Original Research Article

Socio-Environmental Co-Factors Associated with Cervical Cancer in Bangladesh

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Abstract

Introduction: Cervical cancer is one of the major NCDs around the world and is the second leading malignancy in terms of mortality and incident cases in Bangladesh. The high mortality rate was associated with a lack of awareness regarding cervical cancer. The study was conducted to find out the relations between the incidence levels of cervical cancer, and social and environmental co-factors. The aim of the study was to figure out the socio-environmental factors of cervical cancer patients in Bangladesh and measure their effects on the incidence numbers. *Methods:* This was a cross-sectional study conducted over 4 months with a sample size of 100. The study was conducted with only female subjects in Dhaka city, among the patients coming to the Genealogical Department of the NICRH. *Result:* The majority of the patients were above the age of 40 and only 20% of the patients were under the age of 40. 69% of cancer patients had no education. 31% had some level of education. 88% of the cancer patients were housewives. 2% were involved in agriculture and 10% were in other occupations. Over half had a monthly income of less than 10,000 BDT. Almost $3/4^{th}$ of the patients got married before the age of 17. The study subjects had a higher-than-average number of children, with 57% of them having 3-5 children, 27% of patients had less than 3 children and 16% of them had more than 5 children. The majority of the patients were admitted with advanced stages of cancer. Only 2% had been admitted with stage I disease. *Conclusion:* The study showed a surprising lack of knowledge of cervical cancer and the socio-environmental factors that play a part in it. Awareness was positively related to education level.
Keywords: Cancer, Cervical Cancer, Demographic, HPV, Screening, Cancer screening, socio-environmental, stage, AFSI.

INTRODUCTION

Bangladesh is one of the densely populated places in the world. Poverty in Bangladesh has declined remarkably since the early-2000s, and as a result of accelerated economic growth, many new diseases are emerging along with lifestyle changes. According to recent studies, the incidence of cancer has been increasing steeply, especially in countries with lower and middle incomes [1, 2]. In Bangladesh, Cervical cancer is one of the second leading malignancies in terms of both incident cases and deaths. These kinds of high mortality rates have been attributed to our socio-environmental situation. Many factors from our social demographic, like poverty, lack of awareness, early age of marriage, lack of proper education can be linked to

the high number of cancer incidence and mortality rates. Cases of cervical cancer have been found to generally increase along with age and a prolonged period of Sexual Intercourse [3]. Cervical cancer has shown a greater incidence and mortality rate in countries with lower income when compared to other countries. It is often referred to as the disease of the poor, uneducated, and the underserved. This is mostly because women coming from poor financial and educational backgrounds often have less awareness regarding their wellbeing and are less likely to go for routine check-ups and screening [9, 10]. Many studies conducted in similar demographic areas have found a link between employment status and general wellbeing. This is because a stable workplace gives us a sense of accomplishment. Most studies show a relationship

between the age at first sexual intercourse with a high likelihood of cancer. Environmental co-factors can depend on the economic condition of different countries. In developing or underdeveloped countries, early age marriage and childbirth, poor economic condition, poor hygiene, passive smoking, and oral contraceptive are more prominent factors for cervical cancer. On the other hand, in developed countries, the main factors related to cervical cancer are multiple sexual partners, active smoking, and HIV/AIDS. This study was conducted to find out the specific factors that play a role in cervical cancer, specifically in our country.

OBJECTIVE

To evaluate the Socio-Environmental Co-factors on cervical cancer patients in Bangladesh

METHODOLOGY AND MATERIALS

This was a cross-sectional study performed in the gynecological department of NICRH, Bangladesh. A total f 100 cancer patients were selected as sample size after confirmed diagnosis by biopsy of cervical tissue. The study was conducted over a 4-month period, using questionnaires as the data source, and the patients were selected purposively. The patients were made aware of the study and proper consent was taken. A questionnaire was coded before entering the data into the computer by the researcher. The sample was selected purposively to interview the study population considering the inclusion and exclusion criteria. The sample size was selected purposively. The statistical analysis of the data was carried out by using the software program SPSS. Data were being checked, edited, and appropriately coded before analysis. For summarizing data, statistics such as mean, median, and mode, and the percentage were calculated. The data were presented in tables, graphs, and charts. The questionnaires included information on socio-demographic characteristics, smoking history, reproductive history, menstrual factors, and sexual behavior.

Inclusion Criteria
- Only the female population
- Patients who had given consent to participate in the study.
- Those already diagnosed with cancer

Exclusion Criteria
- Mentally ill.
- Unable to answer the criteria question.
- Exclude those affected with other chronic diseases etc.

