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Original Research Article

Awareness and Uptake of Cervical Cancer Screening Among Women Attending a Family Medicine Clinic

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Abstract:

Background: Cervical cancer remains a leading cause of morbidity and mortality among women, particularly in low-resource settings. Early detection through screening can substantially reduce disease burden; however, awareness and uptake of cervical cancer screening remain low. This study aimed to assess the awareness and utilization of cervical cancer screening among women attending a Family Medicine clinic.

Material and Methods: A hospital-based cross-sectional study was conducted among 420 women aged 21–65 years attending the Family Medicine outpatient clinic over six months. Participants were selected using systematic sampling. Data were collected through a structured, pre-tested questionnaire covering sociodemographic characteristics, obstetric history, awareness of cervical cancer, and screening practices. Descriptive statistics and Chi-square tests were used to assess associations, with $p < 0.05$ considered statistically significant.

Results: Among the participants, the largest proportion were aged 31–40 years (30.0%), married (91.0%), and homemakers (66.2%). Awareness regarding cervical cancer was reported by 56.7% of women, while only 33.8% were aware of the Pap smear test. Uptake of cervical cancer screening was low, with 22.9% of women reporting ever being screened; Pap smear was the most commonly used method (75.0%). Among women who had never been screened, the main reasons were lack of awareness (43.8%), absence of symptoms (24.1%), and fear or embarrassment (13.0%). Women aware of cervical cancer and Pap smear testing were significantly more likely to undergo screening (34.5% vs 7.7%, $p < 0.001$; 45.1% vs 11.5%, $p < 0.001$, respectively).

Conclusion: Awareness of cervical cancer and its screening is suboptimal among women attending Family Medicine clinics, resulting in low screening uptake. Targeted health education and opportunistic screening strategies within primary care settings are essential to improve participation and facilitate early detection.

Keywords: Cervical cancer, Awareness, Pap smear, Screening uptake, Family Medicine.

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Introduction

Cervical cancer remains a significant public health problem worldwide, particularly in low- and middle-income countries. It is one of the most common cancers affecting women and contributes substantially to cancer-related morbidity and mortality in developing regions. Despite being largely preventable, cervical cancer continues to pose a major burden due to limited awareness, inadequate screening programs, and delayed diagnosis in many populations [1].

The development of cervical cancer is strongly associated with persistent infection with high-risk types of human papillomavirus (HPV). The disease typically progresses slowly through identifiable precancerous lesions, providing an opportunity for early detection and effective treatment. Screening methods such as the Papanicolaou (Pap) smear test have been widely used for the early identification of premalignant changes in cervical cells, thereby significantly reducing the incidence and mortality associated with cervical cancer in countries with organized screening programs [2].

The Pap smear test is considered a reliable, simple, and cost-effective screening method for detecting early cervical abnormalities. Regular screening enables identification of precancerous lesions before they progress to invasive disease, thereby improving clinical outcomes. However, in many developing

countries, including India, the utilization of cervical cancer screening services remains low despite the availability of effective screening techniques [3].

Several studies conducted among Indian women have reported inadequate knowledge regarding cervical cancer, its risk factors, and the importance of regular screening. Although some women may have heard about cervical cancer, detailed understanding of preventive strategies such as Pap smear testing and HPV vaccination is often limited. Inadequate awareness, sociocultural barriers, lack of physician recommendation, and misconceptions about the necessity of screening in the absence of symptoms contribute to poor screening uptake [4].

Hospital-based studies evaluating knowledge, attitudes, and practices related to cervical cancer screening have consistently demonstrated that a relatively small proportion of women undergo regular screening. Even among women who are aware of cervical cancer, the actual practice of screening remains low due to fear, embarrassment, lack of time, or insufficient information about available services [5]. Educational status, socioeconomic factors, and exposure to health information have also been shown to influence women's awareness and willingness to participate in screening programs [6].

Family medicine clinics represent an important point of contact for preventive healthcare services and provide a valuable opportunity to educate women about cervical cancer and encourage participation in screening programs. Assessing the level of awareness and the uptake of cervical cancer screening among women attending such clinics can help identify gaps in knowledge and barriers to screening, thereby guiding targeted interventions to improve preventive health practices [7].

Therefore, the present study was undertaken to assess the awareness and uptake of cervical cancer screening among women attending a Family Medicine clinic.

Material and Methods

Study design and setting: A hospital-based cross-sectional study was conducted in the outpatient clinic of a tertiary care teaching hospital.

Study population: The study population consisted of women attending the outpatient clinic during the study period. Eligible participants included women aged 21–65 years who visited the clinic for any health-related consultation and who were willing to participate in the study.

