

**THE RELATIONSHIP OF SOCIO-DEMOGRAPHIC
CHARACTERISTICS AND BREAST CANCER
KNOWLEDGE ON THE STAGE OF BEHAVIORAL
ADOPTION OF BREAST SELF-EXAMINATION**

BY

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A thesis submitted in fulfilment of the requirement for the
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ABSTRACT

In Malaysia, breast cancer is the most common cancer amongst women. As such, early diagnosis and screening practice is important to increase the survival rate. Breast self-examination (BSE) is one of the main screening methods for breast cancer. However, socio-demographic characteristics and knowledge of breast cancer are amongst the crucial factors in determining women's behavioral adoption of BSE. Thus, this study aims to assess the association of socio-demographic characteristics and knowledge of breast cancer on the behavioral adoption of BSE amongst Malaysian women in Kuantan, Pahang. A cross-sectional study was conducted on 520 women from three different government health clinics in Kuantan and IIUM Family Health Clinic from February to April 2018. Data were collected using a self-administered questionnaire on socio-demographic characteristics and knowledge of breast cancer and its effect on the behavioral adoption of BSE. Significant differences were found between socio-demographic characteristics and behavioral adoption of BSE. The study found that women below the age of 50 years (p -value<0.01) and married (p -value=0.01) are more likely to believe that BSE is beneficial. Additionally, women with higher education (p -value=0.01) and income (p -value<0.01) possibly have better access to information and the as such the likelihood of performing BSE. However, for breast cancer knowledge, breast screening and best time for screening were the only two attributes found to be significant with the behavioral adoption of BSE. This study found that most women in Kuantan, Pahang perform BSE but were still unaware of its' importance as a method for early detection of breast cancer as most of them were not able to detect breast lump, an essential aspect of BSE. Data obtained from this study can be used to create awareness pertaining to breast cancer as well as to enhance breast health promotion for early breast cancer detection.

Keywords: Breast cancer, breast self-examination, socio-demographic, knowledge, Stage of Change Theory

خلاصة البحث

في ماليزيا يعد مرض سرطان الثدي من أكثر أنواع مرض سرطان شيوفاً وانتشاراً بين النساء. وعلى هذا النحو، فإن التشخيص المبكر وكذا ممارسة الفحص المبكر يعدان أمرين مهمين لزيادة معدل البقاء على قيد حياة الفرد. يعد الفحص الذاتي للثدي من أحد طرق الفحص الرئيسية لسرطان الثدي. وبالتالي، فإن الخصائص الاجتماعية والديمقراطية ومعرفة مرض سرطان الثدي من بين الأدوار الحاسمة في تحديد تبني النساء للسلوك في اجراء مرض جنون البقر. تهدف هذه الدراسة إلى تقييم العلاقة بين الخصائص الاجتماعية والديمقراطية ومعرفة مرض سرطان الثدي على تبني السلوكي للفحص الذاتي للثدي بين النساء الماليزيات في مدينة "كوانتان"، في ولاية باهانج. لقد أجريت دراسة مقطعية على 520 امرأة من ثلاث عيادات صحية مختلفة تابعة للحكومة في كوانتان، وعبادة صحة الأسرة التابعة للجامعة الإسلامية العالمية (IIUM)، في فترة ما بين فبراير وحتى إبريل 2018م. قد تم جمع البيانات عن طريق استخدام استبيان ذاتي للإدارة بشأن الخصائص الاجتماعية والديمقراطية ومعرفة مرض سرطان الثدي وتأثيره على تبني السلوكي للفحص الذاتي للثدي. تم العثور والانكشاف على فروق ذات دلالة احصائية بين الخصائص الاجتماعية والديمقراطية مع اعتماد مرض جنون البقر. أدركت الدراسة على أن النساء ما دون سن 50 عاماً والمتزوجات من المرجح أن يعتقدن أن مرض جنون البقر مفيد للغاية. بالإضافة إلى ذلك، كانت النساء ذوات التعليم العالي والداخل في ميزة أداء مرض جنون البقر حيث يمكنهم العثور على المعلومات بأنفسهم. ومع ذلك، بالنسبة لمعرفة مرض سرطان الثدي، كان فحص الثدي وكذا في أفضل وقت مناسب للفحص يعدان من السمتين الوحيدتين اللتين تبين مهمتهما في التشخيص، مع تبني السلوكي لمرض جنون البقر. وجدت هذه الدراسة أن معظم النساء في كوانتان، باهانج يؤدون مرض جنون البقر ولكنهم ما زالوا غير مدركين لأهمية اجراء مرض جنون البقر كوسيلة للكشف المبكر لمرض سرطان الثدي، وذلك أن معظمهم لم يتمكنوا من اكتشاف ورم الثدي. وهو جانب أساسي من جوانب مرض جنون البقر. يمكن استخدام البيانات التي تم الحصول عليها من هذه الدراسة لخلق الوعي المتعلق بسرطان الثدي وكذلك لتعزيز صحة الثدي باستخدام مرض جنون البقر للكشف المبكر عن سرطان الثدي.

