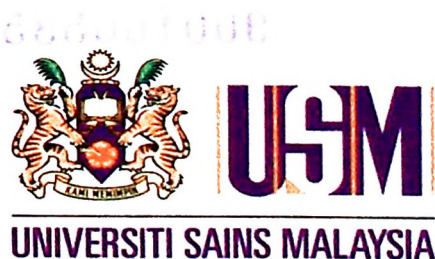


**NON-ADHERENCE TO PAP SMEAR SCREENING GUIDELINE
AND ITS ASSOCIATED FACTORS AMONG WOMEN
AT KLINIK KESIHATAN BANDAR KOTA BHARU**

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LIST OF ABBREVIATIONS

ACOG	American College of Obstetricians and Gynaecologists
CIN	Cervical Intraepithelial Neoplasia
FFPAM	Federation of Family Planning Associations of Malaysia
FIGO	International Federation of Gynecology and Obstetrics
HBM	Health Belief Model
HBMQ	Health Belief Model questionnaire
HPV	Human papillomavirus
KKB	Klinik Kesihatan Bandar
NFPDB	National Family and Population Development Board
NHMS	National Health and Morbidity Survey
NMRR	National Medical Research Register
NPHS	National Population and Health Survey
WHO	World Health Organization

ABSTRACT

English Version

Title: Non-adherence to Pap smear screening guideline and its associated factors among women at Klinik Kesihatan Bandar Kota Bharu

Introduction: Cervical cancer ranks as the second most frequent cancer among women in Malaysia. Although cervical screening program has been introduced since 1960s and is provided free of charge in all government health facilities, the coverage and adherence rate to recommendation among Malaysian women remains low. This study aims to explore adherence rate to Pap smear screening guidelines and factors associated with non-adherence based on Health Belief Model.

Objectives: To determine the proportion of non-adherence to Pap smear and its associated factors among women in Klinik Kesihatan Bandar Kota Bharu

Methodology: A cross sectional study involving 316 women age 20 to 65 years who had done Pap smear. Universal sampling method was applied to select participants among women who attended KKB Kota Bharu from January 2013 to May 2013. A self-administered questionnaire was used to obtain the socio demographic characteristic, socio-health data and perceptions about cervical cancer and Pap smear screening. The data was analysed for descriptive statistic and multiple logistic regression.

Result: The proportion of non-adherence to Pap smear screening was 90.5%. Age, marital status, duration of marriage, education level, employment, household income and number of children were not significantly associated with non-adherence. Women with lower mean score for perceived susceptibility were more likely to not adhere to screening guidelines. Perceived severity, perceived benefit, perceived barrier and cues to action did not show significant association with non-adherence to Pap smear screening.

Conclusion: Non-adherence to Pap smear screening was high among women attended KKB Kota Bharu. Socio-demographic factors do not show to influence Pap smear screening practice. Low perceived susceptibility was marginally associated with non-adherence to Pap smear screening guidelines.

Malay Version

Tajuk: Kadar ketidakpatuhan terhadap garis panduan ujian saringan Pap smear dan faktor-faktor yang mempengaruhinya di Klinik Kesihatan Bandar Kota Bharu

Pengenalan: Kanser serviks merupakan kanser kedua paling tinggi di kalangan wanita di Malaysia. Walaupun program saringan kanser serviks telah dimulakan sejak 1960an dan diberikan secara percuma di semua premis kesihatan kerajaan, namun liputan dan kadar kepatuhan terhadap garis panduan saringan adalah rendah di kalangan wanita di Malaysia. Kajian ini bertujuan untuk mengetahui kadar ketidakpatuhan terhadap garis panduan saringan pap smear dan untuk mengenalpasti faktor-faktor yang mempengaruhi ketidakpatuhan tersebut dengan menggunakan “Health Belief Model”.

