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FACTORS ASSOCIATED WITH UTILIZATION OF CERVICAL CANCER SCREENING SERVICES AMONG FEMALE NURSES WORKING AT HOMABAY COUNTY TEACHING AND REFERRAL HOSPITAL AT HOMABAY COUNTY, KENYA

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ABSTRACT

Background: Cervical cancer screening is an important service aimed at early detection of cancer. However, factors associated with the utilization of the service tend to vary even among the health care providers. Better understanding of the issues abound would inform strategies to improve the uptake of screening services

Objective: To determine factors associated with utilization of cervical cancer screening services among female nurses at Homabay County Hospital in Kenya

Methodology: A cross-sectional descriptive study with a sample size of 116 female nurses. Researcher employed simple random sampling technique. Utilization of cervical cancer screening and sociodemographic factors were gathered in the face-to-face interview structured questionnaire. Analyses done by Statistical Package for Social Science software version 25. Proportions and percentages for descriptive statistics. Binary logistic regression to determine factors associated to cervical cancer utilization on adjusted odds ratio with a 95% CI and p value < 0.05.

Results: Of the 106 respondents, (60%, n=99) participated in the study. Forty-three (43.4%, n=43) were aged 31-40 years. Christians were (87.9%, n=87) while (86.9%, n=86) had more than one sexual partners. Of respondents 85 (85.5%, n=85) were

multiparous. Majority (68.7%, n=68) had work experience more than 7 years with (31.3%, n=31) having 1- 4 years. In all cervical cancer screening utilization among the female nurses was 63.64% while the WHO target is 70%. Multi parity and department of work were the factors significantly associated to cervical cancer screening services utilization. Multi parity (AOR = 7.5, 95% CI = 1.75-32.00, p = 0.006). Inpatient department. (AOR = 3.1, 95% CI = 1.22-7.69, p = 0.017) respectively. **Conclusion:** This study showed that utilization of cervical cancer screening services was below the WHO target. This calls for developing effective cervical cancer screening uptake among the nurses.

INTRODUCTION

Cervical cancer is an increasingly growing health concern worldwide, currently ranking as the fourth most common cancer and fourth leading cause of cancer related mortality among women with an estimated 604000 cases and 341000 deaths annually (1,2). Lower Middle Income Countries (LMIC) bear almost 90% of this burden including Kenya where cervical cancer is the second most frequent cancer among the women with 3211 attributing to 3211 deaths annually (3).

Fortunately, there are comprehensive primary secondary and tertiary available as prevention strategies to reduce the late-stage detection of cervical cancer (4–6). For instance, secondary prevention through screening specifically visual inspection with acetic acid (VIA) has proven effective in reducing late-stage diagnoses (7,8). However, screening uptake still remains suboptimal below the World Health Organization's 70% target with a substantial proportion of women presenting with advanced-stage cervical cancer, highlighting a critical gap in preventive care (9). This gap underscores broader systemic barriers, including limited access to screening services, inadequate health education, embarrassment, time, assuming they are less susceptible and workforce competency gaps(10–12).

There are numerous challenges hindering the utilization of cervical cancer screening among female nurses such as limited access of the service, lack of adequate screening commodities, embarrassment, time and sometimes assuming they are less susceptible. (10,13,14). Female nurses in particular are expected to demonstrate a better uptake of cervical cancer screening services due to their assumed technical medical knowledge but instead have considerably unsatisfactory uptake of cervical screening (15–17). These results pinpoint a mismatch between female nurse's knowledge and their actual screening practices. Literature has demonstrated a number of determinants affecting utilization of cervical cancer screening services among female nurses including age, marital status, education status, residence, work experience, department of work, more than one sexual partners and parity status (12,18–21). This study therefore focused on understanding the utilization of cervical cancer screening services, and its associated factors among female nurses. This would be integral in developing strategies to enhance cervical cancer participation rates among female nurses in the fight to reduce the impact of cervical cancer.

