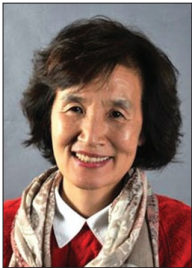


# Exploring Complicity of Cervical Cancer Screening in Malawi: The Interplay of Behavioral, Cultural, and Societal Influences

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## ABSTRACT

**Objective:** Cervical cancer is preventable, and early diagnosis is possible using low-cost technologies, but a scant number of women receive cancer screening in Malawi. This study aims to identify facilitators and barriers that influence the uptakes of cervical cancer screening behavior in Malawi. **Methods:** A rapid ethnographic approach with the goal of optimizing planning for a future intervention study was utilized. Data were collected from three focus groups and seven individual interviews with adults in their communities, stakeholders, and health-care providers. **Results:** Three categories (sociocultural influences, access to the health-care system, and individual factors) have emerged as facilitators or barriers to cervical cancer screening among Malawian women. The findings also showed that cervical cancer screening behavior is situated socially through cultural and health-care services of a given community. **Conclusions:** Cancer screenings are only sought when illness

symptoms persist or worsen. Awareness and knowledge of cervical cancer and cervical cancer screening is low among both health-care providers and the general population. Health-care systems are donor driven and focus on a single disease, health-care access is the greatest challenge to cervical cancer screening, and health-care providers are not adequately prepared to work for rapid increase in the prevalence of cervical cancer. Integrating cervical cancer screening into the existing health-care system is sustainable way forward, and nurses prepared to handle cervical cancer management can play an essential role to promote cervical cancer screening in a health resource-constrained setting.

**Key words:** Behavior, cervical cancer screening, culture, global health disparities, HIV, rapid ethnography, resource-limited settings, women

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## Introduction

Cervical cancer is the leading cause of cancer deaths among women in low- and middle-income countries. Malawi was reported to have the second highest incidence of cervical cancer but the highest cervical cancer mortality rate in the world with a world age-standardized rate of 75.9/100,000, almost ten times higher than that reported in the US.<sup>[1,2]</sup> Cervical cancer incidence and mortality in the US has declined significantly since the 1950s by more than 60% as a result of the introduction of cervical cancer screening programs.<sup>[3-5]</sup> The 5-year survival rate is 91% for the patients diagnosed when the cancer is localized and falls to 57% for women diagnosed with the regional and distant stage diseases, respectively.<sup>[6]</sup> In Malawi, however, the median survival time from the time of diagnosis is 10 months and the 5-year survival rate is only 2.9%.<sup>[7]</sup> More than 80% of Malawian women diagnosed with cervical cancer are at the inoperable cancer stage.<sup>[8-10]</sup> Moreover, this cancer seems to occur at a younger age than is usual, and HIV-infected women have an increased risk for the development of invasive cancer.<sup>[11-14]</sup>

While human papillomavirus vaccinations have been demonstrated to be effective in the prevention of cervical cancer in developed countries,<sup>[15-17]</sup> these methods are too expensive for use in resource-limited developing countries. Early cervical cancer screening can detect cervical intraepithelial grades 2 or 3 that are precancerous lesions and if treated, can prevent the development of invasive cervical cancer.<sup>[18]</sup> The WHO Global Action Plan on noncommunicable diseases (NCDs) describes visual inspection with acetic acid (VIA) and treatment with cryotherapy or thermal (or cold) treatment as one of the “best buys” for low- and middle-income countries.<sup>[19]</sup> The meaning that it is both highly cost-effective (i.e., it costs less than per capita gross domestic product to avert one disability-adjusted life year), and it is feasible to implement in resource-limited health-care systems. One of the main strengths of the VIA method is the prompt availability of the test results which allows the immediate treatment of women who test positive.<sup>[20]</sup> This is known as “screen-and-treat.” This same-day screening and treatment allows health providers to reduce the dropout rates associated with the multiple visits required for the cytology-based screening approach; however, maintaining an adequate supply of material was reported as a barrier to the implementation of single-visit approaches, where VIA and cryotherapy are applied in the same visit.<sup>[21,22]</sup> There are multiple cervical cancer screening programs that are administered by either the government or nongovernmental organizations in Malawi, but very few women have undergone screening. In order to reduce cancer incidence of cervical cancer, the

