

# Cervical Cancer Screening among Urban Women in Lagos, Nigeria: Focus on Barriers and Motivators for Screening

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## Abstract

**Background:** Cervical cancer screening is known to be highly effective in reducing the incidence, morbidity, and mortality associated with cervical cancer. However, the provision and availability of these screening services have not resulted into increased uptake of cervical cancer screening in many developing countries due to the interplay of several factors which influence women's decision to undergo or not to undergo cervical cancer screening. **Objective:** The objective was to assess the factors that serve as barriers and motivators for cervical cancer screening among urban women in Lagos, Nigeria. **Methods:** A descriptive cross-sectional study conducted among women attending an urban General Hospital in Lagos, Nigeria, using a structured questionnaire to assess their barriers and motivators for cervical cancer screening. **Results:** Awareness and uptake of cervical cancer screening were low among women, accounting for 41.4% and 18.4%, respectively. The major factors motivating women to undergo cervical cancer screening were recommendation by doctor/nurse (53.3%), advice from friends/relatives (21.7%), and enlightenment by the media (20.7%). The major barriers to the uptake of cervical cancer screening were lack of awareness of screening methods (64.2%), lack of adequate information on screening methods (43.4%), and non-recommendation by doctors (41.4%). **Conclusion:** The uptake of cervical cancer screening is low among urban women in Lagos, Nigeria. The lack of awareness and adequate information on cervical cancer and its screening methods were the major barriers to the uptake of cervical cancer screening, while recommendation by doctors/nurses and advice from friends and relatives were the major motivators for cervical cancer screening.

**Keywords:** Barriers, cervical cancer screening, motivators, Nigeria, urban Lagos

## INTRODUCTION

Cervical cancer has remained a huge public health burden in many low- and middle- income countries worldwide, where it ranks as either the most common or the 2<sup>nd</sup> most common cause of cancer-related deaths in the females.<sup>[1]</sup> Globally, in 2018, it ranked as the 4<sup>th</sup> most common cancer and cause of cancer-related deaths in women with estimated 570,000 new cases and 311,000 deaths.<sup>[1]</sup> Africa has the highest incidence and mortality rates of cervical cancer in the world, which are approximately ten times higher than that seen in western countries.<sup>[1]</sup> In Nigeria, cervical cancer is the 2<sup>nd</sup> most common cancer in the country and in women, where it accounts for 21% of all female malignancies in 2018, with estimated new cases of 14,943.<sup>[1,2]</sup>

Cervical cancer has a long premalignant phase between 10 and 20 years,<sup>[3]</sup> and this allows for the possibility of early detection of precancerous lesions before invasive cancer develops. These lesions are easily detectable during routine cervical cancer

screening, even though they are majorly asymptomatic. The screening for cervical cancer has been shown to be relatively effective in detecting precancerous and early cancerous cervical lesions.<sup>[4]</sup> Current evidence-based recommendation for cervical cancer screening supports the use of cytology screening alone every 3 years, screening for high-risk human papilloma virus (HPV) alone every 5 years or co-testing with both cytology and HPV screening every 5 years.<sup>[1,5,6]</sup> In areas, where cytology-based screening is not feasible, the use of see and treat technique with visual inspection with acetic acid (VIA) or HPV testing if available followed by cryotherapy or loop electrosurgical excision procedure is advocated.<sup>[5,6]</sup>

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The use of traditional Papanicolaou (Pap) smear has proven to be an effective and also the most commonly used method for cervical cancer screening.<sup>[1,7-9]</sup> Organized population-based cervical cancer screening with Pap smear has contributed significantly to the drastic reduction in the incidence and mortality of cervical cancer in the western world over the past decades.<sup>[1,8,10-12]</sup> On the contrary, there is a conspicuous absence of organized population-based cervical cancer screening program in many low- and middle-income countries, including Nigeria.<sup>[9,13]</sup> This have resulted into many missed opportunities for cervical cancer screening and at best, the infrequent and ineffective opportunistic screening of a few women.<sup>[14]</sup>

