THE EFFECTIVENESS OF HEALTH EDUCATION PROGRAM TOWARDS ENHANCING KNOWLEDGE, ATTITUDE AND PRACTICE ON PAP SMEAR UPTAKE AMONG SAHABAT AMANAH IKHTIAR MALAYSIA IN ALOR SETAR AND SUNGAI PETANI

by

RODZIAH BINTI ROMLI

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TABLES OF CONTENTS

CHAPTER 4 – RESULTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

NCI	National Cancer Institute
Pap smear	The Papanicolaou smear
IARC	International Agency for Research on Cancer
AIM	*Amanah Ikhtiar Malaysia*
HBM	Health Belief Model
HREC	Human Research Ethics Committee
USM	Universiti Sains Malaysia
NMRR	National Medical Research Register
SMS	Short Message Service

KEBERKESANAN PROGRAM PENDIDIKAN KESIHATAN KE ARAH MENINGKATKAN PENGETAHUAN, SIKAP DAN PRAKTIS BERKAITAN SARINGAN PAP SMEAR DALAM KALANGAN SAHABAT AMANAH IKHTIAR MALAYSIA DI ALOR SETAR DAN SUNGAI PETANI

ABSTRAK

Kanser servik merupakan antara kanser utama yang menyerang wanita seluruh dunia. Ujian Pap smear merupakan saringan primer yang digunakan bagi mengesan sel tidak normal yang mungkin berubah menjadi kanser. Objektif kajian ini adalah untuk menentukan dan membandingkan purata pengetahuan berkaitan kanser servik dan ujian Pap smear, sikap terhadap ujian tersebut dan praktis untuk ujian ini dalam kalangan peserta kajian. Uji kaji komuniti terkawal ini menggunakan kaedah persampelan secara rawak mudah bagi merekrut 210 usahawanita daripada Sahabat Amanah Ikhtiar Malaysia (AIM) cawangan Alor Setar dan Sungai Petani. Penjana Nombor Rawak digunakan bagi menentukan cawangan yang terpilih sebagai kumpulan kajian dan kumpulan kawalan dengan 105 usahawanita bagi setiap kumpulan. Kumpulan kajian menerima Program Pendidikan Kesihatan yang terdiri daripada Ceramah Pendidikan berkaitan Kanser Servik dan saringan Pap smear, sebuah video mengenai prosedur saringan Pap smear, satu perkongsian pengalaman daripada seorang pesakit kanser servik dan sekeping pamphlet berinformasi. Mereka juga menerima dua mesej peringatan melalui Mesej Pesanan Ringkas (SMS) sebagai penguatan. Manakala, kumpulan kawalan hanya menerima Ceramah Pendidikan yang sama dengan kumpulan kajian. Seperti jangkaan, hasil kajian

menunjukkan perbezaan bermakna (P<0.001) terhadap skor pengetahuan berkaitan kanser servik, skor pengetahuan berkaitan Pap smear dan sikap terhadap ujian Pap smear bagi kedua-dua kumpulan selepas intervensi. Namun, tiada perbezaan bermakna (P>0.05) untuk perbandingan di antara kumpulan kajian dan kumpulan kawalan. Skor perbezaan purata sikap adalah lebih tinggi di dalam kumpulan kajian 7.69 [(10.31,5.09) , P<0.001] berbanding kumpulan kawalan iaitu 4.50 [(6.19,2.82) , P<0.001] selepas perlaksanaan program pendidikan kesihatan. Praktis saringan Pap smear dalam kalangan kumpulan kajian meningkat sehingga 20% (P<0.001) jika dibandingkan dengan kumpulan kawalan hanya 13% (P=0.003). Terdapat pertambahan 11% untuk praktis saringan Pap smear dalam kalangan kumpulan kajian selepas penguatan melalui peringatan SMS dilaksanakan. Tambahan program pendidikan kesihatan yang dilaksanakan terhadap kumpulan kajian dilihat seolah-olah tidak mempengaruhi pertambahan pengetahuan kumpulan kajian. Walaubagaimanapun, video berkaitan prosedur ujian Pap smear, perkongsian pengalaman oleh pesakit kanser servik dan penguatan melalui peringatan SMS telah mempengaruhi peningkatan sikap positif serta praktis terhadap saringan Pap smear dalam kalangan kumpulan kajian. Sebagai kesimpulan, program pendidikan kesihatan yang berstruktur bersama peringatan melalui pesanan ringkas di telefon bimbit merupakan satu kaedah yang efektif dalam meningkatkan pengetahuan, sikap dan praktis usahawanita berkaitan saringan Pap smear jika dibandingkan dengan hanya melakukan ceramah pendidikan sahaja.

