

## RESEARCH ARTICLE

# Factors influencing the uptake of cervical cancer screening services in Tanzania: A health system perspective from national and district levels

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**Abstract**

**Aim:** This study aimed at examining factors influencing uptake of cervical cancer screening services among women in Tanzania.

**Design:** Exploratory qualitative study.

**Methods:** In-depth interviews were used to obtain information from 10 key informants. Of these, three were officials (policy makers) from the Reproductive Health-Cancer Unit of Ministry of Health and Community Development, Gender, Elderly and Children (MoHCDGEC), three were health managers working at Kinondoni Municipal health system reproductive and child health section and four were health workers from the Ocean Road Cancer Institute (ORCI). The study participants were purposively selected since they hold the responsibility of planning, coordinating and implementing the Tanzania cervical cancer prevention strategies at different levels of health system. The qualitative data analysis was done manually using thematic analysis.

**Results:** The national health system factors influencing the early uptake of cervical cancer screening services include poor flow of information from national to lower level and inadequate availability of tools and instruments and shortage of skilled and competent staff. The district level health systems factors influencing uptake of cervical cancer screening services include inadequate number of partners, poor flow of information, poor collaboration with the private sector, no adequate provision of cervical cancer screening services due to lack of prioritization, poor creation of awareness and failure to use the health information system effectively.

**KEYWORDS**

cervical cancer, national and district health system, nurses, nursing, screening, uptake

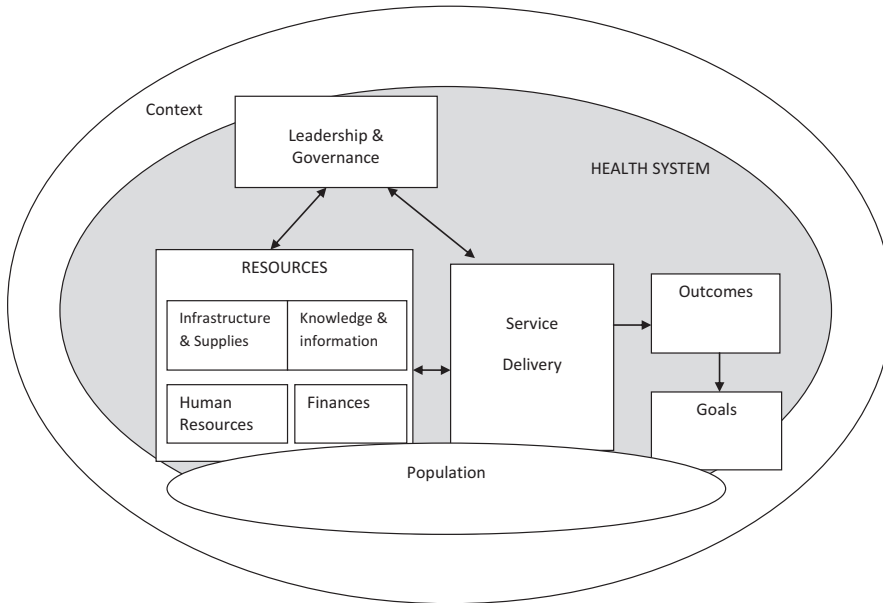
## 1 | INTRODUCTION

Cervical cancer is the second most common cancer among women worldwide, with an estimated 528,000 new cases in 2012 and approximately 27,000 deaths annually. Approximately 90% of cervical

cancer cases occur in developing countries, representing 15% of female cancers (WHO, 2014). Early cervical cancer screening is a very important aspect when aiming to deal with the burden of cervical cancer in any community. It involves regular use of cytology tests, commonly known as "Pap smears." By detecting and treating

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**FIGURE 1** The health system dynamics framework

abnormal cells, early screening can help prevent cervical cancer from developing. It can also assist in detecting cervical cancer at an early stage; this will most likely allow survival of victims. Despite the recognized benefits of early cervical cancer screening not all women take advantage of it, this is evident when cervical cancer deaths keep rising in many countries including Tanzania, most of the time due to late diagnosis (Moshi, Vandervort, & Kibusi, 2018). This paper addresses this gap by presenting qualitative findings about health system factors influencing uptake of cervical cancer screening services among women in Tanzania.

