RESEARCH ARTICLE

Factors Affecting Uptake of Cervical Cancer Screening Among African Women in Klang Valley, Malaysia

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Abstract

Introduction: Cervical cancer is a health concern among women worldwide, presently ranking as the second to fourth common cancer type among women in different parts of the world. Human papillomaviruses (HPV) 16 and 18 are the main causative agents of cervical cancer. However, prevention is possible with early and regular cervical cancer screening. **Objective:** This study aimed to identify the cervical cancer screening practices and factors affecting the screening status of African immigrant women attending selected church services in Klang Valley, Malaysia. **Methodology:** A cross-sectional study among 320 randomly selected respondents between ages 18-69 was conducted in three different churches with high numbers of African participants. A self-administered questionnaire was distributed among the respondents. To ensure a good understanding, the questionnaire was written and self-explained in English language, because English is the general spoken language among the study population. Three levels of analysis were conducted using SPSS 21, involving descriptive analysis, chi square and multiple logistic regression. **Results:** The response rate was 98.2%, the majority (68.1%) of the respondents being aged 31-50 years and married. The prevalence of screening among the respondents over the past 3 years was 27.2%. Using a p-value of 0.05 as the significance level, the final model showed that marital status (p=0.004), knowledge (p=0.035), perceived barriers (p=0.003), and having a regular health care provider (p<0.001) were the only significant predicting factors of uptake of cervical screening among African immigrant women in Klang Valley, Malaysia. **Conclusion:** The findings revealed that the uptake of cervical cancer screening among the African women was very low. Marital status, knowledge, perceived barriers and having a regular health care provider were the predictive factors. Specific awareness programs to increase uptake should be designed and implemented by the relevant authorities.

Keywords: Cervical cancer- screening- Pap test- African women-Malaysia

Introduction

Cervical cancer is a slow-growing cancer that begins in the cervix of women and occurs mostly in women over the age of 30 years (CDC, 2012). The cervix is the lower end of the uterus that connects the vagina to the womb. Once the cancerous cells begin to grow, the abnormal cells can slowly invade the whole body to cause devastating effects on health (CDC, 2012). Based on its slow growing nature, cervical cancer is seen to be highly preventable and treatable if detected early, yet many women still develop the cancer with grave outcomes. In 2012, an estimate of 528,000 new cases of cervical cancer was reported globally, with an estimated 266,000 women dying from this cancer (WHO, 2012). According to the 2008 estimates of the worldwide cancer burden compiled by the International Agency for Research on Cancer (IARC) More than 80% of cervical cancer cases were diagnosed in developing countries such as Africa and Asian countries, (Goldie et al., 2008) With a mortality rate of 10-35 deaths per 1000,000 people (Arbyn et al., 2011). This is very high compared to developed countries with a mortality rate of 2-4 deaths per 1000,000 people (Arbyn et al., 2011). The difference in mortality rate is mainly because of lack of effective screening programs aimed at detecting and treating precancerous conditions, in the developing countries (Hakama et al.,1986). Comprehensive Pap smear screening-based programs have not been properly implemented in most developing countries because, in most of these developing countries where Pap smear screening is available, it often is accessible to only a small proportion of women through private health care providers, or it is offered primarily to young women through maternal or child health clinics or family planning clinics where the population being screened generally is not at high risk. Therefore, these approaches have had little effect on morbidity and mortality in developing countries compared to most developed countries that has long implemented comprehensive Pap smear screening-based programs (WHO, 2012).

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There are various methods of cervical cancer screening which includes: conventional cytology also known as Pap smear, liquid based monolayer cytology, human papillomavirus testing (HPV), and visual inspection to detect pre-cancer or cancer. However, this study is focused on the Pap smear method because this is the screening method that has been used by the Malaysian government since 1969 (Ministry of Health, 2004) and the most common method used globally. Studies have also shown that pap smear combined with HPV gives a clearer result of cervical cancer screening (National Cancer Institute, 2008). Hence a person with a normal Pap test and HPV result do not need to worry about repeating another screening in five years (National Cancer Institute, 2008). According to the cervical cancer screening guild line by the ministry of health Malaysia, it is recommended that every woman over 21 years of age and sexually active should have a cervical cancer screening done annually for the first 3 consecutive years. After 3 years of normal pap smear, she can now test less frequently for example once every three years if she is classified as being at low risk for cervical cancer and should continue yearly pap Smear if she is classified at high risk (Ministry of Health Malaysia, 2004).