THE EFFECTIVENESS OF HEALTH EDUCATION PROGRAM TOWARDS ENHANCING KNOWLEDGE, ATTITUDE AND PRACTICE ON PAP SMEAR UPTAKE AMONG SAHABAT AMANAH IKHTIAR MALAYSIA IN ALOR SETAR AND SUNGAI PETANI

ABSTRACT

Cervical cancer is among the most common cancer in women worldwide and the Pap smear test is the primary screening procedure used to detect abnormal cells that may develop into cancer. The objectives of this study were to determine and compared mean knowledge of cervical cancer and Pap smear test, the attitude about the test and the practice of Pap smear screening among participants. This is a control community trial that used simple random sampling method to recruit 210 women entrepreneurs of *Sahabat Amanah Ikhtiar Malays*ia (AIM) from Alor Setar and Sungai Petani branch. The Random Number Generator was used to randomly assign the branch as a study group and control group with 105 participants in each group. The study group received Health Education Program that consist of an educational talk regarding cervical cancer and Pap smear screening, a video of Pap smear screening procedure, a sharing experience by cervical cancer patients and an informative pamphlet. Two messages reminder through Short Message Service (SMS) also given to study group as reinforcements. Whereas, the control group only received educational talk that exactly the same as study group. As expected, there was a significant difference (P<0.001) of knowledge score on cervical cancer, knowledge score on Pap smear and attitude towards Pap smear screening within the same

groups after the intervention. However, there was no significant difference (P>0.05) between study and control group. The mean difference of attitude score was higher in study group 7.69 [(10.31,5.09) , P<0.001] as compared to control group 4.50 [(6.19,2.82) , P<0.001] after health education program. The Pap smear practice among study group was also increased up to 20% (P<0.001) compared to 13% (P=0.003) in control group. There was an additional of 11% of Pap smear practice among study group after reinforcement through SMS. The additional educational program that been implemented to study group did not seem to have much influence on the knowledge score of participants as compared to control group. However, the video on procedure of Pap smear screening, sharing experience by patient of cervical cancer and SMS reinforcement had a positive influence on attitude and practice of study group towards Pap smear screening. In conclusion, the structured health educational program with phone reminder is an effective tool in increasing knowledge, attitude and practice of women entrepreneur regarding Pap smear screening as compared to a single educational talk only.

CHAPTER 1

INTRODUCTION

1.1 Backgroud of Study

Cervical cancer is the second leading cancer among women worldwide. Approximately 270,000 women had died because of cervical cancer and the number is expected to increase to 320,000 by year 2015 and 435,000 in 2030 (WHO, 2015). The National Cancer Institute (NCI) reported that 17.9 per 100,000 incidence of cervical cancer among women was recorded in Malaysia with 5.6 per 100, 000 mortality rate (NCI, 2015).

Cervical cancer develops from slowly progressing of intraepithelial lesions and the main risk factor for cervical cancer is a chronic infection with the human papillomavirus (HPV). The early cervical precancerous lesions known as cervical intraepithelial neoplasia (CIN) can develop to the highest-grade precancerous lesion (CIN 3) within estimated time of 10 years (Sawaya and Smith-McCune, 2016). Cervical cancer is preventable through screening program that can detect the early changes in cervical cells. There are a number of methods used to screen for cervical cancer precursors such as Pap smear test, Visual Inspection, Liquid-based cytology, HPV DNA testing and HPV vaccination. The variation of burden and trends in cervical cancer incidence reflects the difference in availability of screening methods within countries worldwide. In several high income country that practicing screening method effectively, the reported incidence rates was decrease by as much as 80% over the past

four decades as compared to almost 90% of cervical cancer deaths occur in the developing countries that less successful in implementing screening method (Torre et al., 2017).

In Malaysia, the conventional Papanicolaou smear (Pap smear) is remain the main screening form and available at no charge in government clinic and hospital. The test was firstly introduced in 1969 under the Maternal and Child Health Program organized by Ministry of Health. The Malaysian National Cervical Cancer Guidelines 2003 and Guidebook in Pap Smear 2008, stated that all sexually active women aged between 20 to 65 years should undergo Pap smear screening for two consecutive years. If the Pap smear is normal on both occasions, the screening test should be done once every three years (Baharom and Ismail, 2008, Abdullah *et al*., 2013b, Aziz *et al*., 2013). Meanwhile, the International Agency for Research on Cancer (IARC) recommends women between the age of 25 to 64 years to do Pap smear at a regular interval of 3-5 years (IARC, 2005). However, the sensitivity of Pap smear varies from 30% to 87% fidelity and may develops false positive and false negative result (Rahman, 2011).