Objektif: Untuk menentukan kadar ketidakpatuhan terhadap saringan Pap smear dan mengenalpasti faktor-faktor penyumbang ketidak patuhan tersebut di Klinik Kesihatan Bandar Kota Bharu

Metodologi: Ini adalah kajian keratan rentas melibatkan 316 orang wanita berumur antara 20 hingga 65 tahun yang pernah melakukan ujian Pap smear. Pemilihan sampel secara universal telah dilakukan dikalangan wanita yang hadir ke KKB Kota Bharu pada Januari 2013 hingga Mei 2013. Borang soal selidik digunakan untuk mendapatkan data berkaitan sosiodemografi, sosio-

kesihatan dan tanggapan terhadap kanser serviks dan ujian Pap smear. Data dianalisis menggunakan analisis deskriptif dan analisis regresi logistik berganda.

Keputusan: Kadar ketidakpatuhan terhadap garis panduan saringan Pap smear adalah 90.5%. Umur, status perkahwinan, tempoh perkahwinan, tahap pendidikan, pekerjaan, jumpah pendapatan dan bilangan anak adalah tidak berkaitan dengan kadar ketidakpatuhan. Wanita yang mendapat markah purata 'tanggapan tentang kecenderungan' yang lebih rendah adalah lebih berkemungkinan untuk tidak patuh kepada garis panduan. Tanggapan tentang keterukan, tanggapan tentang faedah, tanggapan tentang halangan dan faktor pendorong tidak meunjukkan perkaitan dengan ketidakpatuhan terhadap saringan Pap smear.

Kesimpulan: Ketidakpatuhan terhadap saringan Pap smear adalah tinggi dikalangan wanita yang hadir ke KKB Kota Bharu. Faktor sosiodemografi tidak mempengaruhi amalan saringan Pap smear. Tanggapan tentang kecenderungan yang rendah adalah sedikit-sebanyak berkaitan dengan ketidakpatuhan kepada saringan Pap smear.

CHAPTER 1

INTRODUCTION

Worldwide, cervical cancer is the third most common type of cancer in women after breast and colorectal cancer (1). In 2008, it was estimated 270 000 patients died from cervical cancer with the highest mortality occurred in underdeveloped countries (1). In Malaysia, cervical cancer is ranked second among all cancers in women after breast cancer (2). The average annual hospital admission for cervical cancer was 2000 to 3000 cases per year with majority of them presented with FIGO stage II or higher (3).

Cervical cancer is an important public health concern because of the high burden of the disease and the potential of prevention with effective screening program. Papanicolaou test (Pap smear test) has been widely used to screen for cervical cancer since 1940s (4). Since then, the incidence of cervical cancer in western countries had dramatically dropped (5). Nationwide screening program showed successful reduction in cervical cancer incidence up to 80% (6). Although high false-negative rate was reported for Pap smears test, but correct smear technique could lower the rate.

Cervical screening program has been introduced in Malaysia since 1960s and was available at all government health facilities and hospitals (7). This service was also provided by university hospitals, private hospitals and clinics, National Family and Population Development Board (NFPDB) and non-governmental organizations such as the Federation of Family Planning Associations of Malaysia (FFPAM). However, despite awareness campaigns done by

government and non-government agencies, Pap smear screening performance in Malaysia remained low (8). Number of Pap smear slides taken had tremendous increased after 'Healthy Lifestyle Campaign' in 1996, and the coverage was 47.3% in National Health and Morbidity Survey III (9). Pap smear screening rate in the last decade was also low in our country (10) as compared to developed nation like Canada (11).

Cervical cancer remains an important challenge in Malaysia and there were many factors contributing to the failure of adherence to the screening program. Among these factors are the beliefs of the women regarding Pap smear screening. Therefore, their ideas and beliefs need to be evaluated further to identify the associated factors that influence adherence to the Pap smear practice.

One of the common theoretical models used to understand patients' practice towards preventive behaviour is Health Belief Model (HBM). It is a conceptual model that focuses on peoples' perceptions about their illness, beliefs and actions related to prevention of the disease and how it affects their health (12). It was created by psychologists at the United States Public Health Service in 1950s to understand why people could not accept disease preventive activities (12). This model has been extensively used as a conceptual framework in many health behaviour studies (13-15). The HBM emphasizes individual health beliefs and can be used to explain and intervene in cancer screening behaviours.

The key variables in HBM are as follow:

Perceived susceptibility:

This is the perception of one's own personal risk of developing a particular condition, and it involves a subjective evaluation of risk.

