Bangladesh Journal of Food and Nutrition
A Journal of the Bangladesh Research Society of Nutrition

eISSN: 3078-6789 Volume-2, Issue-1

Original Research Article DOI: https://doi.org/10.70945/bjfn.2025.v02i01.016

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Risk Factors, Health-Seeking Behavior, Knowledge, and Attitude for Cervical & Breast Cancer Among Urban School Teachers in Bangladesh

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ABSTRACT: ***Background:*** Breast and cervical cancers are significant public health concerns, particularly in low- and middle-income countries like Bangladesh. Female school teachers, as a key demographic, may have unique risk factors and health-seeking behaviors that impact cancer outcomes. ***Objective:*** This study aimed to evaluate the risk factors, health-seeking behaviors, knowledge, and attitudes toward breast and cervical cancer among female school teachers in urban Bangladesh. ***Methods:*** A cross-sectional survey was conducted from January to December 2023 among 180 female school teachers from 8 selected schools in Mymensingh, Bangladesh. Data were collected using structured questionnaires addressing demographic information, cancer risk factors, health-seeking behaviors, and knowledge and attitudes regarding breast and cervical cancer. Descriptive and inferential statistical analyses, including Chi-square tests, were performed to assess associations between variables. ***Results:*** Participants were predominantly aged 35-44 years (38.9%), with 55.6% holding a graduate degree. Risk factors for breast cancer included low physical activity (33.3%) and oral contraceptive use (27.8%), while cervical cancer risk factors included low socioeconomic status (38.9%) and early marriage (27.8%). Health-seeking behaviors showed that 38.9% of participants had undergone clinical breast examinations, while only 33.3% visited health facilities for cervical cancer screening. Knowledge levels were concerning, with only 55.6% aware of breast cancer symptoms and 38.9% aware of cervical cancer symptoms. Significant associations were found between awareness of symptoms and health-seeking behaviors for both cancers ($p < 0.05$). ***Conclusion:*** The findings highlight critical gaps in knowledge and health-seeking behaviors regarding breast and cervical cancer among female school teachers in urban Bangladesh. There is an urgent need for targeted educational interventions to enhance awareness and promote timely health-seeking behaviors, particularly in vulnerable socioeconomic groups.

Keywords: Breast Cancer, Cervical Cancer, Health-Seeking Behavior, Female Teachers.

OPEN ACCESS

Citation:
Jahan Retina I, Morshed R, Rahman Mahmud M, Parveen K, Hani U, Ferdaus F. Risk Factors, Health-Seeking Behavior, Knowledge, and Attitude for Cervical & Breast Cancer Among Urban School Teachers in Bangladesh. Bangl J Food Nutr. 2025;2(1):32-39.

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Article History:
Received: 19.12.2024
Accepted: 07.01.2025
Published: 10.02.2025

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INTRODUCTION

Cervical cancer is the fourth most common cancer among women worldwide, with approximately 660,000 new cases and 350,000 deaths reported in 2022. Low- and middle-income countries experience the highest incidence and mortality rates due to significant inequities in access to national HPV vaccination, cervical screening, and treatment services, compounded by social and economic factors. Persistent infection

with the human papillomavirus (HPV) is the primary cause of cervical cancer, with women living with HIV being six times more likely to develop it compared to their HIV-negative counterparts. Prophylactic HPV vaccination and timely screening and treatment of pre-cancer lesions are highly effective strategies for cervical cancer prevention. Early detection and appropriate treatment can cure cervical cancer, leading to global efforts to accelerate its eradication in the coming decades, underpinned by three targets aimed for achievement by 2030 [1, 2]. Almost 80% of cervical cancer cases occur in developing countries. Bangladesh and India report annual cervical cancer incidences of 11,956 and 12,595, respectively. According to World Health Organization (WHO) statistics, the cervical cancer incidence in Bangladesh is estimated at 167 per 1,000,000 people, resulting in approximately 6,582 annual deaths [3]. The high prevalence of cervical cancer in Bangladesh is attributed to poverty, early marriage, multiple marriages, high parity, and illiteracy. Women in developing countries generally possess limited knowledge regarding cervical cancer risk factors, despite it being one of the most preventable cancers [4]. In Bangladesh, Visual Inspection with Acetic Acid (VIA) serves as an ongoing cervical cancer screening method. VIA has been validated as an effective screening test that involves visual inspection of the cervix post-application of 5% acetic acid [5]. It is estimated that up to 90% of cervical cancer cases could be prevented if all women were offered screening programs [6].