HPV vaccination is another alternative of cervical cancer prevention that have been licensed in Malaysia in November 2006 and been recommended for routine use in girl age 11 to 13 years and permissive used among females age 9 to 26 years. The success of National HPV vaccine program was reported in 2011 among 13-year-old school girl with coverage of 90% (Ma'som et al., 2016, Rahman, 2011). Clinically, in most women, the HPV infection can be cleared by itself within two years, however the persistent high

risk HPV infection among sexually active women will put those infected women at high risk of develop CIN 3 (Zaridah, 2014).

Despite the availability of various screening tools of cervical cancer, the Pap smear test has been recognized as a primary screening tool for early detection of cervical cancer since the 1940s and it is well known that cervical cancer is highly preventable since regular cytology screening by Pap smear enables the detection of pre cancerous lesion (Abdullah *et al*., 2013b, Rashid *et al*., 2013). Cervical cancer mortality can be reduced up to 98% with regular Pap smear screening (Pirzadeh and Mazaheri, 2012).

Nowadays, women become the backbone of a family. Women are the second hand of a husband, a loyal daughter of parents and also known as superhuman among children. These situations make women have less time to focus on their own personal health. Working women with tertiary education and high household income level perceived working commitment as barrier for them to the uptake Pap smear screening (Abdullah *et al*., 2013b). Moreover, operating time of government clinic service is limited to working women and long waiting time also become barrier for working women seeking for Pap smear test (Baharom and Ismail, 2008). Lack of information, less health education and not been reminded by healthcare provider were also contributing factors to non uptake and less awareness of Pap smear test (Al-Naggar *et al*., 2010, Wong *et al*., 2009).

1.2 Problem Statement

Many countries have used Pap smear screening as the most appropriate and effective method that currently available for their cervical cancer prevention program (Vivilaki *et al*., 2005). The average rate of cervical cancer screening is highly reported in developed country such as United States of America (83%) and Australia (85%) with the coverage among women between 21 to 65 years old (Sallis et al., 2008, Rashid et al., 2013).

In Malaysia, Pap smear test is available at no charge at all government clinics. Despite the free services, the uptake of Pap smear test among women in Malaysia has been shown to be low. Less than half of women in this country had done Pap smear screening (Frieden, 2006, Al-Naggar et al., 2010, Abdullah et al., 2013b). A study among secondary school teachers in Kuala Lumpur showed that 62% of the respondents never had a Pap smear screening (Abdullah et al., 2011). A study with semi-structured interviews that was done on cervical cancer patients revealed that majority of them never heard of Pap smear screening test due to lack of public health education (Goodman, 2013). However, many studies have shown the improvement of knowledge regarding cervical cancer and Pap smear screening after health education intervention performed, while the self reported of the Pap smear screening still far from expectation (Wright et al., 2011 , Adamu et al., 2012).

Women may have knowledge regarding cervical cancer and Pap smear screening, but they failed to bring themselves for screening due to attitude barrier. Changing someone

attitude towards positive vibes even though for her own benefit was challenging for healthcare provider. Hence, we believed that sharing experience by cervical cancer patient plus reminder might be a better intervention to boost up the prevalence of Pap smear uptake among women. Women become empathy and sensitive when been exposed to the hardship of facing and fighting the cervical cancer disease. Health determinants can be influenced by someone else experience and perceived benefits play an important role in creating behavioural changes towards seeking for preventive screening (Bahmani et al., 2016). Moreover, the huge responsibility among working women can easily driven them away from focusing on their own health. Indirectly, the reminder through Short Message Service can be a method of alarming women regarding the need of screening. The finding of this research can demonstrate the importance of health education plus reminder as an effective alternative to improve the Pap smear screening among working women.

1.3 Conceptual Framework

Much of underlying health determinants influence by personal behaviours. Altering individual's health behaviour is not an easy job. The Health Belief Model (HBM) was originally proposed by G. M. Hochbaum in 1958. This model was used as an exploratory model to assess why people did not use preventive health services such as Pap smear screening. HBM consists of various constructs including perceived susceptibility, severity, barriers, and benefits, cues to action and health action (Guvenc *et al*., 2011, Pirzadeh and Mazaheri, 2012).

In this study, the main objective is to determine the effectiveness of health education intervention program towards enhancing the knowledge, attitude and practice of working women regarding the importance of Pap smear screening. Researchers believe that an effective health education program will become the cues to action to perceived threat in order to increase the uptake of Pap smear screening. Moreover, by bringing along a cervical cancer patient in this research as part of intervention can also be the cue to action to perceived threat of cervical cancer disease. Whereas, the short message service (SMS) as the reminder can become the cue to action to perceived susceptibility of cervical cancer disease among respondent.

Besides, several socio-demographic characteristics such as age, education level, obstetric status, attitude and knowledge regarding cervical cancer also can contribute to the action. Understanding the attitudes and health beliefs that influence women's cervical cancer screening practice will help healthcare professionals to develop more effective cervical cancer screening program (Guvenc *et al*., 2011). Hence, The Health Belief Model suit to describe this study.