Perceived severity:

One's belief of how serious a condition is and its sequel are. This is the degree to which the person attributes negative medical, clinical, or social consequences to being diagnosed with an illness.

Perceived benefits:

One's belief in the efficacy of the advised action to reduce risk or seriousness of impact. It is the belief about the effectiveness of different actions.

Perceived barriers:

One's beliefs about the tangible and psychological cost of the advised action and the potential negative aspects of a particular action

Cues to action:

Strategies that people carry out to activate the preventive action, like publicity or bodily events.

1.1.Justification of the study

This study is conducted to determine the association between Health Belief Model domains (perception of benefit, susceptibility, severity, barrier and cues to action) with non-adherence to Pap smear screening. Pap smear screening program was started in Malaysia since fifty years ago. Unfortunately, prevalence of cervical cancer did not show any changes, indicating that Pap smear coverage have not successfully targeted the population at risk. Studies also shown that a huge number of the cervical cancer patients in Malaysia never did Pap smear test (3) and the rate of recent pap smear test among Malaysian women was very low (10). Therefore, the rate of nan-adherence to screening recommendation needs to be explored.

Achievement of cervical cancer screening programs is determined by high involvement of the target population, which sequentially influenced by the women's perceptions, health orientation and other socio-cultural issues. Many studies have been done to explore the attitudes and sociocultural beliefs on cervical cancer screening among Malaysian women and identify the factors that prevent women from performing cervical cancer screening (10, 16). However, there is very limited study that looks into the reasons why women who have done Pap smear did not repeat the test as recommended in Malaysian guideline. By knowing the factors associated with non-adherence to Pap smear screening, appropriate intervention can be organized to overcome the obstacles.

CHAPTER 2

LITERATURE REVIEW

2.1 Burden of cervical cancer

Cancer is a major health problem. Cancer of the cervix is the third most common cancer in women after breast and colorectal cancer which comprises approximately 8.8% of all cancer in the women worldwide (1). There were approximately 530 000 new cases of cervical cancer reported in the year 2008 and the age-standardized rate was 15.3/100 000 population. The global burden of cervical cancer is predominant in developing countries, where it accounts for 13% of all female cancers (1). Overall, the mortality: incidence ratio is 52%, and cervical cancer is responsible for more than 270 000 deaths in 2008, about 88% of which occur in developing countries including 159 800 death in Asia (1).

Looking into our country, cervical cancer is also the second most common cancer among Malaysian women (2). The number of cervical cancer patients in Malaysia for the year 2003 was 1557 which accounting for 12.9% of the total female cancers. The age-standardized incidence rate of cervical cancer in Malaysia was 19.7 per 100 000 population (2). In 2008, the age-standardized rate of cervical cancer slightly reduced to 17.9 per 100 000 population per year (1). It causes 631 deaths in the year 2008 with age-standardized rate of 5.6 / 100 000 populations (1).

In Kelantan, cervical cancer is the fifth leading cancer and ranked second after breast cancer among women in Kelantan for the period of 1999-2003 (17). It accounted 10.3% of all female cancers with age-standardized rate of 7.3 per 100 000 population per year.

2.2 Risk factors for cervical cancer

The most recognised risk factor for cervical cancer is human papillomavirus (HPV) infection (18). Persistent infection with 'high risk' types of HPV, in particular HPV 16 and HPV 18 causes almost all cases of cervical cancer (18, 19). Four major steps are involved in cervical cancer development following HPV infection: HPV infection, viral persistence, progression to precancerous lesion, and invasion through the basement membrane of the epithelium (18). Persistent infections and precancerous lesion are established within 5-10 years in less than 10% of new HPV infections. As a slow growing cancer, invasive cervical cancer may arise in a minority of women with precancerous lesion over many years.

Other factors associated with development of cervical cancer include starting sexual activity at a young age less than 16 years, more than four sexual partners, and history of genital warts (20). These factors can be related to HPV infection since the virus is sexually transmitted. The risk for cervical cancer is increased in smokers, immunocompromised patients receiving chemotherapy and HIV infected patients (19, 20).

Regarding relationship between oral contraception and cervical cancers, study showed the impact of oral contraception on cervical cancer or pre-invasive lesions was observed in

countries without proper screening programmes (19). Study showed association between hormonal contraceptives and cervical cancer was related with duration of contraceptive use (21). Apart from contraception, high parity has been found to be associated with cervical cancer incidence (21).