## 2 | BACKGROUND

Tanzania has a population of 14.88 million women ages 15 years and older who are at risk of developing cervical cancer. It is estimated that every year approximately 9,772 women are diagnosed with cervical cancer and 6,695 die from the disease and most of them are diagnosed at a late stage (Bruni et al., 2019). In Tanzania, the age-standardized incidence rate (ASR) of cervical cancer is estimated 54.9/100,000 women (Bray, Ren, Masuyer, & Ferlay, 2012). If specific measures are not put in place it is projected Tanzania will record 12,416 new cervical cancer cases and 9,923 deaths per year in 2025 (John, 2011).

The Tanzania's Ministry of Health Community Development, Gender, Elderly and Children (MoHCDGEC) in collaboration with the World Health Organization (WHO), development and implementing partners as well as other international and local NGOs has established several initiatives to prevent and control cancer. Some of these initiatives include supporting routine screening and treatment of women of sexual reproductive health (both HIV positive and negative); training of providers on screening using Visual Inspection with Acetic Acid (VIA), cryotherapy and for bigger lesions Loop electrosurgical excision procedures (LEEP) as well as enabling high skilled

personnel in providing supportive supervision to less skilled personnel in various health facilities (Tanzania Health Promotion Support, 2019). In 2011, Tanzania introduced 300 sites for cervical cancer screening using visual inspection with VIA and treatment with cryotherapy or loop electrosurgical excision procedure (LEEP) mainly in national, zonal and regional referral and district hospitals as well as in some health centres and a few dispensaries (United Republic of Tanzania, Ministry of Health, Community Development, Gender Elderly & Children, 2016). These initiatives aim at achieving one of the goals of the National Cancer Control Strategy–2013–2022 of reducing the burden (morbidity, disability and premature mortality) related to non-communicable diseases in Tanzania by 20% by 2020 (United Republic of Tanzania Ministry of Health & Social Welfare, 2013). The initiatives also intend to achieve the goal of non-communicable diseases (NCD) strategic plan to control and prevent cancer for 2016–2020, which is 50% increase in proportion of patients detected with early-stage cancer (McCree et al., 2015; Moshi et al., 2018; United Republic of Tanzania, Ministry of Health, Community Development, Gender Elderly & Children, 2016). In addition, the MoHCDGEC established the Reproductive Health-Cancer Unit to deal with cervical cancer (Moshi et al., 2018). Despite these efforts, evidence has shown the rise in new cervical cancer cases, from 1,288 cases in 2008–1881 cases in 2011 (Yuma, 2014). Recent report shows that the cervical cancer cases have increased to 9,772 in 2018 (Bruni et al., 2019). The Strategic and Action Plan for the Prevention and Control of Non-Communicable Diseases in Tanzania 2016–2020 reported that a limited access to major NCDs services makes 80%–90% of cancer patients to fail to access diagnostic and treatment facilities. Furthermore, 75%–80% of the patients attend to hospitals at advanced stages when it is not amenable to curative options (United Republic of Tanzania, Ministry of Health, Community Development, Gender Elderly & Children, 2016).

Dar es Salaam is a leading region in Tanzania with a large population which is at risk of cervical cancer. According to the last national

population census, the region had a female population of 2.2 million. In Dar es Salaam, Kinondoni municipality has the big number of female population amounting to 900,000. Despite the fact that most of the government initiatives to control and prevent cervical cancer are implemented in Dar es salaam region, the uptake of cervical cancer screening services is very low. A study done on the use of cervical cancer screening services among primary school teachers in Ilala Municipality, Dar es Salaam, Tanzania reported that only 108 (21%) out of 512 female primary school teachers reported to ever used cervical cancer screening (Kileo, Michael, Neke, & Moshiro, 2015). Studies conducted in Da Es Salaam region have reported several factors associated with use of cervical cancer screening, which include among others; knowledge of cervical cancer, awareness of existing screening programme and level of education (Kahesa et al., 2012; Urasa & Darj, 2011). However, there are limited documented evidence on health system factors influencing uptake of cervical cancer screening services among women in Kinondoni municipality in Tanzania from the national and district level perspective of which this study was an attempt to fill this research gap.