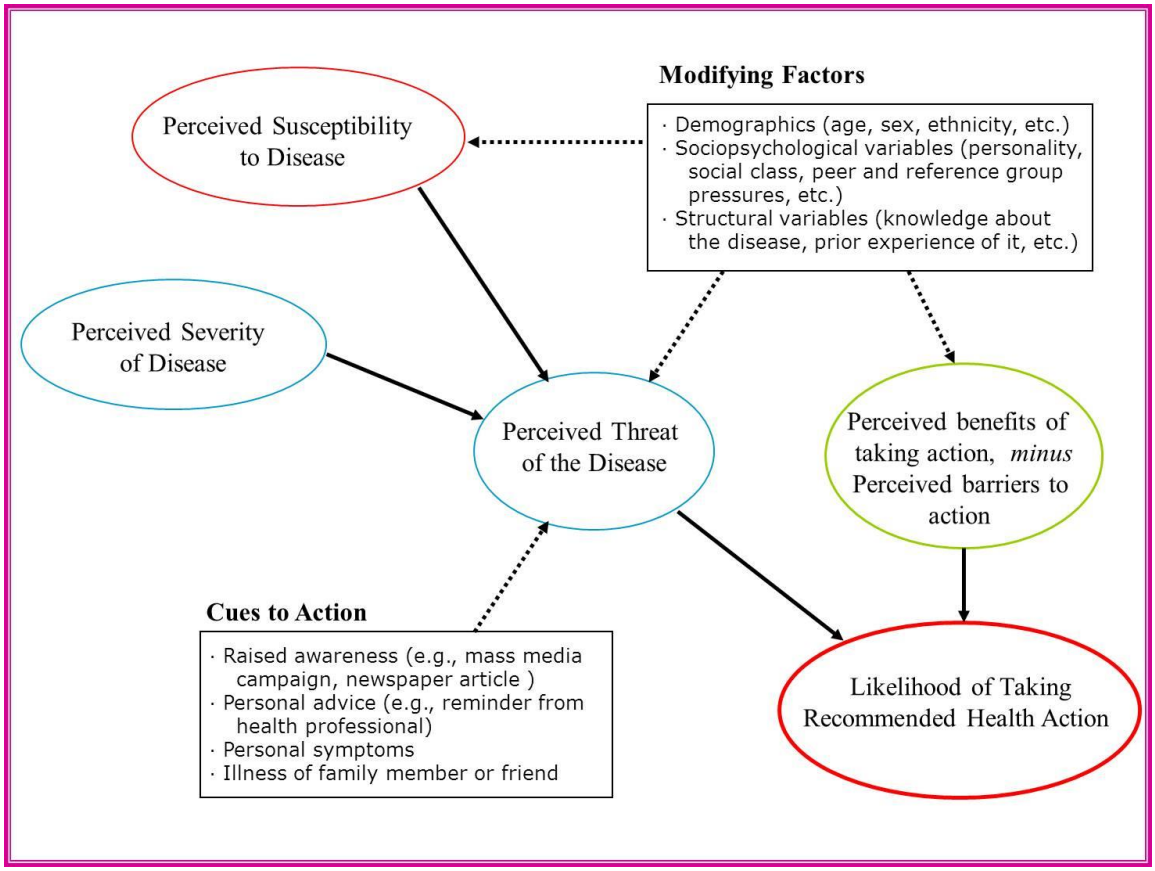

Figure 1.1: Conceptual framework of the study according to The Health Belief Model

1.4 Objectives of the Study

1.4.1 General Objective

1. To identify the effectiveness of health education program towards enhancing the knowledge, attitude and practice on the Pap smear uptake among women enterpreneur.

1.4.2 Specific Objectives

1. To determine the knowledge, attitude and practice on the Pap smear uptake among women in the study group pre and post health education intervention program.
2. To determine the knowledge, attitude and practice on the Pap smear uptake among women in the control group pre and post health education talk.
3. To compare mean knowledge, attitude and practice scores on the Pap smear uptake among women in the study group pre and post health education intervention program.
4. To compare mean knowledge, attitude and practice scores among women in the study and control groups post health education intervention.

1.5 Research Question

1. How many respondents in study group answer correctly for the knowledge on cervical cancer and Pap smear screening, attitude on Pap smear screening and practice of Pap smear post health education intervention program as compared to pre health education intervention program?
2. How many respondents in the control group answer correctly for the knowledge on cervical cancer and Pap smear screening, attitude on Pap smear screening and practice of Pap smear post health education talk as compared to pre health education talk?

1.6 Hypothesis of the Study

1. The mean knowledge, attitude and practice score on the Pap smear uptake among women in the study group are higher post health education intervention program compared to pre health education intervention program.
2. The mean knowledge, attitude and practice score on the Pap smear uptake among women in the study group are higher post health education intervention program compared to women in the control group post health education talk.