2.3 Cervical cancer screening

Despite all these fact, cervical cancers is a preventable disease through proper screening, treatment and follow up. No other cancer documents more remarkable effects of prevention, early diagnosis and treatment on the mortality rate than cervical cancer.

Pap smear test is the most widely used screening method for cervical cancer. Although the test has never being tested in randomized control trial, its effectiveness in reducing mortality from cervical cancer has been supported by numerous observational studies (6, 22, 23). This test is able to detect cervical cancer at pre-invasive stage, thus markedly reducing the incidence of invasive disease (24). Since the extensive use of Pap smear screening, the incidence of cervical cancer has dramatically declined among whites in The United States from 32 cases per 100 000 women in 1940s to 8.3 cases per 100 000 women in the 1980s (5).

Sensitivity and specificity of conventional Pap tests showed great variation in individual studies (25). A systematic review of 12 studies concluded, Pap smear sensitivity ranged from 30% to 87% and specificity ranged from 86% to 100% (25). The accuracy of the Pap test is

influenced by sufficiency of specimen obtained. Ample training and using newer techniques such as the cytobrush may increase its sensitivity (26).

Newer techniques that employ liquid-based cytology have been developed to improve the sensitivity of cervical cancer screening. The advantage of liquid-based cytology is it gives more satisfactory specimens, superior detection of infections and the prospect of carrying out multiple tests on the specimen (24). Some studies show that sensitivity is modestly higher for detecting any degree of CIN, with modestly lower specificity (27, 28). Other advantage of liquid-based cytology is that HPV testing can be done on the same preparation. However the disadvantages is that the liquid-based test are more expensive than conventional Pap testing and needs more trained personal (24, 26).

National Cancer Institute of The United States reported women who have not been screened for cervical cancer were at three to ten times of greater risk to developed invasive cervical cancer (26). Risk also increases with long laps following the last normal Pap test or with longer screening interval. However the risk of invasive cancer was no different between two to three yearly screening and annual screening. Studies have shown that women who do not participate in screening programs and women whose interval between smears is more than 3 years, are the highest risk for developing cervical cancer (29). Similarly, a case-control study conducted by Miller et al reported that risk of developing invasive squamous cell cervical cancer was associated with screening intervals after a negative cervical smear (30). The relative risk for longer interval (over 3 years) was substantially higher, with a strong dose-response relationship.

For interval between 3 to 5 years, the odd ratio was 3.37, whereas the odd ratio increased to 5.72 with screening interval between 5 to 10 years.

2.4 Screening coverage and prevalence

Ministry of Health Malaysia stated that all women age 20 and 65 years old who are, or who have been sexually active, are recommended to undergo Pap smear testing. If two consecutive yearly test are negative, screening every three years is recommended (7). Nevertheless, cervical cancer screening guideline may differ from country to country. American Cancer Society and the U.S Preventive Services Task Force (USPSTF) recommended screening for cervical cancer in women age 21 to 65 years with Pap smear every 3 years (31, 32). They recommended screening for women age 30 to 65 using Pap smear and HPV testing every 5 years or Pap smear alone every 3 years (32).

The 1996-97 National Population and Health Survey (NPHS) in Canada revealed among women 18 years and over, 87% reported ever having a Pap smear test while 72% reported a recent test which was within 3 years (11). The prevalence rate of Pap smear screening varies in different races and ethnicity. Among different races in the U.S, Asian women showed the lowest uptake to Pap test (77%) as compared with Caucasians (95%), African American (95%) and Hispanic (77%). Asian women also reported the lowest rate of receiving a Pap test within the previous three years (66%) compared to Caucasian (83%), African American (84%), and Hispanic (77%) women (33).