MATERIALS AND METHODS

Study Design

The study employed a descriptive cross-sectional study design carried out at Homabay County Teaching and Referral Hospital. Study population source were all female nurses of aged above 21 years working in the Homabay County Referral Hospital in different nursing departments.

Study Area

Homabay County Referral and Teaching Hospital (HBCRTH) located in the heart of Homabay County hospital that serves as a vital healthcare hub, offering a comprehensive range of medical services and specialized treatments to meet the diverse needs of patients. The facility is located to serve not only the residents of Homabay County, but also those from neighboring counties, making it an essential healthcare provider for a significant population in the region. The hospital's central location ensures ease of access for both urban and rural communities, fostering a collaborative approach to healthcare and ensuring that all individuals have equitable access to medical services. It is also a center for teaching and training of various health workforce personnel.

Population

The total population of female nurses in the facility was 175. Those that gave consent after selection were included.

Study entry criteria

Female nurses who did not consent, those on annual leave, those done total hysterectomy and those taken ill were not included in the study

Sample Size Determination

The researcher employed the formula adopted by Fisher et al., (1998) in computing the sample size from a population of less 10,000:

$$n = \frac{Z^2 (p \times q)}{C^2}$$

Where n = sample size, Z= Standard score of 95% level of significance, p = the proportion of

occurrence of the variable of focus was 36% = Proportion of non-occurrence of the variable of focus (1-p) = 64%, C= margin of error or confidence interval of $\pm 5\%$ (± 0.05). Substituting the values

$$= \frac{1.96^2 (0.36 \times 0.64)}{0.05^2} = 354$$

Since the target, population was less than 10,000 respondents; the sample size was adjusted by using correction formula. Therefore, new sample size

$$\frac{n}{1 + \frac{n-1}{\text{target population}}} = \frac{354}{1 + \frac{354-1}{175}}$$

New sample size = 116 female nurses

Sampling Technique

The researcher employed a descriptive cross sectional study design. A simple random sampling technique was utilized to select the female nurses at the hospital. The method of sampling ensured that by the end of attaining the required sample every nurse had an equal chance of being picked to participate in the study. To achieve this, small balls containing numbers inside from 1-175 were put in a basket then shaken severally before every nurse was allowed to randomly select. Those that picked the balls containing numbers within the sample size (1-116) were included in the study.

Ethical Considerations

The Mount Kenya University Ethical Review Committee was contacted for ethical clearance (Ref number MKU/ISERC/2979) enabling the National Commission for Science, Technology and Innovation to issue a permit for undertaking the study. Written permission to conduct the study was sought from the

HBCTRH with Homabay County Research Committees also approving the study. Participants were explained the purpose of the study before seeking their voluntary and informed consent to participate in the study. The investigator also clarified that participation is optional and benefits of study results. Signing of an informed consent form was prerequisite. Additionally, participants were at liberty to withdraw from the study with no fear of bearing any malicious consequences. The data were archived as per hospital requirement.

Data collection procedures

Two nurses trained as data assistants utilizing a structured interviewer questionnaire developed by reviewing similar studies (21, 22, 23) gathered sociodemographic and assessed cervical cancer screening services utilization. Serializing to ensure anonymity of the nurses with a signed informed consent before administration of the questionnaire. Interviews with respondents were conducted in a quiet and private room one at a time. The assistant then kept the completed questionnaires on lock and key.

Measurement of cervical cancer screening

The assessment of cervical cancer screening service utilization that was determined through female health workers' response during the face-to-face interview about whether she has ever screened for cervical.

Data processing

Following the collection of data, sorting was done to check the completeness and accuracy of the

Data before importation to Statistical Package for Social Sciences version 25 (SPSS) software for analysis execution. Proportions were computed on independent categorical variables of the study such as age, status of education, years of work experience, and department of work, marital status, parity status, religion and history of having multiple sexual partners. Additionally, outcome variable of cervical cancer screening services utilization as a percentage. Binary logistic regression was executed to assess the association between the dependent variable and independent variables. Initially, univariable logistic regression was computed with only the independent variables of p values of < 0.20 considered for multivariable analysis for further controlling other factors to ascertain significant predictors. The adjusted odds ratio with a 95% confidence intervals and p value of < 0.05 were identified as statistically significant association on cervical cancer screening services utilization.

