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Original Research Article

SOCIO-DEMOGRAPHIC, REPRODUCTIVE, AND HYGIENIC RISK FACTORS ASSOCIATED WITH CERVICAL CANCER: A CASE–CONTROL STUDY FROM SOUTHERN INDIA

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ABSTRACT

Background: Cervical cancer is still one of the leading causes of health problems in India. It mostly affects women from rural areas and those who are socioeconomically disadvantaged. So, figuring out the risk factors that can be changed is a must if we want to be able to prevent the disease better and also detect it early. The objective is to identify socio-demographic, reproductive, behavioral, and hygienic risk factors associated with cervical cancer among women attending a tertiary care hospital in Shivamogga, Karnataka.

Materials and Methods: A hospital, based casecontrol study was carried out among 150 women, of which 50 were histopathologically confirmed cervical cancer cases, and 100 were age, matched controls. Data were collected through face, to, face interviews using a semi, structured questionnaire that included socio, demographic details, reproductive history, personal habits, and hygienic practices. Statistical analysis was performed using SPSS version 24. Associations were assessed by Chi, square test, and independent risk factors were determined by logistic regression analysis. Statistical significance was considered at $p < 0.05$.

Results: Most of the cases were aged from 41 to 50 years (57.3%). Lack of formal education, unemployment, tobacco, and alcohol consumption, higher parity (>3), and poor menstrual hygiene practices were significantly associated with cervical cancer ($p < 0.05$) as per the univariate analysis. Among the cases, 58% had no formal education, and 84% were unemployed. More than three children were born to 34% of the cases as against 16% of the controls and this was significantly associated with cervical cancer (OR = 2.70; 95% CI: 1.225.97). On multivariate logistic regression analysis, unemployment (AOR: 5.38; 95% CI: 1.5818.32), consumption of a mixed (predominantly non, vegetarian) diet (AOR: 13.37; 95% CI: 4.2242.33), and poor menstrual hygiene practices such as the use of cloth and improper drying methods (AOR: 4.69; 95% CI: 1.4415.24) were the factors that remained independently associated with cervical cancer.

Conclusion: The research findings indicate that cervical cancer is largely affected by factors such as socioeconomic disadvantage, unhealthy lifestyle behaviors, as well as poor menstrual hygiene practices. To effectively alleviate the incidence of cervical cancer, the deployment of targeted health education, the promotion of hygienic menstrual practices, improvement of womens socioeconomic status, and the strengthening of screening programs are absolutely necessary, especially in the case of rural populations.

Keywords: Cervical cancer, Risk factors, Socioeconomic status, Menstrual hygiene practices, Parity, Case–control study.

INTRODUCTION

Cancer is a group of diseases consisting of more than 100 different types, all of which share the feature of abnormal and uncontrolled cell growth. The abnormal growth is due to genetic changes that affect the regulatory mechanisms of the cell leading to loss of control. In principle, cancer can develop in any tissues or organs; however, the core biological mechanisms leading to cancer are largely the same for all types of cancers. These mechanisms include losing the ability to control growth, acquiring genetic instability, and also the cancer cells becoming able to reproduce rapidly and even invade the tissues around them. The disease is still a major public health problem globally and is at the center of a significant proportion of the morbidity and mortality burden worldwide. In fact, cancer was the cause of close to 10 million deaths worldwide, which was about one out of every six deaths globally, that is the year 2020 alone.[1-6]

Cervical cancer is a malignant neoplasm that originates from the epithelial cells of the cervix uteri, the lower part of the uterus. It ranks among the top cancers that severely impact women globally and remains a major public health challenge in low, and middle, income countries aside. Cervical cancer is primarily caused by the persistent infection with the high, risk human papillomavirus (HPV) types. In particular, HPV types 16 and 18, which together are responsible for almost 70% of the cervical cancer cases and coressponding high, grade precancerous lesions, have been implicated.[2,3] Generally the disease slowly moves through the stages of cervical intraepithelial neoplasia or other precancerous changes before it becomes invasive cancer, often within a time span of 1012 years. It is this long period without clinical symptoms that offers a very important window for early detection and prevention through cervical screening and hence timely treatment.[4]

