

# Adherence of cervical cancer screening among women of reproductive age attending Masaka and Kibagabaga Hospitals of Kigali, Rwanda – Quantitative Study

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**Abstract:** This study explored the level of adherence to cervical cancer screening (CCS) and identify the underlying factors contributing to non-adherence among women of reproductive age attending Masaka and Kibagabaga Hospitals in Kigali. A quantitative data collection approach was used to provide a comprehensive understanding of cervical cancer screening adherence and explore associated factors. A structured questionnaire was developed. Participants were women aged 25-49 attending outpatient services at Masaka and Kibagabaga Hospitals, A total of 384 women participated in the survey, data were collected between June 2024 and August 2024 at Masaka and Kibagabaga Hospitals and the study found that 36% of participants had undergone cervical cancer screening and 69.8% of those screened continued with regular follow up. the findings suggest that improving education, access to screening and follow-up care is essential to increasing cervical cancer screening adherences in Kigali.

**Keywords:** Cervical cancer, adherence, Screening, Cervical Cancer Adherence.

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## 1. INTRODUCTION

The cancer affecting the cervix represent a major challenge to women's health globally, constituting a critical area of concern in oncology and public health. It is the fourth most prevalent malignancy considering the occurrence rate and death rate (1). According to Global Cancer statistics in 2022, there were around 660,000 new cases resulting in approximately 350,000 deaths emphasizing the widespread impact of the disease(2). These statistics are particularly alarming in areas of South America, South Asia, and Sub-Saharan Africa and mortality rates are the highest(2). This disparity underscores the uneven distribution of health care resources and preventive measures which are less accessible in Low- and Middle-Income Countries (LMICs) that are deficient in adequate amount of access to Human papillomavirus (HPV) vaccination and Cervical Cancer Screening Services (3)

The global weight of cancer of cervix is further complicated by its nature and primary cause of HPV variants 16 and 18 attributed to nearly half of the high grade cervical precancerous lesions, highlighting its significant role in cervical cancer development (4). Efforts to combat cervical cancer through screening programs have resulted in notably reductions in both occurrences and fatality rates across different regions in the world. And concerning trend of rising occurrence rate

Efforts to combat cervical cancer through screening programs have resulted in notable reductions in both the occurrence and fatality rates have been observed in numerous regions across the globe. However, there is a concerning trend of rising occurrence rate among younger females in certain areas possibly linked to changes in sexual behaviour and insufficient adherence to screening measures (5,6)

Regarding the appropriate age of screening, the revised recommendations from the United States preventives services task force (USPSTF) propose three screening choices for women aged 30 and above: either undergoing high risk Human Papillomavirus (hrHPV) testing every five years, cervical cytology every three years or a combination of both tests every five years (7). Despite primary high risk Human Papillomavirus being recommended for women 25-65 due to its effectiveness, its implementation has been slow, particularly in less resourced areas (8). The American cancer society suggests this method as preferable and aims to eventually phase out cytology only screenings and current guidelines recommend initiating screening at age 21 to avoid widening existing health disparities (7). This observation calls for a continued emphasis on enhancing screening programs and ensuring they adapt to evolving epidemiological trends through continuous adherence to screening.

Importantly, females who live with Human Immunodeficiency Virus (HIV) face a significantly heightened risk of developing cervical cancer of the cervix (9). This increased susceptibility is attributed to their compromised immune systems, which render them more vulnerable to Human Papillomavirus infection and less capable of clearing the virus (10). Consequently, cervical cancer emerges as one of the most prevalent cancers affecting women with HIV infections worldwide (11). The close connection between HPV infections, HIV status and cancer of cervix underscore the urgency need for comprehensive strategies targeting these vulnerable populations (12).

To address the pressing global health challenge posed by cervical cancer, countries worldwide have committed to accelerating its elimination by 2030 through a unified set of targets.

## 2. METHODS

This study used a quantitative design to comprehend the factors affecting cervical cancer screening adherence among females of reproductive age attending Masaka and Kibagabaga Hospital in Kigali, Rwanda. The study was conducted in Kigali city, specifically in two hospitals: Kibagabaga and Masaka Hospital that offer cervical cancer screening services among other in the city of Kigali.

An intended audience for this study comprises females of reproductive age ranging from 25 to 49 old who visited Masaka and Kibagabaga Hospital at the time of data collection because there are at risk of developing cervical cancer.

To dispatch a sample of 384 women across the two study sites using convenience sampling, proportionally allocate participants based on the number enrolled at each site: Masaka (4000) and Kibagabaga was selected based on availability and willingness participants to participate.

The data collection for this study involved one instrument: a structured questionnaire. The questionnaire was adapted from cervical cancer and pap test questionnaire (14) and was digitalized using the Kobo collect platform for ease of data entry. It consisted of four sections: Social demographic information, cervical cancer screening status as well as availability and accessibility of screening services. The questionnaire was translated into Kinyarwanda to accommodate participants language preference and was pretested to ensure its relevance and clarity for Rwandan context.