Inclusion criteria

- Women aged 21–65 years attending the Family Medicine clinic
- Married or sexually active women
- Women who provided informed written consent

Exclusion criteria

- Women previously diagnosed with cervical cancer
- Women who had undergone hysterectomy
- Women who were severely ill or unable to respond to the questionnaire

Sample size calculation: The required sample size was estimated using the single-population proportion formula:

$n=Z^2pq/d^2$

where n represents the minimum sample size, Z is the standard normal deviate at 95% confidence level (1.96), p is the expected proportion of awareness or uptake of cervical cancer screening, $q = 1 - p$, and d is the margin of error (5%). Similar cross-sectional studies assessing awareness and screening practices have reported proportions ranging from approximately 40–60% [8,9].

Assuming a prevalence of awareness of cervical cancer screening of 50% (to obtain the maximum sample size), and a precision of 5%, the calculated sample size was 384. After accounting for a potential non-response rate of 10%, the final sample size required was approximately 420 participants.

Sampling technique: A systematic sampling method was used to recruit participants. Women attending the Family Medicine outpatient department during the study period were approached consecutively until the desired sample size was achieved.

Data collection tool and procedure: Data were collected using a structured, pre-tested questionnaire administered through face-to-face interviews. The questionnaire consisted of four sections:

1. Sociodemographic characteristics (age, marital status, education, occupation, and socioeconomic status)
2. Obstetric and gynecological history (parity, age at marriage, contraceptive use)
3. Awareness of cervical cancer and screening methods including knowledge of Pap smear testing and risk factors
4. Uptake of cervical cancer screening, including previous screening history and reasons for non-screening

The questionnaire was developed based on instruments used in previous studies evaluating knowledge, attitude, and practice regarding cervical cancer screening [2].

Study variables

- Dependent variable: Uptake of cervical cancer screening (history of Pap smear or other screening test).

- Independent variables: Age, education, occupation, parity, awareness of cervical cancer, knowledge of screening methods, and access to healthcare services.

Statistical analysis: Data were entered into Microsoft Excel and analyzed using the Statistical Package for Social Sciences (SPSS) version 25. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to summarize the data. Associations between awareness variables and uptake of cervical cancer screening were assessed using the Chi-square test. A p-value of <0.05 was considered statistically significant.

Results

The sociodemographic characteristics of the participants are presented in Table 1. The largest proportion of participants belonged to the 31–40 years age group (30.0%), followed by 21–30 years (28.1%) and 41–50 years (24.3%). The majority of participants were married (91.0%). With regard to educational status, 36.7% had completed secondary education, while 23.8% were graduates or had higher education. A large proportion of women were homemakers (66.2%), and most participants had one to two children (56.2%).

Awareness regarding cervical cancer and screening methods is summarized in Table 2. More than half of the participants (56.7%) reported that they had heard about cervical cancer. However, awareness regarding specific preventive measures was relatively low. Only 39.0% knew that cervical cancer is preventable, while 33.8% were aware of the Pap smear test. Knowledge regarding human papillomavirus (HPV) infection as a risk factor was observed in 20.5% of participants. Furthermore, only 17.6% were aware of the recommended age for cervical cancer screening, and 13.8% knew the recommended screening interval.

The uptake of cervical cancer screening among the study participants is shown in Table 3. Overall, 22.9% of women reported having undergone cervical cancer screening at least once, while 77.1% had never been screened. Among those who had been screened, the Pap smear was the most commonly utilized screening method (75.0%), followed by visual inspection with acetic acid (18.8%) and HPV testing (6.2%). With respect to the timing of screening, 54.2% had undergone screening within the past three years, while 45.8% reported that their last screening had been more than three years prior.

Among women who had never undergone cervical cancer screening, the most frequently reported barrier was lack of awareness about screening (43.8%), followed by the belief that screening was unnecessary in the absence of symptoms (24.1%). Other reported reasons included fear or embarrassment (13.0%), lack of time (8.6%), financial constraints (5.6%), and lack of recommendation by a doctor (4.9%), as shown in Table 4.

The association between awareness variables and screening uptake is presented in Table 5. Women who were aware of cervical cancer were significantly more likely to have undergone screening compared to those who were unaware (34.5% vs 7.7%, $p < 0.001$). Similarly, participants who were aware of the Pap smear test demonstrated a significantly higher uptake of screening (45.1% vs 11.5%, $p < 0.001$). These findings suggest that awareness plays a crucial role in influencing the utilization of cervical cancer screening services.