Cervical cancer is the fourth most common cancer in women worldwide. As per GLOBOCAN 2020 estimates, there were around 19.2 million new cancer cases and 9.9 million cancer, related deaths globally. Cervical cancer is one of the major contributors to this burden.[7] The worldwide age, standardized incidence rate for cervical cancer is about 13.3 per 100, 000 women. The disease burden varies considerably between different regions of the world, with more than 85% of cases and deaths accounted for low, and middle, income countries. The rest of the world accounts for 14.7% of the global cervical cancer burden. Asia accounts for more than half of the global cervical cancer burden, followed by Africa and Latin America. Poverty and poor education are the main causes of the inequalities in cervix cancer incidences and deaths in developing countries. Access to screening and healthcare are also factors.[7,8]

India shoulders a very high share of cervical cancer cases, contributing close to a quarter of the cases worldwide. It is the second most common cancer among Indian women, after only breast cancer. The age, standardized incidence rate in India is around 18 per 100, 000 women, and cervical cancer is still one of the major causes of cancer, related deaths among women in the country. The lifetime risk of cervical cancer in Indian women is estimated at 1 in 53, while in developed regions, it is 1 in 100. These statistics point to the necessity of intensified measures for prevention, screening, and early detection.[7,8]

The development of cervical cancer has been linked to various behavioral, biological, and socioeconomic factors. Some of these are early age at first sexual intercourse, having multiple sexual partners, high parity, early age at first childbirth, poor genital hygiene, long, term use of oral contraceptives, smoking, co, infection with other sexually transmitted infections, and low socioeconomic status. Of these, persistent HPV infection is by far the most pivotal and frequently cited cause. Moreover, inadequate nutrition and immune suppression, for instance, may also predispose individuals to disease progression.[4,8]

Cervical cancer is a major public health issue that keeps on causing a lot of harm in spite of the fact that it can mostly be avoided. The main measures that can be taken to prevent it are HPV vaccination, regular screening, and the early treatment of precancerous lesions. It is estimated that death due to cervical cancer can be reduced almost by 70% through the implementation of well, organized screening programs. Nevertheless, the extent of screening in India is still very low, as only a little over thirty percent of women aged 30, 49 years have ever had a cervical cancer screening. Access to screening is better for the more educated, richer, and urban dwellers, and this has been reflected in the studies.[5,8]

Cervical cancer is a major health threat worldwide. To address it, the World Health Organization introduced the Global Strategy to Accelerate the Elimination of Cervical Cancer in 2020. The plan is to lower the rate of new cervical cancer cases to less than four per 100, 000 women. This will be done through three main actions: vaccinating 90% of girls up to 15 years of age, screening 70% of women at ages 35 and 45, and treating 90% of women with precancer or invasive cancer.[5] Such a massive effort needs, besides healthcare systems, a continuous political will and the presence of the community at the level of interventions.

As cervical cancer continues to impose an increasing burden in India, and prevention and early detection have still not been adequately addressed, it is imperative to first determine risk factors unique to the population and then reinforce targeted intervention strategies. Knowing the factors leading to cervical cancer from an epidemiological and behavioral point of view is crucial in devising screening programs and preventive policies that are efficient. Our research intends to become a source of solid evidence by evaluating the main factors that put women at risk of cervical cancer in the case of the woman patients

visiting a tertiary care hospital. The study thus contributes to the reduction of disease burden and mortality as well as to India's advancement in achieving cervical cancer elimination goals.

MATERIALS AND METHODS

Study Area: This research took place at McGann Teaching Hospital, a branch of the Shivamogga Institute of Medical Sciences (SIMS), Shivamogga, Karnataka. The hospital is a significant tertiary care referral center for the next, level care, required districts, and it offers treatment to a population that includes both the urban and rural areas. In, patient and out, patient departments of gynecology which were attended by cervical cancer patients constituted the study population. Controls were picked up from among women coming to the gynecology outpatient department for non, cervical cancer conditions and the nearby community.

