

## Study of prevalence and risk factors associated with carcinoma cervix

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### Abstract

**Introduction:** As per GLOBCAN 2012, cervical cancer is a huge wellbeing issue for women with roughly 5,28,000 cases and 2,66,000 deaths reported annually worldwide. Globally, cervical cancer includes 12% of all cancers in women and it's leading gynaecological malignancy within the world. With this view, the present study was planned to find out risk factors of cases of carcinoma of cervix attending tertiary care hospital.

**Materials and Method:** This was a prospective observational study of carcinoma of cervix carried out at a tertiary care hospital. Informed consent forms were obtained from each patients. Ethical committee clearance was obtained prior to start the study. The study included all diagnosed cases of carcinoma of cervix admitted in Gynaecology ward.

**Result:** The mean age of the cervical cancer patient was 55.54 years and median age was 57.54 years. The prevalence of carcinoma cervix was 3.75 per 1000 attendees. In the present study, maximum subjects 15 (35.71%) were in the age group of 41-50 years followed by 12 (28.57%) in the age group of 61-70 years. It showed bimodal peak of incidence, 33(89.19%) were Hindus, 30 (71.42%) were illiterate, 25 (59.52%) were grand multiparous, 26 (61.90%) were married at the age less than 16 years and 37 (88.09%) were non immunocompromised.

**Conclusion:** The risk factors like illiteracy, low socioeconomic status, rural habitat, early marriage, early sexual debut, early child birth, and high parity were prevalent in the population studied. Early detection and treatment of cervical precancerous lesions leads to reduce in cervical cancer morbidity and mortality.

**Keywords:** Risk factors, Cervical cancer, Women, Multiparous

**Received:** 30<sup>th</sup> August, 2017

**Accepted:** 4<sup>th</sup> October, 2017

### Introduction

Cancer is maybe the most dynamic and crushing ailment representing a danger of mortality to the whole world in spite of noteworthy advances in medical innovation for its diagnosis and treatment. It is evaluated that by the year 2020 there will be just about 20 million new cases. Worryingly, it is not just in the quantity of new cases that will increase but also the proportion of new cases from the developing countries like India will likewise ascend to around 70%.<sup>(1)</sup>

The most conspicuous feature of the distribution of cancers between the sexes is the male predominance of lung cancer. Among men, the five most common sites of cancers diagnosed in 2012 were lung, prostate, colorectum, stomach and liver. Among women, the most common locations diagnosed were breast, colorectum, lung, cervix and stomach. Hence, cervical cancer is the fourth most common cancer among women worldwide.<sup>(2)</sup>

In 2012, the overall burden of cancer rose to an expected 14 million new cases for every year; a figure anticipated that would ascend to 22 million yearly within the following two decades. Over the similar period, the cancer deaths are anticipated to ascend from an estimated 8.2 million every year to 13 million every year.<sup>(2)</sup>

As per GLOBCAN 2012, cervical cancer is a huge wellbeing issue for women with roughly 5,28,000

cases and 2,66,000 deaths reported annually worldwide.<sup>(3)</sup> Globally, cervical cancer includes 12% of all cancers in women and it's leading gynaecological malignancy within the world.<sup>(4)</sup>

India has a population of around 1.2 billion and records for a noteworthy burden of cervical cancer in the Indian subcontinent. There is an expected yearly worldwide rate of 5,00,000 cancers, in that India contributes 1,00,000 i.e., one-fifth of the world burden.<sup>(5)</sup> A sum of 4,304 cervical cancer cases were enlisted amid 1982-89 in the Chennai registry, India. In 1990, 20% of every female deaths from cancer in India, were from cervical cancer, adding up to an estimated 6100 deaths.<sup>(6)</sup>

Every year in India, 122,844 women are determined to have cervical cancer and 67,477 die from the disease. India has a population of 432.2 million women aged 15 years and above who are in danger of creating growth. India likewise has the most noteworthy age standardized incidence of cervical cancer in South Asia at 22, contrasted with 19.2 in Bangladesh, 13 in Sri Lanka, and 2.8 in Iran. In this manner, it is essential to comprehend the study of disease transmission of cervical cancer in India.<sup>(7)</sup> An outstanding outline on the Epidemiology of cervical cancer is reported by Brinton<sup>(8)</sup> and Franco.<sup>(9)</sup>

Incidence of carcinoma of cervix, invasive type remains high in our country possibly as:

- Carcinoma cervix is symptomless in early stages
- Procrastination to the initial symptoms like leucorrhoea, post coital bleeding, inter-menstrual bleeding leading to negligence by patients.
- Unawareness of symptom complex of carcinoma cervix and its routine screening tests.
- Illiteracy among the majority of population.
- Lack of adequate screening for carcinoma cervix in rural areas.
- Lack of cooperation for mass screening programmes undertaken by research due to lack of cancer consciousness and fear of disease.