Malawi Ministry of Health (MoH) established the Malawi National Cancer Control Program (CECAP) in 2004 to coordinate national efforts to mitigate the burden of cervical cancer. However, after 10 years since its implementation, the MoH acknowledged that the 2004 CECAP was not successful and in a new plan, the MoH identified challenges in the management of CECAP. A new program, the 2016–2020 strategic plan, was developed based on lessons learned from 2004 CECAP program.<sup>[23]</sup> Those challenges included a lack of awareness of cervical cancer problem among the general population as well as health-care workers, issues related to the accessibility and availability of cancer screening programs, and the health-care system’s inability to provide the screen-and-treat at the same visit. In 2015, 26.5% of Malawian women received cervical cancer screening and only 15.9% of HIV positive women were screened.<sup>[12]</sup> Though the chances of surviving the onset of cancer depends largely on how early they are detected, very few women have undergone screening and many are diagnosed with invasive late-state cancer as is the case in most developing countries.<sup>[7,8,14]</sup>

Cervical cancer is preventable, and there is an urgent need to implement low-cost approaches for prevention and early detection.<sup>[24]</sup> There are several issues that need to be addressed in order to develop an effective intervention system within the health-care system, community, and social contexts. Evidence-based, culturally appropriate, and context-specific interventions emphasizing the multilevel causes of screening behavior, especially in addressing issues related to sociocultural contexts, are critical. Reports from SSA countries including Malawi suggest that barriers to cervical cancer screening include cultural influences, religion, lack of knowledge about cervical cancer, little awareness of the existing prevention and early detection methods, fear of the stigma associated with cancer diagnosis, influence of husbands and in-laws, cost, and embarrassment about the screening procedures.<sup>[25-27]</sup> However, most studies focus only on individual screening behavior attributes, on health delivery, or only perspectives from either health-care providers or health-care recipients. There is a very limited knowledge of the multilevel determinants (at the individual, interpersonal, and sociocultural level) for cervical cancer screening from the perspectives of both health-care providers and health-care recipients in Malawi. Given the paucity of empirical data to develop evidence-based strategies, this study aims to identify facilitators and barriers that influence the uptakes of cervical cancer screening behavior. Additional aims are to understand the mechanisms of cervical cancer screening behavior by assessing the sociocultural contexts in which the screening behavior occurs and assessing the perspectives of

patients, health-care providers, and stakeholders. Outcomes for this research are to gain not only individual data but also sociocultural data in order to develop culture-specific and human-centered interventions to improve cervical cancer screening behaviors among Malawian women.

A rapid ethnographic method in two interrelated steps was used as a pragmatic strategy to inform design and intervention development and implementation.<sup>[28-31]</sup> Rapid ethnography emphasizes shorter periods of data collection and a quick turnaround of findings to provide evidence for the development of a situation-specific intervention program. Although not reported here, toward the end of our study, the situation-specific- and human-centered intervention will be developed, field-tested, and refined.

## Methods

### Study design

This study utilized a rapid ethnographic approach to understand cervical cancer screening behaviors focusing on the facilitators and barriers from the perspectives of Malawian women, stakeholders, and health-care providers. This method facilitates quick and efficient data collection from various qualitative approaches that aim to build evidence-based knowledge to guide the design and implementation of an intervention program. This approach is necessary given the rapid increase in cervical cancer incidence and high mortality in Malawi.<sup>[1,2,30,31]</sup> This study has been approved by the Internal Review Boards of the University of Massachusetts Boston in the US and of Daeyang Luke Hospital in Malawi.