Although Pap smear screening program has been available in Malaysia since 1960s, unfortunately no reduction in cervical cancer prevalence has been documented (34). Study has shown that cervical cancer screening was underutilized by the Malaysian women (34). The National Health and Morbidity Survey III also revealed that the national prevalence of Pap smear test was 43.7% and only 59.7% of them were done within the last 3 years (9). The Pap smear prevalence rate was even lower among Malaysian women workers in selected electronic factories which were only 25.3% and only approximately 18% had recent Pap smear screening (10). Whereas, among cervical cancer patients diagnosed in 8 major hospitals in Malaysia between 2000 and 2006, 48% reported never having a pap test, while 95% did not have a smear within the past 3 years (3).

2.5 Associated factors for Pap smear screening practice

2.5.1 Socio-Demographic factors

Many studies have look into factors that influence Pap smear screening practice among women. Age, marital status, education level, employment and income were found to be important factors to determine Pap smear screening practice among women. A study by Fernández-Esquer et al looked at demographic and psychological factors associated with repeated Pap smear screening among Mexican-American women. Findings for Pap smear compliant factors include age younger than 40 years, married, more acculturated and have health insurance (35).

Study by Nguyen et al mentioned factors significantly associated with increased 'Pap test awareness' were increasing age, being married, higher education attainment, having health insurance, doctor recommendation and preferring a female standby (36). Whereas, increase likelihood of Pap smear receipt was significantly associated with being married and higher level of education. Similarly, Lee-Lin et al found that among Chinese-American women, being married, having a higher education and being employed were significantly associated with having had a Pap test in the prior 3 years (37). In addition, number of pregnancies was also found to be associated with Pap smear screening practice (38, 39). Myriam Leyva et al demonstrated in their study that women who experience more pregnancies were more likely to have had a Pap test (38). Never been pregnant and lower household income were more predictive of poor pap smear screening practice as mentioned by Fauziah Abdullah et al (39).

2.5.2 Health Belief Model factors

Health Belief Model is an explanatory theory that describes the reasons why a problem occurs. It acts as the framework to search for factors contributing to the problem, thus allowing changes to be made. In the context of health prevention, it postulates that people are less likely to participate in health-promoting behaviours if they believe they are less or not susceptible to a health condition and that the condition is not serious (40). On the contrary, an increase in perceived susceptibility and severity has been linked to increase in screening practice (40). In addition, perceived benefits refer to an individual's perception of positive outcomes of health-promoting behaviours (e.g. Pap test screening). Moreover, perceived of more benefits, together

with lower perceived barrier to breast and cervical cancer screening is significantly associated with increased screening behaviours (40).

Hence, Health Belief Model is an effective model for predicting screening behaviours. Allahverdipour et al did a study to explore how the model can be applied in Iranian community in relation to their pap smear practice (13). They found out that there are connection between perceived benefits and perceived barriers with cervical cancer screening practice. Similarly, further research is needed to understand how health beliefs influent preventive behaviour of Malaysian population. If beliefs related to Pap smear screening can be identified, the intervention to change of attitude or decrease the perceived barriers could be developed, and hopefully could increase the Pap smear screening rate in our population.

Johnson et al had reviewed all studies examining socio-cultural factors influencing cervical cancer screening among immigrant and ethnic minorities in the United States along the theoretical framework of the Health Belief Model (41). The systematic review showed beliefs were unique to specific cultural groups and differed from one ethnicity to another. The African Americans identified administrative processes in establishing health care as barriers to screening, whereas Asian immigrants held a variety of misconceptions concerning one's susceptibility to cancer as well as stigmatization imposed by their own community and providers.

Another advantage of health belief model is that it explores health perception from patients' point of view. Considering possible difference of understanding and perception between patients and health personnel, it is crucial for us to determine the patients' perception in order to decrease the gap and deliver the health education which tailored to their perceptions. It is undoubtedly true that some of the failures of

individuals to take action are based on the simple gaps in information or misunderstanding on the effective courses of action. Therefore the first step in education planning is to know the women's beliefs about cervical cancer and Pap smear test.

The key constructs of the Health Belief Model predict individual's engagement in health behaviour. For cervical cancer screening, if the women perceive themselves to be susceptible to the disease, believe the consequences of having cervical cancer or an abnormal Pap test are severe, recognize the benefits of screening, able to overcome the barriers of screening, and receive positive cues to undergo screening, the women will adhere to Pap test screening guideline.

