Reasons for Not Attending Cervical Cancer Screening and Associated Factors in Rural Ethiopia

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ABSTRACT

Social, economic, and cultural factors have been associated with the level of participation in cervical cancer screening programs. This study identified factors associated with nonparticipation in cervical cancer screening, as well as reasons for not attending, in the context of a population-based, cluster-randomized trial in Ethiopia. A total of 2,356 women aged 30 to 49 years in 22 clusters were invited to receive one of two screening approaches, namely human papillomavirus (HPV) self-sampling or visual inspection with acetic acid (VIA). Participants and nonparticipants were analyzed according to their sociodemographic and economic characteristics. Reasons were determined for the refusal of women to participate in either screening method. More women in the VIA arm compared to the HPV arm declined participation in the screening [adjusted OR (AOR) 3.5; 95% confidence interval (CI), 2.6–4.8]. Women who declined attending screening were more often living in rural areas (AOR = 2.0; 95% CI, 1.1–3.5) and were engaged in informal occupations (AOR = 1.6; 95% CI, 1.1–2.4). The majority of nonattendants perceived themselves to be at no risk of cervical cancer (83.1%). The main reasons given for not attending screening for both screening approaches were lack of time to attend screening, self-assertion of being healthy, and fear of screening. We found that perceived time constraints and the perception of being at no risk of getting the disease were the most important barriers to screening. Living in rural settings and informal occupation were also associated with lower participation. Offering a swift and convenient screening service could increase the participation of women in cervical cancer screening at the community level.

Introduction

Cervical cancer is one of the most common cancers among women in developing countries (1). In Ethiopia, it is the second leading cause of morbidity and mortality among all cancers in women (2). The World Health Organization (WHO) recommends early detection of cancer through organized screening programs in developing countries to reduce the growing burden of disease (3, 4). Unlike other cancers, cervical cancer can be prevented and possibly cured if identified at an early stage through organized screening, and this can possibly also be achieved in developing countries (5). The WHO envisages the elimination of cervical cancer as a public health problem in the next 100 years, mainly through organized comprehensive prevention and control approaches (6, 7). This program prioritizes placement of screening activities and ensures active participation of the targeted population (4, 7).

According to Ethiopian cervical cancer screening guidelines, women aged 30 to 49 years are targeted for visual inspection with acetic acid (VIA) screening, which is the method of choice for cervical cancer screening (2). The Ministry of Health in Ethiopia has been actively working to make VIA screening available in many district hospitals and health centers throughout the country (8); however, its coverage and uptake has been low. Accordingly, small-scale studies in different parts of the country have documented cervical cancer screening in only 5% to 20% of age-eligible women (9–11).

Several barriers hindering women from participation in cervical cancer screening have been identified. Common reasons for its low use stem from a false perception of cervical cancer and its screening due to knowledge deficits (12). The educational level of women is often mentioned as a reason for declining a screening invitation (13). Fear of embarrassment during the screening is also associated with poor uptake (14). Different studies have indicated that cultural and societal barriers related to the taboo of the genital area being touched were linked with declining a cervical cancer screening

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offer (15, 16). The perceptions of women as to their risk of developing cervical cancer were also critically associated with poor uptake (12). In addition, fear of the results and general reluctance to make time for screening were frequently reported factors for its low use (12, 17).

Self-sampling for human papillomavirus (HPV) testing was more acceptable among women in different countries, and was associated with higher uptake and accessibility (18, 19). Unlike VIA, HPV testing can be done at the doorstep through women's self-collection of samples (18). However, studies have identified multiple barriers to women participating in HPV self-sampling tests. Knowledge of women regarding HPV and its screening has been linked with their level of participation in this procedure (20, 21) and with misconceptions about its modality (21). Unlike other methods of cervical cancer screening, women were concerned about how to perform the procedure correctly (22, 23). In addition, fear of pain and discomfort during the procedure were reasons mentioned for nonparticipation (23).