So, patients come to hospital when distressing symptoms become unbearable and also with advance stage of cancer of cervix.

National cancer control program of India emphasizes the importance of early detection and treatment. The increasing incidence is attributed to poverty, illiteracy, early age at marriage or pregnancy, high parity and lack of awareness of proper screening test and concern for the symptoms and rural health practices involving indigenous medical quackery.<sup>(10)</sup>

In developing countries, cervical cancer is most common cancer; about 80% of total cases are present in developing countries. Different other risk factors for cervical cancer are, early age at marriage, coitus before the age of 18 years, various sexual accomplice, delivery of the first baby before the age of 20 years, multiparity with poor birth spacing between pregnancies, poor individual cleanliness and women with STD, HIV infection, herpes simplex virus 2 and human papilloma virus (16, 18, 31, 33) infection.

Cervical cancer prevention and screening programmes have been effectively implemented in the developed countries, bring in a decreasing trend both in incidence and mortality. Notwithstanding, in developing or less developed countries, over 80% of women with cervical cancer continue to be diagnosed at an advanced stage, which is notably associated with poor prognosis. Obstructions to the accomplishment of screening programmes in country like India include a lack of awareness about the disease among the general population coupled with the geographical and economic inaccessibility to cancer care. In spite of the fact that the circumstance in India is gradually improving there still exists a disparity between the availability of quality cancer care. While the big cities have a decent number of world class cancer centers, the facility of the same is almost non-existent for most of the rural population of India.<sup>(11)</sup>

The present study is carried out in this tertiary care to find out risk factors of cases of carcinoma of cervix attending tertiary care hospital.

### Aims and Objectives

- To study the prevalence of carcinoma of cervix in this institute.

- To study the risk factors associated with carcinoma of cervix

### Materials and Method

This was a prospective observational study of carcinoma of cervix conducted over a period of 2 years (Oct. 2014 to Sept. 2016) at a tertiary care hospital which serves the services to the people of Maharashtra and neighbouring states.

Ethical committee clearance was obtained before starting the study. Informed consent forms were obtained from patients. The study included all diagnosed cases of carcinoma of cervix admitted in Gynaecology ward.

A thorough history including presenting complaints, demographic details, educational status and occupational details, details of menstrual and obstetric history along with any significant past history were recorded on a standard proforma.

History was followed by a thorough general, systemic, gynaecological and per rectal examination. Based on these findings, provisional diagnosis was made. The diagnosis of carcinoma of cervix was confirmed on histopathology. Ultrasonography and computed tomography was also done in each case.

Selection of cases was done based upon Histopathologically confirmed cases of invasive cervical carcinoma.

**Statistical Analysis:** Descriptive statistics such as mean, SD and percentage was used to present the data. Statistically significant of categorical data was assessed by using chi-square test. A p-value less than 0.05 were considered as significant.

### Results

During the study period, there were 11,270 gynaec O.P.D attendees. Of these, 42 were carcinoma cervix cases. Hence, the prevalence of carcinoma cervix was 3.75 per 1000 attendees.

**Table 1: Age wise Distribution**

Age Group	No. of Cases	Percentage
30- 40 Years	05	11.90
41-50 Years	15	35.71
51-60 Years	08	19.04
61-70 Years	12	28.57
> 70Years	02	04.76
Total	42	100

Out of 42, majority of the women i.e.15 (35.71%) were belongs to the age group of 41-50 years followed by 12 (28.57%) in the age group of 61-70 years. It showed bimodal peak of incidence. Least number i.e. 02 (04.76%) were in the age group of >70 years. Youngest case was 34 years of age (Non Immunocompromised) and eldest was 81 years old.

**Table 2: Religion wise Distribution of cases (Solapur District only)**

Religion	No. Of Cases (n=37) (05 from neighbouring state)	Population*	
Hindu	33	3,56,284	1 : 10,796
Muslim	04	97,121	1 : 24,280

\* Census 2011

There were 33 cases amongst 3,56,284 Hindus and 04 cases amongst 97,121 Muslims. This showed that carcinoma of cervix was nearly 2.5 times more common in Hindus as compared to Muslims. The lower incidence in Muslims may be due to circumcision, which is a religious tradition. There were 05 cases from neighbouring state, so those were excluded.

