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ORIGINAL ARTICLE

Cervical Cancer Awareness among Women Visiting a Tertiary Care Hospital in Bangladesh

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ABSTRACT

Background: *Cervical cancer is a major public health issue in Bangladesh. Limited awareness among women leads to late diagnoses and poor outcomes. This study aims to assess the cervical cancer knowledge, attitudes, and awareness among women at a tertiary hospital to support improved cancer control in Bangladesh.* ***Methods and materials:*** *This cross-sectional study took place over six months, from July 2022 to December 2022, at the Institute of Child and Mother Health. A total of 99 women aged 20 to 50 were enrolled using convenience sampling. Data were collected through face-to-face interviews with a semi-structured questionnaire. Data analysis was conducted using SPSS version 25.0.* ***Results:*** *Out of the 99 participants, 71.7% (n=71) were aware of cervical cancer. The average age was 29.78±6.96 years, and 74.7% were in the 20-30 age group. Most participants were housewives (67.7%) from rural areas (62.6%) and had primary education (42.4%). Among those who were aware, 71.8% recognized vaginal bleeding as a symptom, 90.1% knew about Pap smears, and 76.1% were familiar with VIA testing. However, only 39.4% identified HPV as a risk factor. Educational background showed a significant link with awareness levels (p=0.01). Most awareness levels were average (59.2%) or poor (21.1%).* ***Conclusion:*** *Although there is some basic awareness, there are significant gaps in knowledge about risk factors, especially HPV infection, and preventive measures. Educational programs aimed at rural, less-educated women are crucial to improve awareness of cervical cancer and the uptake of screening in Bangladesh.*

Keywords: *Cervical cancer, Bangladesh, Diagnosis, Cancer Awareness*

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INTRODUCTION

Cervical cancer is the fourth most prevalent cancer in women worldwide, with 604,000 new cases and 342,000 deaths reported in 2020 [1]. The disease disproportionately affects low- and middle-income countries (LMICs), where about 90% of cervical cancer deaths occur due to insufficient access to prevention, screening, and treatment services [2]. Cervical cancer is the second most common cancer among Bangladeshi women, reflecting broader problems with LMICs' attempts at controlling this preventable illness. Awareness about cervical cancer in Bangladesh is lacking, and only 45.2% of women are aware of it. Awareness is especially low among rural, illiterate, and poorer populations [3]. The Government of Bangladesh initiated a national screening program in 2005 in women between the age of 30–60 years using visual inspection with acetic acid (VIA), which is a cost-effective and feasible method for poor-resource settings [4]. Notwithstanding this, uptake of screening is less than 10% where services are available, evidencing the necessity for enhanced outreach and education. High-risk human papillomavirus (HPV) chronic infection contributes to approximately 99.7% of the world's cervical cancers [5]. Nevertheless, there is no awareness in Bangladeshi women about HPV as the main risk factor, and it is one of the causes of chronic preventable infections and cancer risk. The World Health Organization's target to eradicate cervical cancer by 2030 emphasizes the importance of having high vaccination coverage for HPV (90%), screening (70%), and treatment (90%) of precancerous and invasive lesions [6]. Social and cultural determinants play a significant role in cervical cancer awareness and screening practices in Bangladesh. Sex role attitudes, limited decision-making status, and stigma of gynecological examination limit the access to screening services [7]. Fatalism toward cancer, false beliefs about cancer, and fear of receiving the diagnosis also deter

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healthcare seeking. There are more obstacles for rural groups, such as lack of infrastructure, means of transport, and economic constraints. Educational interventions in South Asia have been effective for raising awareness and screening uptake, particularly when culturally tailored and designed to overcome literacy and mobility barriers [8]. However, there is a need for specific knowledge about barriers faced by Bangladeshi women to develop successful targeted interventions. Health workers have an essential role to play in promoting cervical cancer screening. Females prefer doctors for screening due to trust and specialist perceived, which indicates the significance of provider interaction, privacy, confidentiality, and communication clearness during screening [9]. Technological advancements as HPV-based screening and self-sampling have potential in increasing screening sensitivity and acceptability and bypassing cultural barriers, though there are limitations concerning implementation [10].