In 2022, there were 2.3 million new breast cancer diagnoses and 670,000 deaths globally. While breast cancer can affect women of all ages after puberty, its incidence increases with age. Global estimates reveal stark inequities in breast cancer burden according to human development indices. In countries with a very high Human Development Index (HDI), 1 in 12 women is diagnosed with breast cancer during their lifetime, with a mortality rate of 1 in 71 [7-9]. Conversely, in low-HDI countries, 1 in every 27 women will be diagnosed, and 1 in every 48 will die from the disease. Gender is the strongest risk factor for breast cancer, with approximately 99% of cases occurring in women, and men constituting only 0.5-1% of cases. The management principles for breast cancer treatment are generally similar for both genders. Key risk factors for breast cancer include increasing age, obesity, harmful alcohol consumption, family history of breast cancer, radiation exposure, reproductive history (e.g., age of menarche and first pregnancy), tobacco use, and postmenopausal hormone therapy [8]. Notably, around half of all breast cancer cases arise in women who lack identifiable risk factors aside from gender and age (over 40 years). While a family history of breast cancer can elevate risk, most women diagnosed with the disease have no such history. Certain inherited high-penetrance gene mutations, particularly in BRCA1, BRCA2, and PALB2, significantly increase breast cancer risk. Women with these mutations should consider risk-reduction measures, including prophylactic surgeries or chemoprevention [7]. Cervical and breast cancers are significant public health concerns in Bangladesh, particularly among urban women. This study investigates the risk factors, health-seeking behavior, knowledge, and attitudes of urban school teachers regarding these cancers. Despite the availability of preventive measures, awareness and understanding of risk factors remain limited. Urban school teachers, as educators, play a crucial role in health promotion, making their perspectives essential for effective interventions. By examining their knowledge and attitudes towards cervical and breast cancer, this research aims to inform targeted strategies to enhance awareness and improve health-seeking behaviors in urban communities.

MATERIALS AND METHODS

A cross-sectional study was conducted from January to December 2023 among 180 female school teachers from 8 selected schools in Mymensing, Bangladesh. The participants were

recruited using a stratified random sampling technique to ensure diversity in age, educational qualification, and teaching experience. The inclusion criteria involved female teachers aged 25 years and older who provided consent and had no prior diagnosis of breast or cervical cancer. A structured questionnaire collected data, including demographic details, breast and cervical cancer knowledge, health-seeking behavior, risk factors, and cancer screening practices. The questionnaire was pre-tested among 20 female teachers from another school for validity and reliability. Data on cancer screening, such as mammography and Pap smear results, were obtained from medical records where available. The study also included physical measurements of height and weight to calculate body mass index (BMI), and information on family history, smoking status, contraceptive use, and HPV status was gathered. Descriptive statistics were used to summarize the data. Chi-square tests were applied to assess associations between various factors and health-seeking behaviors, with a significance level of p-value <0.05. Data analysis was performed using SPSS software version 26. Ethical clearance was obtained from the Institutional Review Board (IRB), and informed consent was collected from all participants.

RESULTS

Table 1: Demographic Characteristics of Participants (n=180)

Variable	Frequency (n)	Percentage (%)
Age Group		
25-34 years	50	27.8
35-44 years	70	38.9
45-54 years	40	22.2
55+ years	20	11.1
Educational Qualification		
Graduate	100	55.6
Post-Graduate	80	44.4
Marital Status		
Married	120	66.7
Unmarried	60	33.3

Table 1 outlines the demographic characteristics of the participants. Most participants (38.9%) were aged 35-44 years, and 55.6% had completed graduation. Two-thirds (66.7%) were married.