There has, been a significant decrease in the number of new and existing cases and deaths from cervical cancer in the last 20 years because of the introduction of the pap smear in the 1960's and the establishment of free of charge testing in government hospitals and health facilities for all Malaysian native borne women (Ministry of Health Malaysia 2004). While the effect of cervical cancer has diminished in most developing and developed countries following the availability of early cancer detection through screening, cervical cancer is still causing devastation among several minority groups including immigrants (Howell et al., 2009). Some minority groups may not take advantage of the available screening services and may suffer from invasive cervical cancer that can lead to poor health outcomes or even death (Woltman and Newbold, 2007). While some researchers have investigated the factors such as marital status, age, insurance status, access to health facilities, perceived barriers and regular health care provider that affect the utilization of cervical cancer screening services among some minority groups (Downs et al., 2008; Ross et al., 2008). A research conducted among Iraqi immigrant women living in Malaysia showed that lack of awareness of the availability of screening services, Cost of Pap smear, are one of the reason for not doing Pap smear (Osman, 2013). Some research that has been conducted in the developed countries such as the United States of America has shown that a higher percentage of women affected by this cervical cancer are from certain minority groups of immigrants' women (Adeyemi, 2013). Therefore, there is a need to consider the uptake of cervical cancer screening among the African immigrants in Malaysia and to identify the factors that might be affecting their decision to go for Pap smear test. This study aims to fill that gap by providing evidence on some of the factors that may be associated with the cervical cancer screening behaviors among this growing population of immigrants in Malaysia.

Materials and Methods

This was a cross-sectional study on 320 African women attending selected church services in Klang Valley, Malaysia. A multi-stage random sampling was used, so that among 10 churches in Klang Valley with consistent number of African worshipers, 3 churches were randomly selected. Then in each of the churches, the name list of African women between the ages of 18-69 was used to randomly select the qualified women. Women who were not willing to participate in the study, women already diagnosed with cervical cancer, women who have had hysterectomy, women who are not sexually active, Women of mixed African and Malaysian parents and women who might not communicate effectively in English language were excluded from the study. All participants were given a detailed explanation about the study and assurance of confidentiality and then an Informed consent forms were completed by each participant before the study.

Sample size was calculated using a two-proportion sample size formula (Lemeshow et al., 1990) and used the proportion of cervical cancer screening uptake reported in a previous study by Adeyemi (2013). The minimum sample size at 20% response rate was 326 women. A total of 163 women were from the St John's Cathedral, 130 women were from the Parish of Our Lady of Guadalupe and a total of 33 women were from the Redeemed Christian Church of God were recruited in this study using simple random sampling. Data collection tool was based on a self-administered English version of questionnaire distributed among the respondents. The questionnaire was designed based on previous studies and was divided into three parts, the first part of which included the questions on the predisposing factors which include age, level of education, marital status and knowledge. There are 7 questions relating to predisposing factors of knowledge. These questions were adapted from a study conducted by De Peralta et al., (2014). For each Knowledge question, there are three options of either "*yes*", "*no*" or "*I don't know*". Every correct answer was scored 1 mark, while wrong answers or those who answered, "*I don't know*" was given 0 marks. The range of possible score was 0 to 7. During data analysis the mean score were calculated and those who scored above the mean score were categorized as having good knowledge on cervical cancer screening and those who scored below the mean score were categorized as having poor knowledge. The second part was related to the enabling factors (insurance status, acculturation, regular health care provider, family income and access to the health care system), These questions were adapted from a study conducted by Adeyemi (2013). The options were objective answers of "*yes*", and "*no*". The third part of the questionnaire contains the perceived barriers questions. These questions are adapted from a study conducted by Pryma et al., (2013). The responses for statements related to barriers to screening, to ascertain level of agreement or disagreement were given on 5-point Likert-type scale ranging from strongly agree (5) to strongly disagree (1). The range of possible scores was 7 to 35. During data analysis the mean score was obtained and those that scored

above the mean were categorized as having low perceived barriers regarding Pap smear screening. While those that scored below the mean score were categorized as having high perceived barrier.