To ensure that participants voices were accurately captured each interview was digitally recorded, and the interview were conducted in either English or Kinyarwanda, depending on the participant's language preference.

Inclusion criteria were women aged 25 to 49 attending the Gynecology and the non-communicable diseases (NCDs) outpatient departments at Masaka and Kibagabaga Hospitals. Women living with HIV, including those in HIV care and the PMTCT program an exclusion criterion: women who had undergone total hysterectomy, Women outside the age range of 25 to 49 years, and Women who declined to sign the consent form.

Ethical approval for this study was obtained from Mount Kenya University, Kigali campus, after submitting a researcher proposal for review. Once approval was granted, permission was also secured from Masaka and Kibagabaga Hospitals to conduct the data collection. The ethical review ensured that the research adhered to guidelines that protect participants right and well-being.

Informed consent: before participating in the study, all participant was full informed about the study's purpose, procedures, and any potential risk involved. Data collectors introduced themselves to the participants, explain the study, and provided them with an information sheet. Participant were then asked to sign a consent form. Confirming that they voluntarily agreed to take part. It was emphasized that the participant was voluntary and that participant had the right to withdraw at any time without facing any consequences. No monetary compensation of the Mount Kenya University Institution Review Board was also given to participants for any inquires. Confidentiality: confidentiality was strictly maintained throughout the study. To ensure participants' privacy, data was anonymized by using codes instead of person identifiers. All data was stored

securely in password protected folders. The researcher ensured that all information collected was handled with care and kept confidential, ensuring that participants' identities remained anonymous during the study and in any resulting reports or publications.

Risk and benefits: participants were informed of any potential risk associated with their participation, which were minimal, given the nature of the study. While some participants may have felt uncomfortable discussing sensitive topics, such as cervical cancer, they were reassured that they could withdraw from the study from the study at any time. The benefits of participation included contributing to important research that could improve cervical cancer awareness and screening practices, which may ultimately lead to better health outcomes for women in Rwanda.

Data storage was handled with the utmost care. All collected data was stored in secure, password-protected digital files. Physical documents, were stored in a locked cabinet. Access to data was restricted to the research team members only. After the study concluded, the data was kept for the period required by the ethical guidelines and institutional policies. Once the retention period ended, the data will either be anonymized for future research or securely destroyed.

This study adhered to ethical principles of beneficence, respect for human dignity, and justice, ensuring that all participants were treated with respect, their rights were protected, and the research contribute to greatest good.

### 3. RESULTS

#### Demographic Characteristics of Respondents

In study, 385 participants responded as indicated in table 1 of social-demographic characteristics of the participants the results shows that the age of participants range from 25 to 50. The highest proportion of women 28.1% were aged between 35-39 years, majority were married 65%. Based, a high proportion were educated 35% with primary level and 32% employed where 43% were earning a monthly income less than fifty thousand. Finally, the result depict that 88% were Christian.

#### Social-demographic characteristics of participant N=385

Table 1: Social-demographic characteristics of Participants (N=385)

Variables	Frequency	Percentage (%)
Age (Years)		
25-29	90	23.4
30-34	93	24.2
35-39	108	28.1
40-45	62	16.1
45-49	32	8.5
Marital status		
Married	251	65
Single	76	19
Separated	33	8
Widower	24	6
Education level		
University	71	18
Primary	138	35
Tvet	22	5
Secondary	104	27
No education	50	12
Economic status		
100,000-1500000	33	8
50001-100000	119	30
Above 1500,000	65	16
Bellow 500000	168	43

Religion		
Christian	340	88
Muslims	33	8
Others	12	3
Employment status		
Self employed	89	23
Housewife	93	24
Casual workers	9	2
Employed	124	32
Unemployed	69	17

**Prevalence of Cervical Cancer Screening and Level of Adherence to Screening guidelines among respondents**

In the study, result depict a prevalence of 36% among women attending Masaka and Kibagabaga district hospitals to have screening for cervical cancer. In addition, out of 139 individual who were screened for cervical cancer, 69.8% of them have adherence to cervical cancer screening.

**Table 2: Prevalence of cervical cancer screening and adherence**

Variables	Frequency	Percentage
Cervical cancer screening uptake		
Yes	139	36
No	244	64
Adherence to Cervical cancer screening		
Maintainer	97	69.8
Non-maintainer	42	30.2

**Social and economic factors influencing adherence to cervical cancer screening**

By disaggregating the adherence to cervical cancer screening according to socio-demographic characteristics of the women, we have identified the following factors to influence adherence to cervical cancer screening. To begin with, education level was associated with adherence to cervical cancer screening i.e we found that women who completed primary education and university has P-value 0.002 and P-value 0.00 respectively have tendency to maintain cervical cancer screening than their counterpart in education level. Beside, the analysis depicts that occupation particularly casual worker had an association with adherence to screening with of P-value 0.011 compared the rest of the categories. In addition, women earning between 50,001-100,000 Rfw and 150,000 Rfw were mainly the ones to adhere to cervical cancer screening had an adherence to cervical cancer screening respectively with P- value 0.041 and 0.011. lastlt, living near the cancer screening clinic or health facility were associated with adherence to the cervical cancer screening P-value 0.003. therefore, detailed analysis is found below the table of bivariate analysis.