Hence, this study used data from the randomized controlled trial conducted at the Butajira Health and Demographic Surveillance Site in Ethiopia to compare the uptake of cervical cancer screening for HPV self-sampling and VIA (24). The trial demonstrated that there was much better uptake by women for HPV testing than that for VIA. As part of the project activities, the current study compared women who refused to participate in the screening (in both arms) with those who participated, and the reasons for refusal were determined.

Methods

Study design and population

The cluster-randomized trial had a total of 22 clusters, each comprising 80 women, as a minimum required sample, divided equally between two arms: HPV self-sampling and VIA (23). Women aged 30 to 49 years were targeted for screening in both arms. Of the 2,356 women sensitized for screening in both arms, 761 (568 from the VIA arm and 193 from the HPV arm) failed to attend screening. Of those women who did not attend screening, 390 (51%; 264 from the VIA arm and 126 from the HPV self-sampling arm) were interviewed (**Fig. 1**).

Procedure and data collection

For the cluster-randomized trial (24), for all women in both arms, community mobilization was conducted in each village using health extension workers under the supervision of a facilitator. Similar approaches to sensitization were employed using the tailored pre-tested guiding sensitization material for both screening arms. After sensitization, all targeted women were invited to either the Butajira hospital for the VIA arm, where the service was only available during the study period, or to the primary health care unit at their vicinity for HPV self-sampling. In the HPV self-sampling arm, women were provided an Evalyn Brush (Rovers, the Netherlands) at a primary health post to collect a swab by themselves under active supervision by a trained health professional. Samples were stored and transported to the Central Molecular Laboratory Addis Ababa University for DNA extraction and testing. A DNA aliquot was sent to the Department of Gynaecology at Charité Universitätsmedizin Berlin, Germany, for validation and HPV genotyping. The genotyping was performed with MPG-Luminex Assay read out. During the sensitization, all women who attended the education events were registered with their name, specific residence, and contact information. Women were told to visit the screening locations on any of five consecutive days after the sensitization. The women were able to choose a day convenient to them to help reduce the attrition rate. All women who appeared at the screening locations were listed in a separate file, whereas women who did not show up during this period were considered nonattendants. The research team reconciled files from both arms of the study to select women who failed to attend any of the screening locations for inquiry as to the reasons for their absence. Trained research assistants were deployed to the household of each nonattendant to collect information using a structured questionnaire. An open question was asked to solicit the main reason for not attending the screening. Women who were not traced or assessed after two attempts were considered to be not accessible.

Data analysis

Descriptive analysis was undertaken to determine the sociodemographic characteristics of participants according to their screening status. Continuous variables, such as age, were changed to categorical variables for ease of reporting. ORs and adjusted ORs (AOR) with 95% confidence intervals (CI) were calculated to assess differences between participants and nonparticipants according to sociodemographic and economic characteristics. Reasons for not attending the screening were categorized into personal barriers, health facility–related barriers, and societal barriers as the identified themes belonged to both previously assigned arms of HPV self-sampling and VIA.

Ethical considerations

Ethical approval was obtained from the institutional review boards of the College of Health Sciences, Addis Ababa University (058/17/SPH), and Martin-Luther University, Halle, Germany (2017-143). The study was in line with the Declaration of Helsinki and the International Ethical Guidelines for Biomedical Research Involving Human Subjects. Oral informed consent was obtained from screening participants and nonparticipants asked about reasons for their nonparticipation and was documented. To ensure women's privacy, the list of women who did not participate in screening was not transferred to any third body or local administrators. In addition, interviews were performed in a manner that maintained privacy and confidentiality.

