

Determinants of Cervical Cancer Screening Utilization Among Women in Bomet County, Kenya

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Abstract

This study examined the determinants influencing the utilization of cervical cancer screening services in Bomet County, Kenya. This cross-sectional study collected data from 217 participants aged 21–49 years using structured questionnaires. We analyzed the data using SPSS version 27 with descriptive and inferential statistics at a 95% confidence level. The findings showed cervical cancer screening uptake of 35%, with 76 of 217 participants reporting having undergone screening. Most participants were aged 25–34 years and had attained primary or secondary education. Screening utilization was higher among participants aged 30–39 years than among those aged 21–29 years. Self-rated knowledge of the recommended screening frequency was significantly associated with screening utilization in the adjusted model ($p \leq .002$). Several patient-related and health system factors independently influenced screening uptake. Perceived ease of access to screening facilities, reasonable waiting times, affordability of services, and adequate information from healthcare workers were positively associated with screening uptake ($p < .001$). In contrast, embarrassment when discussing screening and greater distance to the nearest health facility were significantly associated with lower likelihood of screening utilization ($p < .05$). The study concludes that both patient-perceived and health system factors influence cervical cancer screening utilization in Bomet County. It recommends implementing behavior change interventions guided by the Health Belief Model, strengthening pre- and post-screening counseling services, integrating screening into other healthcare services, and promoting accessible, respectful, private, and patient-centered care environments.

Keywords: *Patient-perceived factors, health system factors, cervical cancer screening utilization*

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1. Introduction

Cervical cancer is a serious threat worldwide, contributing to morbidity of a million-plus and 266000 mortalities annually (Dirirsa et al., 2022). Worldwide, it ranks fourth and affects 85% of those affected by cervical cancer who reside in low-income and developing nations. Cervical cancer has immense social, emotional, psychological, and economic effects on the affected

patients and their significant others (Assefa et al., 2024). In America, about 11500 cancer of the cervix diagnosed yearly, with 4000 mortalities. The 5-year survival for women affected in 2014-2020 was 67.4% (cancer.gov, 2024). In the United Kingdom, approximately 3,300 cases of cervical cancer are diagnosed annually, making it the 14th most common cancer among women (Cancer Research UK, 2024). In Australia, the annual incidence of cervical cancer is approximately 4.6 cases per 100,000 females. In Kenya, cervical cancer is the second most common cancer among women after breast cancer and remains a significant public health concern, particularly among women aged 15–49 years. Approximately 5,236 new cases are diagnosed annually, with an estimated 3,211 deaths attributed to the disease each year (ICO/IARC, 2023). 17% of women aged 15- 49 years in Kenya have been screened for cancer of the cervix (KNBS, 2022). Screening for cancer of the cervix is the key strategy in decreasing the incidence of the disease. (NCCS). Cervical cancer screening reduces mortality by 41-92% among the affected populations (Gitonga et al., 2022). In Kenya, it ranges from 3 to 14%. Most screening facilities in Kenya remain underutilized, with only 14% utilizing cervical cancer screening programs. If left unaddressed, mortality will increase in most countries, including Kenya, by 2030 (Omondi et al., 2022).

Therefore, this study examined the determinants of utilization of screening services in Bomet and established that the prevalence of cervical cancer screening among women is 35%. National and county governments have increased services, but utilization remains below national levels at the county level, particularly in rural settings such as Bomet County.

1.1 Problem Statement

Cervical cancer is still a critical burden in Kenya; Kenya accounts for 5236 diagnosed cases and 3,211 mortalities annually. (IARC, 2020). Statistical modeling identifies Bomet County as a high-risk region, with a standardized incidence ratio of 1.59. The prevalence of cervical cancer in Bomet County is 64cases per 100,000, which exceeds the national prevalence of 40 per 100,000, and there is underutilization of services. The study found that prevalence in Bomet County is 35%, which is lower than the national coverage of 42% and the county, national, and WHO target of 70% (Waitara et al., 2021; IARC, 2020; Mwenda et al., 2022). If action is not taken to mitigate these, then there will be increased morbidity and mortality

Previous research in Kenya depicts that a large majority of women result in late diagnosis, which has increased morbidity and mortality. (Ng'ang'a et al., 2018; Wamburu et al., 2016). A study by Soy et al. (2023) provided localized insights, but its scope was limited to demographic characteristics and did not consider other variables such as the health system, sociocultural factors, and patient perceptions that influence cervical cancer screening utilization; it was also conducted only in Longisa ward. Generating this context-specific evidence is essential to inform evidence-based policy formulation and programmatic interventions, enhance screening coverage, and contribute to the realization of Sustainable Development Goal 3 and Kenya's Universal Health Coverage agenda.

