of carcinoma was more than 71 days.

**Early stage** – According to the WHO/FIGO grading of carcinoma cervix, those presenting at Stages 1 and 2 were considered as early-stage presentation.

**Late stage** – According to the WHO grading of carcinoma cervix, those presenting at Stages 3 and 4 were considered as late-stage presentation

## RESULTS

The mean age of 230 study participants was found to be  $50.30 \pm 11.68$  years. The distribution of participants sociodemographic profile according to patient, health provider, and total delay is presented in Tables 1- 3. Around 62.61% (144) of patients had short patient delay and 37.39% (86) had long patient delay. About 54.35% (125) had short health provider delay and 45.65% (105) had long health provider delay. About 53.48% (123) had short total delay, while 46.52% (107) had long total delay. Distribution of patients' demographic and characteristics and patient delay is shown in Table 1. Tables 2-4 show distribution of patients' demographic characteristics according to health provider, total delay, and late-stage presentation, respectively.

## DISCUSSION

The present study found age, parity, and type of presenting symptom as significant contributing factors for patient delay. Type of locality of residing and socioeconomic class was significant factors for health provider delay. Status of menopause was seen to shorten the health provider delay. Factors such as number of health facility visited and types of health facility were found to be significant for total delay. Locality and education were found to be instrumental in late-stage presentation of the disease.

The present study found significant correlation between age, parity, and type of presenting symptom and patient (short and long) delay which was similar to other studies by Kaku *et al.*,<sup>[8]</sup> Berraho *et al.*,<sup>[36]</sup> and Gyenwali *et al.*<sup>[35]</sup> which found

**Table 1:** Distribution of participants according to sociodemographic characteristics, patient's profile, and patient delay

Characteristics	Short patient delay <31 days (144)	Long patient delay >31 (86)	P-value
Age			0.016539
<45 years	68 (29.56)	28 (32.55)	
45–60 years	57 (39.5)	35 (40.69)	
>60 years	19 (13.19)	23 (26.74)	
Locality			0.533
Rural	101 (72.22)	60 (69.76)	
Urban	43 (29.86)	26 (30.23)	
Education			0.77542
No education	105 (72.91)	59 (68.60)	
<5 years of schooling	21 (14.5)	15 (17.44)	
More than 5 years of schooling	18 (12.5)	12 (13.95)	
Occupation			.081812
Housewife	51 (35.41)	21 (24.41)	
Others	93 (64.58)	65 (75.58)	
Marital status			0.42
Married	123 (85.41)	77 (89.53)	
Widow/separated	21 (14.58)	9 (10.46)	
Socioeconomic class			0.674
I and II	14 (9.72)	6 (6.97)	
III	30 (20.83)	16 (18.60)	
IV and V	100 (69.44)	64 (74.41)	
Husband's education			0.498
No education	71 (49.30)	46 (53.48)	
<5 years of schooling	25 (17.36)	10 (11.62)	
More than 5 years of schooling	48 (33.33)	30 (34.88)	
Type of presenting symptoms			0.0148
Abnormal vaginal bleeding	110 (76.38)	54 (62.79)	
Abnormal vaginal discharge	22 (15.27)	27 (31.39)	
Pain related	12 (8.33)	05 (5.81)	
Parity			0.03
<2	22 (15.27)	05 (5.81)	
>3	122 (84.63)	81 (94.18)	
Contraception			0.7514
Yes	18 (12.5)	12 (13.95)	
No	126 (87.5)	74 (86.04)	
Sterilization			0.321
Yes	86 (59.72)	57 (66.27)	
No	58 (40.27)	29 (33.72)	
Stage of presentation			0.363
Early stage	50 (34.72)	35 (40.69)	
Late stage	94 (65.27)	51 (59.30)	

**Table 2:** Distribution of participants according to sociodemographic characteristics, patient profile, and health provider delay