Results

Study participants' characteristics

The demographic characteristics of participants and nonparticipants in screening are summarized in **Table 1**. The majority of women in both arms of the study were Muslim

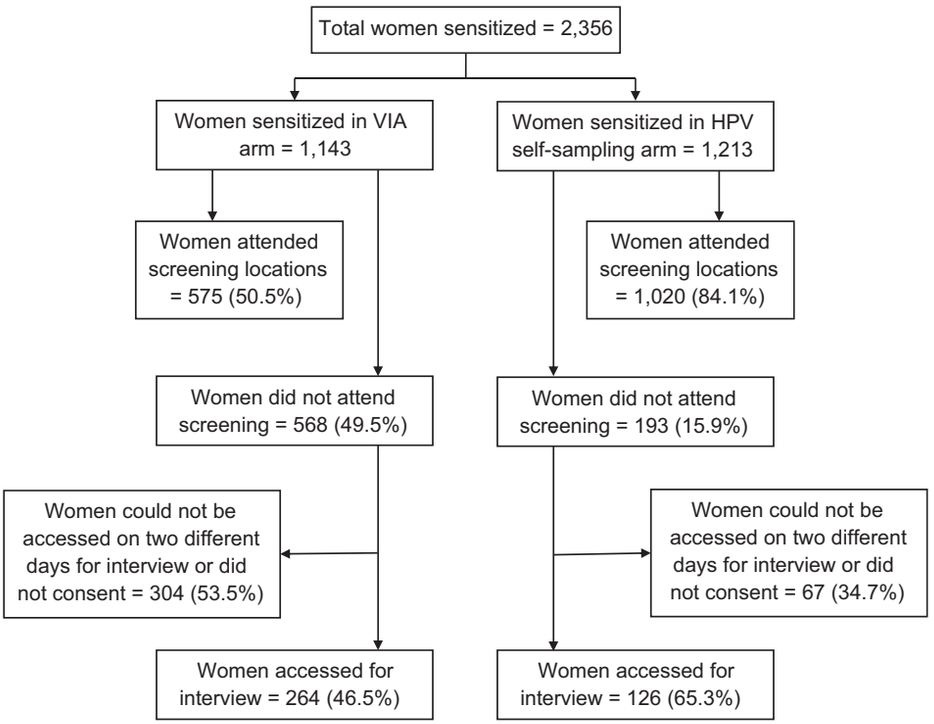

Figure 1.
Schematic flow of study participants in Butajira District, Ethiopia, 2018.

(71.3% screening nonattendants and 72.6% attendants), consistent with the predominant religion, and resided in rural settings (82.8% screening nonattendants and 83.5% attendants). Two-thirds (67.7%) of nonattendant women were from the VIA arm. Women who did not attend screening were more often unmarried compared to those who accepted screening (9.5% vs. 6.5%). Women who did not attend screening were more often in the age category of 35–39 years compared with those who accepted screening (39.2% vs. 28.7%). The majority of screening nonparticipants and participants had no formal education (54.5% and 64.5%, respectively). However, a larger portion of nonattendants had attended primary school and secondary school only (39.1% and 6.4%, respectively) compared with those who accepted screening (30.6% and 4.9%, respectively). In addition, more nonattendants had some form of offsite occupation, such as being day laborers or small traders (20.3%), compared with those who accepted screening (13.2%).

Factors affecting nonparticipation of women in cervical cancer screening

After adjusting for demographic characteristics of women and husbands, women in the VIA arm had three times higher odds of deferring participation in cervical cancer screening compared to women in the HPV arm (AOR = 3.5; 95% CI, 2.6–4.8). Women residing in rural settings had twice the chance of not attending (AOR = 2.0; 95% CI, 1.1–3.5) compared to those who lived in the urban part of the district. Women aged 35 to 39 years were more likely to defer participation (AOR = 1.5; 95% CI, 1.1–2.1) when compared to women aged 30 to 34 years. Attendance was significantly associated with primary education of women (AOR = 1.4; 95% CI, 1.1–1.9) and their husbands (AOR = 1.5; 95% CI 1.1–2.1) when compared with those who had no formal education. In addition, women engaged in some form of outdoor work were more likely to not attend screening (AOR = 1.6; 95% CI, 1.1–2.4) compared with housewives (**Table 1**).

