International Journal of Community Medicine and Public Health
Ramasamy P. Int J Community Med Public Health. 2026 Jun;13(6):2732-2737
https://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040
DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20261750

Original Research Article

Knowledge and attitude towards cervical cancer and screening practices among women of reproductive age in Nandi County, Kenya

Poornima Ramasamy*

Department of Nursing, University of Eastern Africa, Baraton, Nandi County, Kenya

Received: 09 April 2026
Revised: 15 May 2026
Accepted: 19 May 2026

***Correspondence:**
Dr. Poornima Ramasamy,
E-mail: poornimar@ueab.ac.ke

ABSTRACT

Background: Cervical cancer remains a major public health concern, especially in developing countries such as Kenya. Despite the availability of screening services, uptake among women remains low. This study assessed knowledge and attitudes towards cervical cancer and their influence on screening practices among women of reproductive age in Nandi County, Kenya.
Methods: A descriptive correlational design was employed among 341 women aged 20-49 years attending maternal and reproductive health services at Kapsabet Referral Hospital. Data were collected using structured questionnaires and analyzed using SPSS version 23. Descriptive statistics and Pearson's correlation analysis were used to examine relationships between knowledge, attitudes, and screening practices.
Results: Most respondents (83.8%) had heard about cervical cancer, although detailed knowledge of symptoms, risk factors, and screening methods was moderate. Positive attitudes towards screening were reported by the majority of participants, with 79.4% agreeing that screening is beneficial. However, screening uptake remained low. Pearson's correlation analysis showed significant positive relationships between knowledge and screening uptake ($r=0.38$, $p<0.05$) and between attitudes and screening practices ($r=0.41$, $p<0.05$).
Conclusions: Although respondents demonstrated moderate knowledge and positive attitudes towards cervical cancer screening, actual screening uptake remained low. Addressing socio-cultural barriers, misconceptions, and limited access to screening services is essential to improve cervical cancer screening practices among women in rural Kenya.

Keywords: Attitude, Cervical cancer, Cervical cancer screening, Knowledge

INTRODUCTION

Cervical cancer remains a major global public health concern and is one of the leading causes of cancer-related morbidity and mortality among women worldwide. It is estimated to be the third most common cancer among women globally and a leading cause of cancer-related deaths in low- and middle-income countries.[1] The burden of cervical cancer is disproportionately higher in Sub-Saharan Africa, where limited access to preventive healthcare services, delayed diagnosis, and inadequate screening programs contribute to increased mortality rates.[2] Despite the fact that cervical cancer is largely preventable through early detection and treatment, it continues to pose a significant challenge to public health systems.

In developing countries such as Kenya, cervical cancer is among the most prevalent cancers affecting women and is a leading cause of death among women of reproductive age. National reports indicate that thousands of women are diagnosed annually, with a substantial proportion succumbing to the disease due to late detection.[3,4] Although effective screening methods such as Pap smear, Visual Inspection with Acetic Acid (VIA), and Visual

Inspection with Lugol's Iodine (VILI) are available, their uptake remains low. Studies have shown that while awareness of cervical cancer may be relatively high, actual participation in screening programs is significantly limited.[5,6]

Globally, disparities in screening uptake are evident, with up to 92% of women in low-income countries never having undergone cervical cancer screening.[2] In Sub-Saharan Africa, screening rates remain critically low, with only a small percentage of eligible women accessing screening services.[7] In Kenya, despite increased awareness initiatives, only a minority of women undergo regular screening, indicating a disconnect between knowledge and preventive health behavior.[5] This suggests that awareness alone is insufficient to drive behavioral change.