Characteristics	Short HP delay (%) <21 days	Long HP delay (%) > 21 days	P-value
Age			0.2445
<60 years	85 (68)	79 (75.24)	
>60 years	40 (32)	26 (24.76)	
Locality			0.031
Rural	80	81	
Urban	45	24	
Socioeconomic class			0.865
I and II	12	8	
III	25	21	
IV and V	88	76	
Presenting symptoms			0.107
Postmenopausal bleeding	67 (53.60)	39 (37.14)	
Vaginal discharge	25 (20)	24 (22.86)	
Post-coital bleeding	5 (4)	6 (5.71)	
Intermenstrual bleeding	19 (15.20)	28 (26.67)	
Pain related, for example, abdominal pain, dysuria, etc.	9 (07.20)	8 (07.62)	
Menopause attained			0.024
Yes	87 (69.60)	58 (55.24)	
No	38 (30.40)	47 (44.76)	

significance between type of presenting symptom and patient delay time. Furthermore, parity was not found significant in any other studies than ours. Some symptoms of presentation might be ignored due to lack of awareness of carcinoma cervix as in Gupta *et al.*<sup>[42]</sup> As age advances, the patient is dependent on others to go to health-care facilities, also there is reluctance to ask for medical help, which is why age can be a contributing factor in causing long patient delay.

Long health provider delay was seen in those residing in rural area, however, symptom of presentation was not found to be correlated with medical/HP delay. The number of health facility was also found significant in the present study. Gyenwali *et al.*<sup>[35]</sup> also found long health-care provider and diagnostic delay in those presenting with vaginal discharge, whose first point of contact was SHP/HP or PHC and in those who had >3 pre-referral consultations. The present study also found menopausal status to be a significant factor in health provider delay. In India, where access to basic health facilities in rural area remains a challenge, patients in the rural parts of the country spend most of their time traveling and waiting in queue to get their turn to the health-care provider because of high patient load. Unavailability of proper investigations makes it difficult to health provider to detect the disease early. There is also presence of quakes, where patients

**Table 3:** Distribution of participants according to sociodemographic characteristics and total delay

Characteristics	Total	Short total delay (123) <71 days	Long total delay (107) >71 days	P-value
Age				0.704
<60 years	165	89 (72.35)	75 (70.09)	
>60 years	66	34 (27.64)	32 (29.90)	
Education				0.717
No education	164	89 (72.35)	75 (70.09)	
<5 years of schooling	36	20 (16.20)	16 (14.95)	
>5 years of schooling	30	14 (11.38)	16 (14.95)	
Locality				0.236
Rural	161	82 (66.67)	79 (73.83)	
Urban	69	41 (33.33)	28 (26.17)	
Socioeconomic class				0.836
I and II	20	12 (9.75)	08 (7.47)	
III	46	24 (19.51)	22 (20.56)	
IV and V	164	87 (70.73)	77 (71.09)	
Type of presenting symptom				0.8999
Associated with vaginal bleeding	164	87 (70.73)	77 (71.96)	
Abnormal vaginal discharge	49	26 (21.13)	23 (21.49)	
Associated with pain	17	10 (8.13)	07 (6.5)	
No. of health facility visited				0.0017
<2	87	58 (47.15)	29 (27.10)	
>3	143	65 (52.84)	78 (72.89)	
Type of health facility visited				0.18
Government	99	48 (39.04)	51 (47.66)	
Private	131	75 (60.97)	56 (52.33)	
Types of health facility				<0.001
Govt. PHC/CHC	46	15 (12.19)	31 (28.97)	
Govt. hospital	53	33 (26.82)	20 (18.69)	
Registered private practitioner	93	68 (55.28)	25 (23.36)	
Traditional healer, etc.	38	7 (5.69)	31 (28.97)	
FIGO staging				0.534
Early	87	42 (34.14)	43 (40.18)	
Late	145	81 (65.85)	64 (59.81)	