Understanding the current cervical cancer awareness and attitude in women presenting for care in Bangladesh is essential to the planning of an effective prevention program. In this study, the knowledge, attitudes, and awareness of cervical cancer, risk factors, screening tests, and preventive measures were elicited from women presenting at a tertiary-care hospital and contributing to the vital data to enhance cervical cancer control in Bangladesh.

METHODS & MATERIALS

This cross-sectional study took place over six months, from July 2022 to December 2022, at the outpatient department of the Institute of Child and Mother Health. The target group included women aged 20 to 50 years who visited the institute and agreed to participate. Although the sample size was calculated at 162 based on a 12% prevalence of cervical cancer, only 99 participants were enrolled due to resource and time constraints. Participants were selected using convenient sampling. Inclusion criteria included women within the specified age range who consented to participate, while women outside of this age range or those unwilling to be interviewed were excluded. Data collection involved a semi-structured questionnaire administered through face-to-face interviews. Key terms were defined, including awareness, which refers to knowledge and understanding of cervical cancer and screening, cervix anatomy, cervical cancer, and cervical screening methods such as the Papanicolaou (Pap) smear and Visual Inspection with Acetic Acid (VIA). The data were analyzed using SPSS version 25.0. We assessed participants' awareness levels using a scoring system based on 8 questions totaling 28 marks, with one mark for each correct answer. Scores were converted into percentages and categorized as excellent (>80%), good (70–80%), average (50–70%), or poor (≤50%) awareness. This scale helped quantify participants' knowledge about cervical cancer and screening practices. Ethical approval was granted by the Institutional Review Board of ICMH. Participants provided informed consent in Bengali, with options for finger impressions if they could not sign.

RESULTS

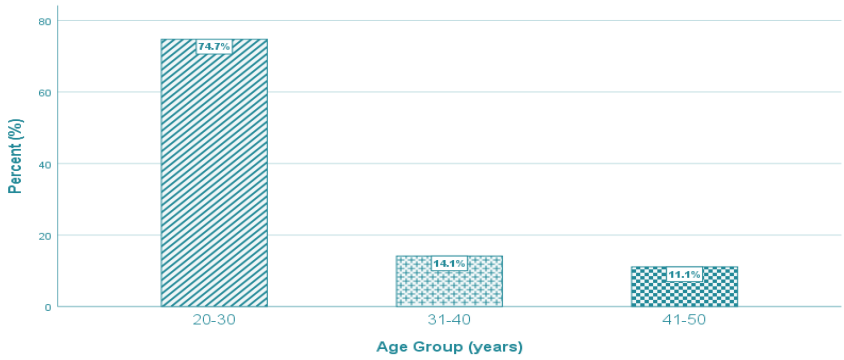

Figure – 1: Distribution of the study participants by age group

Figure 1 illustrates the distribution of study participants by age group. Most responses, 74.7%, were between the ages of 20 and 30, indicating that the study's participants were primarily young people. The 31 to 40 age group accounted for 14.1% of the participants. The age group of 41 to 50 was the smallest, accounting for 11.1%.

Table I shows the socio-demographic profile of the study participants. Most women (74.7%) were in the 20-30 years age group, with an average age of 29.78±6.96 years. Most participants identified as Muslim (65.7%), aligning with the religious demographics of Bangladesh. Educational attainment was generally low, with 42.4% having only primary education and 31.3% being illiterate. Regarding employment, 67.7% were housewives, suggesting traditional gender roles and limited participation in the workforce. In terms of rural-urban distribution, 62.6% came from rural areas. Concerning marital status, 59.6% were married, 25.3% were unmarried, and 15.2% fell into other categories, including divorced or widowed, indicating a variety of family structures within the study population. [Table I].