RESULTS

The complete study was conducted with 100 females only sample size. The majority of the patients were above the age of 40, and over half the study population belonged to the age group of 41-50. Only 20% of the patients were under the age of 40. In this study, the illiteracy rates were extremely high, with 69% of cancer patients having no education. 27% had education above primary level and only 4% had education above the SSC level. 88% of the cancer patients were simply housewives. 2% were involved in agriculture and 10% were in other occupations. A monthly income level of less than 10000 BDT was found in over half the study population. 31% had a monthly income of less than 25000, and 15% cases had an income level of above 25000 BDT. The majority of the patients married early, with 73% getting married at the early age of 14-17 years, 19% in the age group of 18-21 years, and 8% in the 22-25 years group. The study subjects had a higher-than-average number of children, with 57% of them having 3-5 children, 27% of patients had 2 or fewer children and 16% of them had more than 5 children. The majority of the patients were admitted with advanced stages (stage II & III) of cancer, as 61% were in stage II and 37% were in stage III. Only 2% had been admitted with stage I disease.
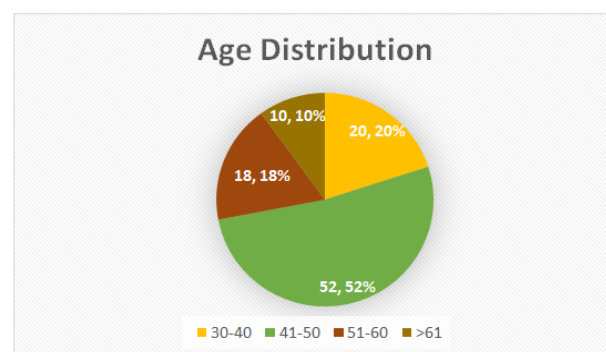

Fig-1: Age distribution of the cervical cancer patients

In this study, most (52%) of the cancer patients were from the age group of 41-50 years. 20% of the patients are in the range of 30-40 years and 16% in the 51-60 years age group. Only 10% of the patients are above the age of 61 years.
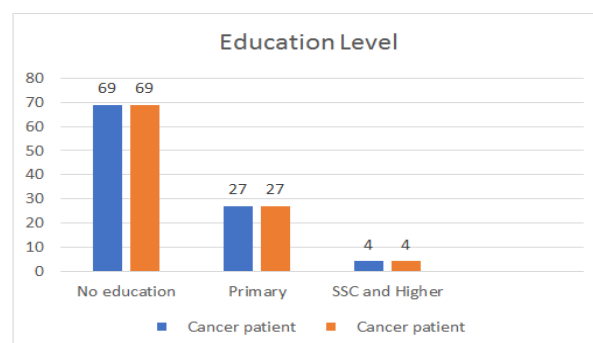

Fig-2: Educational level of the cervical cancer patients

In this study, 69% of cancer patients are non-educated. 27% are above primary level and only 4% are above the SSC level.
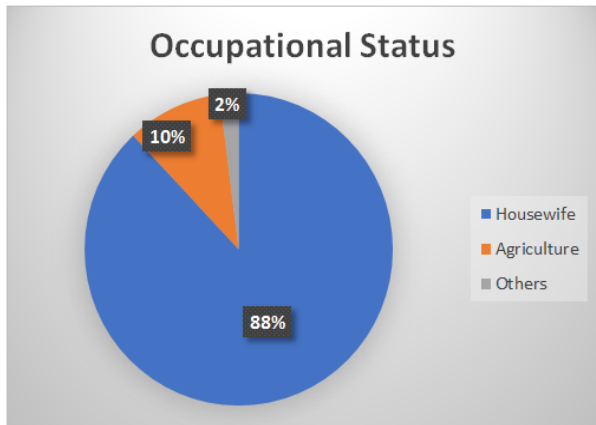
Fig-3: Occupational status of cervical cancer patients

In the present study, most (88%) of the cancer patients are housewives. 2% are involved in agriculture and 10% are in other occupations.
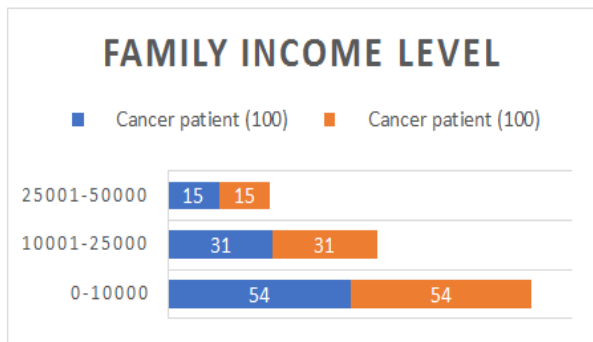

