Determinants of Uptake of Cervical Cancer Screening Services Among Women of Reproductive Age between 18-49 Years of Age in Bondo Sub County, Siaya County, Kenya

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Abstract— *Demographic factors significantly influenced the uptake of cervical cancer screening. This study aimed at finding out the determinants of uptake of cervical cancer screening services among women of reproductive. A cross-sectional survey was conducted in 6 wards in Bondo sub county, Siaya County Kenya. A sample size of 379 was identified from the study population. A pretested questionnaire was used to collect data by trained research assistants.*

Keywords— *Cervical cancer, reproductive age, uptake of cervical cancer screening.*

I. INTRODUCTION

Cancer of the cervix is the most common female cancer in women aged 15 years to 49 years in Kenya (Kemboi, 2018). According to Ministry of Health (2017) 4,802 women were diagnosed with cervical and 2,451 (51%) die from it. In Siaya County, the situation is dire as over 90% of cases are identified at late stage. Cervical cancer screening remains very

low across several countries in Sub Sahara Africa due to low levels of awareness about cervical cancer screening. This has resulted to increase in deaths associated with the disease although it can be cured if detected early (Mwaka et al., 2016). From the reviewed studies, the level of uptake of cervical cancer screening among women of reproductive age is very low with some studies indicating as low as 4.8%. This low prevalence is common in most Africa countries especially in rural areas which can be attributed to various factors such as socio-economic status, socio demographic and accessibility to health facilities. In urban areas, even though the uptake is slightly above 10.0% and less than 20.0%, the percentage is still as low compared to developed countries like Canada which is between 65% and 74% (Canadian Partnership Against Cancer, 2016).

II. REVIEW OF LITERATURE

Cervical cancer screening is a way of preventing cancer by finding and treating early changes in the neck of the womb (cervix) (Mell *et al.,* 2017). These changes could lead to cancer if left untreated. (Schiffman *et al.,* 2011). Early detection of pre-cancerous lesions can easily be achieved

through cervical cancer screening and is 100% treatable (Fields, 2012). Evidence from comprehensive analysis of data by the international agency for research on cancer (IARC) shows that developing countries have been able to drastically reduce the incidence and mortality of cervical cancer through effective screening programs (Forman *et al.,* 2012). A study done in Kenya on risks and barriers to cervical cancer screening found that women over 30 years were more likely to have been screened for cervical cancer than younger women (Were *et al.*, 2012). Age has been shown to be a significant factor for cervical cancer screening Coronado *et al.*, 2015). Women with high education may not necessarily seek screening (Dei & Mantey, 2013) thus additional factors must be considered.

Conceptual Framework

A conceptual framework of the determinants of uptake of cervical cancer screening services among women of reproductive age between 18-49 years in Bondo sub county, Siaya County, Kenya.

Independent Variable	**Intervening Variable**	**Dependent Variable**
Demographic Determinants • Age • Marital Status • Religion • Education Level • Occupation • Residence • Income	• Health Education • Policy implementation • Client friendly Services • Availability of Services • Improvement of supplies	**Uptake of Cervical Cancer Screening** Increased Uptake of Cervical Cancer Screening Current Status of the Uptake of Cervical Cancer Screening Reduced Uptake of Cervical Cancer Screening
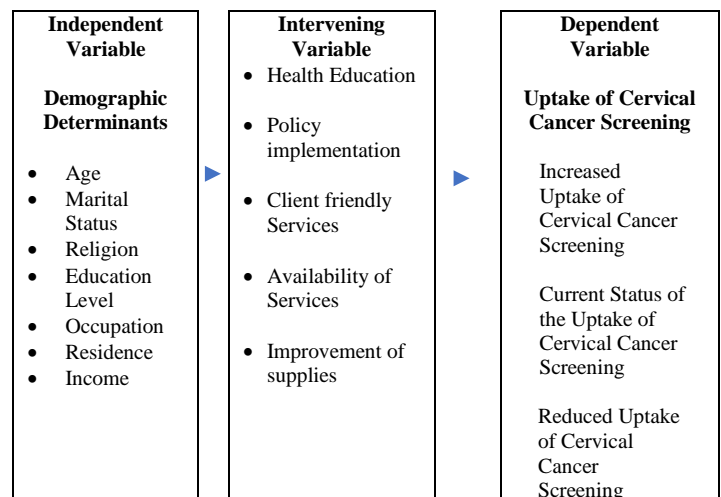
General Objective

To establish determinants influencing uptake of cervical cancer screening among women of reproductive age 18-49 years in Bondo sub county, Siaya County Kenya.