For ensuring the quality of the questionnaire, the content validity was undertaken, whereby an expert in community health and an expert in health promotion have critically reviewed the questionnaire. All suggestions were noted and appropriated. In addition, Institutional approval from the ethics committee on research involving humans in Universiti Putra Malaysia was sought. For measuring the reliability, the questionnaire was given to 50 African women attending the African fellowship at St Francis' Catholic Church Cheras, Selangor. The internal consistency of the rating scales was tested by Cronbach's alpha coefficient to measure reliability. Cronbach's alpha is widely used because it provides reliability in one testing session of a questionnaire. The Cronbach's alpha obtained was 0.678.

After the data collection, Data analysis was done with Statistical Package for Social Sciences (IBM SPSS) software version 21.0. Data entry, data transformation and exploratory data analysis were carried out. The analysis was divided into 3 categories descriptive, bivariate and multivariate analysis. The bivariate analysis (chi-square) was used to determine association between independent variables and cervical cancer screening uptake within the past 3 years. Then, simple and multiple logistic regressions were used to determine the predicting factors associated with cervical cancer screening among respondents. The level of significance was set at P-value of less than 0.05.

Results

Out of the 326 eligible participants, data was collected from 320 respondents, giving an overall response rate of 98.2%. The non-respondents were those who did not give consent to participate in the study and those who gave their consent but however, left in the mist of the interview without handing back the completed questionnaire.

Table 1. Socio-demographics Characteristics of the Respondents (N=320)

Characteristics	Frequency	Percentage
Age		
18-30	100	31.3
31-50	218	68.1
51-69	2	0.6
Marital status		
Married	226	70.6
Widowed	2	0.6
Single	92	28.8
Education		
Primary	1	0.3
Secondary	44	13.8
Tertiary	272	85.0

Descriptive analysis of the respondents
Socio-demographic characteristics

A total of 50% respondents are from Nigeria, 15% from Ghana and 35% from other countries such as Sudan, Tanzania, South Africa and Kenya. Majority of the respondents were between 31-50 years (68.1%), and very few between 51-69 years (0.6%). Majority of them were married (70.6%). Around 85% reported to have attained or undergoing their tertiary education, about 13.8% have attained up to secondary education level, and (0.3%) received only primary education. Table 1 summarizes the sociodemographic characteristics of respondents.

Distribution of respondents' knowledge on Pap smear and cervical cancer

Table 2 shows the distribution of the respondents' knowledge on Pap smear and cervical cancer. More than half of the respondents 193 (60.3%) reported that they have never heard of cervical cancer and only 31 (9.7%) knows that HPV causes cervical cancer. A total of 110 (34.4%) reported that early detection makes cervical cancer curable.

The result shows that 215 (67.2%) never heard of Pap smear and majority 214 (66.9) said they do not know the purpose of Pap smear. A total of 100 respondents (31.3%) knew that Pap smear should be done at least once every two to three years and 88 (27.5%) reported that Pap smear can detect changes in the cervix.

Every correct answer was scored 1 mark, while wrong answers or those who answered, "*I don't know*" were scored 0 marks therefore giving a range of 0 to 7 possible scores. The respondents' range of score from the study was 2 to 6 marks. The mean (SD) score of the respondent for knowledge was 4.090 (0.405); since data is normally distributed, mean was used as the cut- off point to dichotomize the knowledge score into high and low knowledge. Respondents whose mean score was 4.1 and above were regarded as having a high knowledge while respondents whose mean score was below 4.1 were regarded as having a low knowledge. Thus, 136 (49.4%) of the respondents had high knowledge while 184 (50.6%) of the respondents had low knowledge on cervical cancer and Pap smear.

