Predictors of Uptake of Cervical Cancer Screening among Women with HIV in Kigali, Rwanda

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Abstract: Using cross sectional mixed study design, a convenience sample was used to select 384 WLWH aged 30-50 years from four health centers (HC) in the City of Kigali for both quantitative and qualitative studies. Descriptive statistics, bivariate, and multivariable analysis were used to assess the variables and identify factors associated with CCS. A thematic network analysis was also to analysis data from individual and key informants' interview to provide detailed information on reasons behind predictors of cervical cancer screening uptake. Among 384 participants, 224 (58.3%) have been screened for cervical cancer. Three hundred and eleven (81%) and 279 (73%) had knowledge on symptoms and risk factors of cervical cancer respectively. Women who were screened had greater awareness of the importance of early detection and prevention, more commonly had a sense of feeling at risk of developing cervical cancer, more commonly reported that a physician had recommended screening (P<0.001). Women who were not screened more commonly reported living far from screening service (P=0.007), and concerns about the expense of screening (P=0.002), fear of pain from the screening procedures (P<0.001), fear of being diagnosed with cervical cancer (P<0.001), or reported that they had no need for screening (P<0.001). Knowledge of the risk factors for cervical cancer was associated with screening uptake. Health Center based patient education were highly associated with screening uptake. Therefore, we recommend integrating cervical cancer information in community health promotion interventions to increase uptake in cervical cancer screening.

Keywords: Cervical cancer screening, Women with HIV

1. Introduction

Globally, cancer irrespective of the type is considered a mortal disease in both developed and developing world (Bray et al., 2012). According to WHO estimates for 2011, cancer is the cause of more deaths than coronary heart diseases (Stewart & Wild, 2014) and a leading cause of morbidity and mortality worldwide, with approximately 14 million new cases and 8.2 million cancer related deaths in 2012 (Friedman-Rudovsky et al., 2015). In addition, the incidence and mortality of cancer are expected to rise rapidly worldwide with more than 20 million new cases of cancer in 2025 and approximately 15 million cancer-related deaths per year are forecast in 2035 (Ferlay et al., 2014). Over 60% of new cancer cases occur in Africa, Asia and Central, South America and these accounts for 70% of the world’s cancer death (World Health Organisation, 2016). Cervical cancer is the 4th most common female cancer that threatens women's lives and a significant public health globally among women aged 15-44. With 527,624 new cases diagnosed annually, about 87% of deaths occurred in low and middle income countries (Torre et al., 2015; World HPV Information Center, 2017). In Africa, over 80000 women are diagnosed of cervical cancer with 75% (60000) of mortality rate annually (Finocchiaro-Kessler et al., 2016). The incidence of cervical cancer in Sub-Sahara Africa is relatively high with an incidence rate of 50 per 100,000 and average age standardized rate (ASR) of 31 per 100,000 women across the whole region (Friedman-Rudovsky et al., 2015). This is due to high prevalence of HPV infections (24%) and other risk including HIV infections which are endemic in this region especially Eastern and western Africa (De Vuyst et al., 2013). Most studies have shown that human papillomavirus (HPV) infection is responsible for more than 90% of invasive cervical cancer worldwide especially types 16 and 18 responsible for about 70% and is related to 80% of pre-cancerous changes in the cervix (Modibbo et al., 2017; World Health Organisation, 2016; Palefsky, 2006). According to World Cancer Research Fund International report (2012), 16 countries in SSA especially from East Africa ranked among the 20 countries with highest rate incidence of cervical cancer such as; Tanzania (6th with 54.0 per 100,000), Burundi (8th with 49.3 per 100,000), Uganda (12th with 44.4 per 100,000), Rwanda (14th with 41.8 per 100,000) and Kenya (16th with 40.1 per 100,000) (Ferlay et al., 2012).

2. Statement of the Problem

Cervical cancer remains a significant public health concern globally among women aged 30 years and older (World Health Organisation, 2016). In Rwanda, 3.7 million people are female aged 15 years and older who are eligible for cervical cancer screening and the current estimate indicates that among 1,366 women diagnosed with cervical cancer, 804 cases are dying from the disease annually (Information Centre on HPV and Cancer, 2017). Cervical cancer is preventable if detected early through cervical cancer screening (Mapanga et al., 2017). Increased likelihood of uptake of cervical screening is believed to have a great impact in reducing the burden of the disease (Nwobodo & Maryam, 2017). Despite of efforts being made by Rwandan government assisted by NGOs in prevention of cervical cancer through different screening programs, however cervical cancer continue to kill women in the region (Binagwahó et al., 2013; Binagwahó et al., 2011). It is crucial for developing countries like Rwanda to determine the factors that predicts the uptake of cervical cancer screening among Women living with HIV in Kigali. Therefore, the present study aimed at providing information that could be useful in bridging the gap for cervical cancer screening in Rwanda.