الكلمات المفتاحية: سرطان الثدي، الفحص الذاتي للثدي، الديموقراطية الاجتماعية، مرحلة نظرية التغيير

APPROVAL PAGE

I certify that I have supervised and read this study and that in my opinion, it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a thesis for the degree of Master of Health Science (Medical Imaging)

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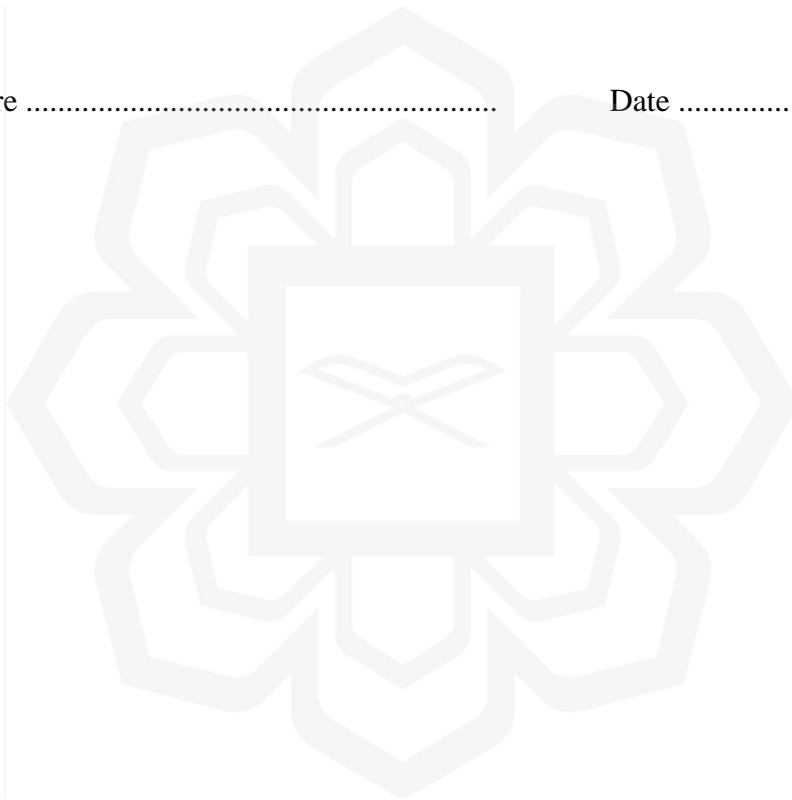
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DECLARATION

I hereby declare that this thesis is the result of my own investigations, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