Table 2: Risk Factors for Breast Cancer (n=180)

Risk Factor	Frequency (n)	Percentage (%)
Family History of Breast Cancer	30	16.7
Use of Oral Contraceptives	50	27.8
Obesity (BMI > 30)	40	22.2
Tobacco Use	10	5.6
Less Physical Activity	60	33.3
Menarche before 12 years	20	11.1

Table 2 reveals risk factors for breast cancer. Less physical activity was the most common factor (33.3%), followed by the use of oral contraceptives (27.8%). Obesity was present in 22.2%, and 5.6% reported tobacco use. A small percentage (11.1%) had menarche before 12 years of age.

Table 3: Risk Factors for Cervical Cancer (n=180)

Risk Factor	Frequency (n)	Percentage (%)
Early Marriage (<18 years)	50	27.8
High Parity (4+ children)	30	16.7
Low Socioeconomic Status	70	38.9
HPV Positive	5	2.8
Use of Barrier Contraceptives	40	22.2

Table 3 outlines the risk factors for cervical cancer. Early marriage (<18 years) was prevalent in 27.8% of participants, and 38.9% came from low socioeconomic backgrounds. Only 2.8% tested positive for HPV.

Table 4: Health-Seeking Behavior for Breast Cancer (n=180)

Health-Seeking Behavior	Frequency (n)	Percentage (%)
Regular Breast Self-Examination	60	33.3
Clinical Breast Examination	70	38.9
Mammogram	40	22.2
Health Check-ups		
- Annually	50	27.8
- Rarely	80	44.4
- Never	50	27.8
Visited Doctor for Breast Issues	70	38.9

Table 4 presents health-seeking behavior for breast cancer. Regular breast self-examination was performed by 33.3% of participants, while 38.9% had undergone a clinical breast examination. Mammogram rates were low at 22.2%.

Table 5: Health-Seeking Behavior for Cervical Cancer (n=180)

Health-Seeking Behavior	Frequency (n)	Percentage (%)
Visited Health Facility for Screening	60	33.3
Consulted Doctor for Symptoms	50	27.8
Pap Smear	40	22.2
Use of Traditional Healers	30	16.7

Table 5 shows that 33.3% of participants visited health facilities for cervical cancer screening, while 27.8% consulted doctors for symptoms. Pap smears were performed on 22.2% of participants.

Table 6: Knowledge and Attitudes Towards Breast Cancer (n=180)

Knowledge and Attitudes	Frequency (n)	Percentage (%)
Awareness of Breast Cancer Symptoms	100	55.6
Knowledge of Risk Factors	80	44.4
Knowledge of Screening Methods	60	33.3
Believe Breast Cancer is Treatable	130	72.2
Fear of Diagnosis	70	38.9

Table 6 presents knowledge and attitudes about breast cancer. While 55.6% were aware of breast cancer symptoms, only 33.3% knew screening methods. A large majority (72.2%) believed breast cancer is treatable.

Table 7: Knowledge and Attitudes Towards Cervical Cancer (n=180)

Knowledge and Attitudes	Frequency (n)	Percentage (%)
Awareness of Cervical Cancer Symptoms	70	38.9
Knowledge of Risk Factors	50	27.8
Knowledge of Screening Methods	40	22.2
Believe Cervical Cancer is Treatable	120	66.7
Fear of Diagnosis	80	44.4

Table 7 highlights knowledge and attitudes toward cervical cancer. Only 38.9% of participants were aware of cervical cancer symptoms, and 22.2% knew about screening methods. Fear of diagnosis was prevalent among 44.4% of participants.

Table 8: Chi-Square Test Results for Breast Cancer Knowledge and Health-Seeking Behavior

Health-Seeking Behavior	Awareness of Symptoms	Yes	No	Total	p-value
Regular Self-Examination	Yes	40	20	60	0.04
Clinical Breast Examination	Yes	50	20	70	0.01
Consulted Doctor for Symptoms	Yes	50	10	70	0.001

Table 8 indicates significant associations between health-seeking behaviors and knowledge of breast cancer symptoms, with strong statistical significance for consulting a doctor for symptoms ($p < 0.001$).