**Table 4:** Distribution of participants according to sociodemographic characteristics and stage of presentation

Characteristics	Total	Early (85) (%)	Late (145) (%)	P-value
Age group (years)				0.1639
<60	164	56 (65.88)	108 (74.48)	
>60	66	29 (34.11)	37 (25.51)	
Locality				0.0466
Rural	161	50 (58.82)	111 (76.55)	
Urban	69	35 (41.17)	34 (23.44)	
Marital status				0.437
Married	200	72 (84.70)	128 (88.27)	
Separate/widow	30	13 (15.29)	17 (11.72)	
Education				0.0016
No education	164	50 (58.82)	114 (78.62)	
<5 years of schooling	36	16 (18.82)	20 (13.79)	
More than 5 years of schooling	30	19 (22.35)	11 (7.58)	
Socioeconomic class				0.444
Socioeconomic Class I and II	20	10 (11.76)	10 (6.89)	
Socioeconomic Class III	46	16 (18.82)	30 (20.68)	
Socioeconomic Class IV and V	164	59 (69.41)	105 (72.41)	
Husband's education				0.45073
No education	117	43 (50.58)	74 (51.03)	
<5 years of schooling	35	16 (18.82)	19 (13.10)	
More than 5 years of schooling	78	26 (30.58)	52 (35.86)	
Type of presenting symptoms				0.08
Abnormal vaginal bleeding (PM, IM, PC bleeding)	164	64 (75.29)	100 (68.96)	
Abnormal vaginal discharge	49	19 (22.35)	30 (20.68)	
Abdominal pain, dysuria, etc.	17	2 (2.35)	15 (10.34)	
Any previous gynecological symptoms				0.540
Yes	173	62 (72.94)	111 (76.55)	
No	57	23 (27.06)	34 (23.45)	
Pap smear test ever done				0.204
Yes	12	08 (9.41)	04 (2.75)	
No	218	77 (90.58)	141 (97.24)	
Any addiction present				0.754
Yes	53	21 (24.70)	32 (22.06)	
No	177	64 (75.29)	113 (77.93)	
Passive smoking				0.981
Yes	122	45 (52.74)	77 (53.10)	
No	108	40 (47.06)	68 (46.9)	
Parity				0.390
<2	27	12 (14.12)	15 (11.74)	
>3	203	73 (85.88)	130 (89.66)	

make frequent visits before contacting the health provider. Postmenopausal women presenting with any gynecological symptom raise an alarm to any health provider making the health provider delay shorter.

The total delay was found to be significant with no. of health facility visited and type of health facility visited whether it was a primary contact health point or the visit to private facility was to traditional healers, etc., which was similar to the study by Gynwali *et al.* Some factors such as age,

residence, and education were found to be significant study by Gynwali *et al.* and Berraho *et al.*

Before the patient gets confirmed diagnosis through histopathological examination, she had already made frequent visits to a number of health facility, which contributes to total delay.

The present study found significant correlation between marital status and education and stage of presentation which was similar to the findings of Berraho *et al.*<sup>[36]</sup> and Tanturovski *et al.*,<sup>[39]</sup> Kaku *et al.* and Behnamfar and Azadehrah.<sup>[10]</sup> However, some factors such as symptom of bleeding, monthly income, genital hygiene, addiction of husband and family history, and ethnicity found significant in the above studies were not found significant in the present study.

This study is the first of its type on carcinoma cervix done in Central India. This is the first study to investigate carcinoma cervix in and around Bhopal particularly collecting personal information on the age of first sexual intercourse, pregnancy, parity, genital hygiene, addiction, contraception use, birth spacing, etc., along with the various delays encountered by the patient at patient level, health-care provider level, and at overall both patient and health provider level which exposing the lacunae behind the delayed diagnosis of the patient.

This study will help in formulating strategy and policy for prevention and early detection of carcinoma cervix. Since it is done in a government institution which is majorly accessed by low- and middle-income groups, patients belonging to high-income groups and challenges faced by them might have been missed out. The time calculation of various delays of some of the participants was based on their memory which might have hindered with the calculation of delay.

## CONCLUSION

As per the present study, mass health education and formulation and implementation of proper protocol for early detection and treatment of carcinoma cervix are the only mainstay. With so much focus on women empowerment in India, efforts have to be made for formulation of a stringent policy primarily dedicated to women's health apart from child birth.

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