Fig-4: Family income level of cervical cancer patients

In this study monthly income level of fewer than 10000 takas was found in 54% cases, less than 25000 takas in 31% cases, and in only 15% cases the income level was above the 25000 takas.
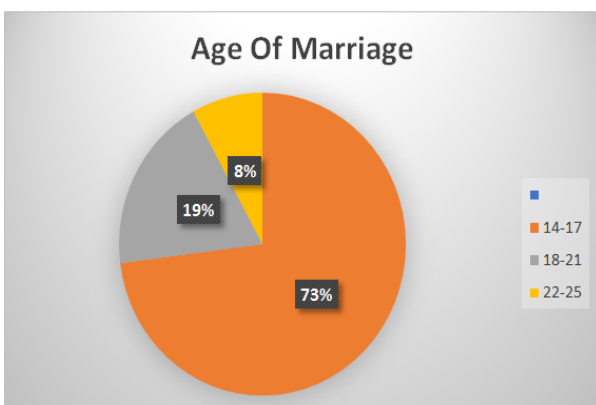

Fig-5: Age of Marriage of cervical cancer patient

The study shows that 73% of cancer patients were married in the early age group of 14-17 years, 19% in the 18-21 years, and 8% in the 22-25 years group.
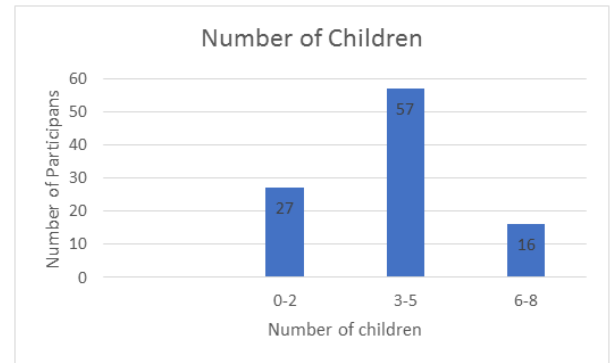

Fig-6: No of children of the cervical can patients

In the present study group of patients, 57% of them have 3-5 children 27% of patients have 0-2 children and 16% of them have 6-8 children.
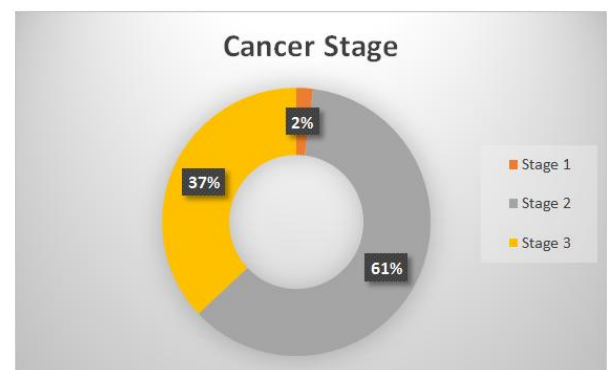

Fig-7: Cancer stage at admission of the cervical cancer patient

The present study shows that 98% of patients come at advanced stages (stage II & III). Among them, 61% are in stage II and 37% are in stage III. Only 2% are presented in stage I disease.

DISCUSSION

Bangladesh is one of the most densely populated countries in the world. Ever since poverty has started to decline in the early 2000s, many economic development and lifestyle changes have occurred. The occurrence of cancer is one of the bads that came with the goods. Cancer is one of the NCD and is under observation to help reduce the mortality rate by NCD by 25% by 2025. Globally, cervical cancer amounts to almost 12% of all female cancer. It is the fourth most common female cancer worldwide. An increased incidence of Cervical Cancer was observed with increasing age and parity and early and prolonged sexual period [3]. As cervical cancer grows slowly from precancerous lesions to advanced stages of cancer, it generally peaks in women in their 50s and 60s [4]. In this study, more than half of the patients were from the age group of 41-50 years and 20% of the patients were of 30-40 years of age. Which coincides with various other studies. Educational level was also an important indicator of socio-economic status and its association