Main reasons given for not attending the screening

Of the 390 women who refused screening from the VIA and HPV self-sampling arms, 186 (70.5%) and 97 (77.0%) reported being busy with other activities or having no time to go for screening, respectively. Of the women assigned in the VIA arm compared with the HPV self-sampling arm, 43 (16.3%) suggested that screening would not help them because they considered themselves healthy. In addition, 14 (5.3%) and 9 (7.1%) women reported that fear of receiving bad news from others in the community influenced their decision to go for screening in the VIA and HPV arms, respectively. Other reasons contributing to screening nonattendance were as follows: women not being convinced that screening was necessary because of the information provided, the influence of their husband, fear of positive results after screening, and the feeling of shame because screening involved their genitalia being touched (**Table 2**).

Perceived barriers to participation in screening

Of the 390 women who did not participate in either of the screening approaches and could be accessed for interview, 353 (90.5%) women believed that cervical cancer was a serious disease that causes death. However, 324 (83.0%) women considered that they were not at risk of developing the disease in

Table 1. Sociodemographic characteristics and factors affecting nonparticipation of women in cervical cancer screening in Butajira District, Ethiopia, 2018.

Demographic characteristics	Total ($N = 1,689$) *n* (%)	Screening nonattendant ($N = 390$) *n* (%)	Adjusted OR[a] (95% CI)	*P*
Screening arms				
Self-sampled HPV arm	961 (56.9)	126 (32.3)	1	
VIA arm	728 (43.1)	264 (67.7)	3.51 (2.56–4.82)	<**0.000001**
Religion				
Christian	468 (27.7)	112 (28.7)	1	
Muslim	1,221 (72.3)	278 (71.3)	1.47 (1.07–2.00)	**0.016**
Residence				
Urban	281 (16.6)	67 (17.2)	1	
Rural	1,408 (83.4)	323 (82.8)	1.99 (1.13–3.48)	**0.016**
Distance to hospital				
<5 km	424 (25.1)	111 (28.5)	1	
5–10 km	498 (29.5)	143 (36.7)	1.26 (0.79–1.99)	0.322
>10 km	767 (45.4)	136 (34.9)	0.70 (0.45–1.10)	0.114
Marital status				
Married	1,567 (92.8)	353 (90.5)	1	
Unmarried	122 (7.2)	37 (9.5)	3.6 (1.41–9.18)	**0.007**
Age category (years)				
30–34	879 (53.8)	176 (47.6)	1	
35–39	508 (31.1)	145 (39.2)	1.51 (1.10–2.07)	**0.009**
40–44	155 (9.5)	29 (7.8)	0.75 (0.42–1.32)	0.321
45–49	93 (5.7)	20 (5.4)	0.97 (0.50–1.87)	0.940
Education of women				
No formal education	1,050 (62.2)	212 (54.5)	1	
Primary (1–8)	549 (32.5)	152 (39.1)	1.43 (1.05–1.93)	**0.020**
Secondary and above	89 (5.3)	25 (6.4)	1.52 (0.82–2.82)	0.183
Occupation				
Housewife	1,438 (85.1)	311 (79.7)	1	
Day laborers and merchants	251 (14.9)	79 (20.3)	1.64 (1.13–2.39)	**0.009**
Education of husbands				
No formal education	836 (49.5)	152 (39)	1	
Primary (1–8)	701 (41.5)	197 (50.5)	1.54 (1.14–2.10)	**0.004**
Secondary and above	152 (9.0)	41 (10.5)	1.03 (0.63–1.72)	0.886

Note: *P* values < 0.05 are highlighted in bold.