### Settings

This research project was conducted at University Hospital and in community settings in central Malawi. Dayang University in Lilongwe, the capital city of Malawi, served as the coordinating center for the project. In Malawi, both the public and private sectors provide health-care services. The public sector includes all facilities under the MoH that provide services free of charge at the point of service delivery. The private sector consists of private for-profit and private not-for-profit providers. The main private sector service provider is the Christian Association of Malawi (CHAM), which provides both services to patients and trains health workers. Malawi has a three-tier health-care delivery system based on three levels of health care namely tertiary (central hospital), secondary (district hospitals and CHAMs), and primary (community/rural hospitals, health centers, etc.).<sup>[32]</sup>

Malawi is a landlocked country in South-East Africa and has a population of 17.9 million. About 86% of the country's total population lives in rural areas and the

economy is mostly agricultural based. The literacy rate is estimated at 62% and is lower among women (59%) than among men (69%).<sup>[33]</sup> The gross domestic product per capita in Malawi was \$486.45 in 2017.<sup>[34]</sup> Both public and private sectors provide health-care services. The public sector includes all facilities under the MoH, which provides services free of charge at the point of service delivery. The private sector consists of private for-profit and private not-for-profit providers. The main provider is the CHAMs, which provides both services to patients and trains health workers. The study was conducted in Lilongwe, Malawi. Lilongwe is a district in the central region of Malawi. The district covers an area of 6159 square kilometers and has a population of 1,346,360.<sup>[35]</sup> Three quarters of all communities in the Lilongwe district are at least 10 km from the city and meet the national definition of rural areas.

### Recruitment

Participants were recruited from primary- and secondary-level clinical sites as well as villages in Central Malawi from both rural and urban areas in August and September 2018. Inclusion criteria are that participants must be over 18 years old. A purposeful sample of 18 Malawian men and women included laywomen who were infected with HIV and women who were HIV free, village chiefs, traditional healers, community health workers, nurses, midwives, clinical officers, and physicians. No one refused to participate, but two focus group participants were not able to participate in their focus group interview due to transportation issues.

### Data collection

Interviews were guided to explore the individual-, interpersonal-, and sociocultural-level factors of cervical cancer screening from the perspectives of both health-care providers and health-care recipients in Malawi. Focus groups, key informant interviews, detailed field notes during the focus groups, direct observations by walking around in rural and suburban villages, and taking part in VIA screening at the community centers were included. The semi-structured, in-depth interviews were not only question and answer sessions but also encouraged the interviewees (informants) to talk about cervical cancer and cervical cancer screening and to share stories from their lives of some event or episode related to cervical cancer screening.

### Focus groups

Three focus group (health-care providers, community health leaders, community stakeholders, and lay people;  $n = 11$ ) were conducted. The focus group interviews of health-care providers were conducted in English. The

interviews with community health leaders, community stakeholders, and lay people were conducted in Chichewa. The PI (1<sup>st</sup> author), assisted by an interpreter, conducted two health-care providers' focus groups and a bilingual Co-PI (2<sup>nd</sup> author) conducted one health-care provider focus group in Chichewa (Malawian language) for 30–60 min. The focus groups sought the expert knowledge of health-care providers regarding sociocultural influences on health beliefs and health-seeking behaviors as well as communication between and relationships with patients and other health-care providers. Health-care providers also shared their perceptions and experiences in working on VIA screening and cancer management and made suggestions on how to overcome barriers to the screening and management of cervical cancer prevention. Detailed field notes were taken during the focus groups by the 1<sup>st</sup> author.

#### **Key informant interviews**

The PI (1<sup>st</sup> author), assisted by an interpreter, and a Co-PI (2<sup>nd</sup> author) conducted seven key informant interviews for 20–30 min which took place in the community buildings in their villages or at Daeyang University. Urban and rural village women as well as a village chief, a traditional healer, community health workers, and health support group leaders participated in the interviews. Key informant interviewees were conducted as semi-structured interviews to allow participants to express, in their own words, their perceptions of VIA and cervical cancer and their patterns and pathways of seeking cancer screening. The interviewers tailored the questions to the interviewee's responses, re-phrased interviewee's responses when appropriate, probed the interviewees' responses, or asked additional questions during the interviews to solicit in-depth information from participants.