Study Design: A hospital, based casecontrol study design was used to evaluate the association between selected risk factors and the occurrence of cervical cancer. This design was selected to efficiently examine multiple exposures in relation to a rare disease like cervical cancer.

Study Period: The study was conducted over a period of one year, from June 2021 to May 2022.

Study Population: Cases were women who were newly diagnosed with cervical cancer within one year before the study period at McGann Teaching Hospital, Shimoga. Diagnosis was confirmed by histopathological reports, and medical records were reviewed before enrolment to confirm eligibility. Controls were women who had undergone cervical cancer screening and tested negative on Pap smear but were attending the gynecology outpatient department for other gynecological complaints. Controls were also taken from the community near the residence of the cases to be comparable.

Inclusion and Exclusion Criteria

We included as cases women aged 2060 years with a histopathological diagnosis of cervical cancer made within one year, regardless of the clinical stage of the disease. Controls were women from the same age group who had a negative Pap smear result for cervical cancer. Those participants who were severely ill, could not respond to the interview, or were not willing to give their informed consent were excluded from the study.

Sample Size Estimation: The sample size considerations were based on parity greater than three as the exposure variable. In the literature, the proportion of exposure among controls was anticipated to be 61.5%, while that among cases was 91.3%. Using a control, to, case ratio of 2:1, a confidence level of 95% ($Z\alpha/2 = 1.96$), power of 90% ($Z\beta = 1.28$), and an allowable error of 5%, the minimum sample size required was calculated to be 32. To accommodate a 10% non, response rate, the sample size was increased to 35 and then rounded off to 50 cases. Therefore, a total of 150 participants were enrolled in the study, including 50 cases and 100 controls.

Sampling Technique and Recruitment: Cases were obtained through a total enumeration method, which means that all the women with cervical cancer who were eligible and came to the gynecology department during the study period were included in the study. Controls were chosen through purposive sampling to make sure that they fulfilled the requirements for inclusion. Age matching was done within 5 years to reduce confounding. Every eligible participant who came to the outpatient department during the data collection period was approached and enrolled after they gave their consent.

Data Collection: Data collection involved direct interviews using a pre, tested semi, structured questionnaire. To facilitate understanding and obtain accurate answers, the interviews were held in the local language (Kannada). The questionnaire had the following sections: socio, demographic characteristics, personal habits, menstrual history, sexual and reproductive history, medical history, and health care services utilization. In the case of patients, interviews were conducted after diagnosis confirmation. On the other hand, controls were interviewed after the confirmation of a negative Pap smear report. Each interview was approximately 3540 minutes long, and the privacy of the participants was ensured throughout the process.

Operational Definitions: Cancer was the abnormal and uncontrolled growth of cells due to mutations in the genes. It was specifically the malignant growth of the cervix that was referred to throughout the study. Cervical cancer was the presence of malignant cells arising from the cervix confirmed histopathologically. Cervical precancer was defined as mild, moderate, or severe dysplastic changes of the cervical epithelium. Cervical cancer screening was the detection of abnormal cervical cells through Pap smear testing in asymptomatic women. Cervical cancer risk factors were biological, behavioral, or socioeconomic characteristics, which, among others, included early age at first intercourse, multiple sexual partners, high parity, tobacco use, prolonged oral contraceptive use, and the history of sexually transmitted infections. Educational status was described in terms of four levels: illiterate, primary education, high school education, and preuniversity or above. Occupation was divided into two categories, employed and unemployed. Socioeconomic status was determined by the Modified B. G. Prasad Classification (2021), which is based on per capita monthly income. Family type was described as either a nuclear, joint, or three, generation family.

Ethical Considerations: Approval for the study was given by the Institutional Ethics Committee of Shivamogga Institute of Medical Sciences (Reference No: SIMS/IEC/529/202021). Before enrollment, each participant signed a written informed consent form. Privacy and confidentiality

were guaranteed to the participants. They were also informed of their right to discontinue the study at any time without any impact on their medical care.