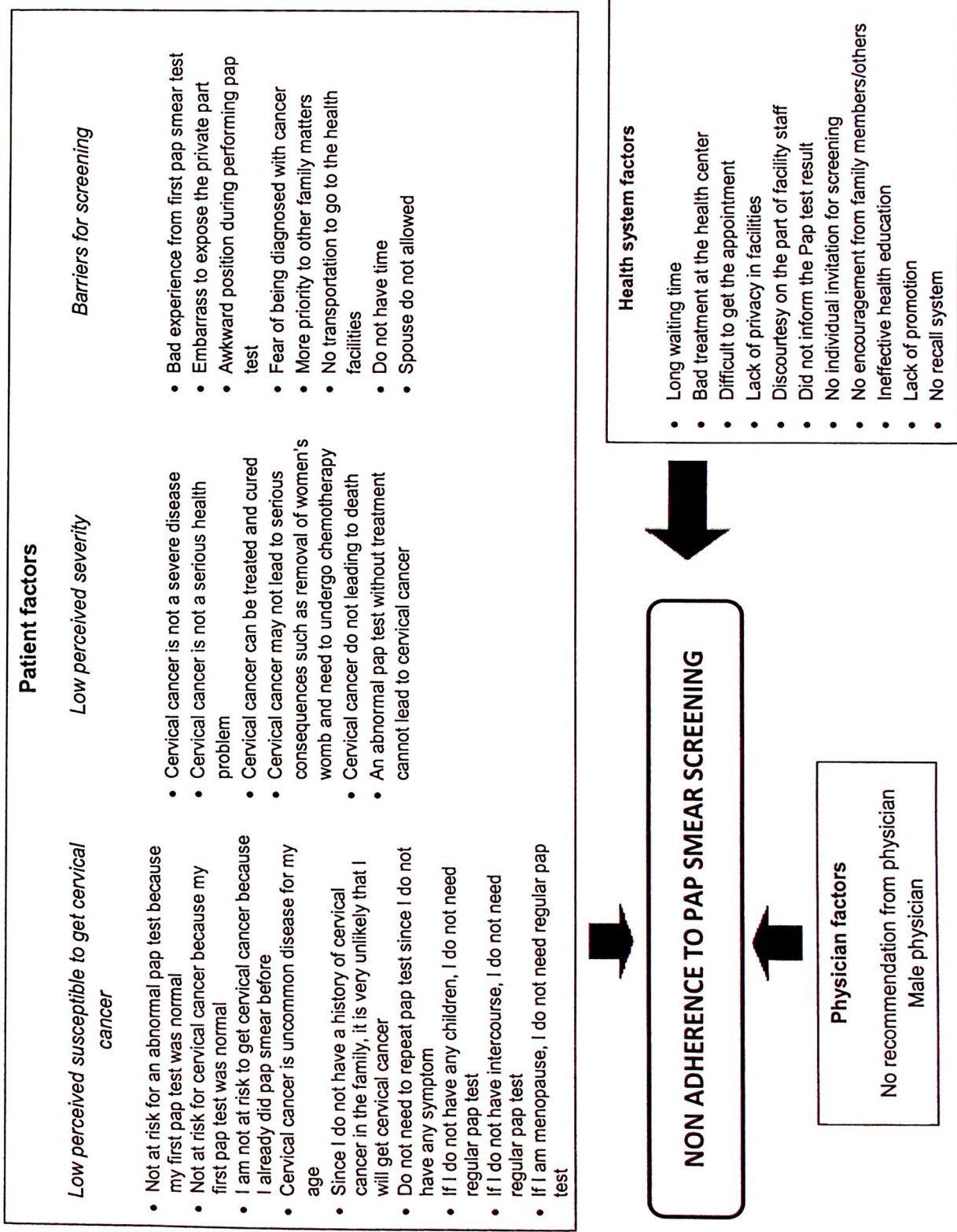


Figure 2.1: Conceptual framework

CHAPTER 3

OBJECTIVES

3.1 General Objectives

To determine the proportion of non-adherence to Pap smear and its associated factors among women attending Klinik Kesihatan Bandar Kota Bharu

3.2 Specific Objectives

3.2.1 To determine the proportion of non-adherence to Pap smear screening guideline among women attending Klinik Kesihatan Bandar Kota Bharu

3.2.2 To determine the associated factors of non-adherence to Pap smear screening using Health Belief Model among women attending Klinik Kesihatan Bandar Kota Bharu.