1.2 Specific Objectives

- i. To determine the prevalence of utilization of screening services in Bomet, Kenya
- ii. To assess patient-perceived factors associated with women's utilization of screening services in Bomet, Kenya

- iii. To examine health system factors that influence women's utilization of screening services in Bomet, Kenya.

2. Literature Review

2.1 The prevalence of Utilization of screening Services

Utilization of cervical cancer screening services remains low in many low- and middle-income countries despite efforts to create awareness. Low education and income levels, limited access to healthcare services, and inadequate health infrastructure are key factors contributing to low screening uptake. Among women living with HIV, however, screening prevalence was reported at 63%, which was attributed to the integration of cervical cancer screening into HIV care and other healthcare programmes, thereby improving access and uptake (Kang'ethe et al., 2022). Similarly, a study conducted at Adare General Hospital in Ethiopia found that only 19.8% of women had ever undergone cervical cancer screening (Asefa et al., 2024). In Kenya, George (2021) reported that only 14% of eligible women in the sampled population had undergone cervical cancer screening, consistent with findings from other settings. However, there is limited contextual evidence on the utilization of cervical cancer screening services in Bomet County, creating an important evidence gap for effective planning and implementation of screening programmes. As a predominantly rural county, Bomet may face healthcare access and infrastructure challenges that could contribute to low screening uptake. Generating context-specific evidence on cervical cancer screening utilization will therefore provide valuable information for county-level planning, resource allocation, and the strengthening of interventions aimed at improving cervical cancer prevention and reproductive health outcomes.

2.2 Patient Perceived Factors that Influence Cervical Cancer Screening Services

Patient-centered screening approach determines screening services uptake by the population. Studies show that provider factors can increase or decrease women's utilization of screening services. Patient encouragement influences uptake of cervical cancer screening services. Healthcare providers who encourage their patients to undergo screening motivate them to increase uptake. This encouragement increases awareness of the benefits of screening and the timely initiation of treatment for those diagnosed with cervical cancer (Alamro et al., 2020).

Where women's preferences are prioritized, utilization is likely to be high. Research shows that cervical cancer screening utilization is low in settings where Muslim women prefer a female service provider (Mantula et al., 2024). Studies carried out in Ethiopia identified healthcare providers' gender as the major barrier in cervical screening services, since women were not comfortable with being served by a male provider (Hussein et al., 2024). Healthcare providers should be competent in conducting cervical cancer screening. They should have adequate knowledge of the issues related to cervical cancer screening, including indications, case referral, and providing patients with the required counseling and psychological support (Mugassa & Frumence, 2020). Health organizations should ensure adequate provider supervision to increase provider competencies in performing cervical cancer screening techniques. Furthermore, there should be enough specialists, such as gynecologists, to guide the management of some patients (Belay et al., 2020). Healthcare providers need to demonstrate a positive attitude, as studies have shown mixed findings on providers' attitudes toward cervical cancer screening. Healthcare providers in Ethiopia had a low favorable attitude

toward the screening services, which led to low uptake (Abebaw et al., 2022). Low provider attitude and educational level discourage the majority of women who are interested in undergoing cervical cancer screening, since providers are the role models for their clients (Musonda et al., 2022). Women have reported in studies that healthcare providers are hostile and uncooperative toward them, which leaves them with no other option but consulting traditional healers for their reproductive health issues. In some instances, providers do not provide any explanation related to the procedure or claim to be too busy, which affects women's experiences with healthcare services negatively. Healthcare providers, meanwhile, argue that a lack of commitment and motivation hinders the delivery of efficient services (Mantula et al., 2024). Therefore, healthcare strategies, including provider training and motivation, should be considered to shape attitudes toward increasing screening uptake. Efficient delivery of cervical cancer screening services requires an adequate supply of skilled staff.