## 2.1 | The health system dynamics framework

Olmen et al. developed the health system dynamics framework consisting several elements and their dynamic interactions (Olmen et al., 2012). This framework (Figure 1) incorporates some elements of other health system frameworks including the WHO building blocks. The proposed elements of the health system framework include the existence of good leadership and governance which, plays a central role of guiding, regulating and coordination of various actors, functions and distribution of resources (Institute of Medicine, 2001; Olmen et al., 2012). An effective leadership and governance system should ensure that other elements such as finance, human resources, knowledge and information and infrastructure and supplies function well to produce the desired outcomes of the health system. In Finance, there should be well-designed system of acquisition and allocation of financial resources to ensure effective achievement of the expected goals and outcomes of the health systems. In human resource management, the health system should have sufficient competent and well motivated workforce to deliver health services (Narasimhan et al., 2004; Olmen et al., 2012). Regarding infrastructure and supply of pharmaceutical, technologies and goods, it is suggested that the health system should develop and equip adequate number of health facilities as well as supplying them with sufficient drugs and other medical supplies (Olmen et al., 2012). Information and knowledge is also an important element whereby health system needs to develop and maintain routine health information system that will generate knowledge to inform decisions and actions for efficient and effective service delivery (Olmen et al., 2012; Parkhurst, Weller, & Kemp, 2010). The health system dynamic framework proposes that to achieve efficient and effective delivery of health services, the health system must have clearly defined goals and outcomes. This means that the health system should be characterized by quality

services in terms of effectiveness, efficiency, timeliness, continuity, patient-centred and safety as well as universal coverage. More importantly the health system should be responsive to the population it intends to serve and should consider the context surrounding such population. Furthermore, the health systems should be open organizations influenced by the societal and political changes taking place in the society leadership and governance which plays a central role of guiding, regulating and coordination of various actors, functions and distribution of resources (Institute of Medicine, 2001; Olmen et al., 2012; WHO, 2008).

Our study follows the current development line of the health system dynamic framework in a sense that it allows the researchers to explore various elements of the Tanzania's health systems both at the national and district level and assess how these elements have influenced the uptake of cervical cancer screening services among women.

## 3 | METHODS

### 3.1 | Study design

This was an exploratory descriptive qualitative study where key informants' interviews were used to collect information from the study participants. The key informants for this study were purposively selected since they hold the responsibility of planning, coordinating and implementing the Tanzania cervical cancer prevention strategies at different levels of health system. This design enabled to capture the informants' perceptions, experiences, thought and their understanding on the factors influencing uptake of cervical cancer screening services among women.

### 3.2 | Study area

This study was conducted in the Kinondoni Municipal council, which is one of the five municipalities in the region of Dar es Salaam. The 2012 national census showed that the population of Kinondoni was 1,775,049: out of which 914,247 were females and 860,802 were males. Administratively, Kinondoni municipality is divided into four divisions, 27 wards and 113 sub-wards (Tanzania National Bureau of Statistics, 2012). This study was conducted in this district because Dar es Salaam is among the regions with high prevalence rate of cervical cancer in the country despite the fact that the region has comparative advantage of availability of national referral hospitals including the biggest cervical cancer screening facility (The Ocean Road Cancer Institute) in the country. A study conducted in Ilala Municipality, which is one of the five municipalities in Dar es Salaam reported low use of cervical cancer screening services. Out of 512 women who participated in this study, only 108 (21%) reported to ever used cervical cancer screening (Kileo et al., 2015).

### 3.3 | Data collection

The in-depth interview guide with open ended questions was used to obtain information from 10 key informants of the Reproductive

Health-Cancer Unit of MoHCDGEC, the Kinondoni Municipal health system and the Ocean Road Cancer Institute. These people had been purposively selected since they hold the responsibility of planning and implementing the Tanzania cervical cancer prevention strategic plan. Participants were invited for an interview; all gave informed consent and completed the interview. Approximately each interview with key informants lasted for one hour. There were three interview guides for this study. At the national level, the interview guide consisted of key questions about the existence of national cervical cancer screening strategies and prioritization of resource allocation in the implementation of such strategies; types of governance structures for the planning and coordination of the cervical cancer implementation strategies and availability of key stakeholders for the implementation of cervical cancer screening and treatment services at the national level. At the district and facility level, the interview guides consisted of questions focusing on the existence of district/facility cervical cancer screening strategies and interventions and how resources are prioritized in the implementation of such strategies; types of existing governance structures for the planning and coordination of cervical cancer screening strategies and challenges facing the implementation of cervical cancer screening at the district and lower levels of the health system. At the national and district/municipal level, we interviewed three people from each level who were responsible for the reproductive health where cervical cancer screening services are coordinated. At the Ocean Road Cancer Institute (facility level), the collection of data through key informants interviews were stopped at respondent number 4 after the research team was satisfied that there was no more new or relevant data regarding the emerging themes (Strauss, 1990).