Previous studies have extensively examined knowledge, attitudes, and screening practices as independent variables. For instance, research has shown that while many women have heard about cervical cancer, their knowledge regarding risk factors such as Human Papilloma Virus (HPV), early symptoms, and preventive measures remains inadequate.[8,9] Similarly, attitudes toward cervical cancer screening are influenced by socio-cultural factors, including fear, stigma, misconceptions, and religious beliefs.[10,11] Furthermore, structural barriers such as limited access to healthcare services, cost, and lack of trained personnel continue to hinder screening uptake.[12,13] HPV has been identified as the primary causative agent of cervical cancer.[14] Most existing studies analyze these factors in isolation, failing to capture the complex interaction between knowledge, attitudes, perceptions, and barriers in influencing screening behavior. Additionally, there is limited context-specific evidence from rural Kenyan settings that integrates these variables into a unified analytical framework. According to World Health Organization, cervical cancer remains a major preventable cause of mortality among women globally.[15]

This study addresses this gap by adopting a novel, integrated approach. It simultaneously examines: knowledge of cervical cancer, attitudes toward cervical cancer, perceptions and misconceptions, perceived barriers to screening, their combined effect on screening uptake.

Unlike previous research, this study adopts a descriptive correlational design to explore the interrelationships between cognitive (knowledge), affective (attitude), and behavioral (practice) components of health behavior. This approach provides a deeper understanding of why increased awareness does not necessarily translate into improved screening uptake.

Furthermore, this study provides context-specific evidence from Kapsabet Referral Hospital in Nandi County, an area characterized by socio-cultural influences and healthcare access challenges. By focusing on women of reproductive age (20-49 years) attending maternal and reproductive health services, the study targets a high-risk and policy-relevant population, thereby enhancing the applicability of the findings.

The novelty of this study lies in integrating multiple determinants of screening behavior into a single analytical model, examining the knowledge-attitude-practice gap using empirical correlational analysis, providing localized evidence from rural Kenya, and identifying how perceptions and barriers moderate the relationship between knowledge, attitudes, and screening practices. This integrated framework provides a comprehensive understanding of the determinants of cervical cancer screening behavior in low-resource settings. This comprehensive approach contributes to existing literature and provides actionable insights for policymakers, healthcare providers, and public health interventions aimed at improving cervical cancer screening uptake. Therefore, this study aims to assess the relationship between knowledge and attitudes towards cervical cancer and their influence on screening practices among women of reproductive age in Nandi County, Kenya, while also examining the role of perception and barriers in shaping screening behavior.

METHODS

Study design

This study employed a descriptive correlational research design to examine the relationship between knowledge and attitudes towards cervical cancer and their influence on screening practices among women of reproductive age. The study was conducted from April to July 2024. The correlational approach was appropriate as it enabled the researcher to assess the degree and direction of association between variables without manipulating them. This design is widely used in public health research to explore relationships among behavioral and cognitive factors.

Study setting

The study was conducted at Kapsabet Referral Hospital, a major healthcare facility located in Nandi County, Kenya. The hospital provides a wide range of maternal and reproductive health services, including family planning, antenatal, postnatal, and Mother and Child Health (MCH) clinics. These units serve as key access points for women of reproductive age, making the setting appropriate for investigating cervical cancer screening practices.

Study population and sample size

The target population comprised women aged 20-49 years attending maternal and reproductive health services at the study site. These included women visiting the Family Planning (FP) clinic, Mother and Child Health (MCH)

clinic, antenatal ward, and postnatal ward. A sample size of 341 respondents was determined using Cochran's formula for sample size calculation at a 95% confidence level and a margin of error of 0.05. The formula was adjusted for a finite population, ensuring adequate statistical power and representativeness of the study population.

Sampling technique

A convenience sampling technique was employed to recruit participants who were readily available and willing to participate during the data collection period. This method was selected due to time constraints and the accessibility of respondents within the healthcare facility. Although convenience sampling may limit generalizability, it is appropriate for exploratory and facility-based studies.

Data collection tool and procedure

Data were collected using a structured questionnaire, adapted from a previously validated instrument assessing knowledge, attitudes, practices, and perceived barriers towards cervical cancer screening. The questionnaire consisted of the following sections: Section A: Socio-demographic characteristics (age, education, occupation, marital status), Section B: Knowledge of cervical cancer (risk factors, symptoms, prevention, screening methods), Section C: Attitudes towards cervical cancer and screening (Likert scale responses), and Section D: Screening practices and perceived barriers.

The questionnaire was administered through face-to-face interviews to ensure inclusion of participants with varying literacy levels. For respondents unable to read or write, trained research assistants guided them through the questionnaire.