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Table – I: Distribution of study participants by the socio-demographic characteristics (*n*=99)

Variables	Values of variable	Frequency (n)	Percentage (%)
Age group	20-30 (years)	74	74.7
	31-40 (years)	14	14.1
	41-50 (years)	11	11.1
Mean± SD	**29.78 ± 6.96**		
Religion	Islam	65	65.7
	Others	34	34.3
Educational qualification	Illiterate	31	31.3
	Primary	42	42.4
	SSC	11	11.1
	HSC or above	15	15.2
Occupation	Student	14	14.1
	Housewife	67	67.7
	Service holder	18	18.2
Residence	Urban	37	37.4
	Rural	62	62.6
Marital Status	Married	59	59.6
	Unmarried	25	25.3
	Others	15	15.2

Table II shows the knowledge levels among the 71 participants who were aware of cervical cancer. Recognition of symptoms was moderate, with 71.8% identifying vaginal bleeding and pain during intercourse as key symptoms. Fewer recognized vaginal discharge (46.5%) and growth in the cervix or uterus (40.8%). Awareness of risk factors showed concerning gaps, especially regarding HPV infection (39.4%), despite it being the main cause. More participants recognized behavioral risk factors like multiple sexual partners (62.0%) and early sexual activity (63.4%). Awareness of screening methods was promising, with 95.8% knowing about screening options and 90.1% being aware of Pap smear testing. Consultation with doctors and regular screening were most recognized (54.9% each), while lifestyle changes like avoiding multiple partners (38.0%) and early sexual activity (36.6%) were less commonly identified. [Table II].

Table – II: Level of awareness of respondents about Cervical cancer

Variables	Frequency (n)	Percentage (%)
Aware about cervical cancer		
1. Yes	71	71.7
2. No	28	28.3
Symptoms of cervical cancer		
1. Vaginal bleeding	51	71.8
2. Vaginal infection	39	54.9
3. Discharge from vagina	33	46.5
4. Pain after intercourse	51	71.8
5. Growth in cervix/uterus	29	40.8
Risk factors for cervical cancer		
1. Oral contraceptive pill (OCP)	46	64.8
2. Multiple sexual partner	44	62.0
3. Having sex at an early age	45	63.4
4. Multiparty	41	57.7
5. Smoking	33	46.5
6. Virus (HPV)	28	39.4
Aware about screening method for cervical cancer		
1. Yes	68	95.8
2. No	3	4.2
Type of screening method		
1. VIA test	54	76.1
2. Pap smear	64	90.1
Aware about pre-cancerous conditions of Ca cervix		
1. Yes	59	83.1
2. No	12	16.9
Treatment of pre-cancerous condition of Ca cervix		
1. Electrocautery	51	71.8
2. LEEP	50	70.4

3.	TAH	36	50.7
4.	Diagnostic D & C	28	39.4
Preventive measure of Ca cervix			
1.	Through consulting with physicians	39	54.9
2.	Regular cervical cancer screening	39	54.9
3.	Informed about ideal screening centers	36	50.7
4.	Treatment of precancerous lesion	38	53.5
5.	Vaccination	32	45.1
6.	Avoid multiple sexual partner	27	38.0
7.	Avoid early age of sexual intercourse	26	36.6
8.	Early treatment of STIS	25	35.2