Specific Objective

1) To determine demographic factors influencing uptake of cervical cancer screening among women reproductive between 18-49 years in Bondo sub county, Siaya County.

Research Question

What are the demographic determinants influencing uptake of cervical cancer screening among women of reproductive age between 18-49 years in Bondo sub county, Siaya County?

Study Limitations

This study encountered some limitations that included cases of lack of cooperation from respondents due to stigma associated with cervical cancer and cancer in general.

III. STUDY METHODOLOGY

Study Design

The study design employed in this research was descriptive cross sectional in nature using both quantitative and qualitative methods. Quantitatively, semi structured questionnaires that were developed, pretested, corrected were administered to the 379 respondents within the age of 18 – 49 years while qualitative data was collected using KII guides to collect data from 6 medical/clinical officers from the sampled health facilities.

Study Population

The study population comprised of all women of reproductive age between 18-49 years living in Bondo Sub-County, Siaya County.

Study Sample Size Determination

The sample size was determined using formula, Fisher *et al*., (1998) for a population less than 10,000 as the study population at the time of the study was 9, 646 (GoK, 2019) as follows:

$$n = \frac{z^2 pq}{d^2}$$

Where;

n=desired sample size when population >10,000

nf=desired sample size when population <10,000

z=standard normal deviate, set at 1.96, and corresponds to 95% confidence interval

p=proportion in the target population estimated to have cervical cancer, since the proportion is unknown, I assumed 50%

q=proportion=1-p; proportion assumed not having cancer

d=margin of error set at 5%

N=estimate of the population size, determined as 9646 women

$$n = \frac{(1.96)^2 x 0.5 x (1-0.5)}{(0.05)^2}$$

n=384

Because the population was less than 10, 000, the final samples estimate (nf) was calculated as follows:

$$nf = \frac{n}{1 + \frac{n}{N}}$$

Since our target population size is already known as 9,646 women of reproductive age, we therefore adjust the above sample size to a minimum required sample size of;

$$= \frac{384}{1 + \frac{384}{9646}} = 369 \; Women \; of \; reproductive \; age$$

Further, additional 10% non-response rates were added to raise the sample size to 406 women of reproductive age. Clinical and medical officers drawn from the 6 public health facilities in the sub county were interviewed as key informants as per the interview schedule provided in the appendices.

Sampling Technique

Multistage sampling technique was employed to select respondents from the six health facilities. In stage one, six wards were considered using census sampling techniques. In stage two, from each ward, one health facility which had MCH services inclusively established for cancer screening services was purposively selected. In stage three, for each sampled health facility, 68 respondents were randomly selected from 4 health facilities and 67 from 2 health facilities once they meet the eligibility criteria using simple random sampling.

IV. RESEARCH INSTRUMENTS

Questionnaire

Semi-structured questionnaires were used to collect the quantitative data adequately targeting women of reproductive age.

Key Informant Interview Guide

Qualitative data was collected using Key Informant Interview guide that constituted a series of open-ended questions that sought to establish the determinants of the uptake of cervical cancer screening from key players in reproductive health.

V. DATA MANAGEMENT AND ANALYSIS

Data Collection Process

Qualified research assistants were recruited and trained before taking part in a pretesting exercise of the tools that involved a total of 40 participants at Usigu Health Center in Bondo Sub County to check for their reliability and validity

Data Analysis

All the questionnaires filled were cleared each day by checking for completeness then collected for safe keeping throughout the data collection period. Then a data set screen was prepared for entry of the data in the computer for analysis processes using the Statistical Package for Social Scientists (SPSS) version 22. The analysis involved descriptive and inferential statistical methods of analysis that established the situation on the ground and their implications to determinants of cervical cancer screening. Bi-variate and Multi-variate analysis methods were conducted by running frequencies,

cross tabulations, correlations, and regressions. The statistical tests that were used included chi square and fishers' exact tests with the associations being tested at 95% confidence level. Qualitative data were transcribed then coded hence analyzed thematically by the researcher by reinforcing specific key findings that were established during quantitative data analysis. Content analysis was further done to establish more specific meanings of the findings of the research.