Prevalence of Pap smear uptake in the past three years among respondents

The operational definition of the dependent variable was used to analyze the prevalence of Pap smear uptake among the respondents, and was categorized as "*yes*" for those that have done Pap smear within the past three years (75+12) against "*No*" for those that have done Pap smear over three years ago or never done at all (232+1), this is shown in Table 3. The result showed that the prevalence of Pap smear uptake among the respondents in the past three years was 87 (27.2%).

Enabling characteristics of the Respondents

The result from Table 4 shows the distribution of the respondents according to the enabling factors.

Around 267 (83.4%) earn a monthly income between 2,001-5,000 Malaysian Ringgit (RM) and 27 (8.4%)

Table 2. Distribution of Respondent's Knowledge on Pap Smear and Cervical Cancer (N= 320)

Variables	Response		
	Yes	No	I do not know
	n (%)	n (%)	n (%)
Ever heard of cervical cancer	127 (39.7)	193 (60.3)	-
Cervical cancer is caused by HPV	31 (9.7)	5 (1.6)	284 (88.8)
Early detection of cervical cancer makes it curable	110 (34.4)	2 (0.6)	208 (65.0)
Ever heard of Pap smear	101 (31.6)	215 (67.2)	4 (1.3)
Do you know the purpose of Pap smear	100 (31.3)	214 (66.9)	6 (1.9)
Pap smear should be done at least once 1-3 years	100 (31.3)	5 (1.6)	215 (67.2)
Pap smear can find changes in the cervix before they become cancer	88 (27.5)	5 (1.6)	227 (70.9)

earn between RM1,001-2,000 bracket. Majority of the respondents 281 (87.3%) reported to have insurance coverage, Acculturation was measured by respondents' ability to communicate in Malaysian language i.e. Bahasa Melayu (BM). majority of the respondents 303 (94.7%) reported they cannot communicate in BM, and 220 (68.7%) did not have a regular health care provider (HCP). some of the respondents 44 (13.7%) reported that they do not have access to clinics where Pap smear is done in Malaysia while 276(86.3%) reported they have access to these clinics.

Perceived barriers towards having Pap smear test

Table 5 shows the distribution of the respondents according to their perceived barriers to having Pap smear test, overall, more than 60% of respondents were unsure on the statement related to their perceived barriers.

The mean (SD) score of the respondent for perceived barrier to pap smear test was 28.8 (4.234). Barrier score was categorized into high and low perceived barrier, based on the mean score. Respondent whose mean score was 28.8 and above were regarded as having a high perceived barrier, that is perceiving a barrier to Pap smear test, while respondent whose mean score is below 28.8 were regarded as having a low perceived barrier, that is not perceiving or perceiving little barrier to pap smear test. Overall a total of 194 (60.6%) of the respondents has high perceived barrier on Pap smear test while 126 (39.4%) of the respondents has low perceived barrier on pap smear test.

Associations between predisposing factors, enabling factors, perceived barriers and Pap smear test

Table 6 portrays factors that are associated and can predict the uptake of cervical cancer screening using chi-square test of association and binary logistic regression at p<0.05.Only those varibles that were

significant in the simple logistic regression at p<0.05 were included in the final model for multivariate analysis. Among these variables, marital status was significantly associated with Pap smear uptake in the past 3years, Married women are 2 times more likely to have a good uptake (AOR=2.257, 95% CI=1.006-4.361) when compared to unmarried women. Regular HCP was associated with Pap smear uptake in the past 3 years among the respondents. Women with regular HCP are more likely to have a good uptake (AOR=2.693, 95% CI= 1.001-4.062) than those who do not have regular HCP. In addition, Knowledge and perceived barriers were also significantly associated with Pap smear uptake in the past 3years. Women with high knowledge are more likely to have a good uptake (AOR=3.217, 95% CI= 1.027-6.216) when compared to those with low knowledge. Also, women with low perceived barrier to screening are 3 times more likely to have a good uptake (AOR=3.110, 95% CI=2.461-6.426) when compared to those with high perceived barrier. Other variables; showed not to be a predictor of Pap smear uptake in the past 3 years.