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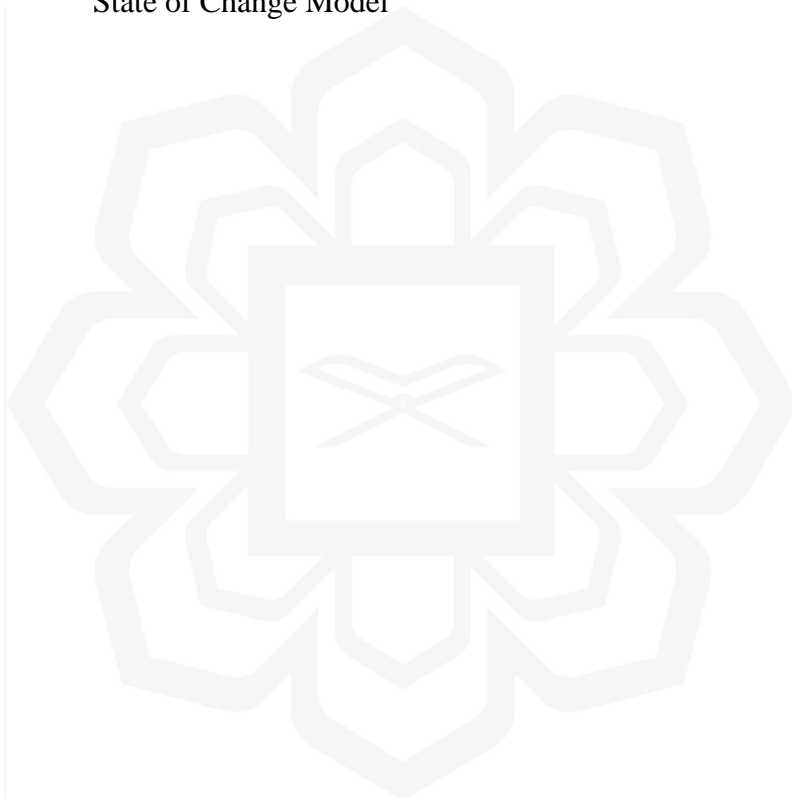


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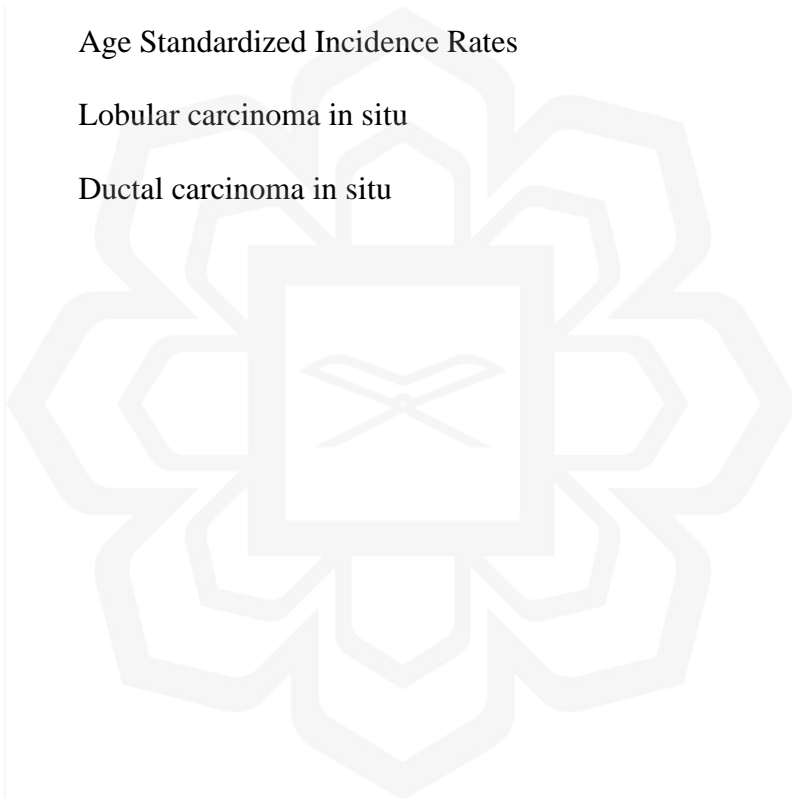
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LIST OF ABBREVIATION

BSE	Breast Self-examination
CBE	Clinical Breast Examination
WHO	World Health Organization
NCR	National Cancer Registry
SoC	State of Change Theory
ASR	Age Standardized Incidence Rates
LCIS	Lobular carcinoma in situ
DCIS	Ductal carcinoma in situ



CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Cancer is one of leading causes of mortality worldwide which is responsible for about 9.6 million deaths in 2019 (World Health Organization, 2018). Among women, breast cancer is the leading form of the disease, accounting for 15.0% of all female cancers (World Health Organization, 2018). In addition, 60.0% of breast cancer deaths are estimated to occur in Asia and developing countries compared to western and developed countries. Many breast cancer cases in Asia and developing countries were found at an earlier age and usually at the later stage. Additionally, the wide variation of mortality in Asian countries are due to factors including population structure (age, race, and ethnicity), lifestyle, environment, socioeconomic status, access to high-quality care and risk factor prevalence (Cheng, Nur Aishah & Ibrahim, 2014).