RESULTS

More than three quarters (86.9%, $n=86$) of the participants had multiple sexual partners. More than half (51.5%, $n=51$) had attained a nursing diploma. Parity status, (51.5%, $n=51$) had given birth to either 1 child or 2 children, a third (34.3%, $n=34$) had > 3 children and (14.1%, $n=14$) were nulliparous. At least half of the study respondents (50.5%, $n=50$) worked in the inpatient department. Findings depicted in table 1

Table 1
Participants' Socio demographic Characteristics

Socio demographic factor	Category	Frequency (N)	Percent (%)
Age	20-30 years	34	34.3
	31-40 years	43	43.4
	>40 years	22	22.2
Education status	Diploma	51	51.5
	Higher Diploma	29	29.3
	Degree	19	19.2
Work experience	1- 4 years	31	31.3
	Above 5 years	68	68.7
Department	Outpatient	49	49.5
	Inpatient	50	50.5
Marital status	Single	34	34.3
	Divorced	4	4
	Married	59	59.6
	Widowed	2	2
Parity status	Nulliparous	14	14.1
	1-2 Children	51	51.5
	>3 Children	34	34.3
Religion	Muslim	7	7.1
	None	5	5.1
	Christian	87	87.9
Multiple sexual partners	Yes	13	13.1
	No	86	86.9

Study participants' utilization of cervical cancer screening services

Respondents who utilized cervical cancer screening services were 63 (63.64%) while

those who did not utilize were 36 (36.36%). The results are depicted in figure 1.

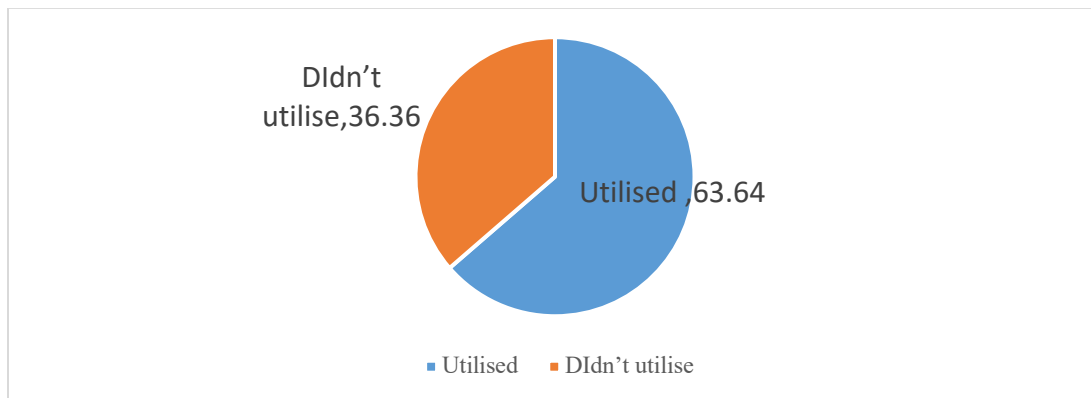


Figure 1 Utilization of cervical cancer screening services

Table 2

Factors associated with screening services utilization in univariable and multivariable binary logistic regression analyses