with occupation, income level, and other lifestyle factors. In this study, almost 70% of the patients had no education. 27 had primary levels of education and only 4 had received an education of SSC and higher. Although not to a shocking degree similar to ours, the incidence rates of cervical cancer strikingly declined with increasing levels of education in another study conducted in India [5], where 56.5% of cancer study patients were found illiterate. Another study highlighted the importance of proper education of women of low socio-economic class to create awareness regarding hazards and risk factors of cervical cancer.[3] This study, in conjunction with other studies done at other similar demographics, showed that lower education level leads to unawareness regarding the disease and results in higher incident cases [3, 6]. One of the factors that play a role in ill health is unemployment. For most individuals, work is one of the factors that keep meaning for their lives and gives an opportunity to participate in society. Studies have concluded that work allows a person to be a part of the social structure and makes them content in social, familial, and personal aspects of life. Without a job, the emotional, and oftentimes, physical wellbeing is jeopardized. Unemployment often leads to poverty, poor genital hygiene, low socioeconomic profile, lack of access to health services, and lack of awareness about healthcare, which contributes to a high prevalence in rural areas [6, 7]. In this study, the majority of the sample size were housewives (n=88), which showed a shocking similarity to another study conducted in Bangladesh.[8] of our study, 2% were involved in agriculture and 10 were involved in other occupations. This shows a link between occupational status and cancer incidence rates. Another socio-economic factor that played a role in cancer awareness and incidence cases was found to be the income level. Income level was studied differently from the occupational status of the study subjects, as income from other members of the family was also considered at this stage. Although the association made between socio-economic status and cervical cancer is not a direct association for the risk of cervical cancer, it is often referred to as a "disease of the poor, uneducated and underserved." This is because women with low family income, coupled with low education level and awareness are less likely to go for routine check-ups and screening, and also can hardly avail the best services available [9, 10]. In the present study, over half the study population (n=54) had a monthly income of 10,000 and less. 31 patients had a monthly family income of 10,001-25,000. Only 15 had a monthly income higher than 25,000. Most studies show the relationship between cervical cancer and age at first sexual intercourse, generally used as a surrogate measure of age at first HPV exposure. The mechanism that explains the risk of cervical carcinogenesis may be explained by the steroid hormonal influence on HPV infection that comes with early experience of first sexual intercourse and first pregnancy. The transformation zone of the cervical epithelium has been recognized as the site in which HPV infection tends to cause cancer, and the susceptibility of this area is believed to be related to its denudation of the stratified epithelium, thus facilitating exposure of the basal layer to HPV with minimal trauma [11]. Age at first marriage (AFM) is often used as a proxy measure for AFSI. An increased risk of infection of cervical carcinogenesis was consistently observed with decreasing age of first sexual intercourse (AFSI) [12]. The current study shows that almost 3/4th (n=73) of cancer patients were married between the age of 14-17 years. Of the remaining, 19% were married between the age of 18-21 years and 8% at the age group of 22-25 years. In many case-control studies, high parity has constantly been associated with cervical cancer [13, 14]. Hormonal, traumatic, and immunological hypotheses have been reasoned as biologically plausible mechanisms to explain the association between parity and cervical neoplasia. In the present study, over half the study subjects had 3-5 kids, and 27 patients had less than 3 kids. The remaining 16 had more than 5 kids. This supports the findings from previous studies. The effect of our socio-economic status is also visible in the cancer stages of patients at the time of admission. The collected data shows only 2 patients were diagnosed with stage-1 CC at the time of admittance. The remaining 98patients were diagnosed with advanced stages of cancer, as 61 were diagnosed with stage-2 CC and 37 were diagnosed with stage-3. This can be attributed to the lack of awareness and lack of proper and easily accessible screening methods, as cervical cancer can be determined in its early stages with proper screening [15-17]. Oftentimes incomplete knowledge about the disease can lead to improper diagnosis at the hands of inexperienced practitioners, which increases the likelihood of mistreatment of the disease and increases the risk of advanced stages of cancer [18, 19].

LIMITATIONS OF THE STUDY
The study was conducted with small sample size and in a single institute. Lack of awareness regarding the study topic also created some complications. Social and family pressure also discouraged many from participating in this study.

CONCLUSION
The socio-economical co-factors of cervical cancer were identified with this study. Some of these factors can be easily addressed. Correlation between these factors and increased incidence case of CC were noticed in this study. Regular cervical screenings are necessary to reduce the incidence and mortality from cervical cancer.

RECOMMENDATION
The study needs to be conducted with a larger sample size and in multiple institutes to receive data from a wider range of demographics. Knowledge about cervical cancer needs to be better shared between the

general public. Proper treatment methods should be made common knowledge, and proper steps need to be taken to better address the socio-economic factors.

Conflict of Interest: None Declared.

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