#### **Community observations and clinical experiences**

One source of information was the field notes and health care-related clinical-cultural experiences about local conditions and facts related to cervical cancer screening in Malawi. The 1<sup>st</sup> author kept track of her observations and reflections about the villages and her clinical experiences in the five VIA clinics at the hospitals and the three free VIA screenings in the local community centers. She walked around the communities to observe the physical environment of each community including roads, transportation, water, electricity, housing, community gathering places, as well as the demographic make-up of the community. Through walking around the rural villages and shopping malls in the city as well as experiential learning in VIAs, the authors gathered fact-based information regarding the influence of social context on the lives of Malawi women and on the

delivery of cervical cancer screening in the urban and rural areas of central Malawi.

#### **Statistical analysis**

The data were derived from the focus groups, key informant interviews, field notes written during the focus groups as well as during visits to villages, and clinical experiences in VIA clinics. Focus groups and key informant interviews were conducted either in Chichewa or in English. The audiotaped interviews in Chichewa were translated into English and then transcribed. Efforts were made to avoid research bias by encouraging openness and collaboration in the analysis of the data. Transcripts were audited for accuracy. We used a discourse analysis to better understand collective meanings and behaviors associated with the facilitators and barriers to the screening and management of cervical cancer on the individual, interpersonal, community, sociocultural context, and health-care system levels. The coding and summarization of the focus groups, key informant interviews, field notes, community walks, and clinical experiences in health care were done manually.

The coders, HL, JM, and DK, independently developed their own coding scheme after the first several readings of transcripts and field notes. Each coder sought to identify recurring words or phrases that were linked to facilitators and barriers for cervical cancer screening. As with the initial coding decisions, trials were documented and then the coders discussed them, reaching a consensus on the emergence of themes and interpretation of the patterns. Discrepancies in coding were resolved through comparison of interpretation with coding decision rules. Strategies to maintain methodological rigor included the use of decision rules for consistent categorization of data. In addition, we have used the storytelling method as an analytic process to understand an episode, happening, or opinion.<sup>[36]</sup> Collected storied narratives were categorized to describe and explain themes and the participants' cervical cancer screening behavior as well as to understand the points of view and personal experience of informants<sup>[36,37]</sup> and these categories are then compared interpretations of results from different data-collection methods. In addition, the collected stories and episodes will be the basis for the development of storytelling-based narrative interventions in our next study. To meet trustworthiness, member checking and referential adequacy were conducted. Member checking involved asking the participants to provide feedback about the accuracy and resonance of the data analysis and interpretation with their experiences.<sup>[38]</sup> Referential adequacy was assured by checking preliminary findings and interpretations against archived raw data.<sup>[39]</sup>

## Results

A total of 18 participants (11 women and 7 men) participated in the focus groups ( $n = 11$ ) and key informant interviews ( $n = 7$ ). Table 1 provides demographic information for all participants. The findings revealed that both Malawian health-care providers and lay participants clearly lacked awareness and knowledge about cervical cancer prevention and confused screening tests with diagnostic tests. Three determinants (constructs) that influenced cervical cancer screening behavior emerged from both the focus groups consisting of the health-care providers and the individual interviews with stakeholders and female Malawian participants. These determinants (constructs) included sociocultural influences, the health-care system, and individual factors. Two subcategories influencing individuals were poor knowledge, misunderstanding, and screening versus diagnostic tests. Three subcategories affecting access to the health-care systems were affordability, availability, and donor-driven systems. Two subcategories of sociocultural influences were health beliefs in the era of epidemiologic transition from NCD to NCD and geographic distance. The data suggested that although people knew that ideally they needed to receive cervical cancer screening tests before they had serious symptoms, in real life, the path to implementing successful cervical cancer screening behavior was far from simple.

### Individual factors

Three subcategories emerged: poor knowledge, misunderstanding, and the inability to differentiate between cervical cancer screening and cancer diagnostic testing in both patients and stakeholders.