Statistical Analysis: Data were inputted and analyzed using the Statistical Package for the Social Sciences (SPSS) version 24.0.Descriptive statistics such as mean, median, standard deviation, frequency, and percentage were employed to summarize the data. The chi, square test was used to examine the associations between cervical cancer and different demographic, reproductive, behavioral, and healthcare utilization variables. Logistic regression analysis was used to calculate crude odds ratios (ORs) with 95% confidence intervals (CIs) for potential risk factors. The variables that were significantly different in the univariate analysis were used in the multivariate logistic regression to get the adjusted odds ratios. A p, value less than 0.05 was considered statistically significant. The results were shown in the tables with proper headings for ease of understanding and interpretation.

RESULTS

The hospital, based casecontrol study was carried out at McGann Teaching Hospital, Shimoga Institute of Medical Sciences, Shimoga. 150 women were involved in total of which 50 were newly diagnosed cervical cancer cases and 100 were gynecology outpatient department attendants who tested negative on Pap smear and were taken as controls. The findings are presented under the following headings:

1. Socio-demographic profile of the study population
2. Univariate analysis of potential risk factors
3. Multivariate logistic regression analysis of risk factors for cervical cancer

1. Socio-Demographic Profile of the Study Population: The socio, demographic characteristics of the study participants are summarized in Table 1. Most of the women were in the age group of 4150 years (57.3%) followed by 5160 years (36%) and 3140 years (6.7%). The median age of the participants was 33 years (IQR: 25.248).

Most of the participants were Hindus (88.7%), and 59.3% of them lived in rural areas. Regarding family structure, 60% were from nuclear families, 22.7% from three, generation families, and 17.3% from joint families.

Nearly half of the women (42.7%) did not receive any formal education, whereas the figure for those who had completed pre, university education or higher was merely 18%. The analysis using the modified B.G. Prasad classification indicated that most of the people were from the lower middle (36.0%) and middle (31.3%) socioeconomic classes. The percentage of those from the upper class was as low as 1.3%.

Table 1: Socio-demographic profile of study participants (n = 150)

Variable	Category	Frequency (%)
Age group (years)	31–40	10 (6.7)
	41–50	86 (57.3)
	51–60	54 (36.0)
Religion	Hindu	133 (88.7)
	Muslim	17 (11.3)
Locality	Rural	89 (59.3)
	Urban	61 (40.7)
Family type	Nuclear	90 (60.0)
	Joint	26 (17.3)
	Three-generation	34 (22.7)
Education	Illiterate	64 (42.7)
	Primary	28 (18.7)
	High school	31 (20.7)
	PUC and above	27 (18.0)
Socioeconomic status	Upper	2 (1.3)
	Upper middle	22 (14.7)
	Middle	47 (31.3)
	Lower middle	54 (36.0)
	Lower	25 (16.7)

2. Univariate Analysis of Potential Risk Factors: Univariate analysis was performed to identify factors associated with cervical cancer. Variables with $p < 0.05$ were considered statistically significant.

Socio-demographic and lifestyle factors: Unemployment had a statistically significant relationship with the occurrence of cervical cancer (OR = 2.83; 95% CI: 1.196.68). The odds of a woman going through cervical cancer were six times higher if she lacked formal education (OR = 6.63; 95% CI: 1.8124.25). Additionally, low socioeconomic background appeared to have a strong link to the occurrence of cervical cancer.

The study found that dietary habits were highly correlated with the risk of cervical cancer. Women who ate a mixed diet (mostly non, vegetarian) were found to have over six times higher odds of developing cervical cancer (OR = 6.58; 95% CI: 3.0014.43). Similarly, tobacco use was identified as a major risk factor for cervical cancer, with an odds ratio of 2.37 (95% CI: 1.105.08).

Reproductive, menstrual, and hygiene-related factors: Women going through menopause were more than twice as likely to have cervical cancer (OR = 2.63; 95% CI: 1.275.44). There was also a noticeably higher risk for those who used a reusable

cloth while menstruating (OR = 3.27; 95% CI: 1.517.11), which seemed to be mainly caused by poorly dried cloths.