Ethical Considerations

Ethical clearance was sought and obtained from the National Commission for Science, Technology and Innovation (NACOSTI). Approval to conduct the study was sought from Jaramogi Oginga Odinga University for Science and Technology ethical approval committee to conduct the study. Permission to collect data was obtained from the Bondo sub – County Medical Officer of Health, Medical Superintendent Bondo sub-county Hospital.

VI. EMPIRICAL ANALYSIS RESULTS
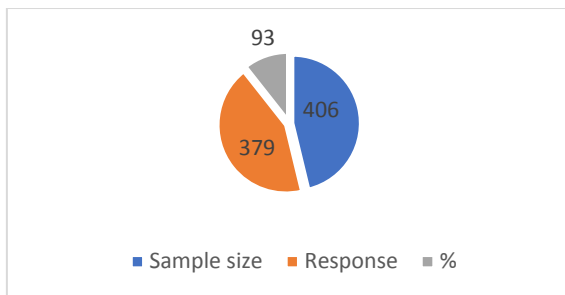
Questionnaire Response rate

The study targeted a sample size of 406 respondents being women of reproductive age between 18-49 years living in Bondo Sub-County. Out of the target, the study ended with a sample size, 379 respondents, making a response rate of 93%.

Demographic Determinants and Uptake of Cervical Cancer Screening

The study sought to determine demographic factors influencing the uptake of cervical cancer screening among women of reproductive age between 18-49 years in the study area.

TABLE 1: Age and its influence on the uptake of cervical cancer screening

Age	Frequency	Screened	Not screened
18-27	205 (54%)	17 (4%)	188 (50%)
28-37	120 (32%)	34 (9%)	86 (23%)
38-47	51 (13%)	9 (2%)	42 (11%)
48-49	3 (1%)	1 (0%)	2 (1%)
TOTAL	379	61 (16%)	318 (84%)

The results in table 1 revealed that 9% (34/379) of the respondents between 28 and 37 years of age had been screened while 0% (1/379) of the respondents between 48 – 49 years of age was screened. There was significant relationship between age of the respondents and uptake of cervical cancer screening as indicated by $X^2(3) = 28.248$, P=0.000

TABLE 2: Level of education and its influence on the uptake of cervical cancer screening

Education level	Frequency	Screened
Primary	140 (37%)	9 (2%)
Secondary	142 (37%)	11(3%)
Mid-level College	64 (17%)	25(7%)
University	33 (9%)	16(4%)
Total	379 (100)	61(16%)

Level of education of an individual had significant influence on the uptake of cervical cancer screening. The study revealed that the higher the level of education, the more likely the respondents were to go for cervical cancer screening services. There was significant relationship between education level of the respondents and uptake of cervical cancer screening as indicated by $X^2(3) = 13.995$, P=0.003.

TABLE 3: Marital status influence on the uptake of cervical cancer screening.

Marital status	Frequency	Screened	Not Screened
Married	229 (60%)	52(14%)	177 (47%)
Divorced	15 (4%)	0 (0%)	15 (4%)
Separated	13 (3%)	0 (0%)	13 (3%)
Single	106 (28%)	9 (2%)	97 (26%)
Widowed	16 (4%)	0 (0%)	16 (42%)
Total	379 (100%)	61(16%)	318 (84%)