### Poor knowledge and misunderstanding

Most Malawi female participants do not perceive themselves to be at “risk.” Although the female participants reported that they had heard of cervical cancer and cervical cancer screening, when they were asked to explain cervical

cancer screening, they had limited knowledge of cervical cancer screening, its use for prevention, the benefit from screening, risk factors, or the mode of transmission. Statements such as: “*childbearing or postmenopausal bleeding could be a problem*” or “*I thought I was not at risk for cervical cancer, since when I lost my husband, I never had had any sexual relationship with men.*” The health care providers also confirmed poor knowledge among lay populations by statements such as: “*They don’t even know what the cervix is and what the cancer is. It is possibly illiteracy.*” Or “*The awareness is not there, not only that, they got wrong information as, people were saying that women go through illegal abortions and use a lot of things to take out the, I mean the pregnancy, and these things cause cancer.*”

However, this lack of knowledge was not limited only to the lay populations but also exists with healthcare workers (HCWs). The findings revealed that both patients and HCWs lack knowledge about both cervical cancer and cancer screening: “*Most clinicians from my observation, only if patients have abnormal vaginal discharge and are sick, then they recommended a VIA.*” A community health leader vocalized the lack of knowledge about cervical cancer among health care providers: “*I translated a patient for OBGY doctor. The patient was referred for STI treatment. The woman told the doctor, ‘the problem started long time ago, about 2 years ago and had gone to health center.’ The nurse who ran the clinic told her that her vaginal discharge was from STI, so treated her with penicillin. The nurse also asked her to bring her husband and gave him the same treatment. However, the discharge was never stopped but getting worse. So, she finally came to us (the tertiary care facility) and her cervical cancer screening revealed that she had advanced cancer but treatment was not available. There are a lot of cancer stories like this, I can share with you.*”

### Meaning of cancer screening: Confusion with diagnostic tests

Women who knew of the existence of VIA or had one could not differentiate the screening test from the diagnostic test. Many women believed that the VIA was a test to diagnose the cause of the problems, such as cervical cancer. One women, who had a hysterectomy, responded to the question about whether she would recommend other women go for VIA, as follows: “*I will tell them, women look at me, if I have delayed to go for cervical cancer screening I would not be here, I would die already. But because I hurried, when I noticed signs and symptoms such as continuous vaginal bleeding and frothy vaginal discharge, if you see this signs, hurry to the hospital.*” A woman who received the VIA and cervical cancer screening for her symptoms and was diagnosed with cervical cancer was not able to distinguish between screening and diagnostic testing. This indicates that patient education about the difference is lacking. Women’s limited knowledge about the risk factors of cervical cancer and their

Table 1: Characteristics of participants ( $n=18$ )

Variables	n (%)
Age (range years)	30-60
Gender	
Female	11 (61)
Male	7 (39)
Occupation	
Professional health care providers	5 (28)
Community health leaders	7 (39)
Lay participants	6 (33)
Health history	
Hypertension	6 (33)
Cervical cancer	1 (6)
HIV infection	2 (11)

health beliefs in the context of infectious epidemiology transition are related to their inability to differentiate between screening tests and diagnostic tests. This impacts their cervical cancer screening uptake behavior.

### **Sociocultural factors**

Two sub-categories emerged in this construct: Belief about modern and traditional health practice in epidemiology transition and geographic distance the patient was from health services i.e., how far the patient had to walk to receive services.