In Malaysia, the National Cancer Registry (NCR) reported that 1 in 19 women in Malaysia will develop breast cancer in their lifetime (Lim & Halimah, 2010). However, as Malaysia is a country with different races and religions, the rate of cancer is different for each race whereby the incidence rate is the highest among Chinese (59.7 women per 100,000 population) followed by Indians (55.8 women per 100,000 population) and lastly Malays (33.9 women per 100,000 population) (Yip, Nur Aishah & Ifrah, 2015). Nevertheless, many occurrences of new cases of breast cancer were found to be diagnosed among women below the age of 50 years despite differences in race and religion (Yip, Pathy & Theo, 2014). Additionally, about 40.0% of breast cancer cases in Malaysia were diagnosed when it was already at the advance and

metastatic stage (Lim, Lee & Park, 2013), which ultimately leads to a lower survival rate amongst women.

On the other hand, a study indicated that with early detection of breast cancer, the 5-year survival rate is 92.0% higher than otherwise (Minhat, Mustafa & Mohd Zain, 2014). It was proven that breast screening plays a pivotal role in increasing the survival rate of breast cancer. Mammography, breast self-examination (BSE), and clinical breast-examination (CBE) are the most crucial screening methods that help to diagnose breast cancer. Regular performance of mammography, BSE and CBE screening is more likely to increase early detection of breast cancer and will reduce the need for aggressive treatments such as surgery (mastectomy) (American Cancer Society, 2017). Even though mammography has been proven to be the gold standard in detecting breast cancer, the importance of CBE and BSE cannot be denied. A study showed that 20.0% of breast cancer cases were not found in mammogram screening (Weiss, 2017). Unfortunately, the shortage of healthcare personnel to perform CBE makes CBE less practical compared to BSE.

For years, BSE was proven to be a part of the breast cancer screening plan for women for early detection of breast cancer. There have been a significant percentage whereby breast cancer was discovered by chance from the performance of BSE. This is because women recognize a difference on the appearance of their breast with regular performance of BSE (Regan & Durvasula, 2009). It has been suggested that a woman as early as 20 years old should perform BSE each month and be informed about the potential benefits and disadvantages that are associated with BSE (Smith et al., 2014). There are many healthcare programs that initiate the performance of BSE as it is more user-friendly and can be done by women themselves. Moreover, many health practitioners agree that BSE will provide an alternative and relatively simple,

inexpensive means for the early detection of breast cancer that can also be performed in conjunction with mammography and CBE (Norman & Brain, 2013).

Unfortunately, although there exist breast cancer awareness programs in the country, advanced ages and low education levels lead to poor participation from women in Malaysia (Lee, Lim & Park, 2010). Several barriers on breast cancer screening have been identified that influenced women's choice to perform them. These factors include educational level, accessibility, cost, trust of healthcare providers, cultural beliefs, lack of transportation, lack of knowledge of cancer screening guidelines and the underlying belief that cancer is incurable (American Cancer Society, 2018; Farmer et al., 2017; Simon, 2016). Fundamentally, the main factors that affect the performance of BSE are socio-demographic characteristics and knowledge of breast cancer itself. Knowledge has been proven to be a requirement in the maintaining of a healthy lifestyle (Simon, 2016). It was agreed that empowerment of knowledge of breast cancer among women is the main objective in many health promotion activities (Royse & Dignan, 2009). In order to spread knowledge and increase awareness on health-related issues such as breast cancer, it is important to deliver appropriate health intervention programs tailored for a specific target population (Regan & Durvasula, 2009). Knowledge on factors pertaining to breast cancer such as symptoms of breast cancer, risk factors of breast cancer, methods of breast screening and best time for breast screening among women prove to be a crucial component in increasing women's awareness on breast cancer.