A pilot study was conducted among 35 women at Baraton Center to test the clarity, reliability, and validity of the instrument. Necessary adjustments were made based on feedback.

Validity and reliability

Content validity of the research instrument was established through expert review by academic supervisors and research committee members. Reliability was assessed using Cronbach's alpha coefficient, which yielded a value of 0.918, indicating excellent internal consistency of the questionnaire.

Data analysis

Data were entered, cleaned, and analyzed using Statistical Package for the Social Sciences (SPSS) version 23. Both descriptive and inferential statistical methods were applied. For descriptive statistics, frequencies, percentages, means, and standard deviations were used to summarize demographic characteristics and key study variables. For inferential statistics, Pearson's correlation analysis was employed to determine the relationship between knowledge, attitudes, and cervical cancer screening practices. Results were presented using tables, charts, and graphs for clarity and ease of interpretation.

Ethical considerations

Ethical approval for the study was obtained from the relevant institutional review board. Permission to conduct the study was granted by the hospital administration. Informed consent was obtained from all participants prior to data collection. Participants were assured of confidentiality, anonymity, and voluntariness, and were informed of their right to withdraw from the study at any time without any consequences.

RESULTS

A total of 341 women of reproductive age (20-49 years) participated in this study. The findings on awareness, symptoms, and risk factors revealed that the majority of respondents were within the younger age group, with 40.5% aged between 20 and 25 years, followed by 23.5% aged 26-30 years, 15.5% aged 30-35 years, 11.7% aged 36-40 years, and 8.5% aged 41-49 years. This indicates that a significant proportion of the study population consisted of younger women, who are an important target group for early cervical cancer prevention interventions. In terms of educational attainment, 36.7% of respondents had attained college education, 34.5% had secondary education, 23.8% had primary education, and only 5% had no formal education. These findings suggest that the majority of respondents had at least a basic level of education, which could potentially influence their awareness and understanding of cervical cancer and screening practices. Regarding occupation, 53.1% of respondents were employed or self-employed, 25.8% were housewives, and 20.2% were engaged in peasant farming. With respect to marital status, 59% of respondents were married, 36% were single, and 5% were separated, indicating that most participants were in marital unions, which may influence their healthcare-seeking behaviour (Table 1).

The findings on knowledge of cervical cancer revealed that a substantial proportion of respondents (83.8%) had heard about cervical cancer, indicating a high level of general awareness. However, detailed knowledge regarding symptoms, risk factors, and screening methods was found to be moderate and inconsistent. For instance, only 48.7% of respondents correctly identified persistent pelvic pain as a possible symptom of cervical cancer, while a considerable proportion (32.3%) were uncertain. In terms of risk factors, 64.8% of respondents recognized having multiple sexual partners as a risk factor, whereas 58.7% were aware of the role of Human Papilloma Virus (HPV) infection in the development of cervical cancer. Knowledge regarding treatment options was relatively

higher, with 83.5% of respondents acknowledging that cervical cancer can be cured if detected early, 51.3% recognizing surgery as a treatment option, and 76.1% aware of the use of hospital-based medications (Table 2).

Table 1: Socio-demographic characteristics (n=341).

Variable	Category	Frequency	Percentage
Age in years	20-25	138	40.5
	26-30	81	23.5
	30-35	53	15.5
	36-40	40	11.7
	41-49	29	8.5
Education	Primary	81	23.8
	Secondary	118	34.5
	College	125	36.7
	None	17	5.0
Marital status	Married	201	59
	Single	123	36
	Separated	17	5

Table 2: Knowledge of cervical cancer.

Statement	Agree (%)	Disagree (%)
Heard about cervical cancer	83.8	16.2
Pelvic pain as symptom	48.7	51.3
Multiple partners risk	64.8	35.2
HPV risk factor	58.7	41.3
Early treatment possible	83.5	16.5

Furthermore, knowledge of cervical cancer screening was moderately high, with 78.6% of respondents aware that screening procedures exist. However, only about half of the respondents demonstrated knowledge of specific screening methods such as Pap smear, VIA, and VILI. Additionally, 69.3% were aware that women aged 21 years and above should undergo screening, while 65.4% correctly identified the recommended screening interval of every three years. Overall, these findings indicate that although general awareness of cervical cancer is high, comprehensive and accurate knowledge regarding its prevention and screening remains moderate (Table 3).