### 3.4 | Data management

Data were taped and checked daily for completeness. The recorded audio cassettes were labelled and given code numbers for easy identification during data analysis. The recorded information was transcribed verbatim, and the transcripts were typed into computer files with specific identity codes provided.

### 3.5 | Data analysis

The thematic analysis and inductive approach were used to analyse the collected data. The use of an inductive approach sought to ensure that the identified themes emerge and strongly linked to the data themselves and that they are not imposed by the researcher (Woods, 2011). Two coders coded the data and the first and second author analysed data manually through reading and re-reading the transcripts to ensure a clear and general understanding of the emerging concepts. During the review process, phrases which captured emerging concepts were coded and further analysed to identify their similarities and differences. Finally, the main emerging themes based on the research objective were identified.

## 4 | RESULTS

### 4.1 | National level health system factors influencing uptake of cervical cancer screening

The qualitative information was collected from key informants who are working in Reproductive and Child Health (RCH)-Cancer Unit of the MoHCDGEC. The key informants were interviewed about the health system factors influencing uptake of cervical cancer screening services through the programme process/implementation. The thematic analysis generated six main themes, namely prioritization of curative than preventive services, lack of long-term sustainability of the programme, poor flow of information from national to lower level, inadequate creation of awareness by the national level health system, inadequate availability of tools and instruments because of shortage of funds allocated to national cancer health facility and shortage of skilled and competent health workers.

#### 4.1.1 | Prioritization of curative than in preventive services at the national level

Our key informants reported that the MoHCDGEC had unfair prioritization as more efforts and resources were directed to the implementation of treatment services in the strategic plan, which in turn delayed the implementation of the prevention of cervical cancer screening services nationwide. While one key informant reported that allocating more budget to curative service was a good idea, the other two interviewed key informants from the MoHCDGEC showed a concern that low prioritization of prevention services had slowed down the up take to cervical cancer screening services as expressed by one of the key informants:

After viewing the national statistics, the RCH unit realized that few people were able to access treatment services due to its cost. This led us to focus mainly in the provision of curative services first in the health facilities and then moving on to the prevention when implementing the strategic plan. I do believe this was a wrong approach.

(KI no 2, MoHCDGEC)

#### 4.1.2 | Lack of long-term sustainability of the programme due to donor-dependent funding

The respondents reported that the funding of the national Cervical Cancer Prevention Program (CECAP) was mainly donor dependent. Foreign partners are the main sources of funds and providers of community education to create awareness of cervical cancer screening. According to key informants, the availability of donor funds influences the availability and uptake of cervical

cancer screening strategies in the community, which in turn makes the implementation of cervical cancer screening non-sustainable.

Every year the CECAP strategies implementation becomes delayed, screening services are still not accessible at every district hospital. The working conditions, tools and instruments for provision of cervical cancer screening are not provided because of unavailability of funds.

(KI no 3, MoHCDGEC)

#### 4.1.3 | Poor flow of information from the national to lower levels

The respondents mentioned that there is a challenge in ensuring good flow of information in the national health system. The MoHCDGEC officials are the planners and supervisors of the programme processes; this has caused the RCH unit's employees to have many responsibilities making it difficult to execute all of the functions effectively. For instance, our respondents mentioned that RCH unit employees have failed to conduct monthly meetings to share progress and provide feedback to the regional and district levels through the District Health Information Software (DHIS).

....At national level, meetings are conducted only quarterly instead of monthly. This has led to poor flow of information in all levels and led to poor implementation of the cervical cancer screening implementation and supervision.