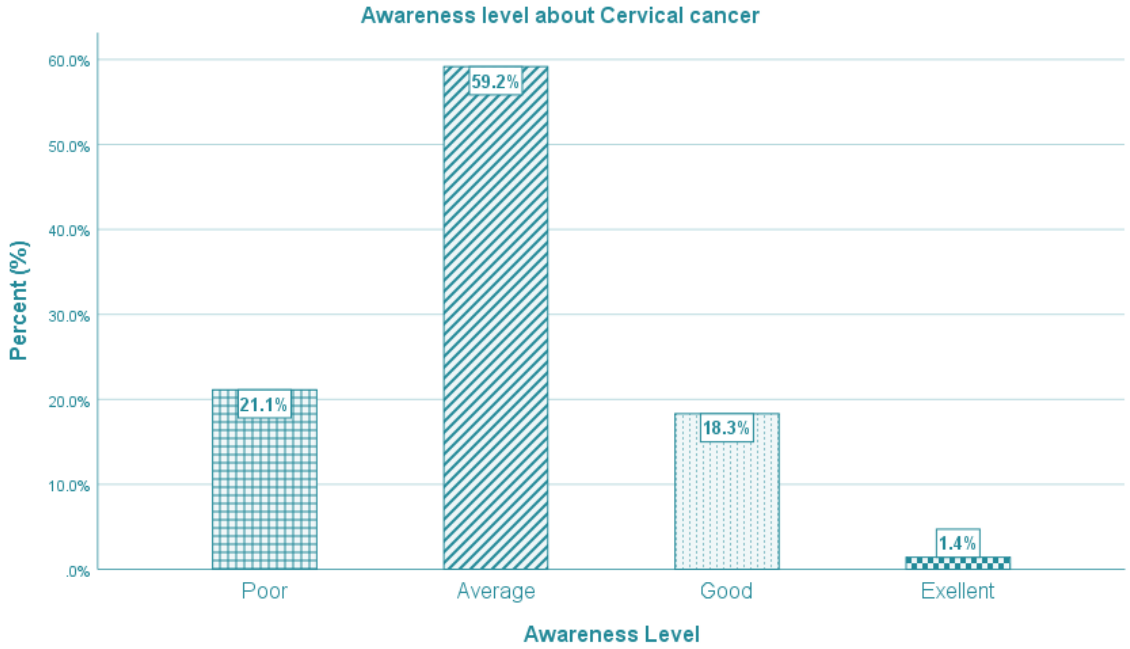

Figure – 2: Level of awareness regarding cervical cancer among study participants

Figure 2 illustrates that the average awareness score about cervical. Most participants, 59.2%, had an average level of awareness. Only a small percentage, 1.4%, showed excellent awareness. The remaining participants were poor, at 21.1%, and good, at 18.3%.

Table III divides the knowledge of the 71 aware participants into poor, average, good, and excellent levels across five key areas. Knowledge of screening methods was the strongest, with 70.4% showing excellent understanding. However, knowledge of preventive measures was the weakest, with 69.0% having poor understanding. Awareness of risk factors was also troubling, with 53.5% showing poor knowledge, even though this is critical for prevention. Recognition of symptoms yielded mixed results; 42.3% had poor knowledge and only 5.6% had excellent awareness. Knowledge about treating pre-cancerous conditions showed moderate results, with 50.7% having poor understanding but 15.5% demonstrating excellent knowledge. The average scores ranged from 1.66 for screening methods, indicating good knowledge, to 3.68 for preventive measures, indicating poor knowledge. [Table III].

Table – III: Awareness level among respondents into different variables (*n*=71)

Variables	Level of Awareness				Mean (score)	Std.
	Poor n (%)	Average n (%)	Good n (%)	Excellent n (%)		
Symptoms of cervical cancer	30(42.3)	20(28.2)	17(23.9)	4(5.6)	2.86	1.05
Risk factors for cervical cancer	38(53.5)	20(28.2)	0	13(18.3)	3.35	1.24
Type of screening method	21(29.6)	0	0	50(70.4)	1.66	0.56
Treatment of pre-cancerous condition of Ca cervix	36(50.7)	0	24(33.8)	11(15.5)	2.32	1.16
Preventive measure of Ca cervix	49(69.0)	11(15.5)	6(8.5)	5(7.0)	3.68	1.72

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Table IV explores the relationship between socio-demographic factors and awareness levels. Educational qualification showed a significant association with awareness (p=0.01), where higher education levels linked to better awareness. Illiterate participants had an equal distribution between average (50%) and good (50%) awareness levels while those with HSC or higher education showed the highest proportions of good (26.7%) and excellent (6.7%) awareness. The high prevalence of average awareness (ranging from 48% to 77.8% across groups) suggests uniform knowledge gaps across demographic categories. The limited excellent awareness (0-7.7%) signals overall insufficient knowledge, regardless of demographic factors, highlighting the need for widespread educational initiatives. [Table IV].