1.7 Rationale of the Study

Cervical cancer is a common killer among women and Pap smear is an effective tool for early detection of this cancer. The prevention is of utmost important yet challenging to healthcare personnel. Despite the free screening offered by government of Malaysia and health campaign that have been done, there are still low uptakes of Pap smear screening among women. There is still in need of more aggressive health awareness on Pap smear screening and cervical cancer. Health talks are usually given in health premises and only those who attend health clinics would have received the knowledge and awareness on Pap smear. We believe there are still many women needed to be reached and educated on Pap smear screening. Working women that are assumed to have lacked of time in focusing their own health might also have low knowledge, less attitude and awareness regarding the importance of Pap smear screening.

Regardless of making women come forward, the healthcare provider can make a regular schedule to educate and screen women in their workplace. Hence, our study chose Sahabat *Amanah Ikhtiar Malaysia* (AIM) as participants in this study due to wide age range of women in this institution. The objective of AIM is to reduce poverty among low income women in Malaysia by giving them micro credit funding and guiding them to start small business (AIM, 2015). The self-employed women from Sahabat AIM is the ideal women for this study because they might be busy focusing on their business and less concern of their own health.

To our knowledge, health education with structured reminder is currently not available. Thus, this study focus on developing a structured health education program with innovative methods of sharing experience by cervical cancer patient plus direct reminder. Evaluation of the effectiveness of this structured health education program will be done by assessing the increase in knowledge, awareness and practice of the participants. If we can prove the effectiveness of this intervention, similar program could be adopted by the Ministry of Health Malaysia to increase the uptake of Pap smear screening among women in this country.

CHAPTER 2

LITERATURE REVIEW

2.1 Enterpreneurs of Amanah Ikhtiar Malaysia

Amanah Ikhtiar Malaysia is Malaysia's largest microcredit organization that has disbursed more than MYR 2.3 billion loans to 262,000 enterpreneurs women since its inception in 1987 (AIM, 2015). Only women were allow to join the enterpreneurship in AIM and their objective was to eliminate poverty and generate income among women. All women that have monthly income not more than MYR 3855 were allow to become Sahabat AIM and they have to fullfill the requirement of AIM by anticipating into enterpreneurship course and attending AIM weekly meeting. Moreover, the age range of Sahabat AIM varies from 20 to 65 years old with different educational backgroud.

2.2 Cervical cancer screening

Current changes in cervical cancer screening and management guidelines reflect the evolving knowledge about cervical carcinogenesis that focusing on maximizing the screening benefit and reduce harm (Sawaya and Smith-McCune, 2016). Further strategies for improving the uptake and utilisation of cervical screening should be perform briefly as cervical cancer is a deadly disease once it reaches the invasive stage and it is preventable cancer if detected in its early stage (Elamurugan et al., 2016). There were variouse methods used to screen for cervical cancer precursors such as Pap smear test, Liquid-based cytology, HPV DNA testing and HPV vaccination.

Pap smear screening is the most establish and been perform widely worldwide. The Pap smear screening is a procedure that collects cell from the cervix using an instrument called speculum, smear onto a slide and been check cytology under microscope to test for any abnormalities of cervical cell. Pap smear is never popular in Malaysia, although the Pap smear screening is a simple procedure that took about 5 minutes to be completed, cheap and available at no charge in government sector (Zaridah, 2014). Studies involving various group of women, with different ages, involving the rural and urban area, with multiple sociodemographics characteristics that have done in Malaysia revealed that less than 60% of women in these study reported of performing the Pap smear screening (Abdullah et al., 2013a, Rashid et al., 2013, Abdullah et al., 2013b, Aziz et al., 2013, Chee et al., 2003, Al-Naggar et al., 2010, Gan and Dahlui, 2013).

Another primary prevention method that currently available in Malaysia is human papillomavirus (HPV) vaccination. Ministry of Health (MOH) of Malaysia has started the HPV vaccination program since 2010 and the only vaccine that been used in MOH facilities were bivalent type (Cervarix®: to prevent HPV type 16 and 18) and tetravalent or quadrivalent (Gardasil®: to prevent HPV type 16,18,11, and 6) (Rahman, 2011). These HPV vaccination was offered to girl at the age of 13 years old when they are still not involve with sexual activities. Meanwhile, The National Population and Family Board (LPPKN) also offered free vaccination to women who

was born between 1991 to 1996. Women who were born before 1991 who are interested to get the vaccination have to pay MYR540 for the vaccination in LPPKN.