However, most hospitals in middle- and low-income countries suffer from staff shortages (Mugassa & Frumence, 2020). A study conducted in African countries revealed that personnel shortage is a critical hindrance to cervical cancer screening services. Accordingly, staff well-equipped to offer cervical cancer screening services are in short supply. This makes it difficult for the available personnel to meet the demand for cervical cancer screening services (Mantula et al., 2024). Staff shortages stem from limited training opportunities for doctors and nurses and high turnover among those trained in cervical cancer screening. In some cases, trained providers are assigned to areas unrelated to cervical cancer screening, which lowers screening service availability (Petersen et al., 2022). High demand for cervical cancer services, coupled with increased workload and a shortage of skilled providers, reduces provider motivation and the operationalization of screening sites.

Healthcare providers' communication approach with women determines uptake. Patients seeking screening services should be treated with respect and dignity. Healthcare providers should communicate with patients in ways that do not violate their rights to dignified care. This includes making women comfortable expressing their reproductive health issues and collaborating with healthcare providers in exploring the available alternatives for health promotion (Chua et al., 2022). Healthcare providers should also improve communication when relaying cervical cancer screening results to increase patient understanding and adherence to prescribed treatments. Participants have expressed challenges with healthcare providers who do not provide comprehensive education on cervical cancer. (Basagoitia, 2023). Therefore, strategies that build capacity and develop competency among healthcare providers should be considered to increase cervical cancer screening uptake.

Healthcare providers should be familiar with policies and guidelines that inform patient-centered, high-quality care. However, healthcare providers surveyed in a study reported limited knowledge of prevention and screening, including early management policies. The lack of policies and guidelines for screening services and management was attributed to no mandated policies and guidelines, leading to lower uptake (Tshabalala et al., 2023). Therefore, healthcare institutions should provide regular in-service training on new policies and guidelines on cervical cancer screening to bridge this gap.

Healthcare institutions often offer knowledge and skill-development opportunities to healthcare providers. However, some healthcare providers resist change. They have a negative attitude towards knowledge and skill development. The resistance to change leads to outdated skills in cervical cancer screening, which affects quality and safety indicators (Petersen et al., 2022). Healthcare providers' attitude towards patients also affects cervical cancer screening uptake. Participants have said low uptake resulted from healthcare providers' harsh attitudes toward them (Tshabalala et al., 2023). The harsh treatment prevents patients from visiting facilities for screening or reporting symptoms suggestive of cervical cancer.

2.3 Health system Factors that affect the Utilization of Screening Services.

The burden of cervical cancer is higher among women with limited availability of cervical cancer screening services, leading to late diagnoses and poor cervical cancer prognostic outcomes in these countries. Health systems are key to providing timely, accessible, high-quality screening and treatment, including cervical cancer screening. Health system-specific factors increase or hinder cervical cancer screening services (Jemal et al., 2023). Lack of access to screening services in health facilities hinders uptake. Women's uptake of screening services will be poor if they face challenges with accessibility and availability of healthcare facilities (George et al., 2021). Socio-economic hardships, including unemployment and high poverty rates, significantly lower the uptake of screening services if healthcare facilities are not within women's reach. In some cases, challenges such as transportation costs for cervical cancer screening and loss of daily wages hinder uptake (Hussein et al., 2024). Ensuring adequate availability and accessibility of healthcare facilities increases cervical cancer screening utilization.

The quality of care received at a facility influences cervical cancer screening uptake. Factors such as waiting time, provider availability, and patient preferences are key predictors of cervical cancer screening uptake. Some patients prefer screening by specific types of healthcare providers, such as midwives or doctors, based on comfort, trust, and perceived competence. For others, preference for female providers influences uptake because of the procedure's invasive nature (Hussein et al., 2024). Some religions, such as Islam, influence women's screening utilization. Muslim women do not allow male healthcare providers to screen them for cervical cancer (Kamanga et al., 2023). Institutional barriers, such as the lack of female healthcare providers to screen them, could lower cervical cancer screening uptake. Adequate management support is crucial for patient-centered services. However, inadequate management support for resource mobilization, acquisition, and community sensitization affects cervical cancer screening uptake. A lack of stocks such as acetic acid, cryotherapy, and adequate, qualified healthcare providers hinders efficient cervical cancer screening service delivery. Lack of management support for community awareness and sensitization programs also lowers community awareness and uptake (Kamanga et al., 2023).