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3. Objectives of the Study

The main objective of the study was to determine the predictors of uptake of cervical cancer screening among WLHIV in Kigali. Its specific objectives were to determine factors that predict cervical cancer screening uptake among WLHIV in Kigali and to explore the possible reasons associated with identified predictors of cervical cancer screening uptake among WLHIV in Kigali.

4. Conceptual Framework of the Study

![Conceptual Framework Diagram]

5. Methodology

- **Research Design**

  1. Quantitative data collection and analysis
  2. Qualitative data collection and analysis
  3. Double checking of results of each approach

- **Target Population**: The target population for this study was women living HIV, aged 30-50 years seeking HIV care services in the above-mentioned health centers. They were the participants for both the cross-sectional study using questionnaire and individual interview. Nurses from the hospital were the study participants for the key informant interviews (KII).

- **Sample size**: In order to estimate the true cervical cancer screening uptake with 95% confidence and 5% precision, a minimum sample (n) of 384 participants was used (Cochran, 1977) i.e. 96 women for each health center. For the Key informant and interviewee participants, the sample size was conveniently determined by the researcher, and this was suggested to be two nurses and 8 women from each health center.

- **Recruitment Process**: Permission for data collection was obtained from the head of health centers at study sites. Healthcare providers gathered the clients and requested the researcher to provide information about the study to the clients. Participants who was chosen was referred to the area where interviews and semi-structured questionnaires were to be conducted. Furthermore, researcher requested the participants to sign informed consent after explanations on the study were provided. Questionnaires were administered by the researcher and the research assistants to those who have provided their...
conscient. 40 participants for KII included 32 women, 8 nurses and health social workers within the health centers were recruited on the basis of having knowledge on cervical cancer screening. All participants were chosen among the clients of Remera, Kacyiru, Gikondo and Kicukiro health centers.

6. Research Findings

6.1 Cervical cancer screening and potential covariates

The outcome variable for this study was cervical cancer screening status among women living with HIV. On a total of 384 women; 58% (224 women) were voluntarily screened of cervical cancer in 2017-2018. The Figure also shows that 42% were not screened of cervical cancer.

Within this subsection we also looked into the description of potential direct covariates and the relationship they may have with the outcome variable i.e. the cervical cancer screening status among women living with HIV. Table 1 provides the reasons that motivated or discouraged women from seeking cervical cancer screening services. Women were encouraged to seek cervical screening because they wanted to know their cervical status as earlier as possible to allow early treatment if infected or prevention if tested negative, therefore 48.7% (or 187 women) were motivated to be screened for the above mentioned reasons. Those women were also motivated to go for cervical cancer screening to know their health status in terms of cervical cancer with this regards. Quotation from a participant “Early screening helps to know our health status, also if you found that you don’t have the disease, it should influence you to know you can prevent yourself from acquiring it”.

Other motivating reasons versus no motivation were: being recommended by physicians (8.1% or 31 women), feeling at risk of developing cervical cancer (40.6% or 156 women), advice by counselor at a health clinic (17.7% or 68 women). The discouraging factors for women in general (not only those who were not screened) were also various to include the lack of information (90.6% or 349 women), this lack of information was shown to be a serious matter as it was also reported by some among who were screened if compare the results of lack of information as a general cause of not going for screening and screening status; it’s clear that those who reported the lack of information on cervical cancer screening largely exceeded those who were not screened (349 versus 160 women). This suggests a very low access on cervical cancer screening information. For example some women who were asked to tell the risk factors of cervical cancer and through their responses below reveals that they were lacking information on cervical cancer

- “Having an accident and get the wound at any part of your body and if not treated, it can be developed into cancer.”
- “Maybe if you had C-section during delivery and get injured to the womb, I think it may lead to cervical cancer”

A proportion of 69.5% (267) also reported that in general women do not know the place where to be screened: “They do not know where screening takes place. Once known by them, they should attend but because they do not know, they do not attend. For example like in voluntary

For the cervical cancer screening place shown in Figure 4.3; most of those women living with HIV were screened at health center of data collection (95% or 213 women), other 5% (11 women) were screened from other health center in Kigali.
HIV/AIDS testing, the reason why we attend and become more interested, it’s because, they descend health care providers to the village level, mobilise women and build tents somewhere and then people attend.”