Theories on changing behavior have been championed among researchers throughout the years as it helps to define why people do or do not engage in specific health behaviors (National Cancer Institute Malaysia, 2010). The State of Change (SoC) theory is the prime example used to examine the stage of change a person

moves through when adopting the behavior (Champion, Skinner & Menon, 2005). A set of questions on the stages of behavioral adoption of BSE was designed with six items chosen to determine the stage of change theory (Miri et al., 2017). They are pre-contemplation, contemplation, preparation, action, maintenance and relapse. These items are closely related to the level of knowledge women have on BSE and socio-demographic characteristics.

1.2 STATEMENT OF RESEARCH PROBLEM

Breast cancer is recorded as one of the highest cancers in women, both in developed and developing countries. Breast cancer incident rates vary worldwide whereby it was found to be higher in middle income countries compared to higher income countries (Coleman, 2018). In Malaysia, it is estimated that the burden of breast cancer is alarming whereby the age-standardized incidence (ASR) rate for breast cancer is 38.46 per 100,000 women, indicating that one out of every 19 Malaysian women has the chance of getting breast cancer during their lifetime. The increment in the number of breast cancer patients is largely due to the increase in life expectancy, increased urbanization and the adoption of western lifestyles. In addition, approximately 50.0% of Malaysian women were diagnosed with breast cancer before the age of 50 compared to those in western countries (Yip et al., 2014). Moreover, Malaysian women discover cancer at later stages compared to women in western countries (Yip et al., 2014). This could possibly be due to inadequacy of healthcare facilities, economic realities, sociocultural barriers and illiteracy (Minhat et al., 2014). Thus, socio-demographic characteristics such as ethnicity, marital status, education level, and socio-economic status were the factors included in this study to determine how these factors affect the stage of behavioral adoption of BSE.

As incidence and mortality due to breast cancer is constantly increasing and usually determined at a later stage, it has caused substantial burden on the individuals themselves, their family and the community (Australian Institute of Health and Welfare, 2014). Therefore, early detection of breast cancer has become a prominent focus in the current healthcare system to reduce illnesses and death from breast cancer (Bodai & Tusso, 2015). Breast screening methods such as mammography, CBE and BSE were proven to be appropriate measures for early screening of breast cancer. Despite that, the unavailability of mammography facilities in certain areas and lack of healthcare personnel for clinical breast check-ups are the downsides of mammography and CBE. Thus, BSE plays an important role in aiding early detection of breast cancer especially in developing countries such as Malaysia. BSE helps as the patient can do the examination herself as early as 20 years old to determine the presence of any lumps. Further, if done regularly, women may notice changes such as the thickening of the area surrounding the breast or even temperature changes on their breasts.

However, due to the rise in cases of breast cancer, many researches focus on its clinical epidemiological aspect. Less research has been done to determine the effect of the risk factors of breast cancer such as age, race, early menopause and family history (Gary, Panayiotis & Yong, 2015). These studies were mostly conducted in developed countries (Altobelli, 2017; Schilling, 2017; Fan, Goss & Strasser-Weipl, 2015) and most researchers agreed that with different geographical variations, factors such as population characteristics, healthcare facility and socioeconomic status are important to predict the incidence of breast cancer. In most developing countries, BSE was found to be effective as mammography screening and CBE are limited due to economic and logistical constraints (Aloisio et al., 2017). Even though there were studies conducted to examine the role of BSE in the early detection of breast cancer

(Dandash et al., 2007; Nor Afiah et al., 2011; Alharbi et al., 2012; Ojewusi & Arulogan, 2016), there are still limited studies conducted among women in Malaysia.

In Malaysia, the study on the knowledge of breast cancer is usually conducted on university students (Akhtari-Zavare et al., 2015), working women (Nor Afiah et al., 2011) and those living in the city center (Minhat et al., 2014). Furthermore, several studies agreed that the association of knowledge of breast cancer and the behavioral adoption of BSE are reciprocal whereby those with higher knowledge will perform BSE with the correct techniques they understand the importance of BSE performance on early detection of breast cancer (Kanaga et al., 2011; Al-Dubai et al., 2011; Nor Laili et al., 2013). However, even though knowledge was found to be a necessary component in promoting BSE, it is still insufficient unless the cultural relevance is addressed by the healthcare professionals in providing appropriate health services towards women (Meneses & Yarbrow 2017).