Most of the cytology screening centers in the country are located in the secondary and tertiary health facilities in the urban areas.<sup>[15,16]</sup> As a result, majority of the rural women are either totally ignorant of the screening test or are unable to access it despite awareness. In the urban centers, where these facilities are available, and where the level of awareness of cervical cancer screening is expected to be higher, the uptake of the screening service has not been encouraging, to say the least.<sup>[16,17]</sup> Several factors have been identified as barriers to cervical cancer screening in our environment. These barriers are either client based, health-care provider based, or system based.<sup>[18]</sup> Common among these are poor awareness and knowledge about the disease and its screening strategies, lack of adequate public health campaign about the disease, its mode of prevention, and lack of awareness of screening sites. Others include inaccessibility of screening centers, non-affordability of services, poverty, religious, and sociocultural barriers, inadequate health facilities and health system support, and lack of political will.<sup>[9,16,17,19,20]</sup>

This study was designed to investigate the factors that motivate and hinder clients' uptake of cervical cancer screening in an urban secondary health facility in Lagos, Nigeria, where cervical cancer screening service is provided. These findings will assist in providing evidence-based information on ways of improving cervical cancer screening rate in our environment.

## METHODS

### Study design and setting

The study was a descriptive, cross-sectional study conducted at the Randle General Hospital, Lagos, Nigeria, between January 1, 2015, and March 30, 2015. Randle General Hospital is located in Surulere Local Government Area (LGA) of Lagos state. Surulere is an urban city with a projected population of 1,746,183 and a population density of 64,554/km<sup>2</sup> in 2016.<sup>[21]</sup> The general hospital serves as the main health facility for all the populace in the LGA. The study was conducted at the antenatal and gynecological outpatient clinics of the hospital. The antenatal clinic runs on Mondays and Fridays, while the gynecological clinic runs on Tuesdays and Thursdays between the hours of 8 am and 3 pm.

### Study population and eligibility

The study was carried out after obtaining approval from the Randle General Hospital, and informed consent was obtained

from all the study participants before the study was carried out. Women attending antenatal and gynecological clinics at Randle General Hospital who were 18 years and above and who gave verbal informed consent were recruited into the study. Women who were below 18 years of age, those with a personal history of cervical cancer, and those who did not give informed consent were excluded from the study.

### Sample size determination

The minimum sample size was calculated using the formula:  $n = Z^2 P (1 - p) / d^2$ <sup>[22]</sup> with absolute error margin of 5% ( $d = 0.05$ ), type 1 error of 5% ( $Z = 1.96$ ), and proportion of women with cervical screening uptake ( $p$ ) of 11.1% from the previous study.<sup>[23]</sup> The calculated minimum sample size required for the study was 126. This was further adjusted to compensate for non-response rate of 15% to give a final minimum sample size of 145.

### Instrument of survey and data collection

The instrument of the survey was a structured questionnaire designed to elicit information on respondents' sociodemographic characteristics, awareness of cervical cancer, awareness, and uptake of cervical cancer screening. Information was also obtained on the factors that either enhanced or hindered respondents' uptake of cervical cancer screening.

Sociodemographic characteristics elicited were age, marital status, level of education, occupation, religion, and ethnicity. Awareness of cervical cancer was assessed by asking respondents if they have ever heard of cervical cancer. Awareness of cervical cancer screening tests was assessed by asking respondents if they have ever heard of any of the cervical cancer screening test methods such as Pap smear test, HPV test, VIA test, visual inspection with Lugol's iodine (VILI) test, and colposcopy. The uptake of cervical cancer screening was determined by asking the participants whether they have ever undergone cervical cancer screening with any of the screening methods mentioned above. The method of cervical cancer screening was also determined.

Factors that enhanced respondents' uptake of cervical cancer screening were determined by asking women who had undergone cervical cancer screening to identify the factors that motivated them to undergo cervical cancer screening. These factors included recommendation by doctor/nurse, advice from friends/relatives, enlightenment by the media, knowledge of someone who has done cervical cancer screening, and perception of being at risk of developing cervical cancer. Others include knowledge of someone with cervical cancer, fear of developing cervical cancer, affordability of test, and encouragement from a spouse.

Factors that served as barriers to respondents' uptake of cervical cancer screening were assessed by asking women who had not undergone any form of cervical cancer screening to identify the factors that could be responsible for why they had not undergone screening. These factors include lack of awareness of cervical cancer screening tests, not knowing

where to do the test, non-recommendation by a doctor, the test is too expensive, and the test procedure is uncomfortable and embarrassing. Others include discouragement by a spouse, fear of being diagnosed with cervical cancer, lack of adequate information, belief that I cannot develop cervical cancer, fear of the procedure, and indecision about doing screening test.