Table 4. Distribution of Enabling Factors (N=320)

Variables	Frequency	Percentage (%)
Income		
≤ RM 1000	24	7.5
RM1001-2000	27	8.4
RM2001-5000	267	83.4
RM5001 and above	2	0.6
Insurance status		
Yes	281	87.8
No	39	12.2
Acculturation		
Can speak Malaysian language	17	5.3
Cannot speak Malaysian language	303	94.7
Regular Health care provider		
Yes	100	31.3
No	220	68.7
Access to clinics		
Yes	276	86.3
No	44	13.7

Table 3. Prevalence of Pap smear Uptake in the Past Three Years Among Respondents (N=320)

Variables	Frequency	Percentage (%)
When was your last Pap smear test done?		
Never had Pap smear test before	232	72.5
One year ago	75	23.4
2-3 years ago	12	3.8
More than 3 years ago	1	0.3

Table 5. Perceived Barriers to Having Pap Smear Test (N=320)

Item barriers	Strongly Disagree n (%)	Disagree n (%)	Not sure n (%)	Agree n (%)	StronglyAgree n (%)
I am physically healthy, so I have no need for Pap smear	3 (0.9)	101 (31.6)	200 (62.5)	8(2.5)	8 (2.5)
Is not important for a woman to have Pap smear	0 (0)	2 (0.6)	193 (60.3)	39(12.2)	86 (26.9)
It is too embarrassing to do Pap smear	1 (0.3)	97 (30.3)	207 (64.7)	8 (2.5)	7 (2.2)
Woman has not had sex; pap smear will take away her virginity	4 (1.3)	87 (27.2)	219 (68.4)	4 (1.3)	6 (1.9)
Pap smear is painful	3 (0.9)	77 (24.1)	227 (70.9)	8 (2.5)	5 (1.6)
Doing Pap smear will only make one worry.	0 (0)	93 (29.1)	212 (66.3)	9 (2.8)	6 (1.9)
Lack of female screeners in health facilities is a reason for not doing Pap smear	1 (0.3)	100 (31.3)	201 (62.8)	10 (3.1)	8 (2.5)

Discussion

To the best of our knowledge, this seems to be the first study assessing the uptake and factors affecting the uptake of cervical cancer screening among African women living in Malaysia. Therefore, we could not compare our results to any of this type of study done among African women living in Malaysia, but some studies done among African immigrants' women in other countries were reported.

In this quantitative cross-sectional study, 338 eligible participants were enrolled in the study but only 320 that met up with the inclusion criteria and showed willingness to participate. The rest 18 were excluded as they didn't show willingness to participate.

The major objective of this study was to determine the prevalence of cervical cancer screening, the enabling, predisposing and need factors affecting the uptake of cervical cancer screening among African immigrant

Table 6. Factors Associated with Pap Smear Uptake in the Past Three Years (N=320)

Factors	Pap smear test within past 3 years n (%) Yes	No	P-values	COR (95%CI)	AOR (%%CI)
Age					
18-30	8 (8)	92 (92)	<0.001	2.008 (1.011-4.214)	
> 31-69	79 (35.9)	141 (64.1)		1	
Marital status					
Unmarried	4 (4.3)	90 (95.7)	<0.001	1	1
Married	83 (36.7)	143 (63.3)		3.685 (1.030-13.960	2.257 (1.006-4.361)
Levels of education					
Less than tertiary	20 (41.7)	28 (58.3)	<0.001	1	
Tertiary	67 (24.6)	205 (75.4)		0.530 (0.196- 1.541)	
Income (Malaysian ringgit)					
≤ RM2000	13 (25.5)	38 (74.5)	0.864	1.109 (0.560-2.199)	
RM2001 and above	74 (27.5)	195 (72.5)		1	
Knowledge					
Low	3 (1.6)	181 (98.4)	<0.001	1	1
High	84 (61.8)	52 (38.2)		3.545 (1.219-10.307)	3.217 (1.027-6.216)
Regular HCP					
No	2 (1.0)	218 (99.0)	<0.001	1	1
Yes	85 (85.0)	15 (15.0)		2.002 (1.145-4.102)	2.693 (1.001-4.062)
Acculturation					
Can speak Malaysian language	9 (52.9)	8 (47.1)	0.014	0.980 (0.60-1.60)	
Can't speak Malaysian language	78 (25.7)	225 (74.3)		1	
Insurance status					
No	7 (17.9)	32 (82.1)	0.184	1	
Yes	80 (28.5)	201 (71.5)		0.550 (0.233-1.296)	
Access to health care facilities					
Yes	84 (30.0)	192 (69.6)	0.019	1.071 (0.985-1.165)	
No	3 (6.8)	41 (93.2)		1	
Perceived barrier					
Low	85 (67.5)	41 (32.5)	<0.001	3.679 (1.523-6.850)	3.110 (2.461-6.426)
High	2 (1.0)	192 (99.0)		1	

