KNOWLEDGE, ATTITUDE AND AWARENESS TOWARDS BREAST CANCER AMONG FEMALE NURSING STUDENTS IN SCHOOL OF HEALTH SCIENCES, UNIVERSITI SAINS MALAYSIA

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by

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Dissertation submitted in partial fulfillment of the requirements for the degree of Bachelor of Nursing (Honours)

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CERTIFICATE

This is to certify that the dissertation entitled “Knowledge, Attitude and Awareness towards Breast Cancer among Female Nursing Students in School of Health Sciences, Universiti Sains Malaysia” is the bona fide record of research work done by Mawwar Nadhirah Binti Roslan, Matric Number 134132 during the period of September 2019 to August 2020 under my supervision. I have read this dissertation and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation to be submitted in partial fulfillment for the degree of Bachelor of Nursing (Honours).

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DECLARATION

I hereby declare that this dissertation is the result of my own investigations, except where otherwise stated and duly acknowledged. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at Universiti Sains Malaysia or other institutions. I grant Universiti Sains Malaysia the right to use the dissertation for teaching, research and promotional purposes.

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LIST OF ABBREVIATIONS

BC	Breast Cancer
BSE	Breast Self-Examination
SHS	School of Health Sciences
USM	Universiti Sains Malaysia
TPB	Theory of Planned Behaviour
WHO	World Health Organization
MNCR	Malaysian National Cancer Registry
BCI	Breast Cancer Inventory

KNOWLEDGE, ATTITUDE AND AWARENESS TOWARDS BREAST CANCER AMONG FEMALE NURSING STUDENTS IN SCHOOL OF HEALTH SCIENCES, UNIVERSITI SAINS MALAYSIA

ABSTRACT

Breast cancer is one of the cancers that fearing entire women population in the world. As a healthcare professional, we need to ensure that they have a knowledge about breast cancer, attitude while facing the breast cancer and awareness towards breast cancer. Thus, a cross sectional, descriptive study was conducted on 188 respondents recruited using a simple random sampling method. A questionnaire that had been validated was given to all respondents that fit the inclusion criteria. The general objective of the study was to determine the knowledge, attitude and awareness towards breast cancer among female nursing students in School of Health Sciences (SHS), Universiti Sains Malaysia (USM). In this study, socio-demographic information of the respondents was analyzed using descriptive statistics. Not only that, descriptive statistics was also used to determine the level of knowledge, attitude and awareness towards breast cancer among female nursing students in SHS, USM. Besides, Pearson's Chi-Square test was used to determine the association between the selected socio-demographic information on age with the level of knowledge towards breast cancer among female nursing students in SHS, USM. Then, Kruskal Wallis test was applied to determine the significant median difference between selected socio-demographic information on educational level with the level of knowledge towards breast cancer among female nursing students in SHS, USM. The findings of this study showed that majority of female nursing

students in SHS, USM had good knowledge, positive attitude and higher awareness toward breast cancer. In this study, there is a statistically significant association between selected socio-demographic information on age with the level of knowledge towards breast cancer among female nursing students in SHS, USM ($p<.002$). There is a statistically significant difference of median total grade of knowledge towards breast cancer between educational status (year of study in university) which ($p<.000$). Increasing and enhancing the knowledge, attitude and awareness towards breast cancer among female nursing students will help them in giving health education towards the women and patient about the importance and understanding of breast cancer. Subsequently, they will be a competent and professional future nurses that can deliver a better care and treatment as well as improving the health and level of quality of life of the patients. It is recommended that each of the patients be more aware of their own health in preventing breast cancer from affecting their daily lives.

PENGETAHUAN, SIKAP DAN KESEDARAN TERHADAP KANSER PAYUDARA DALAM KALANGAN PELAJAR PEREMPUAN KEJURURAWATAN DI PUSAT PENGAJIAN SAINS KESIHATAN (PPSK), UNIVERSITI SAINS MALAYSIA

ABSTRAK

Kanser payudara adalah satu daripada kanser yang ditakuti seluruh populasi wanita dalam dunia ini. Sebagai profesional kesihatan, kita perlu memastikan bahawa kita mempunyai pengetahuan mengenai kanser payudara, sikap yang baik semasa menghadapi isu kanser payudara dan kesedaran terhadap kanser payudara, Oleh itu, kajian keratan rentas dan deskriptif dilakukan pada 188 responden yang direkrut menggunakan kaedah persampelan rawak. Soal selidik yang telah disahkan diberikan kepada semua responden yang sesuai dengan kriteria inklusi. Objektif umum kajian ini adalah untuk menentukan pengetahuan, sikap dan kesedaran terhadap kanser payudara dalam kalangan pelajar perempuan kejururawatan di Pusat Pengajian Sains Kesihatan (PPSK), Universiti Sains Malaysia (USM). Dalam kajian ini, informasi sosio-demografi responden dianalisis menggunakan statistik deskriptif. Bukan itu sahaja, statistik deskriptif juga digunakan untuk menilai tahap pengetahuan, sikap dan kesedaran pelajar perempuan kejururawatan di PPSK, USM. Selain itu, ujian Pearson's Chi-Square digunakan untuk menentukan hubungan antara informasi sosio-demografi terpilih terhadap umur dengan tahap pengetahuan dalam kalangan pelajar perempuan kejururawatan di PPSK, USM. Seterusnya, ujian Kruskal Wallis digunakan untuk menentukan hubungan antara informasi sosio-demografi terpilih terhadap tahap pendidikan dengan tahap pengetahuan dalam kalangan pelajar perempuan kejururawatan di PPSK, USM. Penemuan kajian ini menunjukkan bahawa majoriti pelajar kejururawatan di PPSK, USM