Willingness to undergo cervical cancer screening was assessed by asking women who had not undergone any form of cervical cancer screening, whether they would like to be screened for cervical cancer. Women who were unwilling to undergo cervical cancer screening were further assessed to determine the reasons for their unwillingness.

Five hundred and fifty structured questionnaires were self-administered to consecutive eligible study participants at the two clinics, after an initial pilot study at the gynecological outpatient clinic in Lagos University Teaching Hospital, Lagos, Nigeria. Respondents were encouraged to completely fill the questionnaires, and all questionnaires were retrieved back immediately after the completion.

### Data analysis

Data were analyzed using Statistical Package for Social Sciences version 20.0, IBM Corp., Armonk, NY, USA. Variables were presented in frequencies and percentages using frequency tables.

## RESULTS

A total of 550 questionnaires were distributed, out of which 522 were retrieved, giving a retrieval rate of 94.9%. 500 (90.9%) questionnaires were correctly filled and analyzed; 243 (48.6%) were pregnant women, while 257 (51.4%) were nonpregnant women.

Table 1 shows the sociodemographic characteristics of the respondents. The mean age of the respondents was  $30.9 \pm 5.2$  years (range: 21–52 years) with majority (45.6%) of the respondents within 26–30-year-age bracket. The median parity of the respondents was 1 (range: 0–6), though majority were primigravida (45.8%) and had secondary school education (70.2%).

Majority of the study participants, 339 (67.8%) were aware of cervical cancer, but only 202 (40.4%) believed that the disease is preventable. The awareness of cervical cancer screening was poor among the women in the study with 229 (45.8%) of the respondents aware of cervical cancer screening and similar proportion, 207 (41.4%) aware of at least one cervical cancer screening method. The uptake of cervical cancer screening was very poor among the respondents with only 92 (18.4%) of the women having undergone cervical cancer screening [Table 2]. The most common methods of cervical cancer screening known by the respondents were Pap smear test and VIA, accounting for awareness rates of 37.4% and 20.4%, respectively. On the other hand, VIA and Pap smear were the most used methods for cervical cancer screening among the respondents accounting for uptake rates of 14.6% and 11.0%, respectively [Figure 1].

**Table 1: Sociodemographic characteristics of respondents (n=500)**

Variables	Frequency, n (%)
Age (years)	
≤25	78 (15.6)
26–30	228 (45.6)
31–35	125 (25.0)
36–40	43 (8.6)
41–45	19 (3.8)
>46	7 (1.4)
Total	500 (100.0)
Marital status	
Single	37 (7.4)
Married	440 (88.0)
Divorced	15 (3.0)
Separated	8 (1.6)
Total	500 (100.0)
Religion	
Islam	129 (25.8)
Christianity	366 (73.2)
None	5 (1.0)
Total	500 (100.0)
Ethnicity	
Yoruba	289 (57.8)
Igbo	148 (29.6)
Hausa	8 (1.6)
Others	55 (11.0)
Total	500 (100.0)
Level of education	
None	6 (1.2)
Primary	21 (4.2)
Secondary	351 (70.2)
Tertiary	122 (24.4)
Total	500 (100.0)
Occupation	
Skilled	45 (9.0)
Semi-skilled	292 (58.4)
Unskilled	45 (9.0)
Unemployed	118 (23.6)
Total	500 (100.0)
Parity	
0	229 (45.8)
1	141 (28.2)
2	70 (14.0)
3	31 (6.2)
4	8 (1.6)
≥5	21 (4.2)
Total	500 (100.0)

Table 3 shows the factors that motivated women to undergo cervical cancer screening. Recommendation by doctor/nurse (53.3%), advice from friends/relatives (21.7%), enlightenment by the media (20.7%), fear of developing cervical cancer (19.6%), and affordability of screening test (18.5%) were the main factors that motivated women to undergo cervical cancer screening. None of the women received encouragement from their spouse regarding cervical cancer screening.