[a]Data adjusted for place of residence, age of women, occupation of women, marital status, religion, occupation of husbands, age of husbands, education of husbands, and screening arm.

their lifetime. Of all women who did not participate, 79 (20.3%) reported that their husbands would not allow them to go for screening. In addition, 58 (15.0%) nonparticipants reported that failure to attend a screening was due to a lack of trust in the health professionals working at the nearby health facilities. However, 352 (90.2%) women acknowledged that sensitization and awareness information were adequate in helping them decide to participate (**Table 3**).

Table 2. Main reasons for not attending the screening according to the screening strategy among respondents who had not attended screening in Butajira District, Ethiopia, 2018.

Reasons for not attending screening	VIA-based screening Frequency ($N = 264$), *n* (%)	HPV self-sampling Frequency ($N = 126$), *n* (%)
No time to attend	186 (70.5)	97 (77)
Perceived health	43 (16.3)	10 (7.9)
Fear of bad news from others	14 (5.3)	9 (7.1)
Not convinced to attend	13 (4.9)	7 (5.6)
Feeling of shame about screening	2 (0.8)	3 (2.4)
Influence of husband	3 (1.1)	—
Fear of positive result	3 (1.1)	—

Discussion

This study assessed factors associated with the participation of women in cervical cancer screening by two different methods and their reasons for not attending. Findings from this study demonstrate that VIA-based screening, being 35 to 39 years of age, working status, health perception, culture, place of residence, marital status, and educational level affected the uptake of cervical cancer screening. The main reasons reported for being unable to attend the screening were being busy with other daily tasks, women's perceived health, and the fear of receiving bad news from others in the community.

The current study showed that the majority of women (83.1%) perceived themselves to not be at risk of developing

Table 3. Perceived barriers to undergo cervical cancer screening among respondents who had not attended screening in Butajira District, Ethiopia, 2018.

Self-belief and health facility–related factors	Frequency ($N = 390$), *n* (%)
Cervical cancer is a serious disease	
Yes	353 (90.5)
No	37 (9.5)
I am not at risk of the disease	
Yes	324 (83.1)
No	66 (16.9)
My husband would not allow me to go for screening	
Yes	79 (20.3)
No	311 (79.7)
I was not satisfied with a previous visit to the hospital	
Yes	52 (13.3)
No	338 (86.7)
Providers are not trustworthy	
Yes	58 (14.9)
No	332 (85.1)
Fear of long waiting time at the hospital	
Yes	19 (4.9)
No	371 (95.1)
The information provided was adequate	
Yes	352 (90.2)
No	38 (9.8)
Fear of the results of screening	
Yes	24 (6.2)
No	366 (93.8)

cervical cancer. This result was consistent with previous studies conducted in Southern Ghana and Saudi Arabia, where respondents scored themselves at below average risk in terms of contracting the disease (25, 26). A possible explanation for this might be that the knowledge surrounding cervical cancer was poor in women from developing countries in general, and particularly those from Ethiopia (11, 26–28).

The current study further elaborated on the main reasons for declining screening by using open questions. Personal factors mentioned by women were as follows: not having time to attend the screening, perceiving themselves as healthy and viewing the screening as being for diseased persons, fear of a long-time commitment, inadequate information on screening, and fear of positive results. The single health facility–related barrier was a lack of satisfaction in the health facility where the screening was to take place. Societal-related barriers included fear of bad news from the screening activities, cultural taboos involving the touching of genitalia by others, and the influence from husbands to not attend. Despite all of these factors contributing to nonattendance at screenings, the majority of women claimed lack of time as the most important issue. A possible explanation for this might be the engagement of women in routine businesses in rural settings of the country, as well as their occupational status. These findings were consistent with other reports in which personal, health facility, and cultural factors influenced women not to attend cervical cancer screenings in different settings (14, 25, 29, 30).

The data revealed that participation by women in VIA-based screening was lower compared with HPV self-sampling. The acceptability of VIA compared with other screening modalities has been found to be low in many countries (30). This might be due to the invasiveness of pelvic examination and related cultural taboos (31). However, self-sampling for HPV testing has been found to be more acceptable, as the procedure is easy for women to perform and samples can be collected at their doorstep (32, 33).