Table – IV: Association between awareness level and Socio-demographic characteristics

Variables	Categories	Level of Awareness				P value
		Poor	Average	Good	Excellent	
		n (%)	n (%)	n (%)	n (%)	
Age group	20-30 (years)	15 (27.3)	30(54.5)	9 (16.4)	1 (1.8)	**0.34**
	31-40 (years)	0	6 (85.7)	1 (14.3)	0	
	41-50 (years)	0	6 (66.7)	3 (33.3)	0	
Marital Status	Married	10 (22.7)	24 54.5)	9 (20.5)	1 (2.3)	**0.84**
	Unmarried	2 (12.5)	12 75.0)	2 (12.5)	0	
	Others	3 (27.3)	6 (54.5)	2 (18.2)	0	
Educational qualification	Illiterate	0	5 (50.0)	5 (50.0)	0	**0.01**
	Primary	13 (35.1)	21 (56.8)	3 (8.1)	0	
	SSC	1 (11.1)	7 (77.8)	1 (11.1)	0	
	HSC or Above	1 (6.7)	9 (60.0)	4 (26.7)	1 (6.7)	
Occupation	Student	2 (15.4)	9 (69.2)	1 (7.7)	1(7.7)	**0.29**
	Housewife	11 (23.4)	25 53.2)	11 23.4)	0	
	Service holder	2 (18.2)	8 (72.7)	1 (9.1)	0	
Religion	Islam	9 (19.6)	30 65.2)	7 (15.2)	0	**0.33**
	Others	6 (24.0)	12 48.0)	6 (24.0)	1 (4.0)	
Residence	Urban	4 (18.2)	13 59.1)	5 (22.7)	0	**0.91**
	Rural	11 (22.4)	29 59.2)	8 (16.3)	1 (2.0)	

DISCUSSION

This study identified cervical cancer awareness among women who attend a tertiary hospital in Bangladesh. A prominent finding was that 71.7% of the study participants were aware of cervical cancer, representing a considerable improvement from earlier national surveys that showed awareness to be between 12% and 45.2% among Bangladeshi women [11,12]. This increased awareness is likely most likely an expression of the study population's medical contact and healthcare-seeking behavior, suggesting hospital-based programs could be reasonable channels by which to disseminate information about cervical cancer. The sociodemographic characteristics of respondents offer a women's predominance of the 20–30 years age group (74.7%), as with reproductive health service utilization in Bangladesh. However, the sample also includes a high proportion of rural residents (62.6%) and poorly educated women, with 73.7% having primary education or below. Statistical correlation of education with awareness (p=0.01) validates findings of other developing countries emphasizing education as a key determinant of health knowledge [13]. This point to the need for literacy-sensitive health education programs to address prevailing knowledge differentials. Despite relatively good general awareness, considerable disparities exist in what people know about risk factors for cervical cancer, i.e., the role of human papillomavirus (HPV) infection. Among the aware, as few as 39.4% recognized HPV as a cause, an incredibly low percentage given the virtual ubiquity of HPV's role in cervical carcinogenesis [14]. The trend parallels that observed in low- and middle-income countries where awareness about HPV is also partial. Conversely, such behavioral risk factors as having multiple sexual partners (62.0%) and early sexual initiation (63.4%) were more widely recognized in accordance with the greater emphasis among the public health messages on lifestyle aspects compared to biological determinants. Screening methods of cervical cancer were highly familiar in motivating numbers: 95.8% of respondents who were aware recognized screening in general, while 90.1% named Pap smear testing. The awareness regarding visual inspection with acetic acid (VIA) screening was also 76.1%, reflective of its being the national screening tool in Bangladesh due to cost-effectiveness and feasibility in low-resource settings [15,16]. But despite such awareness, screening uptake is low at the national level, suggesting that awareness does not always result in participation. The most important issue found in this study is the poor knowledge of preventive measures since 69.0% of the participants indicated poor knowledge about this aspect. This deficiency is crucial since prevention is cost-effective relative to treatment at more advanced stages [17]. Awareness of HPV vaccination was not common among 45.1%, and only 35.2% were aware of the importance of early sexual infection treatment. This implies missed opportunities for primary prevention education, though evidence has shown that programs of HPV immunization can reduce the rate of cervical cancer [18]. Treatment option awareness of precancerous cervical lesions