**Table 2: Awareness of cervical cancer, cervical cancer screening methods and its uptake (n=500)**

Variables	Frequency, n (%)
Awareness of cervical cancer	
Aware	339 (67.8)
Not aware	161 (32.2)
Total	500 (100.0)
Is cervical cancer preventable?	
Yes	202 (40.4)
No	23 (4.6)
Do not know	275 (55.0)
Total	500 (100.0)
Awareness of any method of cervical cancer screening	
Aware	207 (41.4)
Not aware	293 (58.6)
Total	500 (100.0)
Uptake of any method of cervical cancer screening	
Yes	92 (18.4)
No	408 (81.6)
Total	500 (100.0)

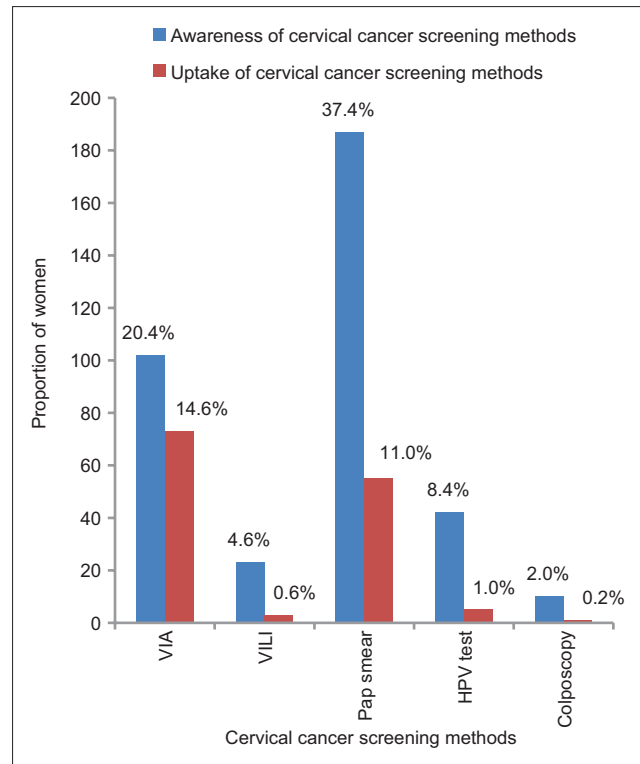
**Table 3: Motivators for cervical cancer screening uptake among respondents who had undergone cervical cancer screening (n=92)**

*Motivators	Frequency, n (%)
Recommendation by doctor/nurse	49 (53.3)
Advice from friends/relatives	20 (21.7)
Enlightenment by media	19 (20.7)
Fear of having cervical cancer	18 (19.6)
Affordability of test	17 (18.5)
Knowledge of someone who has done the test	9 (9.8)
Knowledge of someone who has cervical cancer	8 (8.7)
Perception of being at risk of developing cervical cancer	5 (5.4)
Encouragement from spouse	0 (0.0)

\*Multiple responses

The most common identifiable barrier to the uptake of cervical cancer screening among respondents was lack of awareness of screening methods, which accounted for approximately two-third (64.2%) of the reasons for not undergoing cervical cancer screening. Other common identifiable barriers among the respondents were lack of adequate information on screening methods (43.4%), non-recommendation by doctors/nurses (41.4%), not knowing where to do the test (27.7%), and belief that one cannot develop cervical cancer (20.1%) [Table 4].

270 (67.2%) of the respondents who had not undergone cervical cancer screening indicated their willingness to undergo screening, while 138 (33.8%) respondents were unwilling. The main reasons given by the respondents for not willing to undergo screening were lack of awareness and adequate information on cervical cancer and its screening methods (50.7%), non-recommendation by doctors (30.4%),

**Figure 1: Awareness and uptake of cervical cancer screening methods**

and belief that one cannot develop cervical cancer (14.5%). Others include the procedure involved in the screening test is uncomfortable and embarrassing (2.9%) and the fear of being diagnosed with cervical cancer (1.5%) [Table 5].

## DISCUSSION

Majority of the urban women in our study had low awareness rate and uptake of cervical cancer screening including Pap smear despite a relatively good awareness of the disease. This is similar to findings in other urban centers in the country<sup>[24-30]</sup> and in other developing countries.<sup>[30-32]</sup> This is probably not surprising, as cervical cancer screening in many low- and middle-income countries has been shown to be largely opportunistic in nature with most of the screening frequently done in urban centers where the facilities are available.<sup>[16]</sup> However, in spite of the availability of these services in these centers, the uptake of cervical cancer screening, especially with Pap smear has remained low, resulting in low screening rates and ineffective cervical cancer screening practice.<sup>[17,24-26]</sup> The provision of a national screening program and availability of cervical cancer screening services, may therefore, not be the only major factors that can enhance cervical cancer screening rate in our environment; as this did not translate to increase women participation, improved screening rate or reduction in incidence of cervical cancer in a similar low- and middle-income setting like Malaysia.<sup>[33]</sup>