3.3 Research Hypothesis

Null hypothesis: Non-adherence to Pap smear screening is not associated with perception of severity, susceptibility, benefit, barrier and cues to action.

CHAPTER 4

METHODOLOGY

4.1. Study Design

This is a cross-sectional study

4.2. Study area

This study was done at Klinik Kesihatan Bandar (KKB) Kota Bharu which was situated in the middle of Kota Bharu town. It covers more than 100,000 population of Kota Bharu and was run by 120 staffs including 1 Family Medicine Specialist and 15 medical officers. Daily patient attendance to KKB Kota Bharu was around 600 to 700 patients. In 2010, Klinik Kesihatan Bandar Kota Bharu performed 1747 Pap smear tests which make it the highest achievement of all health clinics in Kelantan. Therefore Klinik Kesihatan Bandar Kota Bharu was chosen as the venue to conduct this study.

4.3. Population and sample

4.3.1. Reference population

Reference population was women in Kota Bharu district.

4.3.2. Source population

Source population was women attending KKB Kota Bharu.

4.3.3. Study population

Women attending KKB Kota Bharu who have done pap smear.

4.3.4. Inclusion criteria

- i. Age between 20 years old to 65 years old
- ii. Have had pap smear screening at least once
- iii. First pap smear screening was in 2008 or earlier

4.3.5. Exclusion criteria

- i. Had history of cervical cancer

4.3.6. Sampling method

This study used universal sampling method in view of feasibility to get adequate sample. All women attended KKB Kota Bharu during the data collection period that fulfills the inclusion and exclusion criteria were included in the study.

4.3.7. Sample size

Sample size was calculated for all objectives. However, the one that yield the biggest number was taken as the sample size.

Objective 1 was to determine the proportion of non-adherence to Pap smear screening among women who have done Pap smear. The sample size was calculated using single proportion formula.

$$n = (z / \Delta)^2 p (1 - p)$$

n = minimum required sample size

z = value of standard normal distribution = 1.96

Δ = absolute precision = 0.06 (in view of feasibility for recruitment of participants in 4 months period)

p = anticipated proportion of non-adherence to Pap smear screening guideline = 40.3% (9)

Thus, the sample size calculated was 257. However, after considering the non-respond rate of 30%, the number of women needed in this study was 334.

Objective 2 was to determine the associated factors of non-adherence to Pap smear screening using Health Belief Model in Klinik Kesihatan Bandar Kota Bharu. Sample size calculation was using Power and Sample Size Calculation software. Sample size for categorical variables was calculated using comparing two proportions formula. The calculation of sample size was as follows:

α = 0.05

Power = 0.8

P_0 = 0.35 (proportion of married women among adhered) (10)

P_1 = 0.15 (proportion of married women among adhered)

M = 1

Thus, the sample size calculated was 138. After considering non-respond rate of 30%, the number of women needed in this study was 187.

Comparing two means formula was used to calculate sample size for numerical variables. The calculation of sample size was as follows:

$$\alpha = 0.05$$

$$\text{Power} = 0.8$$

$$\sigma = 0.84 \text{ (standard deviation of mean perceive barrier score) (37)}$$

$$\delta = 0.5 \text{ (expected detectable difference mean perceive barrier score between adhered and non-adhered)}$$

$$M = 1$$

Thus, the sample size calculated was 90. After considering non-respond rate of 30%, the number of women needed in this study was 117.

Summary of the sample size calculation for objective 2 is tabulated in Table 4.1 and Table 4.2. Since the largest sample size calculated was from objective 1, 334 was taken as the sample size for this study.

Table 4.1: Sample size calculation for categorical variables

Variables	P_0	P_1	Minimum sample size (n)	n + 30% non-respond rate
Married (10)	0.35	0.15	138	151
Secondary education (42)	0.37	0.15	122	159

Table 4.2: Sample size calculation for numerical variables

Variables	σ	δ	Minimum sample size (n)	n + 30% non-respond rate
Mean perceived barrier (37)	0.84	0.5	90	117
Mean perceived benefit (37)	0.44	0.5	26	34

4.4. Operational Definitions

A woman is considered as non-adherence if she reported any of the following behavior:

1. Last Pap smear was done more than 3 years from the time of study.
2. Intervals between each Pap test were more than 3 years.
3. The second Pap test was done more than 1 year after first normal Pap smear.