#### **Beliefs and misconceptions about the cause of cervical cancer in an era of epidemiologic transition**

Malawians have for decades struggled with the burden of infectious disease and malnutrition along with poor maternal health and infant mortality.<sup>[32]</sup> Their health beliefs and health practices are based on their experiences with infectious disease epidemiology such as HIV and Malaria that emphasize an acute care and symptom management approach. Thus being not sick, the absence of disease, and having no gynecological symptoms, they perceived themselves as being healthy and in no need for screening: *“When we feel maybe there is something pinching somewhere. That is when you have the edge to go to the hospital. Therefore, it becomes a major problem for the people just come for screening.”* Or *“people did not know they have cervical cancer or not. It is only after the problem has grown into other area, they feel pain, feel abdominal pain and have bleeding, but before that ...they don't know and do not come.”*

In addition, traditional healing in Malawi has been practiced for centuries, well before colonization, and it is reported that about 80% of the population utilize both traditional healers and western medicine for their health needs.<sup>[40]</sup> A male traditional healer provided his explanation about the cause of cervical cancer as follows: *“cervical cancer come due to unclear hygiene during sexual intercourse. When the man does not wipe his penis, he give secretions that has dried on him and if they have sex again, this thing is deposited on woman and start causing the infection. Or if woman doesn't take proper bath, this would lead the cancer of cervix or if woman engages with multiple partners because she will get multiple semen which can lead to cancer of the cervix and bilharzia (Bilharzia is an infection caused by parasitic flat-worms in the urinary tract).”* And he continued to say, *“People think differently about cervical cancer. Some may think they are bewitched, yet ignorance about the condition.”*

#### **The geographic distance factor: How far to walk**

Both health-care providers and lay participants live in city or rural areas that present challenges related to the distance they must travel to reach cervical cancer screening sites; however, social inequalities in rural areas is worst. Most of the road network is in poor condition as the roads to rural

villages where we visited are unpaved without trees or shade along the roads but with heavy dust from our car driving.<sup>[41]</sup> There was no car except ours on the road but there were a few bicycle riders. The roads are not passable for small cars during the wet season. The poor road conditions and lack of public transportation created difficulties for the villagers in accessing the necessities of daily living and getting their produce to market as well as accessing basic health services. In addition, the biggest challenge we observed was the inability to access clean water supplies and spending hours to fetch water walking barefoot. This means that maintaining a clean household and personal hygiene is very difficult and that soap is very expensive for the farmers who can earn \$1 or 2 by selling some crops a month. There is no electricity in rural villages and though electricity is available in Lilongwe, the capital city of Malawi, blackouts are a regular occurrence. Most rural villages are more than 5 km from health centers and even when patients visit them, they find that many times they are out of medical supplies. A village headman stated, *“It is my wish that we have a clinic around here. The health centers are very far, and people have failed to access health services.”* The following dialogue between an interviewer (I) and respondent (R) revealed this issue:

I: *when did you last go to the hospital?* R: *it was two weeks ago.*  
I: *what was the problem?* R: *I thought I had malaria. Fortunately, I was tested negative for malaria.* I: *How did you travel to the hospital?* R: *I have my own bicycle and that is what I use when going to the hospital;* I: *How far is the clinic from here?* R: *I think it is around 10 km, and it is around 2-hour journey.* I: *who cycled you?* R: *I was cycling slowly.*

Distance measurements among participants in villages are calculated by hours of walking or of bicycling to the health facilities, rather than by hours to drive or take public transportation to the facilities. A substantial proportion of women who require cervical cancer screening do not have geographic access to VIA in Malawi. Moreover, participants who live in rural areas that are geographically isolated with longer distances to travel to health care facilities, with the poor condition of roads, and public transportation also have to cope with negative social, political, and economic conditions including no clean water in the villages. Although the VIA is free at public health centers, additional barriers are time, effort, and the cost of transportation.

### **Access to health services**

Three main themes were identified in this area namely availability, financial affordability, and sustainability - Donor Driven Systems.