**Table 3: Literacy and Stage at Diagnosis**

Stage At Diagnosis	No. of cases	Literate	%	Illiterate	%
Stage IB	06	03	50.0	03	50.0
Stage IIA	08	05	62.5	03	37.5
Stage IIB	10	04	40.0	06	60.0
Stage IIIA	09	--	--	09	100
Stage IIIB	08	--	--	08	100
Stage IVA	01	--	--	01	100
Total	42	12	28.57	30	71.42

Out of 42 cases, majority of them i.e. 30 (71.42%) were illiterate. 14 (33.3%) came in early stage of cancer while 28 (66.6%) came in advanced stage of cancer.

Amongst early stage cancer cases, 08 (57.14%) were literate and 06 (42.85%) were illiterate. Amongst advanced stage cancer cases, majority i.e. 24 (80.0%) were illiterate. This shows that most of the literate came to the hospital in early stage of the disease. This can be prognostically good.

**Table 4: Parity wise Distribution**

Parity	Parity $\geq 4$	Parity $< 4$	P value	Inference
No. of cases	25	17	>0.05	Not Significant

In this study maximum i.e. 14 (33.33%) were grand multiparous. Only one was Nulliparous. Highest parity noted in this study was Para 9 in one only. Grand multi-parity collectively contributed to 25 (59.52%) cases. This indicates high parity as a risk factor for carcinoma of cervix. Chi-square test was applied, p value was >0.05, which indicated parity wise distribution was not statistically significant.

**Table 5: Distribution as per Marital Status Age**

Marital Status Age	$\leq 16$ Years	$> 16$ Years	P value	Inference
No. of cases	26	16	>0.05	Not Significant

Age at marriage was taken as age of sexual debut. Out of 42, maximum i.e. 26 (61.90%) were married at the age less than 16 years. So early sexual debut, as found in maximum number might have predisposed them for cervical cancer. Teenage sexual debut adds to increased chances of early childbearing.

In this study, 26 cases were married at the age less than 16 years. Chi-square test was applied, p value was >0.05, which indicated that there was no statistical significance of marital status age.

**Table 6: Distribution of Immunocompromised cases**

Immune Status	No. of Cases	Percentage
Immunocompromised	05	11.90
Non Immunocompromised	37	88.09
Total	42	100.00

In this study majority cases i.e. 37 (88.09%) were non immunocompromised. Out of 05 cases, only one came in early stage of the disease (age- 40 yr, stage IB), rest 04 cases reported to hospital in an inoperable stage.

## Discussion

Study conducted by Satya Paul et al<sup>(12)</sup> and Madhutandra Sarkar et al<sup>(13)</sup> reported 17.86 and 32.69 cases per 1000 attendees respectively.

The present study showed 03.72 cases per 1000 attendees. These variations in prevalence in various studies may be due to the difference in socio-demographic factors, cultural factors and treatment seeking behaviour.

Studies conducted by Satya Paul et al,<sup>(12)</sup> Shantla S et al,<sup>(14)</sup> R K Spartacus et al<sup>(15)</sup> and Sobita Devi et al,<sup>(16)</sup> reported that maximum number of cervical cancer cases were from the age group 41-50 years followed by the age group 51-60 years. In India the peak age for incidence of cervical cancer is 55-59 years.<sup>(17)</sup>

In the present study, majority of cases were in the age group 41-50 years followed by in the age group 61-70 years. The mean age of the cervical cancer case was 55.54 years and median age was 57.54 years. The findings of present study were comparable with above studies.

This shows that screening programmes for cervical cancer should be implemented in the women at early age so that the cases will be diagnosed at the earliest for better survival.

Poverty, lower socioeconomic status, poor genital hygiene, lack of awareness regarding cervical cancer and lack of access to health services are the contributing factors for high prevalence in rural areas.

Studies conducted by Satya B Paul et al,<sup>(12)</sup> Rekha Wadhvani et al,<sup>(18)</sup> Shantla S et al,<sup>(14)</sup> Kaverappa et al<sup>(19)</sup> reported that maximum cases were Hindus.

The present study findings are comparable with above studies. The lower incidence in Muslim female may be due to circumcision, which is a religious tradition.