A previous study reported that lack of information regarding breast cancer among Malaysian women led to a negative perception on the curability of the disease itself as well as the efficacy of the screening tests (Redhwan et al., 2008; Latifah, 2015). To aid women's understanding and knowledge of breast cancer with respect to performance of BSE in Kuantan, Pahang, this study aims to explore the differences in socio-demographic characteristics and how it relates to the performance of BSE. The study also aims to determine the relationship between knowledge of breast cancer and the behavioral adoption of BSE among women in Kuantan, Pahang. In doing so, a more intrinsic intervention can be done, and new policies can be formulated that are suitable for this group of women.

1.3 PURPOSE OF THE STUDY

Breast cancer screening such as BSE helps to reduce breast cancer mortality. Women as early as 20 years old are encouraged to perform BSE regularly. Thus, it is important to promote BSE at an early stage as it can help to detect any changes felt in the breast area. This research thus sought to investigate the effects of socio-demographic characteristics and knowledge of breast cancer on the socio-behavioral adoption of BSE among women in Kuantan, Pahang. This is because socio-demographic characteristics such as level of education, occupation, marital status and family income are factors that play an important role in determining the performance of BSE (Azage et al., 2013).

On the other hand, with regards to knowledge of breast cancer, it was proven that the practice and frequency of BSE is highly related to the educational intervention of breast cancer itself (Masso-Calderón et al., 2016). Therefore, the implementation of BSE at an earlier age plays an important role in reducing mortality due to breast cancer. Additionally, it was demonstrated that the stage of behavioral change is usually associated with reduced disease level and risky behaviors (Miri et al., 2017). One of the most effective theories that defined behavioral changes is the SoC theory which posited that to change a specific behavior, one needs to have a strong intention to perform the behavior which then lead to the change of behavior (Mostafa et al., 2015). In the SoC theory, there are six stages; the pre-contemplation, contemplation, preparation, action, maintenance stage and the relapse stages.

1.4 RESEARCH OBJECTIVES

1.4.1 General objective

To determine effect of socio demographic characteristics and knowledge pertaining to breast cancer and its' effect on the stage of behavioral adoption of BSE.

1.4.2 Specific objectives

1.4.2.1 To determine the association of socio-demographic characteristics (age, marital status, education and socio-economic status) and stage of behavioral adoption of BSE

1.4.2.2 To ascertain the association of knowledge pertaining to breast cancer and the stage of behavioral adoption of BSE

1.5 RESEARCH QUESTION

These are the guiding questions related to this study;

- 1) Is there a relationship between socio-demographic characteristics (age, marital status, education and socio-economic status) and the stage of behavioral adoption of BSE?
- 2) Is there a relationship between knowledge pertaining to breast cancer and the stage of behavioral adoption of BSE?

1.6 RESEARCH HYPOTHESIS

H₀₁: Socio-demographic characteristics have no significant relationship with the stage of behavioral adoption of BSE

H_{01A}: Age has no significant relationship with stage of behavioral adoption of BSE

H_{01B}: Marital status has no significant relationship with stage of behavioral adoption of BSE

H_{01C}: Level of education has no significant relationship with stage of behavioral adoption of BSE

H_{01D}: Family income has no significant relationship with stage of behavioral adoption of BSE

H₀₂: Knowledge of breast cancer has no significant relationship with the stage of behavioral adoption of BSE

H_{02A}: Risk of breast cancer has no significant relationship with stage of behavioral adoption of BSE

H_{02B}: Best time for screening has no significant relationship with stage of behavioral adoption of BSE.

H_{02C}: Symptoms of breast cancer has no significant relationship with stage of behavioral adoption of BSE.

H_{02D}: Perception of breast cancer lump(s) has no significant relationship with stage of behavioral adoption of BSE.

H_{02E}: Method of breast screening has no significant relationship with stage of behavioral adoption of BSE.