#### **Availability**

Availability refers to the type of services offered, whether human and other resources are sufficient to

meet the demand, and to the knowledge and skills of the service providers. As stated in the sub-theme of geographic isolation, there is no VIA clinic within reasonable reach of those who need them. Also, VIAs are not available within VIA clinics because of a lack of human resources and limited hours of operation as well as periodic shortages of medical supplies. A HCW complained that although many nurses have been trained, the trained and available health workers tend to choose to work in locations that they perceive as more desirable, leaving few to work in VIA clinics. Here is the conversation about issues of availability of human and material resources among health-care providers:

A: *Our hospital does the screening only on Thursday, you see, these patient come today (Tuesday), and they are told to go back and come back on Thursday, they will not come again. I think there is also a shortage.* B: *It's, one time to seeks medical attention, they walk a distance of maybe 20 or 30 km, they go to the site, and they do not find anything that would assist them.* A: *Maybe we could have more equipment for our facilities and increase human resources. Here where very few health workers are. Some are even leaving the country for greener pasture.* B: *My knowledge, only 2 gynecologists who can do a radical hysterectomy, this cover for the whole Lilongwe (half of Malawians).*

#### **Financial affordability**

In Malawi, health services for NCDs including VIA are mostly provided in district hospitals and higher-level health facilities. The government provides free-of-charge cervical cancer screening services at some public health facilities and nongovernmental facilities charge a fee for service, approximately \$1. Financial affordability takes into account not only the fee for service but also indirect costs, such as transportation. We observed very crowded waiting rooms for VIA in public facilities where there was no service charge while at the nonpublic clinics with a minimum fee, there was no crowd or only a few women, although the traveling cost to distant public facilities was more expensive than the cost for VIA at nongovernmental facilities.

#### **Sustainability: Donor-dependent system**

Malawi is an aid dependent country with 60%–80% of its budget financed by external aid.<sup>[42]</sup> Through the provision of antiretroviral therapy from the contributions of international health agencies, the life expectancy for HIV-infected populations has improved significantly in the past three decades. However, this gain has come at the expense of taking ownership or the sustainability of the public health care system in Malawi. Donor prioritization of funding for HIV/AIDS might cause national health policy to focus solely on this issue and might lead to neglect of other health issues that are not on the priority list of

donors. It is not uncommon to observe abundant upscale medical supplies as well as acceptable patient-to-health-care providers' ratios in HIV/AIDS management, while at the same time there is a shortage or no supplies or even no healthcare providers for other sicknesses in the same facilities. Health-care providers and stakeholders shared their frustrations of unstable health policies and Malawi's dependency on overseas funding as:

*We had brochures, we had posters, we had drama and Jingle on the radio for a while, we made video (about cervical cancer screening) which I still have it which was shown on Malawi TV, but that was all 15 years ago. And all that was dependent on funding. And then 15 years later, I could not find posters or brochure from 10 years ago.*

## **Discussion**

The present study has explored the perspectives on cervical cancer screening from health care providers, stakeholders, and Malawi women in their local contexts. Though findings of this study are in line with other studies from Sub-Saharan African countries which pointed out how poor access to health care systems, lack of knowledge and misunderstanding about the disease, and geographic-distance are influencing cervical cancer screening behaviors,<sup>[8,25,43,44]</sup> our study has also pointed out the facts that: (1) although identified determinants at the abstract level are similar with the findings from other countries or settings, the contextual indicators or subthemes identified are not the same; (2) the subtheme of the sustainability of the health system due to dependency of donor priorities is an additional major barrier to cervical cancer screening; and (3) sociocultural and health system factors are integrated with the individual factors, and these factors influenced cervical cancer screening.

Awareness and knowledge about cervical cancer prevention and practice are limited among the health-care providers, community health leaders, and lay participants. The cause of this lack of awareness and knowledge might be that Malawi has for decades suffered from the burden of infectious disease with poor maternal and infant health outcomes and NCDs occur now concurrently with chronic NCDs.<sup>[13,45,46]</sup> The health care system and health practice in Malawi is based on the management of acute infectious diseases that are accompanied by obviously acute symptoms.<sup>[46-49]</sup> Considering that NCDs are insidious in their onset, slow in their progression, and are long-term, NCDs represent a largely "silent" epidemic in Malawi. Malawi has made great strides in improving maternal, newborn and child health.<sup>[50,51]</sup> The next step will be to address the NCDs, including cervical cancer. The challenge will be to ignite in the health care sector and the public sector the

realization that NCDs are insidious in their onset and slow in their progression, but they pose just as serious poor health outcomes as maternal and child morbidity and mortality.