**Tables 3: Bivariate analysis of social-economic factors contributing to adherence to cervical cancer screening**  
**Bivariate analysis of social-economic factors contributing to adherence to cervical cancer screening**

Variables	Adherence to cervical cancer screening	No adherence to cervical cancer screening	P-value
Age category			
25-29	52	38	
30-34	49	44	
35-39	53	55	
40-44	34	24	
35-50	22	10	
Marital status			
Single	39	37	
Married	148	104	
Separated	12	21	

Widow	10	14	
Education Level			
No education	17	33	
Primary	69	69	0.002*
TVET	8	14	
Secondary	61	43	
University	54	17	0.00*
Religion			
Christian	189	151	
Muslim	15	18	
Others	5	7	
Occupation Status			
Unemployed	36	33	
Employed	60	29	
Self-employed	54	39	
Housewife	3	7	
Casual workers	56	68	0.011*
Monthly income			
Less 50,000	84	84	
Between 50,001-100,000	62	57	0.041*
100,001-150,000	16	17	
≥150,000	47	18	0.011*
Distance to the nearest Health facility offering cervical cancer screening			
Less than one kilometer	67	49	0.003*
1km-less than 5km	103	78	
5km-less than 10 km	34	29	
10km and more	5	20	

#### 4. DISCUSSIONS

Despite ongoing global efforts to promote cervical cancer screening as a key preventive measure, our findings indicate that participation among women of reproductive age in Kigali remains low. The screening prevalence in this study was 36%, which aligns with similarly low uptake reported across sub-Saharan Africa. Studies have shown that cervical cancer screening rates in the region vary significantly between countries, reflecting important public health and clinical implications. For example, overall screening prevalence across five sub-Saharan countries ranged from as low as 0.5% in Benin to 39.3% in Namibia (15,16). This trend aligns with broader regional estimates from systematic reviews indicating screening prevalence ranges from 13.4% to 19% (17,18).

Socio demographic factors such as marital status, age, education and income emerged as important determinants of screening behaviors. A majority of participants were married (65%) and Christians (88%), a pattern also observed in similar studies from Ghana and Zimbabwe, where married women showed higher screening uptake (19). This correlation suggests that spousal support and family stability may play a role in facilitating health seeking behaviors.

Screening uptake was higher among women aged 35 -39 years (28.1), consistent with studies from east African where uptake peaked in women aged 40 and above (17,20). Older age may be associated with increased health awareness or more frequent interactions with health care services, thereby enhancing screening participation. Socioeconomic factors also strongly influenced adherence. Women with higher education levels, employment and moderate income between 50,001 - 150,000Rwf demonstrated better screening engagement. Proximity to health facilities further contributed to increased adherence, highlighting the impact of geographical access. Similar associations were reported in Botswana and Eswatini, where urban residence, education and service availability were positively linked with screening participation (21)

Limited awareness of cervical cancer risks, misconceptions about screening eligibility, and fears related to diagnosis and procedures have all been documented as deterrents. Notably studies from Ghana and Nigeria suggest that cultural perceptions and low perceived personal risk further compound these challenges .

In summary, this study reinforces the multifactorial nature of cervical cancer screening uptake, shaped by socio-demographic characteristics, health beliefs, and systemic accessibility. Addressing gaps in knowledge and attitudes through targeted community education, improving follow-up systems, and reducing psychological and cultural barriers can significantly enhance participation. Tailored strategies that consider age, marital status, education, and localized challenges are essential for improving preventive health behavior and achieving universal screening coverage.

## 5. CONCLUSIONS

This study explored cervical cancer screening adherence among women at Masaka and Kibagabaga hospitals in Kigali. Findings showed that while 36% of women had undergone screening and nearly 70% of them returned for follow-up, overall participation remains moderate. Factors such as higher education, better income, and living closer to health centers were linked to higher screening rates. However, many women lacked accurate knowledge about cervical cancer, held negative perceptions about screening, and expressed fear or discomfort with the process. Limited follow-up communication also posed a barrier, despite most women having health insurance and physical access to services.

To improve screening adherence, it is essential to increase awareness, address emotional and cultural concerns, and strengthen follow-up care. Community education and targeted sensitization campaigns can play a key role in encouraging more women to participate in cervical cancer screening and follow-up, ultimately supporting early detection and reducing the disease burden in Kigali.

## ACKNOWLEDGMENTS

### LIST OF ABBREVIATIONS

DH	District Hospital
DV	Dependent variable
GLOBOCAN	Global Cancer Observatory
HCs	Health centers
hrHPV	primary high-risk Human Papillomavirus
IDVs	Independent variables
LICs	Low-income countries
RHIMS:	Rwanda Health Information Management System
WHO	World Health Organization
USPSTF	United States Preventive Service Task Force

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