1.7 THE HYPOTHETICAL CONCEPTUAL FRAMEWORK

(Independent Variable)

(Dependent Variable)

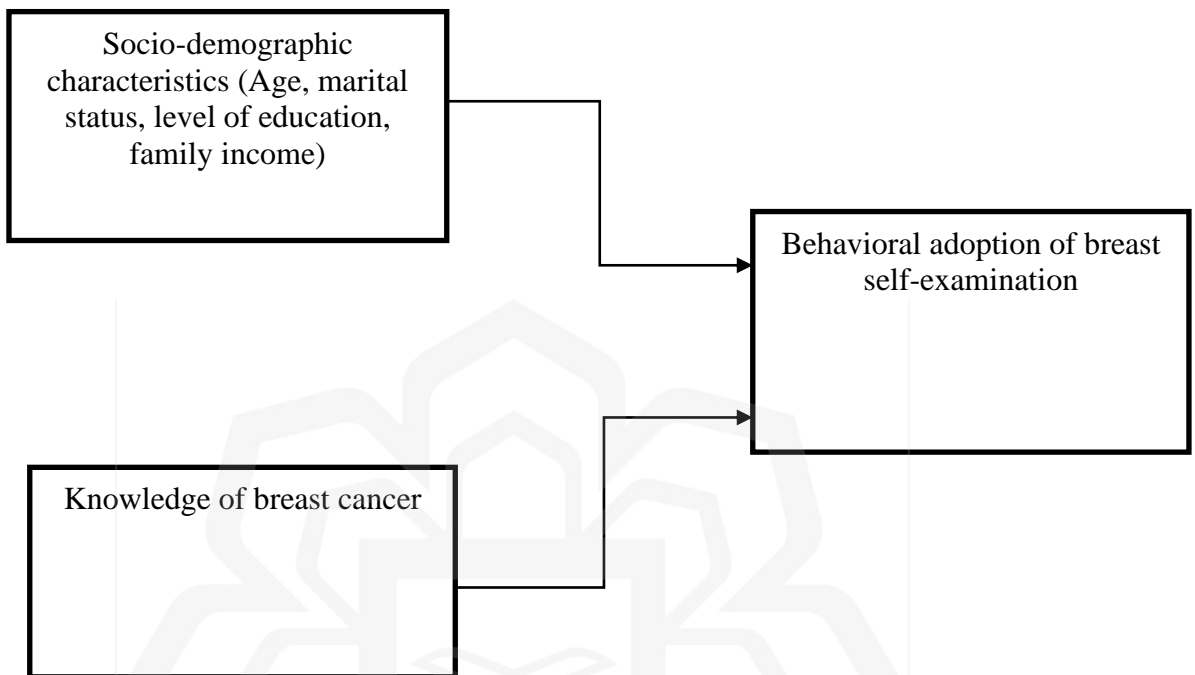


Figure 1.1: Hypothetical Conceptual Framework

1.8 SIGNIFICANCE OF THE STUDY

Breast cancer is the most prevalent cancer amongst women worldwide. It is estimated that over 508,000 women died in 2011 due to breast cancer (World Health Organization, 2013). In Malaysia, many new cases of breast cancer were diagnosed in women under 50 years old and at a late stage of cancer. This shows that early breast screening is important for the early detection of breast cancer. Methods used for breast cancer screening are mammography, CBE and SBE that acts as standard tools in diagnosing breast cancer. However, the shortage of mammography facilities and possibly health professionals in carrying out CBE in Malaysia make it less convenient compared to BSE that can be performed by the women themselves as regular performance of BSE creates an opportunity for women to detect any changes in their breasts. This in addition with the right technique in performing BSE, will contribute to early diagnosis and treatment options (Kamer, Hasibe & Ayse, 2014)

Although BSE was found to be an effective breast screening method, there is still low uptake among women in Malaysia (Asnarulkhadi, Maryam & Latiffah, 2016). This is possibly due to ignorance on the importance of performing BSE (Meryem, Yazile & Hatice, 2017). Thus, the SOC model will act as a tool in determining women's behavior to perform BSE (Miri et al., 2017). The model shows that changing a specific behavioral adoption of BSE requires an intervention suitable for the individuals' current stage to help them to move to better stages (Miri et al., 2017). Unfortunately, the behavioral adoption of BSE is prevalently low amongst Asian women (Redhwan & Osman, 2011) and is characterized mainly by women's psychosocial attributes and sociodemographic characteristics (Ahmadian & Samah, 2012).