(KI no 1, MoHCDGEC)

#### 4.1.4 | Inadequate creation of awareness by the national level health system

The respondents mentioned that the community awareness campaign for cervical cancer prevention was launched in 2014, which is three years since the strategic plan was made in 2011. The delay of the launch has negatively influenced uptake of cervical cancer screening services. The national health facilities, Ocean Road Cancer Institute and Muhimbili National Hospital, have all launched awareness campaigns in their facilities assisted by development partners. But so far, the respondents expressed their concerns that community awareness campaigns have not been launched in district health facilities and communities and there is less involvement of both public and private media.

...The health system has not involved much the public or private media sectors in promoting the awareness campaign on cervical cancer prevention, so generally there is low awareness creation on cervical cancer screening services.

(KI no 4, MoHCDGEC)

#### 4.1.5 | Inadequate availability of tools and instruments because of shortage of funds allocated to national cancer health facility

The respondents mentioned that there is no enough quality tools and instrument like those for Pap smears and VIA, for testing and detecting lesions because of lack of adequate funds allocated for provision of cervical cancer screening services. The lack of funds has hindered the health facility to purchase the expensive and sophisticated machines that will assist in detecting and even removing cervical cancer pre-cancerous cells like LEEP machines:

This health facility has a donor dependent budget, therefore the funds for implementing cervical cancer prevention services are not always adequate, making it difficult to acquire adequate tools and instruments required for cervical cancer prevention services.

(KI no 5, ORCI)

#### 4.1.6 | Shortage of skilled and competent health workers

The respondents from ORCI reported that there has been delay in providing cervical cancer screening services to the service recipients because of shortage of skilled health workers. The respondents reported further that the health facility roster has few cervical cancer preventive services experts, which delays provision of cervical cancer screening services and does not motivate its uptake.

Lack of competent health workers in our facility has affected the quality and coverage of the cervical cancer screening services. The existing service delivery quality is poor and does not motivate service recipients to uptake our cervical cancer screening services.....due to shortage of health workers, screening service is not conducted on regular basis for those who are in need of such services.

(KI no 6, ORCI)

#### 4.2 | District level health system factors influencing uptake of cervical cancer screening

The qualitative information was collected from health officials who are working in the health planning committee at the Kinondoni municipal council and the Mwananyamala municipal referral hospital. They were interviewed on the factors influencing uptake of cervical cancer screening services in their municipality. The thematic analysis generated six themes which are no adequate provision of cervical cancer screening services due to lack of prioritization, inadequate number of partners, poor flow of information, poor creation of awareness, failure to effectively use the health information system and poor collaboration with the private sector.

#### 4.2.1 | No adequate provision of cervical cancer screening services due to lack of prioritization at the municipal level

The key informants stated that the strategies targeting the uptake of cervical cancer screening services are integrated into the reproductive and child health strategic plan of the district. The respondents noted that there is no independent strategic plan for cervical cancer prevention through screening because of a packaged prioritization. The respondents from Kinondoni municipality said that there is no specific budget allocated to support the cervical cancer screening at the municipal level. They added that resources allocated are shared with other diseases in the district's strategic plan which leads to a delay in implementation of prevention strategic plans specifically for cervical cancer:

The district council has developed strategies to ensure the uptake of cervical cancer screening for prevention; however, cervical cancer screening strategies have been packaged in the reproductive health strategic plan and have not allowed swift implementation of the CECAP strategies.

(KI no 7, Municipal council)

Another respondent added that:

The inclusion of the cervical screening services in the reproductive and Child Health section, has led to insufficient provision of cervical cancer screening services at the municipal level. There is a need to have special plan for cervical cancer screening activities in order to increase uptake of such services.

(KI no 9, Municipal council).

#### 4.2.2 | Inadequate number of partners operating at the municipal level

The respondents reported that the Kinondoni municipal council has a few partners supporting the provision of health services; however, none of them support provision of cervical cancer screening. The existing partners have only provided assistance in the creation of awareness on other disease like HIV/AIDS. Lack of partners supporting cervical cancer screening services has partly contributed to the delay in the provision of tools like LEEP machines for cervical cancer screening services at the municipal health facility.

The municipal council has partners who have invested in other health programs like HIV/AIDS but not in cervical cancer. This situation has partly contributed to the poor implementation of cervical cancer screening services in the municipality.