was uneven; greater than half (50.7%) reported low awareness. In this category, however, individuals with good knowledge exhibited relatively high treatment procedure awareness such as electrocautery (71.8%) and loop electrosurgical excision procedure (LEEP) (70.4%). This would suggest that healthcare workers could be effectively educating patients presenting for care regarding treatment modalities, with a focus on patient counseling and education in clinical settings. Social and cultural dynamics probably underlie these awareness patterns. The population was mostly Muslim (65.7%) and mostly housewives (67.7%), representing traditional societal values that could impact women's health decision-making autonomy and information access [19]. Evidence from comparable settings indicates that health education strategies that are culturally appropriate, activating community leaders and using proper communication channels, are vital to enhancing women's health knowledge and behaviors.

These findings have important implications for Bangladesh's progress towards the World Health Organization target of cervical cancer elimination by the year 2030. Achievements in attainment of the target of 70% screening coverage will not only be a function of the accessibility of services but also improved knowledge and favorable attitudes towards screening [20]. The knowledge gaps identified here, especially on HPVs and prevention, are major barriers that must be addressed through combined, contextually effective education interventions. Briefly, augmenting HPV-related education and incorporating cervical cancer awareness into broader maternal and reproductive health care can potentially capitalize on current healthcare contact to enhance prevention. Also, the established relationship between education and awareness implies the potential of adult literacy programs as a means for transmitting health education, especially in rural areas where both education and healthcare access are limited.

Limitations of the study:

This study had a small sample size (n=99) due to limited resources and time, which may affect how well the findings apply to the wider Bangladeshi population. The use of convenient sampling and recruiting from a hospital may have created selection bias, as participants were already engaged with healthcare services and likely more health-conscious than the general population.

CONCLUSION

This study demonstrates that women visiting a tertiary care hospital in Bangladesh have moderate awareness of cervical cancer. However, there are significant gaps in knowledge about HPV infection as a primary risk factor and in preventive measures. Educational qualification is the strongest predictor of awareness levels, stressing the important role of literacy in gaining health knowledge. While awareness of screening methods is encouraging, the lack of understanding of prevention strategies represents a missed opportunity for primary prevention efforts. Targeted educational programs, especially for rural and less-educated women, are crucial to close these knowledge gaps and support Bangladesh's goals for cervical cancer elimination.

RECOMMENDATIONS

Future studies should use larger, community-based representative samples to gain a better understanding of cervical cancer awareness across different groups in Bangladesh. It is necessary to develop and implement educational programs that are culturally relevant, focusing on the identified knowledge gaps, especially in HPV awareness and prevention strategies. Integrating cervical cancer education into existing maternal and reproductive health programs, along with community health education initiatives that involve local leaders and peer educators, should be a priority to maximize reach and impact among underserved populations.

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Conflict of interest: *None declared*

Ethical approval: *The study was approved by the Institutional Ethics Committee*

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