The findings from this study suggest that women from rural areas are more likely to refrain from attending cervical cancer screening compared to those from urban locations. This finding is consistent with previous reports elsewhere, indicating that nonparticipation was due to a knowledge gap, the distance to the screening service, and cultural and societal views (29, 34–36). It is evident that knowledge related to cervical cancer and its prevention is poor in Ethiopian women, particularly among those who reside in rural areas, where there is also a shortage of services (11, 28).

The findings from this current study indicate that married women used cervical cancer screening more often than unmarried women. This finding was consistent with previous reports suggesting that being married was an independent factor influencing the uptake of different cancer screening services, as well as disease outcomes and treatment (37, 38).

In this study, women aged 35 to 39 years were less likely to attend cervical cancer screening than younger women. A possible explanation for low acceptance of screening in this age group might be practical challenges related to their outdoor working practices and other social circumstances compared to their younger peers. Moreover, the findings from this study indicate that older women were relatively more receptive to cervical cancer screening than younger women. This might possibly be explained by their availability at home and thereby their avoidance of some of the practical challenges in undergoing screening.

Our findings indicate that women who engaged in both formal and informal occupations were more likely to decline screening compared with housewives, which might be dictated by time constraints due to their work. This finding was consistent with a previous study (39). In Ethiopia, especially in rural settings, women are engaged in making money by selling goods and working as day laborers, which means that they may travel long distances and get home late at night, affecting their ability to attend screening. In addition, having a husband who works was negatively associated with screening uptake likely because those women would need to tend to the home and take care of the children, and therefore they would not be able to attend screening.

We acknowledge the following limitations of the study. First, data could not be collected from all of the women who failed to attend screening, even if we tried twice to access them. Background information was available only for the interviewed

study subjects. As a result, we are unable to extrapolate reasons and factors associated with nonattending among the noninterviewed study subjects. We assumed that the missing data were random; however, it was possible that the comparison did not show a true difference in reasons for nonattending between the two different screening approaches. Moreover, we assumed that women who worked outside the home were underrepresented. Second, the choice of a 5-day window to participate in screening might have affected the turnout of women for screening during the study period. Approximately half of the women invited to participate in the VIA arm did not undergo screening in that 5-day window. Some of those women who did not participate might have undergone screening had they been given more time. Notably, those who had a rural residence, and therefore likely had fewer transportation options, were less likely to participate. Those with jobs, and who therefore may not have been able to attend on those dates, were also less likely to participate.

In addition, it would have been better to have formal qualitative information, using focused group discussions and in-depth interviews with some of the women who did not attended screening, to obtain precise information as to why they did not attend. However, we used open questions, although self-reporting reasons for not attending screening might have been affected by recall and information biases. Even so, this study had some strengths: (i) the women were part of a study employing a robust design, which had an adequate sample size; (ii) direct comparisons were made between participants and nonparticipants in screening from the same population; and (iii) the influences of different screening approaches on attendance rates were assessed in the same population.

In conclusion, this study demonstrates that some of the population needed special consideration to increase attendance at cervical cancer screenings in Ethiopia. Additional efforts must be made for women who reside in rural settings, are engaged in time-consuming and outdoor jobs, and are not married. The perception of women about their health was associated with poor knowledge about cervical cancer and its prevention, which contributed to women not attending the screening. This study also suggests that to increase participation, a swift and convenient screening service should be offered, which can be completed quickly at the doorstep. Culturally sound behavior-changing education should be aimed at resolving misconceptions related to screening. Moreover, while providing education, the influence of the different factors at the household level and in the community should be considered.

Disclosure of Potential Conflicts of Interest

A.M. Kaufmann reports a patent to EP 19 15 6203 pending. No potential conflicts of interest were disclosed by the other authors.

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