(KI no 8, Municipal council)

#### 4.2.3 | Poor flow of information from the municipal to the health facility

In principle, the health facilities including district hospitals fill data into DHIS about the key indicators of the services delivered by these facilities. Such data including cervical cancer screening services are summarized at the district level before they are being shared to the national level health system. However, because of ineffectiveness of the system at the district level, the required information is not always summarized and shared with high level of the health system. Key informants from the district council mentioned the challenge of poor flow of information from the health department at the municipal council level to the health facility. They reported that municipal council has failed to conduct monthly meetings to share progress and provide feedback to the national health system through the DHIS. This has led to poor progress of the municipal prevention strategies due to poor coordination of information:

Poor flow of information increases the possibility of failure of the CECAP strategic plans at the planning and implementation level. This is why the municipal council still struggles to co-ordinate strategies with the health facilities to ensure uptake of cervical cancer screening.

(KI no 8, Municipal council)

#### 4.2.4 | Poor creation of awareness at the municipal level

The municipal council respondents reported that the community awareness campaign for cervical cancer prevention has not been fully launched in Kinondoni municipality. Most campaigns were conducted by ORCI and the Medical Women Association of Tanzania (MEWATA). They reported further that there was a lack of a large coverage of the initiatives for community awareness which stunts the uptake of cervical cancer screening services in the municipality.

Our health facility has not launched any awareness creation initiatives that may influence the Kinondoni community to uptake cervical cancer screening, which implies that the community is not fully aware that up taking cervical cancer screening services influences prevention of cervical cancer.

(KI no 10, Municipal hospital)

#### 4.2.5 | Failure to effectively use the health information system at the municipal level

The respondents mentioned that there is a failure to effectively use health information system (HIS), which is partly caused by computer illiteracy among health workers. The respondents further reported that the DHIS software of the Tanzania health system is used by the municipal council to share information



of cervical cancer screening in Kinondoni at all levels, from the national, through the municipality to the health facility level. However, health workers have not been well trained on how to use the HIS for their daily operations. In every health facility, only HIS focal person has been well trained on how Health Information Management System function and he is the one responsible for health data management at the facility level.

The health workers in the municipal council are not all equipped to use the HIS. The lack of computer skills.... and inadequate training has constrained the dissemination of information to the target population.

(KI no 8, Kinondoni Municipal council)

#### 4.2.6 | Poor collaboration with the private sector at the municipal level

Our study respondents revealed that there is no collaboration between the local government authority and the private health facilities in providing cervical cancer screening services. The failure to create collaborations with private health facilities has been caused by poor planning in the district level health system.

The kinondoni municipal health system has not created any collaboration with private health facilities in Dar as Salaam, which focuses on promotion of cervical cancer screening services.

(KI no 10, Kinondoni municipal hospital)

Our key informants reported that the local authorities can enter into agreement with private health facilities under the public-private partnership (PPP) to support the provision of cervical cancer screening services given the importance of such services among women. One of the respondents said:

The Local authorities could include cervical cancer screening services in the Service Agreement with missionary hospitals. Through Service agreement, the private hospitals can support in providing cervical cancer screening services either free of services or in a reduced price.

(KI no. 9, Kinondoni municipal Hospital)

## 5 | DISCUSSION

This study aimed at exploring health system factors affecting the uptake of cervical cancer screening services among women in Kinondoni municipality in Dar es Salaam Tanzania. From the study findings, it was seen that there are several factors influencing the uptake of cervical cancer screening services both at the national and district/municipal level health system. These factors will be discussed based on the health system dynamic framework (Figure 1).

The findings from this study revealed that there was more prioritization of curative than preventive services in planning and allocation of resources from the national to the district level. Paying more attention to curative than preventive services in terms of budgetary allocation has been a major public concern from many scholars in Tanzania. This has led to lack of screening services provision in the municipal hospital. Similarly, the allocation of resources does not allow the municipal council health officials to implement the strategies as intended. A study done in Tanzania (Nyamhanga, Frumence, Mwangi, & Hurtig, 2014) reported that both national- and district level policy and decision makers lack political will in giving priorities to the prevention and health promotion activities and their main target has been curative health services. The study further provided an example of the budget allocated for prevention activities at the community level which ranges between 2% and 5% of the annual district council health budget. The rest of the budget goes to the curative services. Another study reported that most of the developing countries are still grappling with other competing healthcare priorities which impose more burden of diseases in the health system than cancers (Denny, Quinn, & Sankaranarayanan, 2006).

