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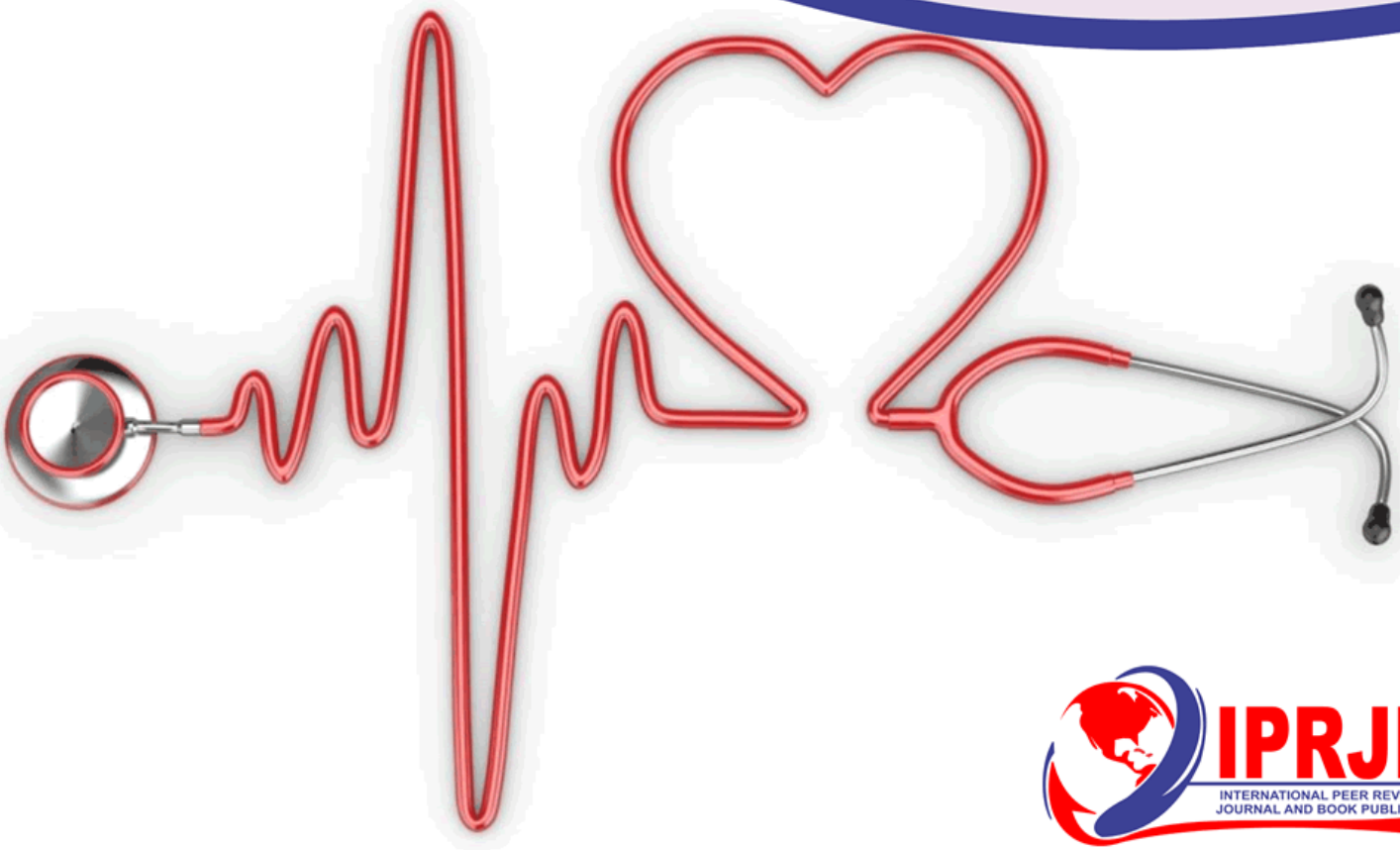