2.3 Knowledge on Cervical Cancer

Cases of cervical cancer often detected at late stages when patients presented with the symptoms of cervical cancer and the treatment options often limited or expensive (Schiffman et al., 2007). The aim of most cervical cancer screening methods is to detect the preinvasive lessions that was symptomless and treat the lession before it progress into cancerouse stage. Delayed in diagnosis of cervical cancer will lead to an advanced stage of disease and consequently to poorer survival among patient (Franco et al., 2001). The symptoms of cervical cancer that may be reported among patients were abnormal vaginal discharge with unpleasent smell, bleeding or pain during sexual intercourse, abnormal vaginal bleeding apart from menses, post menopausal vaginal bleeding and experience of pelvic discomfort.

Majority of cervical cancer cases are caused by an infection with certain subtypes of HPV (type 16 and 18), which is a sexually transmitted virus that infects cells and may result in progession of pre-cancerous lessions to invasive cancer (Sankaranarayanan et al., 2001, Zaridah, 2014). Nearly, all sexually active women will be exposed to HPV infection over their lifetimes and the virus can be diminish itself in two years time. Thus, sexually active women or their spouse who have multiple sexual partner will incresead the risk of having cervical cancer due to multiple exposured to various types of HPV. Moreover, women who are infected with human imunocompromised virus

(HIV), smoking, high parity and long-term used of oral contraception have been establish as risk cofactors for cervical cancer (Bosch and De Sanjosé, 2003, Torre et al., 2017).

2.4 Knowledge on Pap smear screening

A qualitative study that have done by Onn et.al (2010) in Kelantan, found that out of 9 women who never had Pap smear before, 6 of them describe correctly that the reasons for doing Pap smear is for early detection of cervical cancer. However, only 3 of them able to describe the correct procedure which was using a speculum inserted into vagina and a brush was used to collect the sample cells of cervix. Women may erroneously believe that Pap smear screening may also detect sexual transmitted diseases (STDs) and HIV due to lack of knowledge and misinformation (Oon et al., 2010). All sexually active women that age over 20 years old were recommended to do Pap smear screening every 3 to 5 years interval including post menopausal and null parity women. Meanwhile, the best time of performing Pap smear is 10 days after mensus and women should not have sexual intercourse or vagina douching 24 hours prior the procedure.

Nowadays, many women in the modern metropolis lifestyle were sexually active without marriage and made them significantly unscreened due to the single status (Chaowawanit et al., 2016). Several studies that have done in Malaysia, India and Thailand reported that majority of women do not know the time to start, the frequent

interval and the exact time of performing Pap smear screening (Chaowawanit et al., 2016, Elamurugan et al., 2016, Oon et al., 2010)

2.5 Attitude on Pap smear screening

Severel studies found that the perceived barrier of delaying and avoiding Pap smear among women was fear of vaginal examination, pain, embarrassment, symptomless, busy with working commitment and not concern the risk of cervical cancer (Oranratanaphan et al., 2010, Oon et al., Jalilian and Emdadi, 2011, Moreira et al., 2006, Oon et al., 2011).

Whereas, studies from several developing countries also showed that personal and community believe that doubtful of medical testing, being a working woman, single and widowed or separated women, rural area, cultural understanding and inadequate facilities as the barriers of lack of awareness on Pap smear screening (Goodman, 2013, Baussano *et al*., 2014, Raymond *et al*., 2014).

Moreover, women claim busy with working commitment during office hour and have to manage household work after office hour make them forgot their own health screening. Limited operating hours of government clinic and long waiting time are among the barriers for working women seeking for Pap smear test (Baharom and Ismail, 2008). A study done among 1000 household women in a rural district in Perak showed the high prevalence of 48.9% respondents have knowledge regarding cervical cancer and receiving information from a healthcare provider (Gan and Dahlui, 2013).

This study also described the opportunistic screening program that was done in Malaysia by capturing women during their visit for others illnesses. Screening program should be acceptable, accessible, affordable and reliable by the receiver and workplace can become an alternative approach for information (Su, 2010).

2.6 Practice of Pap smear screening

Several studies that have done in Malaysia showed the coverage of Pap smear screening was around 50% among their respondents. A study that involved women from waiting room of Obstetrics & Gynaecology Clinic found that majority of respondent who have heard of Pap smear screening, admit have done Pap smear once before but only 14.8% of them done by yearly basis (Al-Naggar et al., 2010). Another study was done among 384 w who attended health centre for treatments, the prevalence of women who undergone for Pap smear screening was 58.1% (Abdullah et al., 2013b). Moreover, a study among 1000 household women in rural district in Perak also showed the prevalence of Pap smear screening was only 48.9% among respondents who have knowledge regarding cervical cancer and receiving information from healthcare provider (Gan and Dahlui, 2013).