Hospital policies influence uptake. Some studies have shown that unfavorable hospital policies limit cervical cancer screening utilization by the population. Participants in a study conducted in Malawi reported that hospitals sent them back without screening if they arrived after 9 a.m. In addition, late facility opening times, even when women arrived earlier, hindered service utilization (Hussein et al., 2023; Kamanga et al., 2023). In Kenya, screening services are not available on weekends and have limited operating times, which lowers access (Mantula et al.,

2024). Most governments prioritize curative services instead of preventive services related to cervical cancer screening. Often, resources are directed to implementing treatment services, which slows uptake (Mugassa & Frumence, 2020). In addition, organizations suffer from limited funding for the services, as there is no dedicated budget tailored for cervical cancer programs. This is reflected in limited space for efficient cervical cancer screening services, insufficient technical support for service providers, and inadequate follow-up for patients who require further management (Mantula et al., 2024).

Effective service coordination among health service providers, government, and nongovernmental agencies is important for increased cervical cancer service utilization. The coordination requires adequate information flow and active partner involvement at different levels of government (George, 2021). Most developing and low-income countries experience challenges of information flow, program implementation, and agency collaboration in cervical cancer screening service delivery. In some cases, few partners support cervical cancer screening services while others do not support them, leading to a lack of essential cervical cancer screening tools. Poor information flow across government levels, including data collection and dissemination on screening services, reduces service uptake and resource prioritization to address the problem (Mugassa & Frumence, 2020). It contributes to suboptimal service delivery and support for health organizations involved in service delivery.

Cost is another determinant that hinders utilization among women. Women may be willing to undergo cervical cancer screening services. However, most public hospitals do not offer essential screening services such as Pap smears or lack the resources needed for cervical cancer screening (Huchko et al., 2020). In other cases, institutions lack qualified personnel to provide cervical cancer screening services. Consequently, women incur extra costs in seeking screening services at private facilities (Kangethe et al., 2022). Women in rural settings often experience challenges, including a lack of health facilities. Limited health facilities mean most women incur high transportation costs. Similarly, understaffing leads to heavy workloads and women feeling rushed during consultations. For those with access to screening services, challenges such as navigating to the right place due to a lack of information have been reported. (Mantula et al., 2021; Peterson et al., 2022) Cumulatively, these challenges lower utilization and increase cervical cancer prevalence. Protecting patients' privacy during cervical cancer screening is crucial for increased service uptake. In Malawi, lack of space for cervical cancer screening predisposes women to privacy-related issues when seeking healthcare services (Mantula et al., 2024). Violation of privacy in cervical cancer screening makes women lose confidence in the healthcare system (Omondi et al., 2022). Timely service provision is also essential; most studies identify long wait times as a barrier. Long wait times make women deprioritize services in favor of work and family responsibilities (Srinath et al., 2023). Consequently, strategies that protect patients' privacy, reduce wait times, and provide adequate spaces for cervical cancer screening should be considered to increase service uptake.

3. Materials and Methods

This study used an analytical cross-sectional design to collect and analyze data at a single point in time. The study aimed to determine prevalence and health outcomes, describe key population characteristics, and provide insights into factors influencing health outcomes. Data were obtained from 217 participants aged 21 to 49 years using structured questionnaires. The study

used SPSS version 27 to conduct statistical analyses, employing descriptive and inferential statistics at a 95% confidence level. Screening uptake was 35%, with 76 of 217 participants reporting having been screened. Most participants were aged 25-34 years and had primary or secondary education. Screening utilization was higher in the 30–39 years group than in the 21-29 years group. Data were analyzed using the Statistical Package for the Social Sciences version 27. The study summarized demographic characteristics, knowledge, income, and educational level using descriptive statistics. Inferential statistics included chi-square, bivariate and multivariate analyses, and logistic regression to assess the association between dependent and independent variables. Statistics were presented; significance was set at < 0.05 . Prevalence was determined as the percentage of women who had undergone screening services among total respondents. The study used tables and narratives to support clear communication and understanding.

4. Results

4.1 Prevalence of Cervical Cancer Screening Utilization

Utilization of screening services was assessed using the outcome variable “ever screened for cervical cancer.” Among the interviewed women, 76(35%) reported ever undergoing cervical cancer screening, and 141(65%) did not utilize screening services in Bomet County. Most women reported being screened once in the last five years, and very few had repeated screening.