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CERVICAL CANCER SCREENING AND KNOWLEDGE OF CERVICAL CANCER RISK FACTORS AMONG WOMEN OF REPRODUCTIVE AGE IN JUJA SUB-COUNTY, KENYA

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Abstract

Purpose: To examine cervical cancer screening and knowledge of cervical cancer risk factors among women of reproductive age in Juja sub-county, Kenya

Methodology: The survey adopted a descriptive cross-sectional study design. The targeted sample was 422 women aged 18-49 years in selected households. Multistage sampling was used to select the respondents. Interviewer-administered questionnaires were utilized in gathering quantitative data while FGDs facilitated collection of qualitative data. Binary logistic regression and chi square tests were used in data analysis. Odds ratio (OR), level of significance at 95% and chi square were used interpret the results. The investigator processed the data using SPSS software version 20.

Findings: There was significant statistical difference between knowledge level of cervical cancer risk factors and screening (*P*=0.017). Knowledge level of risk factors for cervical cancer was a significant predictor for having a cervical cancer screen (*P*=0.022). Respondents who had least knowledge level on risk factor to cervical cancer were about 14 times more likely to be unscreened as compared to those who had highest knowledge level [OR, 17.40 (95% CI: 1.510, 200.6) *P*-value 0.02.

Unique contribution to theory, practice and policy: Department of health in Kiambu county government should introduce policies which help to increase rate of screening for cervical cancer by initiating public knowledge of risk factors for the disease

Keywords: *Cervical cancer, Screening, risk factors, Knowledge, Juja*

1.0 INTRODUCTION

Globally, cancer of the cervix has the second highest prevalence as compared to any other kind of cancer. Approximately 527 000 new cases are reported every year. Annually, the mortality rate across the globe is projected to be 265, 792 deaths (Finocchario-Kessler *et al.*, 2016). The disease disproportionately affects the developing countries because it causes the highest rates of deaths. In the continent of Africa, nearly 81, 000 patients are diagnosed with the disease each year, but about 61, 000 women losses their lives (Denny & Anorlu, 2012; Modibbo *et al.*, 2017). In sub-Saharan Africa the number of new cases is 75, 000 annually while 50, 000 women lose their lives (Bouassa *et al.*, 2017). The Eastern Africa region has one of the highest numbers of new cases for cervical cancer in the continent.

In Kenya, cancer of the cervix causes the largest number of deaths relative to other forms of cancers (Morris, 2016). The prevalence rate of cancer of the cervix is the highest among women in the reproductive age in the country. More than 4800 women in Kenya are identified with the cancer of the cervix while approximately 2400 die from the disease (ICO Information Centre, 2017). The threat of infection is high among women aged 15 to 60 years in the country (KDHS, 2014).

The Human Papillomavirus (HPV) is the causative agent of the disease. The agent is a transmitted through sexual intercourse. According to the WHO, approximately 81 per cent of women harbour HPV infection in their lifetime. Symptoms and signs of human papillomavirus infections take place after long period since infection thus it is quite challenging to know when a person was infected. In Kenya, 19.6 per cent and 10.7 per cent of men and women and men respectively first engages in sexual intercourse before their fifteenth birthday (ICO Information Centre, 2017). In Kenya, approximately 4800 new cases of cervical cancer are reported each year, out of which about 2400 women loss their lives (ICO Information Centre, 2017). The number of new cases per year is 25 females per 100, 000 people. The disease is a health burden among females aged 15 to 49 years in Kenya (Morema *et al.*, 2014). Notably, 70-80 per cent of cervical cancer cases are detected in the late stages. The diagnosis of the disease at late stages has been attributed to inadequate knowledge of the disease and low utilization of cervical cancer screening programs.