significance level (p)<0.05

women in Malaysia in order to suggest possible directions cervical cancer prevention efforts in immigrant African women in Malaysia. It has been determined in some studies that members of the vulnerable populations are more susceptible to harm as they may have poorer access to health care, receive poorer health care quality, may not have the resources to take care of their health adequately or utilize health care services to protect or improve their health (Owosu et al., 2005; Shi and Steven, 2010). Based on the behavioral model for vulnerable population, some of the factors that affect health care utilization among the vulnerable population include predisposing factors such as age, education, and acculturation; enabling factors such as insurance status and family income while the need factors include self-perception of health conditions (Gelberg et al., 2000).

The result of this study showed about two-thirds (68.4%) of the participants have never heard of Pap smear test. The overall prevalence of cervical cancer screening uptake in African Malaysian immigrant since the past 3 years was 27.2%. This reflected that approximately, only one in four African women interviewed went for Pap smear test in the past 3 years. A slightly lower percentage was reported among Iraqi immigrant women living in Malaysia that only 24% of the women had done Pap smear before (Osman, 2013). Adeyemi (2013) reported the prevalence of cervical cancer screening among African women living in USA to be 28%. The findings from this study also support the findings of other researchers who have found low cervical cancer screening rates among foreign-born women, immigrant groups, or minority groups. Benedicta (2015) found the prevalence of cervical cancer screening among Hispanic women in the United States to be 64.3%, Chaw et al., (2015) found cervical cancer screening rate among immigrants in the northern district of Yangon Myanmar to be 19.1%. Lofters et al., (2010) also reported 53.1% prevalence of cervical cancer screening among immigrant women in Ontario, Canada. This low prevalence among this group of women could be as reported by Benedicta (2015) that immigrant women may lack the knowledge and understanding of cervical cancer screening guidelines in their resident countries, hence might not be able to utilize screening services compared to their native borne counterparts.

However, it seems that the prevalence of cervical cancer screening practice among African women living in their home countries were also low, mostly in West African countries such as Nigeria and Ghana. In some studies, a slightly higher prevalence of cervical cancer screening among African women living in their home countries was reported compared to this study. Anna (2016) reported a prevalence of 75.6% among the Cameroon women, In Nigeria, Ahmed et al., (2013) reported a prevalence of 32.7% among market women in Zaria, Nigeria. Others have also reported a lower prevalence of cervical cancer screening compared to the prevalence found in this study. Ekane et al., (2015) reported prevalence of 19.7% among Cameroon women in Buea health district Cameroon. Also, Isa et al., (2016) reported a prevalence of 19.7% among Nigerian Women. In Ghana, Adanu et al., (2010) reported prevalence as low as 2.1% among women in

Accra, Ghana. This low prevalence of cervical cancer screening among African women even in their home countries could be because cervical cancer screening is not seen as a routine checkup in most African countries but as a test carried out in women when there is abnormal vaginal bleeding, and, most countries in Africa such as Ghana and Nigeria lack a basic screening program and support (Handlogten et al., 2014) The lack of screening program indicates poor governmental support towards health care and this will however, lead to low knowledge because of lack of health promotion or activity.

