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Socio-demographic and Risk Factors Study of Cervical Cancer among Women in South India

*Hussein Hameed Abbas[1], Fenwick Antony ER[2], Guhan Pandurangan[3], Sivasamy Ramasamy[1]**

[1, 1*, 2-] *Department of Human Genetics and Molecular Biology, Bharathiar University, Coimbatore, India.*

[3]*Department of Oncology, Sri Ramakrishna Hospital, Coimbatore, India.*

Abstract

Cervical cancer is the second most common cancer among women in the world. Despite the good achievements in this type of cancer prevention and treatment in developed countries, developing countries are still reporting high rates of new cases and mortalities, India as an example. In the current study, we aimed to study the most associated risk factors with cervical cancer in Coimbatore City, India. The study was first approved by the institutional Human Ethics Committee and then by the Sri Ramakrishna Hospital Human Ethics Committee. Then the data collected from cervical cancer patients after getting their informed consent. The collected data then analyzed statistically based on age, age at marriage, parity, smoking, and alcohol, level of education, and place of living. The study results showed that cervical cancer risk increases with age especially between 50 and 59 years old. The age of marriage data analysis revealed that 44% of the women married before 18 years old. The study found 51% of the patients have three or more children. The majority of the cases were women who had no education (64%) and the incidence decreased in the educated women (19% of 10th class, 9% 12th class, 8% degree or higher).75% of the cases are living in the rural areas. The study clearly showed the risky age (50 -59) and the importance of screening before this age as well as the role of education level, age of marriage, parity, and living place as key factors in cervical cancer.

Keywords: Cervical cancer, Demographic, Risk factors, smoking, education level

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1. Introduction

Cervical cancer is the second most common female cancer, especially in developing countries. Since the first reporting of this tumor, massive efforts have made to prevent it or treat the affected women. The brightest thing about this cancer is that it is a preventable and or curable cancer especially if diagnosed at an early stage. Though developed countries have achieved a lot in terms of preventing cervical cancer and early screening, the total cases of cervical cancer are still alarming in developing countries where the incidence is still high [1]. Currently, India has the highest population in the world and that will put the healthcare system under pressure. The huge population will require a lot of medical and human resources of course. According to Globocan estimates of 2020, there were 124000 cases of cervical cancer in India and more than 77000 deaths in the same year [2]. The survival rate of cervical cancer is quite less than in other Asian countries where India reported only 46% [3].

The low survival rate might contribute to the late diagnosis when the cancer has reached an advanced stage [4]. Cervical cancer has reported to correlated with many demographic factors including place of living, and educational level. Many cancer types have shown a correlation with age, the higher the age of people the more likely it is to get cancer. The studies have reported that the incidence of cervical cancer in India is within the 50 to 59 years age group and this is quietly higher than what is reported in developed countries where the age group ranges from 35 to 45 [5]. Several studies have aimed at investigating the role of education level in cervical cancer in both developed and developing countries. A study conducted in Canada has shown that the education level of the women affected the cervical cancer incidence and the trend to taking the HPV vaccine was higher in educated women than others [6]. Studies have shown shreds of evidence about cervical cancer susceptibility in particular families but they suggested more studies and include more risk factors to be studied [7].

Recently a study found that cervical cancer incidence in people with cancer history was 5 times more than others [8]. Early age marriage and pregnancy at an early age have been studied long back, both of these factors are interrelated the factors shown an association with squamous cell carcinoma type of cervical cancer especially in developing countries [9]. Louie *et al* has found also that

cervical cancer tends to be more at women who had pregnancies at 21 years or less. India has shown previously a significant association with cervical cancer where the incidence appeared quietly high, but the study focused on some main cities only [10]. Smoking is a well-known factor that plays a key role in many diseases like immunity diseases, cardiovascular diseases, and cancers [11]. India alone has a high rate of tobacco smoking and consumption, a recent study reported more than 28 % of adults are tobacco people [12].