Kiambu County has documented lowest rate of screening for cancer of the cervix, which is a reflection of the entire nation (Wanyoro & Kabiru, 2017). Screening of women at risk of cervical cancer is one of the most effective approaches for its prevention. Kiambu County has low coverage of cervical cancer among women at risk of this disease (Njiru, 2016). Cervical cancer screening services in Kiambu County have been integrated in the maternal and child health (MCH) in the family planning clinics (FP). Both visual tests

and Pap smear are utilized as the screening approaches. The main method utilize for cervical cancer screening is the visual test, which is conducted by nurses in the FP clinics. Nonetheless, doctors can recommend Pap smear test on various occasion. Despite various interventions to curb the rising cases of the disease, inadequate knowledge level on risk factors of cervical cancer among women may be likely drivers to low screening status in Kiambu County (Mugwe, 2014).

A study conducted by KEMRI indicated that Kiambu County had second highest prevalence of cervical cancer (448 cases) at Kenyatta National Hospital Cancer Registry only after neighboring Nairobi County (1028 cases) (Mugo, 2017). A study conducted by Mugwe, (2014) in Thika Level V hospital, Kiambu County indicated that there is low level of utilization of cervical cancer screening services despite high attendance of MCH. Statistics from the hospital indicated that between 2010 and 2011, only 680 women had screened out of which 39 patients had precancerous lesions in the cervix. Most patients visit the screening centres when the disease has progressed to serious stage making it challenging to contain or treat. The figures demonstrate that utilization of screening for cancer of the cervix is low in Kiambu County hence the necessity to increase the number of women enrolled in the screening program.

2.0 MATERIALS AND METHODS

The study applied a descriptive, cross-sectional study design in the community. The survey was initiated in Juja Sub-county in Kiambu County, which is situated in the Central Kenya. The sampled wards included Juja Ward, Murera Ward, and Witeithie Ward. The population of the survey included women aged between 18 and 49 years in the community. The inclusion criteria included women who delivered an informed written consent, pregnant or with at least one child, and citizens of sampled wards for the past twelve months. The study excluded women who were seriously frail or sick to participate in the survey.

The survey used multi-stage sampling to sample the study participants and study area. Kiambu County was selected purposively while Juja sub-county was selected using simple random sampling. Systematic sampling was used to sample households. The researcher selected one study participant(s) per household until a complete sample size is reached. Using established Fisher formula (Goertz & Mahoney, 2012), the total sample size for the study (n=384). Moreover, 10% was added to this sample to cater for non-responses hence the total number of research participants were 422.

Quantitative data was collected using researcher-administered questionnaire while KIIs Guide was developed to collect crucial data from key officials in the government. In order to ascertain the consistency of questionnaire, the test-retest approach was utilized.

The investigator obtained the ethical clearance certificate from the Kenyatta University Ethical Review Committee (serial number PKU/936/I993). Research permit was pursued from the National Council for Science and Technology (Permit No: NACOSTI/P/18/20693/27224). The researcher applied for research authorization from Office of Kiambu County Commissioner, Department of Health, and Chief's offices in Kiambu County. The informed consent was obtained from the respondent of the survey before the interviews or filling the questionnaires.

The analysis was conducted by reading the data collected followed by cleaning, coding, and analyzing. Descriptive data analysis was conducted to assess the summary of the demographic information of the study participants. Chi-square test was utilized to determine whether there is a statistical difference between the variables. Logistic regression was used to assess the determinants of participating in cervical cancer screening. Odds ratio (OR) at 95% confidence interval was used to predict screening practices.

3.0 FINDINGS

3.1 Awareness of cervical cancer screening

Figure 1 summarizes the reactions of research participants on whether they have ever heard information on cervical cancer screening. Most of the respondents 88.9% (n=375) indicated that they were aware of cervical cancer screening while 1114% (n=47) highlighted that they were not aware of cervical cancer screening.