High parity (>3 children) was significantly associated with cervical cancer (OR = 2.70; 95% CI: 1.225.97) Early age at marriage, early age at first pregnancy, and multiple sexual partners were also significantly associated, but these factors could not be included in multivariate analysis because there were zero values among controls.

Medical and clinical factors: Diabetes mellitus (OR = 2.87; 95% CI: 1.067.82) and hypertension (OR = 4.49; 95% CI: 1.9610.31) have been identified as two of the leading comorbidities that were significantly associated with cervical cancer. The history of genital warts was also significant; however, it was excluded from the multivariate analysis due to zero frequency among the controls.

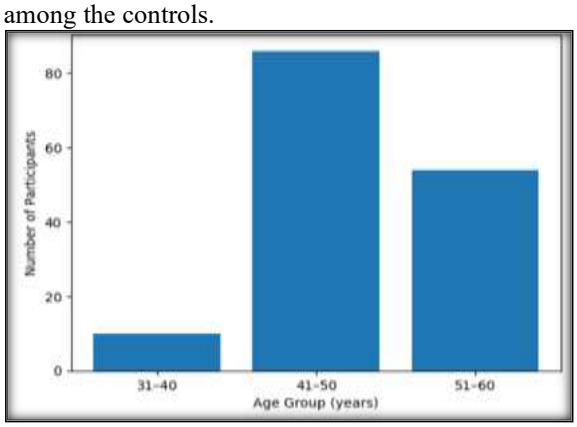

Figure 1: Age-wise distribution of study participants

Table 2: Univariate analysis of factors associated with cervical cancer

Risk factor	COR	95% CI	p-value
No formal education	6.63	1.81–24.25	0.004
Unemployed	2.83	1.19–6.68	0.015
Lower socioeconomic status	—	—	<0.05
Mixed diet	6.58	3.00–14.43	<0.001
Tobacco use	2.37	1.10–5.08	0.027
Menopause	2.63	1.27–5.44	0.008
Cloth use during menstruation	3.27	1.51–7.11	0.002
Parity >3	2.70	1.22–5.97	0.012
Diabetes mellitus	2.87	1.06–7.82	0.033
Hypertension	4.49	1.96–10.31	<0.001

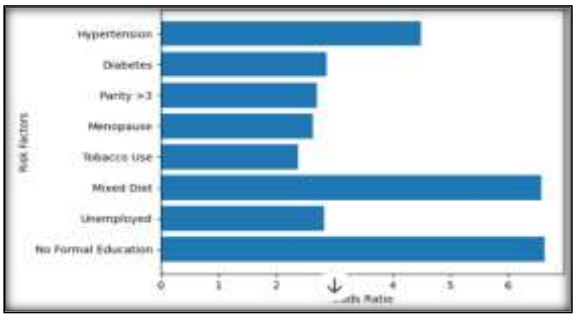

Figure 2: Distribution of significant univariate risk factors for cervical cancer

Multivariate Logistic Regression Analysis: Variables that showed statistical significance in the univariate analysis were entered into the multivariate logistic regression model. Three variables, in fact, were independently associated with cervical cancer after the adjustment for confounding factors.

Unemployment was identified as a major factor that led to the increase of cervical cancer risk local with a very high magnitude (AOR = 5.38; 95% CI: 1.5818.32). Those women who consumed a mixed diet were found to have the odds of cervical cancer increased by more than twelve times when compared to those who consumed a vegetarian diet (AOR = 13.37; 95% CI: 4.2242.33). Furthermore, it was found that women who used reusable pieces of cloth during menstruation were more likely to be in the high, risk category for cervical cancer as compared to those who used disposable sanitary napkins (AOR = 4.69.