The uptake of Pap smear in other developing countries has also been shown to be low. Only 30% of nurses in a teaching hospital in India (Lim and Ojo, 2017), 0.8% women in Elmina, Southern Ghana (Bryan et al., 2006), 40% of women visiting primary health care in Qatar (Torre et al., 2017), 37.6% of women in Bojnourd, Iran (Matthews et al., 2006) and 7.2% workers in The College of Nursing in Baghdad and Al-Mosul (Goyal

et al., 2013) had done Pap smear screening. Generally, developing countries have lower Pap smear coverage (19%) as compared to developed countries (63%) (Su, 2010).

2.7 Demographic factors that influence Pap smear screening: Age

Studies have shown that women who never had Pap smear were signed to be younger (Abdullah et al., 2011) and those that had experience of doing a Pap smear were in older age group that is 40 and above, no longer working and have chronic disease that make them come to health clinics (Abdullah *et al*., 2013b, Jalilian and Emdadi, 2011). This is because, younger women have less knowledge regarding Pap smear and perceived themselves as low risk of getting cervical cancer (Breitkopf *et al*., 2005, Jalilian and Emdadi, 2011). Hence, they refuse to perform Pap smear and felt less threatened.

Campaigns and health education on the need of continuous Pap smear screening even after the reproductive year has not shown great improvement in increasing the uptake of the Pap smear. This situation is worrying dramatically because the vast majority of the high risk age group of cervical cancer who are between 50-65 years old (Rashid *et al*., 2013). The women within this age group supposed to be doing the Pap smear by yearly basis.

2.8 Demographic factors that influence Pap smear screening: Education Level

Pap smear screening becomes an awkward procedure among Malaysian women. A study by Abdullah *et al.* (2011) among 403 secondary school teachers in Malaysia showed that only 38% of them have experienced doing Pap smear screening. Even though school teachers are considered as higher education level women, they still did not come forward for cervical cancer screening. A study done in Brazil also revealed that the knowledge deficit regarding cervical cancer also occurs among higher education attainment with suggesting that education level does not portray the adequate knowledge of cervical cancer (Moreira *et al*., 2006). Similar result was shown among the Black and Hispanic women in America, which concluded the increased education did not appear to be an important predictor of Pap smear and mammogram screening (Selvin and Brett, 2003).

On the other hand, study by Aziz *et al.* (2013) among married women in Peninsular Malaysia showed the opposite result. Women with higher education and professional were the higher participant of Pap smear screening.

2.9 Demographic factors that influence Pap smear screening: Obstetric Status

Studies showed that the women who never had Pap smear were significantly never been pregnant, without children, on natural contraception and without any chronic disease (Abdullah et al., 2011 , Oon et al., 2011). These types of women were those that never seek for gynaecology treatment at hospital or clinics. So, they have less opportunity to gain knowledge from healthcare provider regarding the need of Pap

smear as an early detection of cervical cancer. Not knowing the importance of Pap smear is the reason for women not doing the test (Oon et al., 2011). Women who had an annual physical examinations at health care were more likely to report a Pap smear test than women who did not go to health centre (Dignan *et al*., 1996).

Women who were married, had younger children to follow up at health centres, have many children, using implantation or intrauterine contraceptive methods and regular prenatal visit were more likely have opportunities to obtain health screening such as Pap smear in The Health Centre (Mishra *et al*., 2009, Aziz *et al*., 2013, Baharom and Ismail, 2008).

2.10 Health Education Intervention

In order to make women aware of Pap smear screening, health care provider should promote the screening. Health education is one of the most important factor in the process of health promotion and the process should consider a specific target group to make it effective (Vivilaki *et al*., 2005). A study done in Turkey concluded that women take Pap smear test without realising its importance (Arabaci and Ozsoy, 2012). The study found that the respondents took a Pap smear due to persuasion by medical staff. Lacked of recommendation and health education by healthcare provider make the cervical cancer screening not familiar among women (Wong *et al*., 2009, Al-Naggar *et al.*, 2010, Baskaran *et al*., 2013).

Various interventions in teaching methods have been used to increase knowledge, attitudes and practice of the Pap smear test. The teaching methods refer to the ways that being used to deliver messages and teaching materials will support the communication process. The combination of teaching methods and teaching materials will make the education intervention more effective (Koelling et al., 2005). Several studies used continuing education such as lecture as their teaching method and the use of printed material such as poster, pamphlet and audio-visual aids as their teaching materials for the Pap smear intervention (Malleshappa et al., 2011, Champion and Skinner, 2008, Durlak and DuPre, 2008). A combination of methods in delivering health messages will be more effective rather than a single intervention strategy.

A study done by Karimy *et al*. (2012) regarding the effect of health education program based on the Health Belief Model (HBM), indicated that HBM constructs (self-efficacy, susceptibility, severity, benefit and barriers perceived) were significantly increased in the intervention group. Moreover, the performance of Pap smear test also increased from 30% to 53.9% after the intervention. The intervention methods that have been used in this study were three educational sessions included group discussions on the benefits and the barrier of the Pap smear test. This type of active education session will make respondent digest the knowledge being delivered by health educator effectively.