Several other factors have been shown to affect the uptake of cervical cancer screening. Our study found that the



**Table 4: Barriers to cervical cancer screening uptake among respondents who are yet to undergo cervical cancer screening (n=408)**

*Potential barriers	Frequency, n (%)
Lack of awareness of screening methods	262 (64.2)
Lack of adequate information on screening methods	177 (43.4)
Nonrecommendation by doctors/nurses	169 (41.4)
Not knowing where to do test	113 (27.7)
Belief that one cannot develop cervical cancer	82 (20.1)
Indecision about doing test	53 (13.0)
Test too expensive	50 (12.3)
Fear of being diagnosed with cervical cancer	43 (10.5)
Test procedure is uncomfortable and embarrassing	31 (7.6)
Fear of the procedure	22 (5.4)
Discouragement by spouse	17 (4.2)
*Multiple responses	

**Table 5: The main reasons given by women for not willing to undergo cervical cancer screening (n=138)**

Main reasons	Frequency, n (%)
Lack of awareness and adequate information on cervical cancer and its screening methods	70 (50.7)
Nonrecommendation by doctor	42 (30.4)
Belief that I cannot develop cervical cancer	20 (14.5)
Test procedure is uncomfortable and embarrassing	4 (2.9)
Fear of being diagnosed with cervical cancer	2 (1.5)
Total	138 (100.0)

recommendation of cervical cancer screening by health-care practitioners, especially by doctors and nurses was the most important driver for the uptake of cervical cancer screening among women in our study. Several other studies<sup>[25,34,35]</sup> have also shown that the recommendation of Pap smear by doctors significantly contribute to the reason why women decide to do the test. This is not surprising as these health workers make more contact with the patients than any other members of the health team. In addition, patients tend to take the advice of their doctors more seriously and are more likely to follow their recommendations. In our environment where there is absence of organized population-based cervical cancer screening program, doctors and nurses have a great role to play in improving the present low rate of cervical cancer screening practice. It is important that health practitioners especially doctors and nurses regularly educate their female clients on the need for regular cervical cancer screening irrespective of the reason for their consultation or presentation at the health facility.

Another major motivator for the uptake of cervical cancer screening in our study was advice from friends and relatives. This group of people plays a crucial role in human social relationship and they are recognized sources of information on cervical cancer and its screening methods.<sup>[30,34]</sup> Positive support from family and friends has been shown to play an important role in facilitating the uptake of cervical cancer screening.<sup>[36,37]</sup> This is particularly important in the African culture, where

values are placed on close social and family relationships. Advice from such relationships can either positively or negatively influence the decision to undergo cervical cancer screening. Hence, there is the need for good education of the general populace about cervical cancer, preventive practices and its screening methods, and where such screening can be done. To achieve this, the mass media has a critical role to play. A significant proportion of women in our study reported that education by the media was the major motivating factor for undergoing cervical cancer screening. The mass media, be it print or electronic, has been shown in several studies to be a major source of awareness and knowledge on cervical cancer and its preventive practices to many women;<sup>[15,18,30,31,34,38,39]</sup> and many women have been encouraged to undergo cervical cancer screening as a result of its influence.<sup>[25]</sup>

Another important motivator for undergoing cervical cancer screening was the fear of having cervical cancer. Unfortunately, this could also be a major barrier for some women who are afraid of being diagnosed of the disease, as seen in our study. This is congruent to findings in other similar studies where this factor acted as either a motivator<sup>[25,40]</sup> or a barrier.<sup>[25,31,39,41]</sup> This fear is probably based on poor understanding of the process of the development of cervical cancer and the misconception that any abnormal screening result tantamount to the diagnosis of invasive cervical cancer. Most women are not well informed about the difference between premalignant lesions of the cervix and invasive cancer of the cervix. This shows that there is a need for education of women on how cervical cancer develops from precancerous cervical lesions and how cervical cancer screening detects these precancerous lesions before they develop into cancer. This will go a long way in allaying their fears and motivating them to undergo screening.

The cost of undergoing a cervical cancer screening test was identified as a factor that could either motivate or hinder a woman from doing the test. Being able to afford the cost of the screening test was the motivating factor in 18.5% of the respondents, while the inability to afford the cost of screening was the obstacle in 12.3% of women who never had the screening test. These findings are similar to those reported in other studies.<sup>[31,41,42]</sup> It is therefore important that the cost of cervical cancer screening be subsidized by the government, so as to encourage as many women as possible to undergo cervical cancer screening.