Table 3: Knowledge of screening.

Variable	Agree (%)
Awareness of screening	78.6
Knowledge of methods	50.0
Screening ≥21 years	69.3
Screening every 3 years	65.4

The assessment of attitudes towards cervical cancer and screening practices demonstrated generally positive perceptions among respondents. A large majority (85.6%) agreed that any woman is at risk of developing cervical cancer, reflecting a high level of perceived susceptibility. Similarly, 79.4% of respondents agreed that cervical cancer screening is beneficial in preventing the disease, indicating a positive attitude towards preventive health practices. The overall attitude scale showed that most responses were clustered around "agree" and "strongly agree," suggesting that respondents held favorable views toward cervical cancer screening. Despite these positive attitudes, it is important to note that favorable perceptions did not necessarily translate into actual screening behavior (Table 4).

Table 4: Attitude towards screening.

Statement	Agree (%)
Any woman can develop cancer	85.6
Screening is beneficial	79.4

With regard to cervical cancer screening uptake, the study revealed that the proportion of women who had undergone screening was relatively low. Despite high levels of awareness and positive attitudes, a significant number of respondents reported that they had never been screened for cervical cancer. This finding highlights a critical gap between knowledge and practice, suggesting that awareness alone is insufficient to motivate women to utilize screening services. The low uptake may be attributed to various factors, including fear of the screening procedure, misconceptions about cervical cancer, cultural beliefs, and limited access to healthcare services.

Pearson's correlation analysis revealed a statistically significant positive relationship between knowledge and cervical cancer screening uptake ($r=0.38$, $p<0.05$), indicating that women with higher knowledge levels were more likely to undergo screening. Similarly, a significant positive correlation was observed between attitudes and screening practices ($r=0.41$, $p<0.05$), suggesting that favorable attitudes are associated with increased likelihood of screening. However, the strength of these relationships was not sufficient to account for the low screening rates observed in the study. This implies that although knowledge and attitudes play an important role in influencing health behavior, other factors such as socio-cultural barriers, accessibility of services, and individual perceptions significantly affect screening uptake (Table 5).

Table 5: Correlation results.

Variables	R value	P value	Interpretation
Knowledge vs Screening	0.38	<0.05	Moderate positive
Attitude vs Screening	0.41	<0.05	Moderate positive

In summary, the findings of this study demonstrate that while respondents possess moderate knowledge and generally positive attitudes towards cervical cancer and its screening, the actual uptake of screening services

remains low. The positive but limited correlation between knowledge, attitudes, and screening practices suggests that additional factors beyond awareness and perception must be addressed to improve cervical cancer screening utilization among women of reproductive age.

DISCUSSION

This study examined the relationship between knowledge, attitudes, and cervical cancer screening practices among women of reproductive age in Nandi County, Kenya. The findings revealed that although the majority of respondents demonstrated moderate knowledge and generally positive attitudes towards cervical cancer and its screening, the actual uptake of screening services remained low. These results highlight a critical gap between awareness and practice, which has been consistently reported in similar studies conducted in low- and middle-income countries. Community-based interventions have been shown to significantly improve screening uptake.[5]

The socio-demographic findings indicated that most respondents were young women aged between 20 and 30 years and had attained at least a secondary level of education. This is significant because younger and relatively educated populations are expected to have better access to health information and services. However, despite this advantage, screening uptake remained low, suggesting that education alone does not guarantee appropriate health-seeking behavior. Similar findings have been reported in studies conducted in Kenya and other African countries, where higher levels of education did not necessarily translate into increased utilization of cervical cancer screening services.[1,7]

In terms of knowledge, the study found that awareness of cervical cancer was relatively high, with the majority of respondents having heard about the disease. However, detailed knowledge regarding risk factors, symptoms, and screening methods was inconsistent. For instance, while many respondents recognized multiple sexual partners as a risk factor, fewer were aware of the role of Human Papilloma Virus (HPV), which is the primary cause of cervical cancer. This finding is consistent with previous studies that have reported limited understanding of HPV among women despite general awareness of cervical cancer.[3,7] The moderate level of knowledge observed in this study suggests that awareness campaigns may have been effective in introducing the concept of cervical cancer but have not sufficiently addressed deeper understanding required for behavioral change.