The Malawi Reproductive Health Unit is very aware of the burden of cervical cancer but only starts programs or training when funds are available from outside sources. The challenges to a national response to cervical cancer prevention include a lack of health financial resources as most cervical cancer prevention programs are donor driven. There is also a lack of innovative approaches and health care resources to train health care providers and to develop sustainable programs.<sup>[12,46]</sup> Finally, there is also a lack of supervision and support of providers who have been trained. Financial payments are allowed only for training, and there is no budget for follow-up supervision and support. This situation calls for a new paradigm to address the importance of screening for cervical cancer as well as to develop sustainable situation-specific programs after demonstrative programs which are sponsored by outside funders are completed. Detection of cervical cancer in early stages is also critically important given the paucity of health care resources available for treating cervical cancer in its advanced stages. There are only three certified oncology nurses, five oncologists, four pathologists, and two radiologists in Malawi.<sup>[52]</sup>

Our findings on rural locations, and the links between distances, access to health care systems, and health policy and government programs for cervical cancer management calls for a reframing of access to health-care systems and health education based on national health needs and community needs as well as decentralization of the health care system. Although Malawi has a cervical cancer screening program that is either administered by the government or nongovernmental organizations,<sup>[12,46]</sup> these programs generally fail to reach a significant majority of women. In many context, many VIA clinics at private sectors requested a minimum payment for VIA services. The perception of paying for health services, no matter how small the amount was, drove patients out. As a result, the authors observed that VIA clinics in the public sector were overcrowded while VIA clinics at CHAM had very few clients.

Malawians also face barriers to health-care services due to lack of resources, trained professionals, and infrastructure.<sup>[53-57]</sup> It appears that the country's health system is not adequately prepared to accommodate the requirements of treating NCDs including cervical cancer management. This may necessitate the adoption of an integrated health care model to address both NCDs and communicable diseases. Such a model needs to develop a strategy to address the health, human resources and financing challenges of the current system. In addition, it appears that people believe

in both western-and traditional medicine and that health care or health practice is based on the prominence of the management of acute infectious diseases.<sup>[58]</sup>

## Conclusion

Our findings point to an urgent need to develop and implement cervical cancer screening programs. We recommend that: (1) Health education for both health-care providers and the public about the importance of cervical cancer screening is imperative. However, such education should not be based on materials from developed countries but rather should base on data and clinical experiences culled from the local population and local settings. For example, interventions should focus on not only awareness and knowledge of the disease but also from the sociocultural factors influencing cervical cancer screening behaviors and the creation of access to services similar to how HIV/AIDs management was made widely available throughout the country; (2) Learner-friendly health education delivery methods should be developed and implemented. While major western science is based on logical deductive reasoning and presents health messages as a list of risk factors, recommendations, prevention steps, symptoms, and treatment options,<sup>[59]</sup> an oral tradition exists in non-western societies including Africa, where narrative/storytelling has served as a primary means to communicate health information and health education;<sup>[60-62]</sup> and (3) that as the findings pointed out, inadequate training of health care providers (especially of nurses who are a major health care force in Malawi) was a barrier to effective management of cervical cancer. Thus, improving the nurses' knowledge and practice behaviors regarding cervical cancer is especially imperative to tackle Malawi's cervical cancer epidemic; and (3) A new nursing curriculum needs to be developed in Malawi concerning primary care models for both NCDs and infectious disease prevention and intervention since the current Malawian curriculum is heavily focused on the management of acute infectious diseases. Nurses and midwives make up the largest part of the health care workforce in Malawi, however, as the findings pointed out, inadequate training of health care providers, especially of nurses who are a major health care force in Malawi, was a barrier to effective cervical cancer prevention. Thus, improving the nurses' knowledge and practice behavior regarding cervical cancer prevention is especially imperative to tackle Malawi's cervical cancer epidemic.

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## Conflicts of interest

There are no conflicts of interest.

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