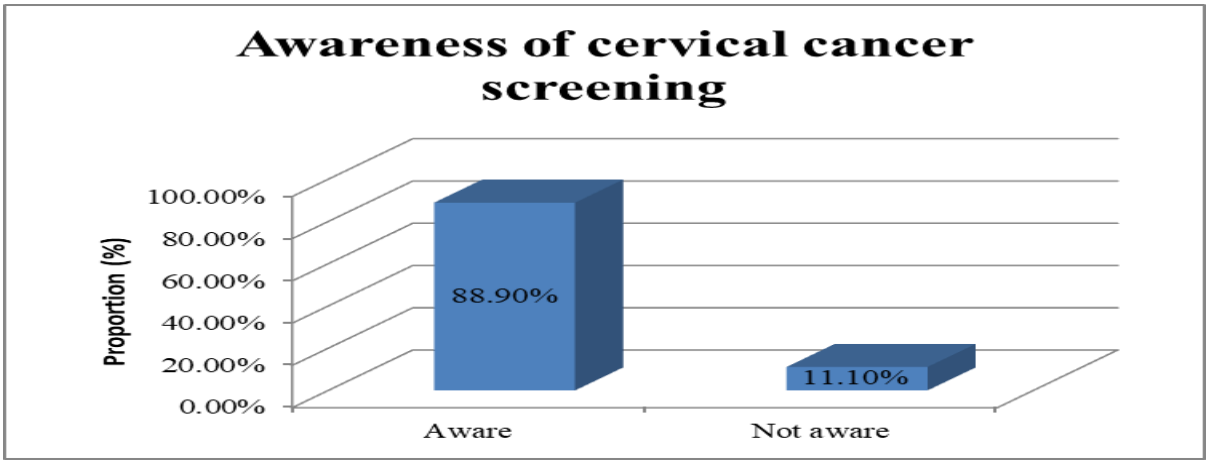

Figure 1: Awareness of Cervical cancer screening

3.2 Screening for cervical cancer

Figure 2 highlights the responses of participants on whether they have ever been screened for cervical cancer. Notably, 83.2% (n=351) reported that they have never been screened for cervical cancer while only 16.8% (n=71) have been screened for cervical cancer.

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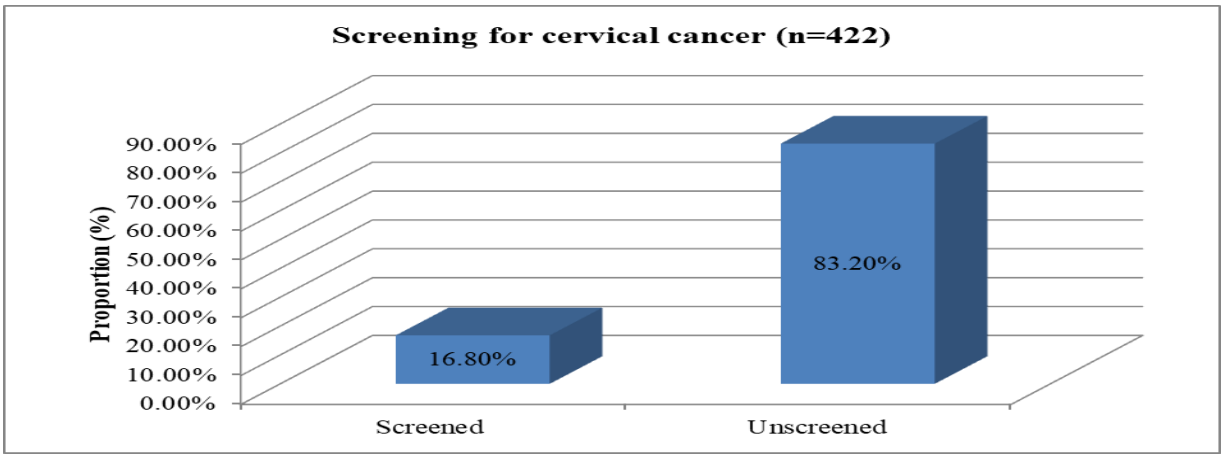