Table 1: Prevalence of Cervical Screening Utilization (N = 217)

Variable	Category	n (%)
Ever screened for cervical cancer	No	141 (65.0)
	Yes	76 (35.0)
Number of screenings in last 5 years Among those screened	Once	45 (20.7)
	Twice	25 (11.5)
	More than twice	6 (2.8)
	Not applicable	141 (65.0)
Most recent screening date	Less than 1 year	35 (16.1)
	1–3 years	31 (14.3)
	More than 3 years	10 (4.6)
	Not applicable	141 (65.0)

4.2 Patient-Perceived Factors

4.2.1 Descriptive statistics of Patient-Perceived Factors

Descriptive analysis showed that 85 (39.2%) participants were aware of screening guidelines, while 132 (60.8%) were not. Regarding perceived risk, 83 (38.2%) believed they were at high risk, 34 (15.7%) reported a neutral perception, and 100 (46.1%) perceived themselves as at low risk. Fear was reported as a barrier by 126 (58.1%) of respondents, while 116 (53.5%) indicated that they felt embarrassed discussing cervical cancer screening. Additionally, 110 (50.7%) perceived screening services as expensive.

4.2.2 Patient-perceived Factors on Screening Utilization

Bivariate data analysis revealed statistically significant associations between selected patient-related determinants and screening utilization.

Knowledge and Risk Perception Factors

Being aware of screening guidelines significantly influenced screening uptake $\chi^2 = 137.73$, $p < .001$. A substantially higher proportion of women with information on screening guidelines used screening than those unaware. Perceived personal risk of developing cervical cancer also demonstrated a statistically significant association with screening utilization $\chi^2 = 31.41$, $p < .001$. Screening uptake was higher among those who believed they were at high risk than among those who perceived themselves as low risk. The strength of association, indicated by Cramer's V, suggests that knowledge and risk perception were meaningfully related to screening behavior.

Table 2: Knowledge and Risk Perception on Screening Utilization.

Variable	Category	Screened: No n (%)	Screened: Yes n (%)	χ^2	df	p-value	Cramer's V
Awareness of Guidelines	Yes	15 (17.6%)	70 (82.4%)	137.73	2	<.001*	.797
	No / Don't Know	126(95.5%)	6 (4.5%)				
Perceived Risk Level	High Risk (SA/A)	37 (44.6%)	46 (55.4%)	31.41	4	<.001*	.380
	Neutral	21 (61.8%)	13 (38.2%)				
	Low Risk (D/SD)	83 (83.0%)	17 (17.0%)				

Note: χ^2 = Chi-square test; Cramer's V indicates association strength; significance $p < .05$.

Psychological and Emotional Factors

Psychological and emotional factors significantly determined utilization. Fear as a discouraging factor was strongly linked to non-utilization, with all women who agreed or were neutral that fear discouraged screening having never been screened ($\chi^2 = 162.45$, $p < .001$). Embarrassment in discussing was also a barrier to utilization, with higher utilization among those who reported not being embarrassed than among those who felt embarrassed ($\chi^2 = 61.64$, $p < .001$).

Table 3: Psychological and Emotional Factors

Variable	Category	Screened: No n (%)	Screened: Yes n (%)	χ^2	Df	p- value	Cramer's V
Fear Discourages Screening	Agree (SA/A)	115 (100%)	0 (0.0%)	162.45	4	<.001*	.865
	Neutral	11 (100%)	0 (0.0%)				
	Disagree (D/SD)	15 (16.5%)	76 (83.5%)				
Embarrassed to Discuss	Embarrassed (SA/A)	97 (83.6%)	19 (16.4%)	61.64	4	<.001*	.533
	Neutral	22 (78.6%)	6 (21.4%)				
	Not Embarrassed (D/SD)	22 (30.1%)	51 (69.9%)				

Note: χ^2 = Chi-square test; Cramer's V indicates association strength; significance $p < .05$.

Perceptions of Cost, Provider Attitude, and Screening Experience

Perceptions of cost, provider attitude, and prior screening experience determined utilization. Screening was substantially higher among women who perceived screening services as affordable compared to those who perceived them as expensive ($\chi^2 = 98.64$, $p < .001$). Healthcare worker attitude was also significantly associated with utilization, with higher screening uptake reported among women who rated healthcare workers as very friendly ($\chi^2 = 53.21$, $p < .001$). In addition, women who perceived their screening experience as positive screened for cervical cancer, unlike those who reported a negative experience ($\chi^2 = 76.13$, $p < .001$).

Table 4: Cost Perceptions, Attitude and Screening Experiences.