Several factors were explored that could be associated with the uptake of cervical cancer screening; age, marital status, monthly income, knowledge, barriers, acculturation, insurance status, regular HCP, access to clinics. Marital status was found to be a significant predictor of Pap smear uptake in the past three years, Women who were married had a higher uptake than those unmarried, this is consistent with a study by Butho et al., (2015) who found that among women in Portland, Jamaica, married women were two times more likely to have had a Pap smear (95% CI: 1.13, 3.73), compared to single women. This could be due to spousal support, for example a study that assessed cervical screening uptake among women in Malaysia (Gan et al., 2013) and Tanzania (Lyimo et al., 2014) found that women who received social support from their husbands were more likely to attend cervical screening. However, some studies have also found that spouse may hinder cervical cancer screening (Mupepi et al., 2011). Therefore, effective interventions need to engage the community including men in promoting awareness of cervical cancer and prevention practices.

This study also revealed that Knowledge is a significant predictor of Pap smear uptake, those with high knowledge are 3 times more likely to have a better uptake than those with low knowledge. This finding is in accordance with studies that had also found knowledge to be significantly associated with cervical cancer screening. For instance, a study by Lyimo et al., (2012) revealed that women in a rural district of Tazania who lack awareness of cervical cancer are less likely to participate in screening service. Chaw et al., (2015) found that Migrants in the Northern district of Yangon, Myanmar with good knowledge about cervical cancer screening were 2.21 times more likely to have cervical cancer screening than those with poor knowledge. Therefore, there is need to increase more awareness of cervical cancer screening through several health promotion programs and media.

Perceived barrier is another significant predictor of Pap smear uptake among the respondents, those who reported to having low perceived barriers to screening were more likely to have had screening than those with high perceived barrier. This finding is contrary to some studies, which did not find significant association between perceived barrier and Pap smear test. For instance, Ibekwe et al., (2011) did not find significant association between perceived barriers for cervical cancer screening and screening for cervical cancer ($x^2 = 0.153$; $p = 0.696$) among women attending Mahalapye district hospital, Botswana. barriers inhibiting the participation of cervical cancer screening services include lack of female technicians in health facilities,

unsuitable clinic hours, fear of getting an abnormal Pap test result, poor knowledge of the cervical cancer screening procedure and a need for additional information (Bessler et al., 2007; Flyan, 1998; Farland, 2003). The pain and discomfort associated with a Pap smear test, which was reported as a barrier in this study, was also in accordance with other previous studies where misconception about the test being painful was one of the barriers faced by the participants (Bener et al., 2001; Maaita and Brakat, 2002; Gamarra et al., 2005). Feeling of shame was also one of the barriers discovered among these study participants. Some other studies have also reported uneasiness as one of the barriers among the respondents (Ganguly, 1995; Bener et al., 2001; Maaita and Brakat, 2002; Gamarra et al., 2005; Lovell et al., 2007). Lack of information and awareness of cervical cancer and screening could also be seen as a reason for perceived negative barrier among the respondents.

As mentioned earlier our study was compared more with studies done among immigrant women in other countries because we could not find much published studies done among immigrant women in Malaysia and this seems to be the first study done on African immigrant women in Malaysia.

In conclusion, the overall prevalence of cervical cancer screening among the participants was low. Marital status, having a regular HCP, perceived barriers and Knowledge were the predictors of Pap smear uptake that were determined in the study. Hence intervention studies and programs are necessary to increase the uptake of screening among this study population.

References

Adanu RMK, Seffah JD, Duda R, et al (2010). Clinic visits and cervical cancer screening in Accra. *Ghana Med J*, **2**, 44- 2.

Adeyemi M (2013). Factors affecting cervical cancer screening among African women living in the United States (Doctoral dissertation, Walden University).

Ahmed SA, Sabitu K, Idris SH, Ahmed R (2013). Knowledge, attitude and practice of cervical cancer screening among market women in Zaria, Nigeria. *Niger Med J*, **54**, 316-5.

Anna Nkapsah, Nji. (2016) Perceptions of Cameroonian Women Regarding Cervical Cancer Prevention. Diss. Walden University.

Bener A, Denic S, Alwash R (2001). Screening for cervical cancer among Arab women (brief communication). *Int J Gynecol Obstet*, **74**, 305-7.

Bessler P, Aung M, Jolly P (2007). Factors affecting uptake of cervical cancer screening among clinic attendees in Trelawny, Jamaica. *Cancer Control*, **14**, 396-4.