According to table 2, 60% (229/379) of the respondents were married while 4% (16/379) of the respondents were widowed. It also identified that 14% (52/61) of the respondents who were screened were married women while 2% (9/61) of the respondents who were screened were single women.
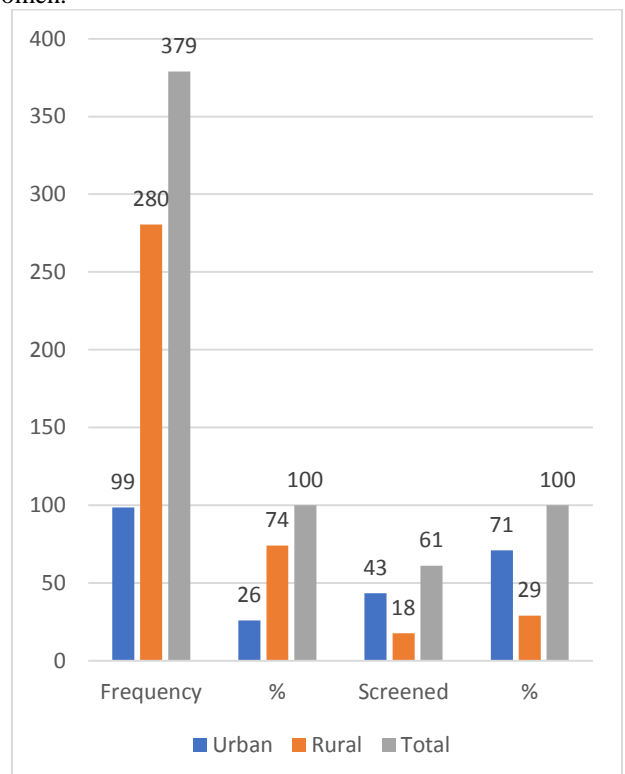

Figure 1: Residence of respondents and its influence on the uptake of cervical cancer screening

The same table revealed that 47% (177/318) of the respondents were not screened though married. There was significant relationship between marital status of the respondents and uptake of cervical cancer screening as indicated by $X^2(1) = 21.374$, P=0.000. 31.9

A majority 71% (43/61) of the respondents who were screened for cervical cancer were residents of urban areas while 29% (18/61) of the respondents who were screened for cervical cancer were residents of rural areas. There was significant relationship between place of residence and cervical cancer screening as indicated by $X^2(1) = 76.958$, P=0.000.

VII. DISCUSSION

Age is a significant factor that influences cervical cancer screening among women of reproductive age. Younger respondents 18 – 27 older women 38 – 49 were less likely to be screened as the majority of respondents screened were those in the age bracket of 28 – 37 years. The study findings revealed that majority of the respondents who undertook cervical screening in the study area were aged between 28-47 (69%) implying that women of younger women of 18-27 years and older women of 48-49 years are less likely to undertake cervical cancer screening a fact that concurs with Ncube et al. (2015) who reported that the prevalence of cervical cancer screening was higher among women aged 35-49 years than women aged 15-24 years.

Education status has proved to be a substantial factor influencing cervical cancer screening amongst women of reproductive age. Poor education is associated with low cervical cancer screening attendance in Kenya. Another study at the Kenyatta National Hospital (KNH) revealed that 29% of women with cervical cancer were semi-illiterate and only 51% of them knew about the disease. Furthermore, only 32% were aware of the Pap smear test (Gichangi et al., 2003). Mugo (2018) found out that knowledge of cervical cancer screening and cervical cancer risk factors were low despite high literacy rates among the women in Embu Hospital, Embu County.

It can be deduced from the study findings that a majority of participants with secondary, college and university level of education had been screened for cervical cancer compared to respondents with primary education level of education. A total of respondents 52 out of 61 (62%) (secondary (11), college (25) and university (16)) were screened compared 9 out of 61 (15%) with primary level of education who had been screened for cancer by the time of the study Were et al., (2011) asserted that women with low educational achievement, low awareness of the risk factors for cervical cancer, and who do not have support from their husbands have poor uptake of cancer screening services.

VIII. CONCLUSION

The study concluded that demographic factors influenced uptake of cervical cancer screening in Bondo sub county, Siaya County in Kenya. Age as a demographic factor showed women between the ages of 28-37 were more likely to undergo cervical cancer screening. Uptake of cervical cancer screening was higher among secondary school level of education and above. Uptake of cervical cancer screening was highest among married respondents though still low as a majority of the married had not been screened. Respondents living in urban areas were more likely to be screened for cervical cancer as opposed to women residing in the rural area.

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