Females tend to smokeless tobacco rather than smoking tobacco, unfortunately, 90% of the smokeless users are in India with 14% of them being Indian females [13]. The role of smoking has studied in many cancers and it found that smoking causes different types of cancers, especially lung cancer where smoking causes more than 85 % of the total cases [14]. Studies also suggested that smoking tobacco is among the risk factors that increase cervical cancer [15]. With the complex chemical components of tobacco smoke, around 83 of it is a carcinogenic compounds [16]. Therefore, the effect of smoking on health needs to investigate deeply. The current study aimed to study the socio-demographic factors and risk factors of cervical cancer in Coimbatore City, Tamil Nadu, and India to provide an updated status of these factors in Coimbatore.

2. Materials and Methods

2.1 Human ethical certificate and patient-informed concern

The study protocol approved by the Bharathiar University Human Ethical Committee and Sri Ramakrishna Human Ethics Committee before collecting the patient's data also all the patients and/or their guardians have signed the informed concern form.

2.2 Inclusion Criteria

The study has recruited 150 cervical cancer women for the data collection. The patients visited the oncologists in the Sri Ramakrishna Hospital in Coimbatore City, Tamil Nadu, and South India from 2023 to 2024. Patients who meet the following criteria were included in the study: one- Women >17 years old, 2- Women confirmed with cervical cancer. The patients who met the following exclusion excluded from the study: 1- patients <18 years old, 2- pregnant women excluded.

2.3 Data collection

Patient's information collected using a semi-constructed questionnaire form; age grouped in a decade wise manner, living place either City or Village, consumption of alcohol and tobacco, and the number of parities gotten from the patients.

2.4 Data analysis

The data analyzed by calculating the Mean, and percentage, and then the data compared accordingly.

3. Results and discussion

3.1 Results

3.1.1 Age at risk and age at marriage

Patient age analysis showed that a few (three patients) patients only diagnosed at 30-39 years old and there is a significant increase at the ages 40-49 years. The results indicated the peak of cervical cancer among the study subjects was within the age range of 50-59 years Table 1. Age at marriage analysis revealed that 44% of the patients got married at an early age (<18 years) while 56% of them married after 18 years old.

3.1.2 Smoking and Alcohol Consumption

The analysis of the smoking and alcohol showed significantly low percentages among the patients where smoking or chewing tobacco was reported in 13 (9%) cases in our study subjects. The alcohol consumption among the included subjects was only four (3%) Figure 1.

3.1.3 Parity and Education Level

Results of the number of children of the patients showed that women who have no children account for 4% of the total study, women who have <three children were 45%, and 51% of the women had three or more children Figure 2. The education level of the patients indicated that the majority of the cervical cancer women were from the illiterate group and the cancer cases were significantly less among educated women Figure 3.

3.1.4 Place of living

The data showed that the majority of the patients who visited the hospital were from rural areas. The number of patients who are living in rural areas was (112 out of 150) while the number of patients who are living in the City was 38 only.

3.2 Discussion

Cervical cancer is the second most common gynecological cancer, particularly in many developing countries. Many developed countries have achieved clear steps in fighting this cancer through different aspects, successfully reducing the number of new cases and increasing the survival rate. Since long back studies have linked cervical cancer cases with various factors which may play a role in this gynecological cancer including demographics, economics, social, and habits. These factors differ from one country to another though they share some similarities. The difference may necessitate the study of the factors associated with cervical cancer for each society separately. India is a big country with different cultures, climates, and religions; it also has a high incidence of cervical cancer. The current study investigated the risk factors associated with cervical cancer in the south of India, Tamil Nadu state.