A study done in Kenya indicated that the major factor influenced the failure of up taking cervical cancer screening services for prevention was poor perceptions of the decision makers on benefits of secondary prevention in controlling cervical cancer cases among the population (Ngugi, Boga, Muigai, Wanzala, & Mbithi, 2012). The various officials in the MoHCDGEC in Tanzania have spearheaded in the implementation of curative service strategies rather than preventive services strategies, and this has caused the presence of few facilities that provide cervical cancer screening services. Such practices do not motivate the uptake of cervical cancer screening services. According to the health system dynamic framework (Olmen et al., 2012), one would argue that the governance of the national health system in Tanzania has not done enough efforts in guiding, regulating and coordination of various health officials, functions and distribution of resources to ensure that cervical cancer screening services are easily accessible and available to the population.

The study also revealed that donor dependency is a circumstance that has a strong influence on the uptake of cervical cancer screening. Tanzania is considered a third world country that is faced with poverty; therefore, most of the government's funds come from aids and grants from local and international donors, and the allocation of resources by donors is not always consistent. Furthermore, the issue of donor dependency has caused the implementation of the existing cervical cancer prevention strategies to suffer from lack of long-term sustainability. The WHO reviewed the practices of health partners in providing long-term funding commitments in supporting health interventions and concluded that to ensure sustainability of the aid allocated to the provision of health services, development partners should commit fundings for long duration until the time when local health financing can be able to substitute it (Dodd & Lane, 2010). Bossert suggested that sustainability of health interventions in Africa and other developing countries needs to ensure that their design and management integrate their activities into well

established administrative structures and should obtain sufficient funding from national sources during the life of the project (Bossert, 1990).

The findings from this study revealed further that staff responsible for overseeing the implementation of cervical cancer screening lacked proper coordination of the information in the health system especially from the national to local level so as to influence successful implementation for the uptake of cervical cancer screening. Many of the health workers at the national RCH unit were overburden with responsibilities due to dealing with other health programmes other than the cervical cancer programme. This has influenced the service providers to perform at a slow pace and delay flow of information and feedback to the decentralized health systems, which in turn slowed down the implementation of the cervical cancer prevention strategies at the municipal level. Furthermore, the study found out that there was no swift flow of information among health officials in the district/municipal health system through the health facility level because of lack of experience with health information system (HIS). The MoHCDCGEC introduced District Health Information System (DHIS) few years back and integrated it in the district health systems, nationwide. However, there has not been enough and continuous training on how to fully use the software to allow proper flow of information for successful implementation and provision of screening services. A study conducted in Tanzania revealed that most users complained that one week trainings were not enough for them as users to become familiar with the software (Lungu, 2008). A study on how to achieve and maintain high-quality performance of health workers in low-resource settings concluded that one of the factors leading to ineffective implementation of various health interventions in the health sector is poor dissemination of information (Rowe, De Savigny, Lanata, & Victora, 2005). According to the health system dynamic framework, the health system should develop and maintain an effective health information system that generates knowledge to inform decisions, thus ensure effective actions (Olmen et al., 2012; Parkhurst et al., 2010).

The issue of inadequate creation of awareness about the importance of cervical cancer both at the national and district/municipal level was uncovered by the study as an influence to the uptake of cervical cancer screening services in the community. This was evidenced by launching of community awareness on cervical cancer screening four years after the strategic plan was formulated and integrated in the regional and district health system. Furthermore, it was revealed that only a small portion of the target population have received community awareness initiatives. Community mobilization is crucial when it comes to up taking cervical cancer screening services, if the community is not aware then the services will not be used when provided. A study in Ghana had proven that the level of awareness of the community had affected the uptake of their cervical cancer screening services. The study reported that health authorities had mobilized less than 50% of the community (Abotchie, 2009). Studies in Nigeria and Malaysia reported similar findings indicating that lack of adequate awareness and clear knowledge on the benefits

of cervical cancer screening have led to a low uptake of cervical cancer screening services among Nigerian and Malaysian women (Ezem, 2007; Hyacinth, Adekeye, Ibeh, & Osoba, 2012; Mingo et al., 2012; Okobia, Bunker, Okonofua, & Osime, 2006; Wong, Wong, Low, Khoo, & Shuib, 2009). The UK Cancer Research unit reported that community cervical cancer rates were 70% lower in 2008 than they were 30 years earlier. The current success of screening has been achieved partially due to the community usage of screening in intervals, which was influenced by clear awareness of the benefits of up taking cervical cancer screening services (National, 2008).