Figure 2: Cervical Cancer Screening Status

3.3 Relationship between cervical cancer screening and awareness

From the table 4.2, only 71 (16.8%) of the respondents were screened. Of the unscreened 304 (86.6%) were aware of cervical cancer screening. There is statistically significant difference between awareness of screening and participating in cervical cancer screening χ^2 =10.699 (1), p=0.001. Of 422 respondents, 88.9% (n=375) were aware of CC screening but only 16.8% (n=71) had ever been screened. Of 422 women respondents, 16.8% (n=71) were screened while 83.2% (n=351) were unscreened. Of 351 unscreened women, 86.6% (n=304) were aware of cervical cancer screening. A fisher exact test indicated that Awareness (p<0.001), significantly differed between screened and unscreened groups

Table 1: Cervical cancer awareness and screening (n=422)

	Screening Status for Cervical Cancer			
	Screened n (%)	**Unscreened** n (%)	**Total**	***Statistics***
Awareness				
Aware	71 (16.8%)	304 (86.6%)	375 (88.9%)	χ^2 =10.699
Not aware	0 (0.0%)	47 (13.4%)	47 (11.1%)	***p*<0.001**
Total	**71(16.8%)**	**351(83.2%)**	**422 (100%)**	

3.4 Socio-demographic characteristics and cervical cancer screening

Table 2 indicated that higher screening rates were observed in persons in 40-44 years (29.6%), married (53.5%), with bachelor's degree (46.5%), employed (50.7%) and with household income of over Ksh. 50,000 (26.8%). There was a significant difference between educational level and being screened for cervical cancer (χ^2 =90.014, *P*<0.001*). Likewise, there was a significant difference between household income and being screened for cervical cancer (χ^2 =33.58, *P*<0.001*). However, no statistically difference was observed between being screened for cervical cancer and socio-demographic factors

such as age, marital status, religion, work status and residence.

Table 2: Association between the cervical cancer screening status and socio-demographic characteristics (n=422)

Characteristics	Screening Status			
	Screened (%)	Unscreened (%)	Chi-square	*P*-value
No. of participants	**n=71**	**n=351**		
Age			χ^2=3.829	0.700
15-19 years	1 (1.4)	6 (1.7)	df = 6	
20-24 years	6 (8.5)	27 (7.7)		
25-29 years	12 (16.9)	72 (20.5)		
30-34 years	15 (21.1)	86 (24.5)		
35-39 years	15 (21.1)	80 (22.8)		
40-44 years	21 (29.6)	70 (19.9)		
45-49 years	1 (1.4)	10 (2.8)		
Marital Status			χ^2=2.726	0.436
Single	20 (28.2)	129 (36.8)	df = 3	
Married	38 (53.5)	153 (43.6)		
Widowed	6 (8.5)	36 (10.3)		
Divorced	7 (9.9)	33 (9.4)		
Education Level			χ^2=29.57	**<0.001**
None	3 (4.2)	8 (2.3)	df = 7	
Primary	7 (9.9)	48 (13.7)		
Secondary	4 (5.6)	124 (35.3)		
T**ertiary**	57 (80.3)	171 (48.7)		
Work Status			χ^2=1.309	0.253
Employed	36 (50.7)	152 (43.3)	df = 1	
Unemployed	35 (49.3)	199 (56.7)		
Household Income			χ^2=33.58	**<0.001**
0-9,999	7 (9.9)	33 (9.4)	df = 5	
10,000-19,999	3 (4.2)	68 (19.4)		
20,000-29,999	12 (16.9)	82 (23.4)		
30,000-39,999	13 (18.3)	94 (26.8)		
40,000-49,999	17 (23.9)	45 (12.8)		
Over 50,000	19 (26.8)	29 (8.3)		
Residence			χ^2=1.087	0.297
Rural	32 (45.1)	182 (51.9)	df = 1	
Urban	39 (54.9)	169 (48.1)		