Table 1: Sociodemographic characteristics of the study participants (n = 420)

Variable	Frequency (n)	Percentage (%)
Age group (years)		
21–30	118	28.1
31–40	126	30.0
41–50	102	24.3
51–65	74	17.6
Marital status		
Married	382	91.0
Widowed/Separated	38	9.0
Education level		
No formal education	64	15.2
Primary school	102	24.3
Secondary school	154	36.7
Graduate and above	100	23.8
Occupation		
Homemaker	278	66.2
Employed	98	23.3
Self-employed	44	10.5
Parity		

Nulliparous	48	11.4
1–2 children	236	56.2
≥3 children	136	32.4

Table 2: Awareness regarding cervical cancer and screening methods (n = 420)

Variable	Frequency (n)	Percentage (%)
Heard about cervical cancer	238	56.7
Aware that cervical cancer is preventable	164	39.0
Aware of Pap smear test	142	33.8
Aware of HPV infection as a risk factor	86	20.5
Know recommended screening age	74	17.6
Know screening interval	58	13.8

Table 3: Uptake of cervical cancer screening among participants (n = 420)

Variable	Frequency (n)	Percentage (%)
Ever undergone cervical cancer screening	96	22.9
Never screened	324	77.1
Type of screening test performed (n=96)		
Pap smear	72	75.0
VIA (Visual inspection with acetic acid)	18	18.8
HPV testing	6	6.2
Time since last screening (n=96)		
Within last 3 years	52	54.2
More than 3 years ago	44	45.8

Table 4: Reasons for not undergoing cervical cancer screening

Reason	Frequency (n)	Percentage (%)
Lack of awareness about screening	142	43.8
Absence of symptoms	78	24.1
Fear or embarrassment	42	13.0
Lack of time	28	8.6
Financial constraints	18	5.6
Lack of recommendation by doctor	16	4.9

Table 5: Association between awareness and uptake of cervical cancer screening

Variable	Screened n (%)	Not Screened n (%)	p value
Aware of cervical cancer			
Yes (n=238)	82 (34.5)	156 (65.5)	<0.001
No (n=182)	14 (7.7)	168 (92.3)	
Aware of Pap smear			
Yes (n=142)	64 (45.1)	78 (54.9)	<0.001
No (n=278)	32 (11.5)	246 (88.5)	

Discussion

The findings of this study demonstrate a relatively low uptake of cervical cancer screening among women attending a Family Medicine clinic, which aligns with evidence from multiple settings showing suboptimal screening participation in comparable populations. Systematic reviews have consistently reported low coverage of cervical cancer screening across low- and middle-income countries (LMICs), highlighting that limited knowledge and awareness of cervical cancer and its screening methods are among the most common individual-level barriers impeding uptake [10,11]. In addition to lack of awareness, structural and health-system limitations—such as inadequate service availability, poor referral mechanisms, and insufficient implementation of screening policies—have been identified as key obstacles in many LMIC contexts [10,12].

Our observation that women with better understanding of cervical cancer were more likely to undergo screening is supported by data from national surveys showing that factors such as education, media exposure, and socioeconomic status are positively associated with screening participation. In India, analysis of the National Family Health Survey-5 revealed that only a small proportion of eligible women had ever been screened, and that educational attainment, access to media, and economic empowerment were

significant determinants of screening behaviour [13]. These determinants influence not only awareness but also the perceived importance of preventive health practices and the capacity to navigate healthcare systems.

Cultural and personal barriers also play a crucial role in limiting screening uptake. The meta-analysis of studies among Arab women reported that fear, embarrassment, and misconceptions—such as believing screening is unnecessary in the absence of symptoms—were frequently cited reasons for low participation [14]. Such psychosocial barriers have been frequently documented in diverse populations and are important targets for culturally appropriate educational interventions.

The implications of these barriers are profound. Low screening uptake contributes to late diagnosis and higher cervical cancer morbidity and mortality, particularly in settings without organised screening programmes. Our results reinforce the need for multidimensional strategies that combine health education, community engagement, and strengthened primary care services to improve awareness and facilitate access to screening. Empowering non-medical providers and community health workers to disseminate information, facilitate referrals, and support women through the screening process could be an effective approach, as suggested by recent scoping reviews on service delivery innovations [12].

Overall, improving the uptake of cervical cancer screening requires addressing both individual-level knowledge gaps and broader systemic impediments. Efforts to integrate cervical cancer education and screening opportunities into routine primary care, coupled with supportive health policies, are essential for enhancing preventive healthcare utilisation and reducing the burden of cervical cancer in similar populations.

Conclusion

The present study demonstrates that although more than half of the women had heard about cervical cancer, detailed knowledge regarding risk factors and screening methods remained limited, and the overall uptake of cervical cancer screening was low. Lack of awareness, absence of symptoms, and psychosocial barriers such as fear or embarrassment were the most frequently reported reasons for non-participation in screening. Women who possessed greater awareness of cervical cancer and Pap smear testing were significantly more likely to undergo screening. These findings highlight the need for targeted health education, improved counseling by primary care physicians, and strengthened opportunistic screening strategies within family medicine settings to enhance awareness and increase the utilization of cervical cancer screening services.

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