Our study also reported that there is shortage of skilled and competent human resources for cervical cancer treatment. Similar findings in Rwanda revealed that the health facilities had few doctors and nurses who also had minimal training to provide effective treatment of cervical cancer (Mukakalisa, Bindler, Allen, & Dotson, 2014). Generally limited budget was reported as a common challenges in many developing countries which negatively affect the training and distribution of skilled health professionals to support the screening of cervical cancer (Denny et al., 2006). Health system dynamic framework has underscored the importance of having adequate human and non human resources including tools and technologies as important elements for effective functioning of both national and lower level health systems in any country (Olmen et al., 2012).

The study also found out that poor collaboration with the private sector particularly private health facilities was one of the major factors hindering the provision of cervical cancer screening in the district/municipal health system. A need to have collaborative efforts among key health officials including private sectors is an important strategy for a smooth implementation of any policy/strategy. A study done in Kenya revealed that there was no collaboration between health facilities, which influenced the provision and uptake of cervical cancer screening in their country, that is why a there was a policy reform in 2012 that made the government to embark on integrating the cervical screening services in the local health care system particularly in reproductive health clinics so as to capture all women who are eligible for screening (Njiru, 2016).

## 5.1 | Strengths and limitations of the study

Trustworthiness was enhanced by ensuring credibility, transferability, dependability and confirmability of the study (Shenton, 2004). Credibility was ensured in four main ways: firstly, the investigators requested study participants to be truthful by informing them that all answers would be treasured; secondly, member check method was used, which involved the investigators asking the respondents if the recorded information correspond what they actually intended; finally, by conducting several debriefing sessions between investigation team to reflect and discuss the process of data collection and interpretation of the results, we strove to ensure confirmability and consistency. Investigators ensured transferability through a clear



description of the knowledge gap and on how the study was conducted. Furthermore, the purposive sampling of study respondents aimed at facilitating transferability of the study findings. The detailed description of the study methods aimed at ensuring dependability. This study did not have any limitation that has compromised objectivity of the findings.

## 6 | CONCLUSION

In this study, we describe factors influencing the uptake of cervical cancer screening services among women in Kinondoni municipality in Tanzania from a health system perspective both at the national and district level. The national level factors affecting the uptake of cervical cancer include prioritization of curative than preventive services, lack of long-term sustainability of the programme due to foreign dependency nature, poor flow of information from national to lower level, inadequate creation of awareness by the national level health system, inadequate availability of tools and instruments because of shortage of funds allocated to national cancer health facility and shortage of skilled and competent health workers. The identified district/municipal level health system factors are as follows: no adequate provision of cervical cancer screening services due to lack of prioritization, inadequate number of partners, poor flow of information, poor creation of awareness, failure to effectively use the health information system and poor collaboration with the private sector.

Our study emphasizes that there is a need for the national and district health systems to address the identified barriers to ensure smooth implementation of the interventions aiming at improving the early uptake of cervical cancer in Tanzania.

In the future, it would be reasonable to conduct research, which include more regions and districts as well as combining both quantitative and qualitative approaches to provide a more comprehensive information about uptake of cervical cancer screening services in the country.

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## CONFLICT OF INTERESTS

The authors declare that they have no competing interests.

## AUTHOR CONTRIBUTIONS

AMM: Was involved in the planning of the study, data collection, analysis and interpretation, and preparation of this manuscript. GF: Participated in the planning of the study, data collection and commentary on the first and subsequent drafts of this manuscript. All authors read and approved the final manuscript.

## ETHICAL APPROVAL

The Institutional Research and Publications Committee granted ethical clearance with reference number MU/PGS/SAEC/Vol.XIV/114 to conduct the study. Formal permission in the district was obtained from Municipal Executive Director and Medical Officers (MMOs) and Director of the Ocean Road Cancer Institute.

## INFORMED CONSENT

Written consent was obtained from participants after explaining to them about study objectives, methodology and benefits. Respondents were also assured of confidentiality of all information they disclose to the researchers.

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