3.5 Knowledge level of risk factors for cervical cancer

The knowledge of risk factors for cervical cancer was determined using the correctness of the response. Table 3 indicated that correct answers for knowledge ranged from 19.0 per cent to 47.4 per cent. A minority of study participants (19.0%) knew that early long term use of oral pills and multiple sexual partners were linked with cervical cancer. On the other hand, 47.4 per cent of women knew that smoking increases the risk for cervical cancer. The average knowledge score of risk factors for cervical cancer was 2.23 (95% CI: 2.09, 2.37) out of the possible score of 6.

Table 3: Women's Knowledge of risk factors for cervical cancer (n=422)

Risk factors	Correct Answer	Frequency (n)	Proportion (%)
Multiple sexual partners a risk factor?	Yes	80	19.0%
Smoking a risk factor?	Yes	200	47.4%
HIV/AIDS a risk factor?	Yes	104	23.5%
Early sexual debut a risk factor?	Yes	96	24.6%
Cancer history in family?	Yes	80	22.7%
Use of contraceptives a risk factor?	Yes	99	19.0%

3.6 The relationship between weighted knowledge level of risk factor for cervical cancer and screening

Table 4 displayed the results of a Chi square test to determine the relationship between weighted knowledge level of risk factor for cervical cancer and screening. Each correct response was awarded 5 marks. There is significant statistical difference between knowledge level of risk factors for cervical cancer and screening $p = 0.017$, $\chi^2(6) = 15.52$. Bigger fraction (2/3; 66.7%) of those who gave 6 correct responses or scored 30/30 on risk factors for cervical cancer, were screened. This fraction was higher as compared to those who scored 25 (1/7; 14.8%), scored 20 (7/33; 21.2%), scored 15 (10/47; 21.3%), scored 10 (17/77; 22.1%) and scored zero (20/194; 10.3%).

Table 0: Relationship between knowledge level of Risk factors and screening

Knowledge level	Screening for Cervical Cancer			
	Screened (n) (%)	**Unscreened (n)(%)**	**Chi-square**	***P* value**
Scores	***n*=71**	***n*=351**		
			χ^2=15.52	**0.017**
No correct answers	20 (28.2)	174 (49.6)	df = 6	
1 Correct answers	14 (19.7)	47 (13.4)		
2 Correct answers	17 (23.9)	60 (17.1)		
3 Correct answers	10 (14.1)	37 (10.5)		
4 Correct answers	7 (9.9)	26 (7.4)		
5 Correct answers	1 (1.4)	6 (1.7)		
6 Correct answers	2 (2.8)	1 (0.3)		

3.7 Predictors of cervical cancer screening status

From table 5, binary logistic regression indicated that study participants who had least level of knowledge about risk factors for cervical cancers were more likely to indicate not having been screened. The odds ratio indicated that persons with lowest level of knowledge were 14 times more likely to be unscreened (OR; 17.40: 95%CI: 1.510, 200.6), p =0.022. Therefore, the data indicated that knowledge level on the risk factors of cervical cancer is a critical predictor of recording having participated in cervical screening.

Table 5: Knowledge of cervical cancer risk factors and screening

Characteristics	**Odds Ratio (OR)**	**95% CI**		***P*-value**
		Lower	**Upper**	
Knowledge level (scores)				
No correct answers	17.40	1.510	200.6	**0.022***
1 Correct answers	6.714	0.566	79.66	0.131
2 Correct answers	7.059	0.603	82.63	0.119
3 Correct answers	7.400	0.607	82.63	0.117
4 Correct answers	7.429	0.585	94.32	0.122
5 Correct answers	12.00	0.489	294.57	0.128
6 Correct answers	1			

4.0 DISCUSSION, CONCLUSION AND RECOMMENDATIONS

4.1 Discussion

The findings of the study also indicated lower level of screening for cervical cancer at