Variable	Category	Screened: No (%)	Screened: Yes (%)	χ^2	df	p-value	Cramer's V
Perceived Cost of Screening Services	Expensive (SA/A)	96 (87.3%)	14 (12.7%)	98.64	4	<.001*	.674
	Neutral	25 (100%)	0 (0.0%)				
	Affordable (D/SD)	20 (24.4%)	62 (75.6%)				
Healthcare Worker Attitude	Very Friendly	9 (19.6%)	37 (80.4%)	53.21	3	<.001*	.495
	Neutral/Unfriendly/NA	132 (77.2%)	39 (22.8%)				
Positive Screening Experience Perception	Agree (SA/A)	21 (28.4%)	53 (71.6%)	76.127	4	<.001*	.592
	Neutral	20 (71.4%)	8 (28.6%)				
	Disagree (D/SD)	100 (87%)	15 (13%)				

Note: χ^2 = Chi-square test; Cramer's V indicates association strength; significance $p < .05$.

4.3 Health System Factors influencing utilization

4.3.1 Descriptive statistics

Descriptive analysis showed that 70 (32.3%) of respondents reported easy access to screening services, while 117 (53.9%) reported difficulty. Regarding distance, 87 (40.1%) lived more than 10 km from a facility. Regarding service organization, 79 (36.4%) reported ease in scheduling appointments, whereas 110 (50.7%) experienced difficulties. Concerning waiting time, 99 (45.6%) reported waiting less than one hour, while 84 (38.7%) waited longer. Additionally, 65 (30.0%) perceived screening services as affordable, while 119 (54.8%) considered them unaffordable. Most respondents, 117(53.9%), also reported inadequate information from healthcare providers.

4.3.2 Health System Factors Influencing Utilization

Related factors were significantly associated with utilization. Both univariate and bivariate analyses demonstrated that accessibility-related factors influenced screening uptake.

Physical and Geographical Accessibility of Screening Services

Physical and geographical accessibility of screening services significantly determines utilization. Those who perceived screening facilities as easy to access were more likely to be screened than those who reported difficulty accessing services ($\chi^2 = 77.74$, $p < .001$). Distance

was also significant for utilization, with higher screening uptake among women living closer compared with those living farther away ($\chi^2 = 14.09$, $p = .001$).

Table 5: Physical and Geographical Accessibility of Screening Services (N = 217).

Health System Factor	Category	Screened No n (%)	Screened Yes n (%)	χ^2	Df	p-value	Cramer's V
Ease of access	Agree	17 (24.3)	53 (75.7)	77.74	4	<0.001*	0.599
	Neutral	23 (76.7)	7 (23.3)				
	Disagree	101 (86.3)	16 (13.7)				
Distance to facility	< 5 km	29 (48.3)	31 (51.7)	14.09	2	0.001*	0.255
	5–10 km	44 (62.9)	26 (37.1)				
	> 10 km	68 (78.2)	19 (21.8)				

Note: χ^2 = Chi-square test; Cramer's V indicates association strength; significance $p < .05$.

Service Organization and Time-Related Factors.

Service organization and time-related factors influenced uptake. Women who reported ease in scheduling screening appointments used screening services more than those who had difficulty scheduling ($\chi^2 = 52.51$, $p < .001$). Waiting time influenced utilization, with higher screening uptake among women who waited less than one hour than among those who waited longer ($\chi^2 = 57.24$, $p < .001$).

Table 6: Service Organization and Time-Related (N = 217).

Health System Factor	Category	Screened No n (%)	Screened Yes n (%)	χ^2	df	p-value	Cramer's V
Ease of scheduling	Agree	28 (35.4)	51 (64.6)	52.51	4	<0.001*	0.492
	Neutral	26 (92.9)	2 (7.1)				
	Disagree	87 (79.1)	23 (20.9)				
Waiting time	< 60 Minutes	38 (38.4)	61 (61.6)	57.24	3	<0.001*	0.514
	> 1 hour	73 (86.9)	11 (13.1)				
	Not applicable	30 (88.2)	4 (11.8)				

Note: χ^2 = Chi-square test; Cramer's V indicates association strength; significance $p < .05$.

Cost and Provider Information Factors

Cost and provider information factors influenced uptake. Those who perceived screening services as affordable had higher uptake than those who perceived services as unaffordable ($\chi^2 = 87.91$, $p < .001$). Adequate information from healthcare providers was also significantly associated with utilization, with higher screening uptake among women who reported receiving sufficient information than those who did not ($\chi^2 = 45.43$, $p < .001$).