Sociodemographic factors	Screening		COR	95% CI	P value	AOR	95% CI	P value
	Didn't utilize N (%)	Utilized N (%)						
Age (Years)								
20-30	15	19	ref					
31-40	12	31	2.00	0.739-5.275	0.141			
> 40	9	13	1.20	0.385-3.380	0.813			
Education Status								
Diploma	20	31	ref					
Higher Diploma	10	19	1.20	0.474-3.169	0.674			
Degree	6	13	1.40	0.457-4.279	0.557			
Work experience								
1- 4 years	14	17	ref					
Above 5 years	22	46	1.70	0.721-4.114				
Department								
Outpatient	11	38	3.50	1.447-8.249	0.005	3.10	1.223-7.686	0.017
Inpatient	21	29	ref					
Marital Status								
Single	18	16	ref					
Divorced	2	2	1.20	0.142-8.937	0.911			0.962
Married	15	44	3.30	1.352-8.058	0.009			
Widowed	1	1	1.30	0.065-19.50	0.935			
Parity Status								
Nulliparous	11	3	ref					
1-2 Children	15	36	8.80	2.145-36.10	0.003	7.50	1.758-32.00	0.006
Above 3 Children	10	24	8.8	2.014-38.44	0.004	7.90	1.744-36.15	0.007
Religion								
Muslim	2	5	ref					
None	2	3	1.50	0.27-7.94	0.67			
Christian	15	55	0.90	0.14-5.50	0.88			
Multiple sex partners								
Yes	4	9	ref					
No	32	54	1.30	0.380-4.683	0.654			

Factors associated with utilization of cervical cancer screening services

Multi parity and department of work were significantly associated with cervical cancer screening services utilization. Unlike study respondents who had a nulliparous parity

status, study participants who had a parity status of one child to two children were 7.5 times more likely to not to utilize cervical cancer screening services. Respondents of inpatient department of the facility were 3.1 times more likely to utilize cervical cancer

screening services compared to their counterparts working in the outpatient department.

DISCUSSION

The present study found a 63.3% utilization of cervical cancer screening, below the WHO's 70% target for elimination (9). Previous studies, however, reported higher rates: South Africa (87%), Uganda (75%), and Brazil (94.7%) (21–23). This variability highlighting gaps in achieving global screening benchmarks. This study also revealed significantly low cervical cancer screening utilization compared to prior studies, which reported rates of 10.7%, 11.4%, 18.5% in Ethiopia and 15.4% in Tanzania (16,24–26). The observed disparities in screening uptake may stem from ineffective prevention strategies, varying sample sizes, population demographics, and health system differences warranting further investigation into context-specific barriers.

This study showed a significant association between higher parity and lower cervical cancer screening utilization contrary to Zambian findings and Ethiopian (27,28). This may reflect inadequate risk awareness or complacency among multiparous women, underscoring the need for targeted education. The study results showed department of work was significantly associated to utilization of cervical cancer screening services. The findings corroborated with a previous survey on female nurses cervical screening utilization which identified that the department of work had a significant association with uptake of cervical cancer screening (25). This finding contrasts with a study reporting no significant association between service delivery point and screening uptake. The disparity may be due to inpatient respondents' direct exposure to cervical cancer cases, potentially increasing

motivation. Challenges such as irregular work hours, burnout, and low motivation among female nurses may also hinder screening participation. Further research should explore these barriers to improve intervention strategies.

The current study found no significant association between age and cervical cancer screening utilization. However, research in Ethiopia identified age as a key sociodemographic factor influencing screening uptake among female nurses (26). Similarly, marital status was not statistically significant in this study, aligning with findings from Ethiopia and Zambia (27–29). Conversely, studies in Nigeria and Malawi reported a significant link between marital status and screening participation (17,30). These contrasting findings could be explained by sociocultural influence on screening behavior, suggesting that interventions should be context-specific to address varying demographic influences.

Study limitations

The study was hospital-based cross-sectional therefore may lack generalizability, with potential social desirability bias among nurses. The design precludes causal inferences, limiting definitive conclusions on screening utilization determinants.

CONCLUSION

Utilization of cervical cancer screening services female nurses was below the WHO requirements. The factors that were found to significantly associate to the utilization of cervical cancer screening services utilization among the study respondents were the parity status and department of work.

Credit Statement

J. O conceived the study, administration, data collection and wrote the original draft. A.A.I

performed data analysis and interpretation. C.M and J.K conceived the study and supervised the whole process.

Conflict of Interest

The authors declare no conflicts of interest.

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