The study showed that cervical cancer incidence tends to increase with age where 3% of the patients were between 30 and 39, and 23% between 40 and 49. However, more than half the cases were aged 50 to 59 years. The cases then decline at ages 60 -69 (19%) and 3% for the ages more than 69 which may reflect the low survival rate in India. The same age range also reported in other studies [17].Tobacco habits (chewing and smoking) and alcohol were among the cervical cancer risk factors in previous studies in India but our study data revealed that those factors are very low (9% and 3% respectively) among the patients [18-19]. Marriage at an early age has already found by many studies as a cervical cancer risk factor, our study also reported that 44% of the included patients have married before 18 years old [20]. The current study showed parity as a cervical cancer risk factor, it is found that 51 % of the total cases have 3 or more children, and this result complies with the previous findings [19-20].

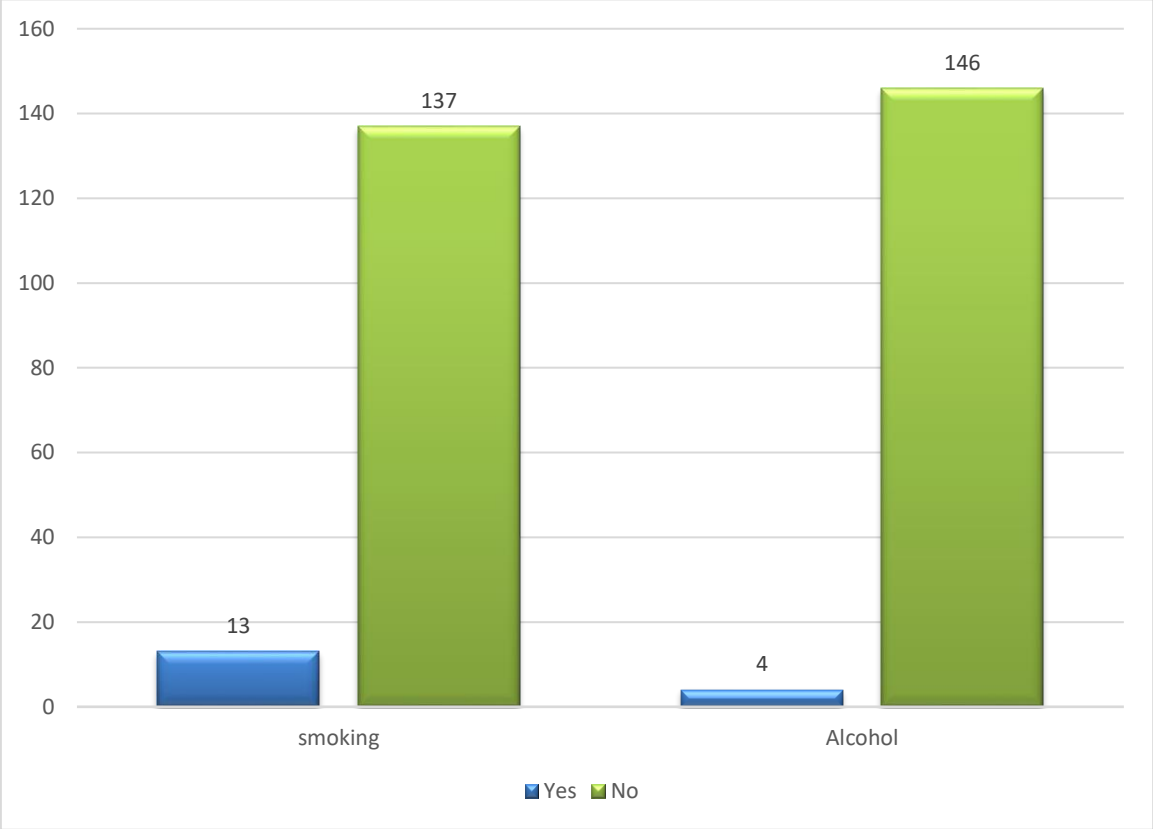

Figure 1. Tobacco and alcohol consumption among the study subjects.