16.8 per cent. Screening rate is close to the findings in Kisumu by Morema *et al.*, (2017) and nationally by Nyangasi *et al.*, (2018), which reported a screening of 17.5% and 16.4%, respectively. The rate of screening is slightly higher as compared to a 2014 KDHS report which was 14%. The difference between previous study (17.5%) and current study (16.8%) could be attributed to the fact that the past study was conducted in hospital as opposed to the community. Kumar & Tanya (2014) and this study also pointed to the fact that in spite of most people being aware of cervical cancer screening, only a small proportion participated in screening. Precisely, 86.6% of the respondents were never screened in spite of being aware of cervical cancer screening. This indicated that most respondents were aware of screening but did not utilize it. The results of this study is consistent with a study by Ifemelumma et al, (2019) which noted that the majority of the study participants were aware of cervical cancer screening but only 20.6 per cent had utilized it. Women who were educated and those with highest monthly income were significantly associated to cervical cancer screening. This is consistent with Nyangasi *et al.*, (2018) study.

Understanding the risk factors for disease such as cancer is an important step towards taking appropriate preventative measures. People who have higher knowledge about cervical cancer are able to take best lifestyle choices and enhance their health. Based on the findings of the study, the respondents had a mean of 2.23 out of 6 which is suggestive of low knowledge level of risk factors for cervical cancer. The data is consistent with a study conducted by Ralston *et al.*, (2003) in the US among Chinese immigrants which stated the mean score at 4.6 out of 10. The findings pointed out that 54.1% were able to state at least one risk factor for cervical cancer which is similar to a study in Ethiopia by Mitiku & Tefera (2016) which showed that 41.9 per cent could state at least one risk factor of cervical cancer. The highest number of respondents, (47.4%) could correctly identify that smoking is a risk factor to cervical cancer. The findings are similar to a study conducted in Togo by Moore & Driver (2014), which indicated that 48.5 per cent had correct knowledge that smoking is a risk factor to cervical cancer. Only few respondents could correctly identify risk factors such multiple sexual partners, use of oral contraceptives, early sex debut, HIV and AIDS, and family history as risk factors contrary to a Mitiku & Tefera, (2016) study. The difference could be attributed by the fact that Mitiku and Tefera study was conducted among educated women.

4.2 Conclusion

The study observed that cervical cancer screening rate was 16.8% hence rate of screening is below the national target of over 75 per cent. High rate of screening for the disease were observed among women with higher income, those residing in urban areas, more educated and older women. Significant number of study participants had higher

awareness of cervical cancer screening (88.6 per cent) while only 11.4 per cent were unaware of screening for cancer of the cervix. In spite of being aware of cervical cancer screening, only 16.8 per cent had participated in cervical cancer screening while 86.6 per cent had never been screening. The findings indicated that although most people had heard about the importance of screening only a few had embraced it. Therefore, the findings demonstrated lower utilization of screening program.

Majority of the study participants had low knowledge level of risk factors linked to cervical cancer. Indeed, 45.9% did not have a single correct response and mean score of 2.23. Therefore, they did not understand such risk factors raise the vulnerability of cervical cancer. Inaccurate knowledge about the risk factors of a disease can affect screening behaviour contributing to underutilization of screening programmes.

4.3 Recommendations

The National government and County government of Kiambu should enact policies which can increase the level of cervical cancer screening. To deal with low level of screening in rural areas, the county government should introduce outreach programs in rural areas because it will help to eliminate the additional expense such as transport costs. Kiambu county government should also pay attention to hidden costs especially daily lost income and transport to health facilities as low income women are seeking these services. The government should implement policies which would help increase the knowledge level of risk factors for cervical cancer and encourage utilization of cervical cancer screening. The government should allocate adequate budget which will be used to promote public knowledge level about risk factors for cervical cancer through mass media.

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