Chaw S, Nandar U, Laosee O (2015). Determinants of cervical cancer screening among migrants in northern district of Yangon, Myanmar. *J Pub Health Dev*, **13**, 3-17.

De Peralta AM, Holaday B, McDonell JR (2015). Factors affecting Hispanic women's participation in screening for cervical cancer. *J Immigr Minor Health*, **17**, 684-95.

Downs LS, Smith JS, Scarinci I, Flowers L, Groesbeck P (2008). The disparity of cervical cancer in diverse populations. *Gynecol Oncol*, **109**, 22-30.

Ekane GEH, Obinchemti TE, Nguefack CT, et al (2015). Pap smear screening, the way forward for prevention of cervical cancer? A community based study in the buea health district, cameroon. *Open J Obstet Gynecol*, **5**, 226-4

Farland MD (2003). Cervical cancer and Pap smear screening in Botswana: knowledge and perception. *Intern Nurs Rev*, **50**, 167-75.

Gamarra CJ, Paz EPA, Griep RH (2005). Social support and cervical and breast cancer screening in Argentinean women from a rural population. *Public Health Nurs*, **26**, 269-76.

Gan DE, Danhluim (2013). Cervical cancer screening and its predictors among rural women in Malaysia. *Singapore Med J*, **54**, 163-8.

Gelberg L, Andersen RM, Leake BD (2000). The behavioral model for vulnerable populations: Application to medical care use and outcomes for homeless people. *Health Serv Res*, **34**, 1273-1302.

Goldie SJ, O'shea M, Campos NG, et al (2008). Health and economic outcomes of HPV 16, 18 vaccinations in 72 GAVI-eligible countries. *Vaccine*, **26**, 4080-93.

Handlogten KS, Molitor RJ, Roeker LE, et al (2014). Cervical cancer screening in Ghana, west Africa: prevalence of abnormal cytology and challenges for expanding screening. *Int J Gynecol Pathol*, **33**, 197-202.

Howell LP, Gurusinghe S, Tabnak F, Sciortino S (2009). Cervical cancer screening in medically underserved California Latina and non-Latina women: Effect of age and regularity of Pap testing. *Cancer Detect Prev*, **32**, 372-9.

Ibekwe CM, Hoque ME, Ntuli-Ngcobo B (2011). Perceived barriers of cervical cancer screening among women attending Mahalapye district hospital, Botswana. *Arch Clin Microbiol*, **2**, 16-21.

Ilouno B (2015). Predictors of cervical cancer screening among hispanic women in the United States (Doctoral dissertation, Walden University).

Lofters AK, Hwang SW Moineddin R, Glazier RH (2010). Cervical cancer screening among urban immigrants by region of origin: A population-based cohort study. *Prev Med*, **51**, 509-16.

Ministry of Health Malaysia (2004). Clinical practice guidelines on management of cervical cancer April 2003. P/ PAK/ 60.03.

National Cancer Institute. (2008). What you need to know about cervical cancer. NIH Publication No. 08-2407.

Ncube B, Bey A, Knight J, Bessler P, Jolly PE (2015). Factors associated with the uptake of cervical cancer screening among women in Portland, Jamaica. *North Am J Med Sci*, **7**, 104.

Owosu GA, Eve SB, Cready CM, et al (2005). Race and ethnic disparities in cervical cancer screening in a safety-net system. *Matern Child Health J*, **9**, 285-95.

Osman MT, Redhwan AA, Balsam IT (2013). Knowledge and awareness of cervical cancer screening among Iraqi immigrant women living in Malaysia. *World J Med Sci*, **8**, 123-9.

Ross JS, Nunez-Smith M, Forsyth BA, Rosenbaum JR (2008). Racial and ethnic differences in personal cervical cancer screening amongs post-graduate physicians: resuts from a cross-sectional survey. *BMC Public Health*, **8**, 378.

Woltman KJ, Newbold KB (2007). Immigrant women and cervical cancer screening uptake: a multilevel analysis. *Can J Public Health*, **98**, 470-5.

World Health Organization. (2012). Sexual and reproductive health: Cancer of the cervix. Retrieved December 2015 from http://www.who.int/reproductivehealth/topics/cancers/en.