Other women reported that generally women were not screened either because that health center of data collection didn’t have screening services (62 % or 238 women) or the screening services were far away (43.7 %, 168 women). They also said the screening services were expensive for the women to be not able to afford (37.3% or 143 women) or not comfortable with the service provider (27.3 % or 105 women), so the women in general were discouraged by these facts. Most of women reported the fear to be the most discouraging fact for women to go for screening; they feared the procedure used as they were wrongly told that it caused pain and discomfort (76% or 292), they feared to know that they have the cervical cancer (67.7 % or 260 women), they feared death if found to have cervical cancer (63.8% or 245 women). The following are the statements of some women who were not screened because of the fear:
- “I fear to be screened because I don’t wish to hear that I have another disease added to HIV. I moreover have short days of living then why should I go for screening?!”
- “I think that I can immediately die if diagnosed cervical cancer and decide not to go for screening and live like that than dying because of anxiety”

Women who participated in this study also said that there were other women who didn’t go for cervical screening because: they would lose acceptance in family, society and religion (17.7% or 68 women), they were feeling well to do not worry about cervical cancer screening (33.6 %, 129 women), they didn’t have time to go for cervical cancer screening (40.1 %, 154 women).

<table>
<thead>
<tr>
<th>Table 1: Relationship between screening status and motivating plus discouraging factors of cervical cancer screening</th>
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<tbody>
<tr>
<td><strong>Variable</strong></td>
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<tr>
<td>Motive for screening: Early detection and prevention</td>
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<tr>
<td>No</td>
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<td>Yes</td>
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<tr>
<td>Motive for screening: To know health status</td>
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<td>No</td>
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<td>Yes</td>
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<td>Motive for screening: Recommended by physician</td>
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<td>No</td>
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<td>Yes</td>
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<tr>
<td>Motive for screening: Feeling at risk of developing cervical cancer</td>
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<tr>
<td>No</td>
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<td>Yes</td>
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<td>Motive for screening: It is available and done to all tested HIV+ women</td>
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<td>No</td>
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<td>Yes</td>
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<tr>
<td>Other motives for screening</td>
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<tr>
<td>None</td>
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<tr>
<td>Incentives</td>
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<tr>
<td>Motive for screening: Refused to answer</td>
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<tr>
<td>No</td>
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<td>Yes</td>
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<tr>
<td>Reasons for not being screened: Lack of information</td>
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<tr>
<td>No</td>
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<td>Yes</td>
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<tr>
<td>Reasons for not being screened: Don’t know the place</td>
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<tr>
<td>No</td>
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<td>Yes</td>
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<tr>
<td>Reasons for not being screened: No screening service at this health center</td>
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<td>No</td>
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<td>Yes</td>
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<td>Reasons for not being screened: screening services are far away</td>
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<td>Yes</td>
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<td>Reasons for not being screened: screening services are expensive</td>
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<td>No</td>
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<td>Reasons for not being screened: Not comfortable with service provider</td>
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<td>No</td>
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<tr>
<td>Reasons for not being screened: Fear of pain and discomfort due to procedures taken</td>
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<td>Yes</td>
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<tr>
<td>Reasons for not being screened: Fear to be diagnosed of cervical cancer</td>
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</table>
7. Conclusions and Recommendations

7.1 Conclusions

It was found that age category was likely to increase the odds of cervical cancer screening. Talks by health professionals and fliers and posters at health centers increased the odds of cervical cancer screening among women living with HIV in Kigali. Moreover, the knowledge of at least a symptom or a risk factor of cervical cancer were positively associated with cervical cancer screening uptake.

On contrary, age at first was associated with the decrease in odds of cervical cancer screening. The reason behind this negative effect may be a topic for further research as no study attempted to compare cervical cancer screening in women who had early sexual intercourse or sexual abuse to other women. Surprisingly, Radio as source of information on cervical cancer and its screening was negatively associated with cervical cancer screening, the underlying reason needed to have more investigations in the future.

7.2 Recommendations

- There is a need of integrated community health education to improve the knowledge of population on cervical cancer and its screening
- Screening service access is very low; thus there is urgent need to improve cervical cancer screening services and its availability
- There is a need of more researches on cervical cancer to increase the knowledge and facilitate its control and management.
- It’s important to increase the ownership of health and research programs before waiting for external sponsors to increase sustainability of those programs
- Capacity building on cervical cancer screening for health professional is of high importance to upgrade to level of cervical cancer screening uptake.

*Significant at 5% significance level

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