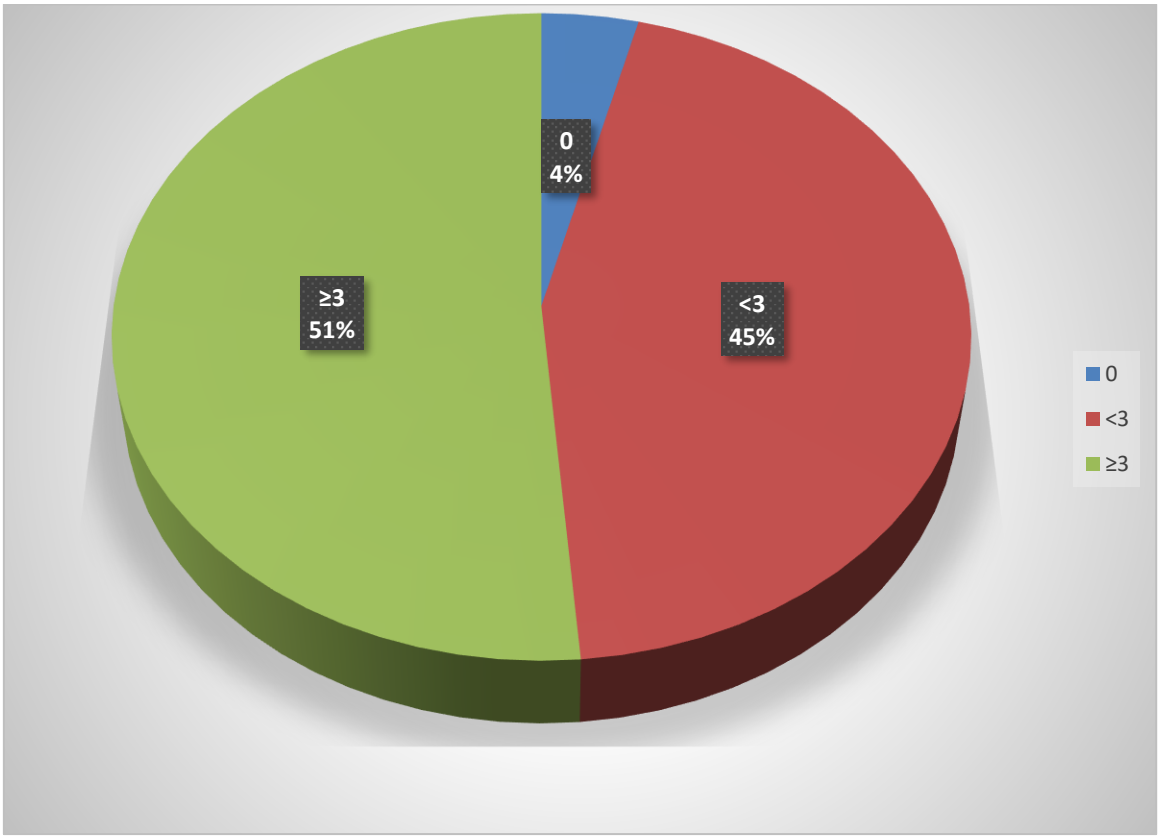

Figure 2. The number of children of the included women

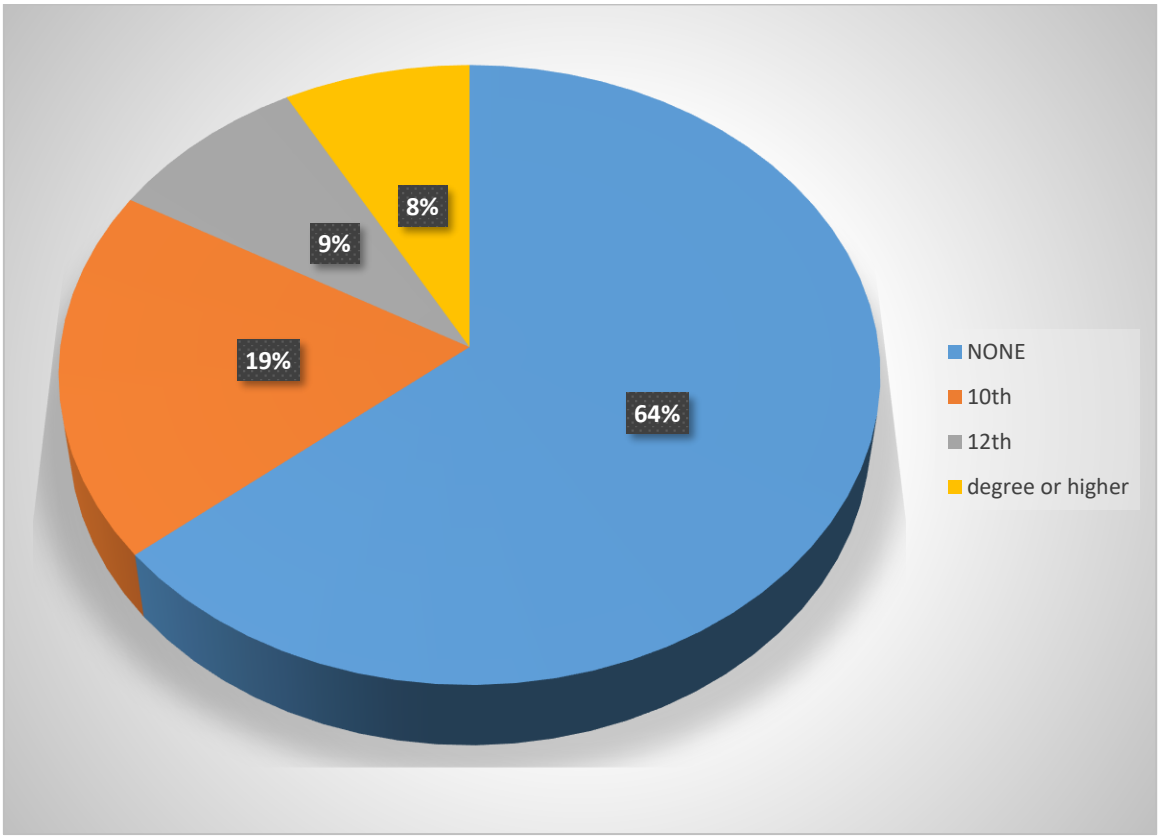

Figure 3. Education level of the included women

Table1. Age of the study samples.

Age groups	No. of Patients	Mean age	Overall mean age
30-39	5(3%)	37	
40-49	34(23%)	46	54
50-59	78(52%)	54	
60-69	29(19%)	63	
≥ 70	4(3%)	72	

The education level of the women plays a critical role in the awareness of the risk factors. The education level of our subjects showed that 64% of them are illiterate and our findings are consistent with previous studies [20-21]. In addition, the majority of the patients came from rural areas, which may reflect the gap between urban and rural areas at the different aspects.

4. Conclusions

The study has found some factors are less important now in cervical cancer while others are still contributing. Factors like smoking and alcohol consumption previously were highly linked to cervical cancer but in the current study, those factors reported in a few patients. Moreover, we have found that the educational level of the women is highly linked with this type of cancer, and this may reflect the level of awareness .The study has also highlighted the role of parity as a cervical cancer risk and found that rural areas are still the highly incident regions of cervical cancer. The current study showed the important socio-demographic and risk factors associated with cervical cancer in the study's City and the factors to address in any cancer prevention program. The current study shows that the age range 50-59 is at a high risk and women should do the screening before this age. The study highlights the importance of early age of marriage and parities as cervical cancer risk factors. Moreover, not

educated women and those who are living in rural areas need more focus in terms of cervical cancer prevention programs.

Acknowledgments
Nil

Conflict of Interest
The authors have no conflict of interest to declare

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