The studies of Rajarao P et al,<sup>(20)</sup> Sameerkumar Hazra et al,<sup>(21)</sup> and Kaverappa et al<sup>(19)</sup> conducted in different parts of India reported that nearly two third cases were illiterate. In the present study also nearly two third cases were illiterate, which are comparable.

The findings of the studies conducted by Madhutandra Sarkar et al,<sup>(13)</sup> Das C R et al<sup>(22)</sup> and Rita Rani et al<sup>(23)</sup> showed that cervical cancer was more common in grand multiparous. In the present study also maximum cases were grand multiparous. This shows results are comparable.

The studies conducted by Sine Bayo et al,<sup>(24)</sup> Satya Paul et al<sup>(12)</sup> showed that majority of the cases were married before age of 16 yr. Similar finding is reported in the present study. Age of marriage can be taken as age of sexual debut. Early teenage marriages and grand multiparity are very common in rural Indian population.

The findings of Das C R et al<sup>(22)</sup> who found that majority of the cases 38 (70.40%) were married after the age of 16 years, are not comparable with the present study findings.

Early age at marriage indicates an early exposure to sexual activities, longer duration of married life, greater opportunities for sexual activities and early pregnancy.

In the study conducted by B. Geetha et al<sup>(25)</sup> and B Raghvendra et al,<sup>(26)</sup> 05 (02.50%) and 03 (05.00) cases were HIV infected respectively. In the present study, 05 (11.90%) were immunocompromised.

According to Blossom et al, epidemiological studies in developed countries have shown that HIV infected women are at higher risk of being infected with high risk HPV and are at high risk of persistence and associated cervical disease progression as compared to HIV uninfected women.<sup>(27)</sup>

## Conclusion

Majority of cervical cancer cases were from the age group 41- 50 years. The mean age of the cervical cancer patient was 55.54 years and median age was 57.54 years.

The key to reduce cervical cancer morbidity and mortality is early detection and treatment of cervical precancerous lesions. The most effective ways of preventing and controlling cervical cancer are regular cervical cancer screening above the age of 30 years and educational strategies to create public and social awareness about the disease. There are severe constraints concerning organized mass scale screening in India, hence the alternatives need to be worked out.

It is possible to modify variables associated with life style through health education, which could help to bring down the incidence of cervical cancer. These include increase in the age of marriage through health education and strictly enforcing the legislation.

Cancer cervix is preventable to large extent as it takes a decade or more to progress from pre-invasive to invasive lesion. The three pronged approach i.e. education, primary prevention (vaccination) and secondary prevention (screening and treatment) can be applied to cancer cervix effectively.

## References

1. J. Giftson Senapathy, P Umadevi, Ps Kannika, "The Present Scenario Of Cervical Cancer Control And HPV Epidemiology In India: An Outline" *Asia Pacific Journal of Cancer Prevention* (2011)12,1107-15.
2. WHO Cancer Fact Sheet N°297; Updated February, 2015. Available from: <http://www.who.int/mediacentre/factsheets/fs297/en/>
3. Fact sheet; August, 2015. Available from <http://globocan.iarc.fr/old/FactSheets/cancers/cervix-new.asp>
4. Shanta V, "Perspectives in Cervical Cancer prevention in India" *The International Network for Cancer Treatment and Research* (2003).
5. Gajalakshmi V, Peto R, Kanaka S, Jha P, "Smoking and mortality from tuberculosis and other diseases in India: retrospective study of 43 000 adult male deaths and 35 000 controls" *Lancet* (2003) 362, 507-15.
6. Aswathy Sreedevi, Reshma Javed, Avani Dinesh, "Epidemiology Of Cervical Cancer with Special Focus