Table 3: Multivariate logistic regression analysis of risk factors for cervical cancer

Variable	AOR	95% CI	p-value
Unemployment	5.38	1.58–18.32	0.007
Mixed diet	13.37	4.22–42.33	<0.001
Use of cloth during menstruation	4.69	1.44–15.24	0.010

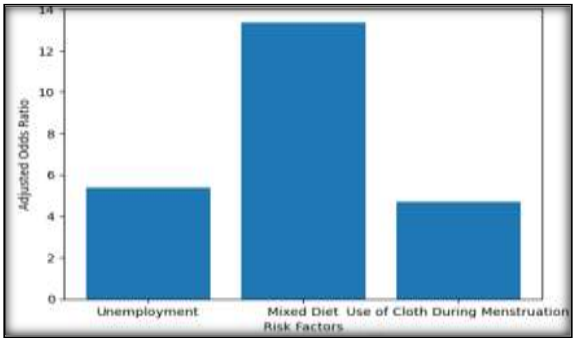

Figure 3: Adjusted odds ratios of independent risk factors for cervical cancer

Summary of Key Findings

- Cervical cancer was significantly associated with unemployment, mixed dietary habits, and use of reusable menstrual cloths.
- Additional risk factors included low educational status, high parity, tobacco use, diabetes, and hypertension.
- Socioeconomic disadvantage and poor menstrual hygiene practices played a critical role in disease occurrence.
- Multivariate analysis confirmed unemployment, dietary pattern, and menstrual hygiene practices as independent predictors of cervical cancer.

DISCUSSION

The study highlights that cervical cancer constitutes a major health challenge for a predominantly rural population served by McGann Teaching District Hospital, Shivamogga. Besides, the hospital being the first health care center for the local people, the one million people from the three districts of Chitradurga, Chikmagalur, and Davangere come here to seek treatment. Among the various cancers, cervical cancer was found to be the single largest contributing factor to the cancer load of the female population accounting for as high as 47% of all the malignancies in women. Such a situation reflects the national and world patterns, where cervical cancer is the first leading cause of illness and death among women in low, and middle, income countries like India.[11,12] Also, the limited resources for screening, ignoring symptoms for a long time, and societal stigmatization have been the main reasons that have kept the disease load at a high level for a long time.

Age did not emerge as a statistically significant factor in this study, even though the majority of the participants were aged between 41 and 50 years. Such an age range aligns with the results of the research by Biswas et al., where cervical cancer was identified as being most prevalent in the middle reproductive years. On the other hand, the works of Pragati Sharma et al. pointed to a somewhat higher average age, which may be attributable to discrepancies in sample size and inclusion criteria. The differences discerned here suggest that age might affect the point of disease onset, but it cannot be considered an independent factor leading to cervical cancer risk.

In both univariate and multivariate analyses, unemployment was prominently singled out as a contributing factor to risk. The odds of cervical cancer development in women without employment were strikingly higher, thus the influence of socioeconomic disproportionality to the occurrence of the disease is becoming more and more evident. The case was quite similar to that of Zhao et al., where self, employment and unstable income were found to be the factors that led to the increased risk. Contrarily, Thulaseedharan et al. indicated that there was no significant association implying that socio, economic determinants may depend on different populations. Unemployment status is often synonymous with fewer or no healthcare facilities and less awareness due to the patients limited decision, making skills in health issues and generally increased vulnerability.

Educational status was highly associated with cervical cancer, and illiteracy was found to increase the risk significantly. Women without formal education were more likely to develop cervical cancer than those who had primary education or above. The results agree with the studies conducted by Pragati Sharma et al. and Franceschi et al., which found that the risk of cervical cancer is inversely related to the level of education. Education is an essential factor in the promotion of general cleanliness, sexual health, and the use of screening services, which are the mainstays of cervical cancer prevention.