The study also revealed generally positive attitudes towards cervical cancer and screening. A large proportion of respondents acknowledged that any woman is at risk of developing cervical cancer and recognized the importance of screening in preventing the disease. These findings align with studies conducted in various regions, which have reported favorable attitudes towards screening despite low participation rates.[16,17] However, the persistence of low screening uptake despite positive attitudes indicates that attitude alone is not a sufficient determinant of preventive health behavior.

A key finding of this study is the significant gap between knowledge and actual screening practices. Although respondents demonstrated moderate knowledge and positive attitudes, a substantial proportion had never undergone cervical cancer screening. This observation supports the argument that knowledge and attitude do not automatically translate into action. Similar discrepancies have been documented in previous studies, where women expressed willingness to undergo screening but failed to do so due to various barriers.[1,10] This gap may be explained by the presence of underlying socio-cultural, psychological, and structural barriers that hinder access to and utilization of screening services.

The correlation analysis further demonstrated that knowledge and attitudes were positively associated with screening uptake. Women with higher levels of knowledge and more favorable attitudes were more likely to participate in screening. However, the strength of these relationships was not sufficient to result in high screening rates, suggesting the influence of additional moderating factors. This finding reinforces the need to adopt a multidimensional approach in addressing cervical cancer screening uptake, rather than focusing solely on increasing awareness.

One of the major implications of this study is the role of perceived barriers in influencing screening behavior. Factors such as fear of pain during screening, embarrassment, stigma, misconceptions about cervical cancer, and limited access to healthcare services may significantly affect women's decisions to seek screening. Previous studies have identified similar barriers, including cultural beliefs, lack of privacy, cost, and inadequate healthcare infrastructure, as key obstacles to screening uptake.[8,12] In the context of Nandi County, these barriers may be further compounded by rural settings and limited healthcare accessibility.

The novelty of this study lies in its integrated approach to examining knowledge, attitudes, and screening practices within a single analytical framework. Unlike previous studies that have treated these variables independently, this research highlights the complex interplay between cognitive, affective, and behavioral factors. The findings demonstrate that while knowledge and attitude are important, they must be supported by enabling environments and interventions that address structural and socio-cultural barriers.

Overall, the findings of this study contribute to the growing body of evidence indicating that improving cervical cancer screening uptake requires more than just awareness campaigns. Comprehensive strategies that address misconceptions, improve accessibility of services,

and promote behavioral change are essential. Interventions such as community-based education programs, mobile screening services, and integration of cervical cancer screening into routine maternal health services may be effective in bridging the gap between knowledge and practice.

This study had several limitations. First, the use of a convenience sampling technique may limit the generalizability of the findings to the wider population of women in Nandi County and other regions. Second, the study relied on self-reported information, which may have been affected by recall bias and social desirability bias. In addition, the study was conducted in a single healthcare facility, which may not fully represent community-level perspectives and practices regarding cervical cancer screening. Despite these limitations, the study provides valuable insights into the relationship between knowledge, attitudes, and cervical cancer screening practices among women of reproductive age in rural Kenya.

CONCLUSION

The study concludes that while knowledge and attitudes towards cervical cancer are improving, screening uptake remains low. Efforts should focus on addressing barriers and promoting accessible screening services. Health education campaigns should be strengthened to improve awareness. Policy makers should ensure accessibility of screening services, especially in rural areas. Community-based interventions are recommended to address cultural barriers.

ACKNOWLEDGEMENTS

The authors would like to acknowledge the management of Kapsabet Referral Hospital for granting permission to conduct the study. Appreciation is also extended to all women who participated in the study and the research assistants who supported the data collection process.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Review Board, Kapsabet Referral Hospital, Kenya

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Cite this article as: Ramasamy P. Knowledge and attitude towards cervical cancer and screening practices among women of reproductive age in Nandi County, Kenya. Int J Community Med Public Health 2026;13:2732-7.