4.5. Research tools

The research tools composed of self-administered questionnaires that were divided into 3 sections:

- a. Socio-demographic data
- b. Socio-health data
- c. Health Belief Model Questionnaire

- i. Socio-demographic data consists of 7 questions regarding age; marital status; duration of marriage; education level; employment status; household income and number of parity.
- ii. Socio-health data also consists of 7 questions asking about when was the first pap test; result of first pap test; when was the second pap test; number of pap test done; interval between subsequent pap test after the second; when was the last pap smear; and result of the last pap test.
- iii. Health Belief Model Questionnaire (HBMQ)

This was a newly design questionnaire to assess the beliefs related to cervical cancer and pap smear test. The HBMQ was developed in stages. The first stage involved reviewing the literatures on factors influencing Pap smear screening practice among women. Then, these factors were arranged into domains according to Health Belief Model. In the second stage, several series of discussion were done with Family Medicine Specialists to get the expert opinions, in order to ensure good content validity and comprehensiveness of the HBMQ. All items were constructed in Malay language because majority of patient attending KKB Kota Bharu were Malays.

HBMQ was a self-administered questionnaire that consists of 5 domains and 50 items. Five domains of Health Belief Model that were assessed through this questionnaire includes were perceived severity, perceived susceptibility, perceived benefit, perceived barrier and cues to action.

Table 4.3: Comparison of items in draft and final questionnaire

Domain	Component	No. of drafted items	No. of final items
Severity	1. Of having cervical cancer	5	5
	2. Of having cervical cancer treatment	4	4
	3. Of getting abnormal pap smear test	1	0
Susceptibility	1. To have cervical cancer	4	3
	2. If she has family history	1	1
	3. If she has the symptoms	1	1
	4. If she has children	1	1
	5. If she has sexual exposure	1	1
	6. If she has menopause	1	1
Benefit	To detect early cancer cervix	7	6
Barrier	1. Embarrassment	2	2
	2. Discomfort	1	1
	3. Fear of cervical cancer diagnosis	1	1

	4. Lack of time	1	1
	5. No transportation	1	1
	6. Low priority	1	1
	7. Lack of partner consent	1	1
	8. Long waiting time	2	2
	9. Bad previous experience in health care	3	2
	10. Previous result was not informed	1	1
	11. Forgot the appointment	1	1
	12. Moving to other places	1	1
	13. Has medical illness	1	1
Cues to action	1. Reminder from health care provider	2	1
	2. Cervical cancer experience in family or friends	1	1
	3. Information from media	1	1
	4. Motivation from family and friends	2	2

5. Having symptoms	1	1
Total	50	45

iii.i Scoring of Health Belief Model questionnaire

All items were scored using 4-point Likert Scale. For perceived severity, susceptibility and benefit, the scoring was 4 for 'strongly agree', 3 for 'agree', 2 for 'not agree' and 1 for 'strongly not agree'. The scoring was reversed for perceived barrier where the score was 1 for 'strongly agree', 2 for 'agree', 3 for 'disagree' and 4 for 'strongly disagree'. Mean score was calculated for each domain. Cue for action was scored 1 for 'Yes' and 0 for 'no' and 'not applicable'. Mean score was calculated for comparison.

The HBMQ was reviewed by peers for face validity. A pilot study for construct validity was conducted to validate and test for reliability. It involved 50 outpatient attendees at Klinik Kesihatan Meranti, Klinik Kesihatan Ketereh, Klinik Kesihatan Gunong and Klinik Kesihatan Pasir Mas with 10 samples at each clinic. All were married samples with the mean age of 34 years old.

Analysis of the pilot study was done including internal consistency validity using Cronbach's alpha and exploratory factor analysis that evaluate the construct validity. Several problematic items were eliminated or rephrased. The final questionnaire consisted of 45 items (Table 4.3). The result of pilot study is shown in Table 4.4.