Table 7: Cost and Provider Information (N = 217).

Health System Factor	Category	Screened No n (%)	Screened Yes n (%)	χ^2	df	p-value	Cramer's V
Affordability	Agree	14 (21.5)	51 (78.5)	87.91	4	<0.001*	0.636
	Neutral	27 (81.8)	6 (18.2)				
	Disagree	100 (84.0)	19 (16.0)				
Provider information	Agree	20 (32.8)	41 (67.2)	45.43	4	<0.001*	0.458
	Neutral	24 (61.5)	15 (38.5)				
	Disagree	97 (82.9)	20 (17.1)				

Note: χ^2 = Chi-square test; Cramer's V indicates association strength; significance $p < .05$.

4.4 Multivariate Analysis of Factors Associated with Utilization

Knowledge-related variables also retained statistical significance. Self-rated knowledge about the recommended frequency was significantly associated with utilization in the adjusted model ($p \leq .002$). Several patient and health system characteristics demonstrated independent effects. Perceived ease of access to screening facilities, reasonable waiting time, affordability of services, and adequacy of information provided by healthcare workers were positively associated with screening uptake ($p < .001$). Conversely, embarrassment about discussing screening and greater distance to the nearest facility were significantly associated with a lower likelihood of utilization ($p < .05$).

Table 8: Multivariate Analysis of Factors Associated with Utilization.

Variable Group	B	S.E.	Wald	AOR {ExpB}	95% C.I. for EXP(B)		P-value
					Lower	Upper	
Self-rated knowledge about cervical cancer	1.623	.470	11.924	5.068	2.017	12.731	.001*
Knows recommended screening frequency	-.502	.163	9.495	.606	.440	.833	.002*
Embarrassed to discuss screening	-.591	.278	4.512	.554	.321	.955	.034*

Note: Significance set at $p < .05$.

5. Discussion

5.1 Prevalence of Utilization

The study found that utilization prevalence is 35%, indicating low screening coverage in Bomet County. National coverage stands at 42%, indicating that Bomet coverage is lower than the national estimate. (KDHS, 2022) This is consistent with other Kenyan studies (George, 2021;

Omondi et al., 2022). Availability of services alone did not predict utilization without consideration of health system and sociocultural factors, which supports the perception that perceived barriers can outweigh perceived.

5.2 Patient-Perceived Factors Influencing Utilization

Fear (AOR = .08; $p < .001$) and embarrassment (AOR = .55; $p < .034$) reduced the likelihood of screening. Fear significantly reduced cervical cancer screening uptake, with women who experienced fear being less likely to undergo screening. Stigma, anxiety, and fear were also identified as key barriers to screening uptake (Achieng et al., 2021; Omondi et al., 2022). Perceived emotional barriers may mask perceived benefits (Becker, 1974; Rosenstock et al., 1988). Those who believed they were susceptible increased screening; this shows that low risk perception decreases screening. Creating awareness of these barriers will lead to preventive action.

5.3 Health System Factors influencing utilization

Women who reported shorter waiting times and affordable care had improved uptake. Long distances, screening costs, and inadequate provider information were key barriers to cervical cancer screening, with even minimal costs discouraging vulnerable women (Mantula et al., 2024; Kang'ethe et al., 2024). Clients should receive patient-centered care to improve uptake. (WHO, 2023), as provider interaction may be both a cue and a barrier to action, which aligns with the Health Belief Model.

6. Conclusion

The study established that cervical cancer screening utilization in Bomet County was 35%, which is lower than the national coverage of 42%, indicating suboptimal uptake of preventive health services. This low utilization may contribute to delayed detection of cervical cancer and increased morbidity and mortality. The study also found that patient-perceived and health system factors interact to influence utilization of cervical cancer screening services.

7. Recommendations

Based on the findings, the study recommends the implementation of behaviour change interventions guided by the Health Belief Model to improve cervical cancer screening uptake, alongside strengthening pre- and post-screening counselling services and promoting respectful, private, and patient-centred care environments. The health system should integrate cervical cancer screening with other healthcare services to increase screening opportunities and reduce missed opportunities. Mobile screening outreaches should also be conducted in communities and underserved areas to improve accessibility and reduce the cost of accessing screening services. In addition, women should be encouraged to enroll in social health insurance schemes, while the cost of screening services should be subsidized in line with the principles of Universal Health Coverage.

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