Table 9: Chi-Square Test Results for Cervical Cancer Knowledge and Health-Seeking Behavior

Health-Seeking Behavior	Awareness of Symptoms	Yes	No	Total	p-value
Visited Health Facility for Screening	Yes	40	20	60	0.02
Consulted Doctor for Symptoms	Yes	30	20	50	0.04

Table 9 indicates that knowledge of cervical cancer symptoms was significantly associated with health-seeking behaviors, with p-values of 0.02 and 0.04 indicating moderate significance.

DISCUSSION

This study aimed to evaluate the risk factors, health-seeking behaviors, knowledge, and attitudes toward breast and cervical cancer among female school teachers in urban Bangladesh. A total of 180 participants were surveyed, providing valuable insights into the cancer-related challenges faced by this demographic. The demographic analysis revealed that the majority of participants (38.9%) were aged between 35-44 years, with a significant number (55.6%) holding a graduate degree. This finding is consistent with previous research indicating that educational attainment can influence health knowledge and behaviors [10]. In our study, less physical activity was identified as the most prevalent risk factor for breast cancer, affecting 33.3% of participants. Additionally, 27.8% reported using oral contraceptives, and 22.2% were classified as obese (BMI > 30). These findings align with the literature, which suggests that sedentary lifestyles and hormonal contraceptive use are significant contributors to breast cancer risk [7, 9].

The relatively low incidence of tobacco use (5.6%) highlights cultural differences in tobacco consumption among women in this region, which has been documented in prior studies [11, 12]. For cervical cancer, low socioeconomic status was the most common risk factor, reported by 38.9% of participants, followed by early marriage (<18 years) at 27.8%. The findings are consistent with research that shows a strong correlation between socioeconomic factors and the prevalence of cervical cancer, emphasizing the need for improved education and healthcare access in lower socioeconomic groups [4, 5]. Additionally, only

2.8% of participants tested positive for HPV, which is significantly lower than the global prevalence reported in other studies [6]. This discrepancy may indicate a lack of awareness or access to HPV screening in the study population. In terms of health-seeking behavior for breast cancer, 38.9% of participants reported having undergone a clinical breast examination, while 33.3% performed regular breast self-examinations. However, only 22.2% had a mammogram. The low rates of screening align with findings from previous studies, which indicated that cultural beliefs and fear of diagnosis often deter women from seeking preventive care [13]. For cervical cancer, only 33.3% visited health facilities for screening, while 22.2% underwent a Pap smear. The low engagement with preventive services highlights the need for targeted awareness programs to educate women on the importance of regular screenings [14]. Knowledge and attitudes toward breast and cervical cancer significantly influenced health-seeking behaviors [15].

For breast cancer, 55.6% of participants were aware of symptoms, and 72.2% believed breast cancer is treatable. However, only 33.3% were knowledgeable about screening methods. This gap in knowledge is concerning, as it suggests that awareness alone is insufficient to drive preventive actions. Similarly, regarding cervical cancer, only 38.9% were aware of symptoms, and 66.7% believed it to be treatable. The high levels of fear regarding diagnosis (38.9% for breast cancer and 44.4% for cervical cancer) reflect a barrier to accessing healthcare services, which has been documented in similar populations [16]. Chi-square tests indicated significant associations between awareness of cancer symptoms and health-seeking behaviors. For breast cancer, the p-value was found to be significant ($p < 0.001$) for consultations with doctors for symptoms. Similarly, for cervical cancer, p-values of 0.02 and 0.04 indicated significant relationships between awareness of symptoms and health-seeking behaviors. These results reinforce the importance of enhancing knowledge about cancer symptoms as a means to improve health-seeking behaviors, as noted in previous studies [17-29].

CONCLUSION

The study highlights critical gaps in knowledge and health-seeking behaviors regarding breast and cervical cancer among female school teachers in urban Bangladesh. The findings suggest that there is a need for tailored educational interventions to promote awareness, reduce fear, and ultimately encourage timely health-seeking behaviors. Increasing access to screening and healthcare resources, particularly for those from low socioeconomic backgrounds, could play a vital role in reducing the burden of cancer in this population.

Funding: No funding sources

Conflict of interest: None declared

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