The socioeconomic status was a significant factor in disease prevalence in the univariate analysis, with low socioeconomic classes showing higher rates of the disease. However, the association did not remain significant in the multivariate analysis, indicating that socioeconomic status might be a confounding factor related to poor hygiene, inadequate nutrition, and limited healthcare access rather than an independent risk factor. These findings are consistent with the general evidence that social determinants have a major impact on cancer outcomes.[10,13]

Several reproductive and behavioral factors have been singled out as major contributors to the risk of cervical cancer. High parity (>3) was found to be significantly associated with cervical cancer, which is in line with the results of earlier studies by Franceschi et al., Biswas et al., and Pragati Sharma et al. It is possible that increased parity may facilitate the development of the disease by repeated cervical trauma and prolonged hormonal exposure. Similarly, early age at marriage and early age at first pregnancy were significantly associated with cervical cancer, thus, providing further support to the hypothesis that early sexual debut increases the risk of HPV infection and subsequent malignant transformation.[14,15]

One of the main factors that contributed to cervical cancer was poor menstrual hygiene practices, especially the use of reusable cloths and incorrect drying methods. Such practices can lead to chronic genital infections and continuous inflammation, thus allowing the human papillomavirus (HPV) that causes cervical cancer to persist. A study conducted in northern India also reported similar findings that the use of old cloth and unsafe disposal practices increased the risk of cervical cancer. In addition, although the frequency of changing napkins and postcoital genital washing were not statistically significant, their indirect contribution to genital hygiene should still be considered.

Dietary habits had a major impact on the risk of cervical cancer as well. In this study, a mixed or mainly non, vegetarian diet was highly linked to cervical cancer, which is in agreement with results reported by Pragati Sharma et al. Dietary patterns may affect the intake of micronutrients, immune response, and general vulnerability to infection. The use of tobacco and alcohol was significantly associated in the univariate analysis but became insignificant after adjustment, even though the same type of studies have considered alcohol consumption as an independent risk factor.

A history of genital warts and sexually transmitted infections was strongly linked to cervical cancer, which is consistent with the known role of HPV in cervical carcinogenesis. Nevertheless, these factors were present at a low prevalence among controls, which made it difficult to estimate the risk. Biswas et al. have also reported similar results, thus backing the

involvement of sexual behavior and viral exposure in disease development. The absence of statistical power in some variables highlights the necessity of conducting larger population, based studies.

The results of this study point out that socioeconomic vulnerability, reproductive behavior, dietary habits, and menstrual hygiene practices have a significant impact on cervical cancer. The findings are consistent with the evidence at the national and international levels that point to cervical cancer as a largely preventable disease through the implementation of measures such as awareness, education, hygienic practices, screening, and early treatment access.[9,15] It is necessary to implement various strategies, including enhancing public health interventions aimed at the rural population, promoting female education, and encouraging hygienic practices, to lower the incidence of cervical cancer in areas with limited resources.

CONCLUSION

The research elucidates a considerable impact of socioeconomic, behavioral, and hygienic aspects on the likelihood of cervical cancer in women. Most of the cases were demonstrated to be among the unemployed and illiterate individuals, both of which were significantly associated with cervical cancer in the univariate analysis. The results underscore the contribution of social deprivation and lack of awareness to the exacerbation of susceptibility to the disease. Behavioral factors like tobacco and alcohol consumption were also significantly associated with cervical cancer, which means that lifestyle practices have played a significant role in the development of the disease. Reproductive factors, especially higher parity, turned out to be major contributors, as women with more than three children were found to be at a significantly higher risk of cervical cancer. Cervical cancer was strongly associated with poor genital hygiene practices, specifically the use of cloth during menstruation and incorrect methods of drying, which emphasizes the need for menstrual hygiene management as a means of preventing the disease. After multivariate logistic regression analysis, unemployment, consumption of a mixed (mainly non, vegetarian) diet, and poor menstrual hygiene practices were still significantly and independently associated with cervical cancer, thus indicating their role as the major modifiable risk factors that can be changed. These results highlight the continued necessity for multifaceted public health measures that not only enhance female education but also subsidize menstrual hygiene products and include nutritional education in schools, health education, and vaccination campaigns. Improvements in community, level cervical cancer screening and health promotion activities especially in rural and less privileged areas will undoubtedly facilitate early detection and reduction of cervical cancer prevalence.

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