Other motivating factors identified were, knowing someone who has cervical cancer or who had undergone cervical cancer screening, and perception of being at risk of developing cervical cancer. However, only few women were motivated by these factors. Women's perception about their susceptibility to developing cervical cancer has been shown to be an important factor that either motivates or hinders the likelihood of cervical screening uptake.<sup>[42,43]</sup> Women who perceived that they are at increased risk of having cervical cancer are more likely to make themselves available for screening, while those that have misconception about their risk of having the disease are

more likely not to undergo screening. Approximately one-fifth of the women who had not undergone screening in our study reported not doing cervical cancer screening, because they perceived they are not susceptible to developing cervical cancer. This is comparable to findings in studies done in a similar setting.<sup>[25,44]</sup> Education of women on the risk factors for cervical cancer will improve the understanding of their susceptibility to cervical cancer.

A major obstacle to the uptake of cervical cancer screening is the ignorance of the screening methods. Approximately 64% of women who had never undergone cervical cancer screening alluded to the lack of awareness about screening methods as the main barrier to their uptake of cervical cancer. This is not surprising as similar proportion of the women in the study (58.6%) had never heard of any method of cervical cancer screening before. Another 43.4% of women who had never undergone cervical cancer screening reported that they lacked adequate information on cervical cancer screening methods as a reason for not undergoing screening. Similar findings are seen in other studies, where these factors were observed to be major barriers to cervical cancer screening.<sup>[9,21,25]</sup> Just like recommendation by the doctor was a significant motivator for the uptake of the cervical cancer screening test,<sup>[25]</sup> its non-recommendation was also reported as major barrier to respondents' uptake of screening test. This has been shown to be a major contributor to the low uptake of cervical cancer screening with Pap smear in many low- and middle-income countries, where organized cervical cancer screening is lacking.<sup>[9,25,34,37]</sup> The high proportion of women who reported non-recommendation of the test by doctors shows that many doctors do not regularly talk to their patient about cervical cancer screening; and this may be one of the reasons why there is low level of awareness and uptake of cervical cancer screening test among the women.

Other barriers to the uptake of cervical cancer screening reported by the respondents were: not knowing where to do screening test, fear of the procedure, and belief that screening test is uncomfortable and embarrassing. These factors have also been reported in other studies.<sup>[25,41,45]</sup>

It is worthy to note that majority (66.2%) of the women who had not undergone screening were now willing to undergo cervical cancer screening. However, for those who were unwilling; their reasons for not wanting to undergo screening were familiar. They cited the lack of awareness and adequate information on cervical cancer and its screening tests, non-recommendation by doctors, and perceived non-susceptibility to the disease as the core reasons for not willing to be screened. There is therefore, an urgent need to raise the level of awareness of cervical cancer screening among women in our environment. This will involve a concerted effort by the government and all stakeholders. Regular counseling, education, and recommendation of cervical cancer screening to female clients by physicians are advocated. In addition, the use of the mass media for wide dissemination of information

and education of the population on the awareness, risk, and screening of cervical cancer should be encouraged. This will go a long way in improving the awareness and uptake of cervical cancer screening among urban women in Lagos, Nigeria.

## CONCLUSION

The uptake of cervical cancer screening is low among urban women in Lagos, Nigeria despite the availability and provision of the screening service. This is as a result of the interplay of several factors that act as either barriers or motivators to its uptake. The lack of awareness and adequate information on cervical cancer and its screening methods, non-recommendation of screening test by doctors, and personal misconception about susceptibility to the disease were the major barriers to the uptake of cervical cancer screening. The major motivators for cervical cancer screening were recommendation by doctors/nurses, advice from friends and relatives, and enlightenment by the mass media.

## Recommendation

There is a need for concerted effort by the government and all stakeholders to urgently improve the screening rate of cervical cancer in our environment. Identifying and eliminating barriers that prevent women from accessing cervical cancer screening and promoting factors that enhance their uptake of the screening will significantly increase the uptake of cervical cancer screening tests and improve cervical cancer screening rate among women in our environment. This will ultimately lead to reduce the incidence of the disease and its associated morbidity and mortality.

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## Conflicts of interest

There are no conflicts of interest.

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