- On India” International Journal Of Women’s Health (2015)7, 405-14.
7. Cherian Varghese, “Cancer Prevention and Control in India” 50 Years of Cancer Control in India (2003)6, 48-58.
  8. Brinton, L.A., “Epidemiology of cervical cancer—overview” IARC Sci Publ. (1992)119, 3-23.
  9. Franco, E.L., Schlecht, N.F., Saslow D, “The epidemiology of cervical cancer” Cancer J (2003) 9(5), 348-59.
  10. Richa Chauhan, Vinita Trivedi, Rita Rani, Usha Singh, “A Hospital based Study of Clinical Profile of Cervical Cancer Patients of Bihar” An Eastern State of India Women’s Health and Gynecology(2016) 2(2), 1-4.s
  11. Justus N. Eze, Esther N. Emeka-Irem, Felix O. Edegbe, “A Six-Year Study Of The Clinical Presentation Of Cervical Cancer And Management Challenges Encountered At A State Teaching Hospital In Southeast Nigeria” Clinical Medicine Insights: Oncology (2013)7, 151-58.
  12. Paul Satya B, Tiwary Basant K, Choudhury Arun Paul, “Studies on the Epidemiology of Cervical Cancer in Southern Assam. Assam University Journal of Science & Technology: Biological and Environmental Sciences (2011) 7(1), 36-42.
  13. Madhutandra Sarkar, Hiralal Konar, DK Raut, “Gynecological Malignancies: Epidemiological Characteristics of the Patients in a Tertiary Care Hospital in India” Asian Pacific Journal of Cancer Prevention (2012)13, 2997-3004.
  14. Shanthala S., Basavaraj S. Agadi, Bhushan B. Kulkarni, Basavaraj R. Patil, Umesh R. Hallikeri, Sharanabasava M. Chowkimath, Pramod B. Gai, “Snap Shot of Epidemiological Pattern of Cervical Cancer Patients Reporting To A Tertiary Cancer Care Center In North Karnataka” India Int. Journal of Advanced Biological Research (2014) 4(2), 178-183.
  15. R.K. Spartacus, Rajan Paliwal, Pradeep Gaur, Shwetha Mutha, Prashant Bhatt, Anees Malavat, “A profile of cervical cancer cases in a government medical college hospital” IOSR Journal of Dental and Medical Sciences (2015) 14(10), 37-42.
  16. Sobita Devi Yumkhaibam, Manirathinam Ramalingam, Indibor Yengkhom Singh, Thaodem Tomcha Singh, Laishram Jaichand Singh, Himadri Kumar Daru, Sonia Hage, “Clinico epidemiological Study of Cervical Carcinoma in Northeast India” Indian Journal of Applied Research (2016) 6 (8).
  17. World – both sexes estimated incidence by age. October 30, 2014. Available from: [http://www.globocan.iarc.fr/old/age\\_specific\\_table\\_r.asp?](http://www.globocan.iarc.fr/old/age_specific_table_r.asp?)
  18. Rekha Wadhvani, Raksha Bamnia, Mamta Meena. Clinico-pathological analysis of cancer cervix in tertiary care centre”. Journal of Evolution of Medical and Dental Sciences, 2013; 39(2): 7381-85.
  19. Kaverappa VB, Prakash B, Kulkarni P, Renuka M, “Sociodemographic profile of patients with cervical cancer in a tertiary-care cancer hospital in Mysuru, Karnataka” Int J Med Sci Public Health (2015)4, 1187-1190.
  20. Raja Rao P, Hemanth Kumar B, “Study of Socio Demographic Profile of Cancer Cervix patients in Tertiary care Hospital, Karimnagar” Int J Biol Med Res (2012) 3(4), 2306-2310.
  21. Hazra SK, Maiti S, Chaudhuri A, Banerjee D, Guha S, Das A, “Cervical cancer in women with unhealthy cervix in a rural population of a developing country” J Basic Clin Reprod Sci (2013) 2, 97-100.
  22. Das CR, Deka M, Bose S, Bose PD, Das GC, “Demographic profile of Cervical Cancer development: a hospital based study” Int J Med Res Rev (2014) 2(4), 333- 339.
  23. Rita Rani, Ranjit Kumar, Vinita Trivedi, Usha Singh, Richa Chauhan, Md Ali, Arun Kumar, “Age, Parity and stages of cervix cancer: A hospital Based study” Br J Med Health Res. (2016) 3(4), 73-82.
  24. Bayo S, Bosch FX, de Sanjosé S, Muñoz N, Combita AL, Coursaget P, Diaz M, Dolo A, van den Brule AJ, Meijer CJ, “Risk factors of invasive cervical cancer in Malix”. Int J Epidemiol (2002)31, 202–9.
  25. B. Geetha and K.S. Santhy, “Sexual risk factors for cervical carcinogenesis - A case control study” Int. J. Curr. Microbiol. App. Sci (2013) 2(8), 394-99.
  26. Raghavendra B, Nitturu R, Kamble S et. al, “A study of risk factors of cancer cervix - a case control study” Int J Health Sci Res. (2014)4(12), 6-16.
  27. Blossom D B, Beigi R H, Farrell JJ, “Human papilloma virus genotypes associated with cervical cytologic abnormalities and HIV infection in Ugandan women” J. Med. Virol. (2007)79,758-765.