A quasi-experimental study done by Wright *et al.* (2011) with 350 market women from Nigeria found that knowledge regarding Pap smear rose up from 6.9% pre-intervention to 56.6% post intervention. They performed 4 times health education talk which emphasised the benefits, procedure and health institution that provided the Pap smear test. The counselling, culturally tailored and reader-friendly educational materials also been developed as part of their intervention. Unfortunately, the uptake of Pap smear after intervention still low with only 19.5% had done Pap smear after intervention (Wright et al., 2011). Even though they have sufficient knowledge regarding the Pap smear test, the inability to receive free or subsidized screening were the limitation of low income women seeking for screening.

Another research regarding the effect of health education on knowledge, attitude and uptake of free Pap smear was done among female teachers in secondary school at North-western Nigeria (Adamu *et al*., 2012). The health education included a lecture regarding cervical cancer, complications of cervical cancer and cervical cancer screening method. Procedure on Pap smear screening was demonstrated and each respondent was given a coupon for the free Pap smear test. The researcher found that, the uptake of Pap smear was still poor at post-intervention phase (1.1%) even though the mean knowledge score of cervical cancer increase from 25.5% to 57.2% after health education intervention. The reported reasons for poor uptake showed that 38.4% of the respondents dislike the test while 24.4% believe that the test was not necessary. The researcher concluded that the male healthcare as the sample collector, long waiting

period for cytology report and difficulty to access the service were the barrier for poor uptake of Pap smear test.

Similar result was shown in a study done on 418 female teachers in Doha city where the educational program improved respondents' knowledge however the practice of the Pap smear screening was still unsatisfactory (Malleshappa et al., 2011). Most of the educational intervention increased knowledge and awareness about cervical cancer screening, but it did not result in higher screening rates (Durlak and DuPre, 2008). It was suggested that educational program should emphasize more on cultures, traditions and beliefs of women in order to be effective in changing their attitudes toward the Pap smear screening (Thani et al., 2012).

2.11 Cervical cancer patient and video of Pap smear screening as intervention

A study done among 70 women in health center in Kouhdasht, Iran, which used cancer patients film as part of the intervention as to promote perceived susceptibility and severity of cervical cancer among participants (Pirzadeh and Mazaheri, 2012). As the result of that intervention, 97.14% of respondent have reported done the Pap smear test. Perceived threat, severity and fear of disease may encourage women come forward for screening methods.

Another study done by Montealegre et al., (2014), regarding the implementation of educational cervical cancer screening video among patient who visited health clinic in Texas, United State of America. The contents of video components were how and why

the Pap smear test is done and also motivational component in encouraging women to obtain Pap smear. The finding of study suggested the efficiency delivery methods of health information procedure rather than rely on text-based material that difficult to imagine by patient (Montealegre et al., 2014).

2.12 Short Message Service as reinforcement for Pap smear screening

In Malaysia, a cluster randomized controlled trial study among public secondary school teacher had used invitation letter as a reminder to respondents for Pap smear test (Abdullah *et al*., 2013a). The study showed that 18.1% women in intervention group attended Pap smear test compared to 10.1% in control group. Moreover, a study by Rashid *et al.* (2013) concluded that the intervention using direct communication such as phone call (50.89%) and phone messages (32.93%) showed higher impact as compared to letters (23.86%) as reminder.

Another study done in United States among Korean-American women, which developed a mobile-phone text message-based cervical cancer Screening (mScreening) as intervention. The mScreening consists of 7-day text message based on introduction of cervical cancer, statistical incidence and mortality, current screening rates, introduction to Pap smear as preventive mode, information on health care accessibility, cultural barrier, motivation components and providing triggers to do Pap smear screening. The study concluded that general knowledge was increased, perceived socio-cultural barriers was decreased and 20% increase of Pap smear test after mScreening intervention (Lee et al., 2014).

CHAPTER 3

RESEARCH METHODS

3.1 Study design

This is a controlled community trial that used community-based intervention to provide health educational program with several methods to study group, meanwhile the control group only received a single education talk. The effectiveness of multiple health educational program was evaluated.

The research study involving answering questionnaires, listening to lecture talk, watching a video of Pap smear screening, sharing experience by cervical cancer patient and reinforcement reminder through short message service (SMS). There was no risk expected in this study and this study will provide at no cost. They have been briefed that their participation in this study were entirely voluntary and no obligations. They may refuse to take part in the study or may stop participation in the study at anytime, without a penalty or loss of benefits to which they were otherwise entitled. There is no conflict of interest in this study. As benefit of study, participants may receive information about cervical cancer and Pap smear screening from speaker on this study.