mempunyai pengetahuan yang baik, sikap positif dan kesedaran yang tinggi terhadap kanser payudara. Dalam kajian ini, terdapat hubungan statistik antara informasi sosio-demografi terpilih terhadap umur dengan pengetahuan dalam kalangan pelajar perempuan kejururawatan di PPSK, USM (p<.002). Terdapat juga perbezaan statistik signifikan median antara informasi sosio-demografi terpilih terhadap tahap pendidikan dengan tahap pengetahuan dalam kalangan pelajar perempuan kejururawatan di PPSK, USM (p<.000). Peningkatan pengetahuan, sikap dan kesedaran terhadap kanser payudara dalam kalangan pelajar perempuan kejururawatan akan membantu mereka dalam memberi pendidikan kesihatan terhadap wanita dan pesakit mengenai kepentingan dan kefahaman kanser payudara. Jadi, mereka akan menjadi bakal jururawat yang cekap dan profesional dalam memberi penjagaan dan perawatan yang lebih baik serta meningkatkan kesihatan dan tahap kualiti hidup pesakit. Sebaiknya setiap pesakit lebih mengetahui kesihatan diri dalam mencegah kanser payudara yang mempengaruhi kehidupan seharian mereka.

CHAPTER 1

INTRODUCTION

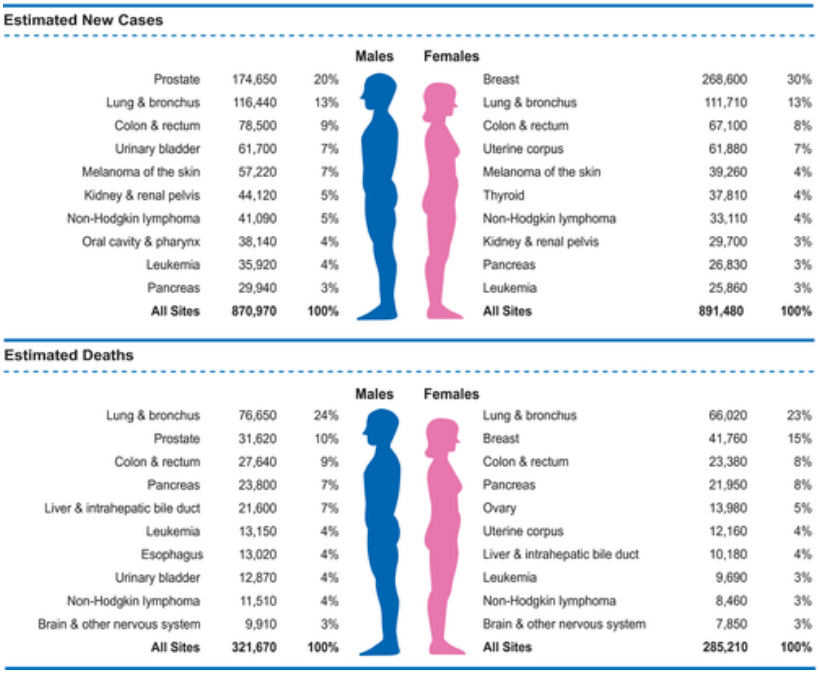
1.0 Introduction

This chapter outlines study background, problem statement, research objective, research question, conceptual and operational definitions as well as significant of the study. The study is related to the knowledge, attitude and awareness towards breast cancer among female nursing students in School of Health Sciences (SHS), Universiti Sains Malaysia (USM). The main purpose for this study is to determine the knowledge, attitude and awareness towards breast cancer among female nursing students in SHS, USM.

1.1 Background of the study

Breast cancer is known as prevalent disease of women (Abolfotouh *et al*. 2015). It occurs annually worldwide and anticipated more than one million new cases (Shiryazdi *et al.* 2014). According to American Cancer Society (2019), the breast cancer is a cancer that begins when cells in the breast begin to grow out of control. Therefore, in such situations, the cells that are growing usually develop into cells that will form tumor cells. As a result of these tumors such as lumps can usually be seen through X-ray scans to diagnose whether or not these cells are tumors that grow inside the breast. The tumor later will become malignant by spreading to other areas where it invades other tissues and develops the cancer. These cells usually form tumors that are often seen on X-rays or felt as lumps. Breast cancer is common in most women, but men can also get breast cancer. Basically, early detection of breast cancer is crucial for early treatment and reduction in related mortality.

Based on Omotara *et al.* (2012), it is proposed that the incidence of breast cancer is increasing in the developing world due to the increased life expectancy, increase levels of urbanization and the adoption of Western lifestyles. The largest increase in cancer incidence over the next 15 years which are in the Middle Eastern countries based on recent report by the World Health Organization. All types of cancer in the Middle East in according to the mortality rates, currently 70% compared to 40-55% in Western countries. In addition, the number of the new cancer cases in 2020 that had been diagnosed each year is estimated to increase by 40%. According to American Cancer Society (2019) the most common cancers expected to be diagnosed and mortality in men and women in the world were shown in Figure 1.1 respectively.



Estimated New Cases

Males				Females		
Prostate	174,650	20%		Breast	268,600	30%
Lung & bronchus	116,440	13%		Lung & bronchus	111,710	13%
Colon & rectum	78,500	9%		Colon & rectum	67,100	8%
Urinary bladder	61,700	7%		Uterine corpus	61,880	7%
Melanoma of the skin	57,220	7%		Melanoma of the skin	39,260	4%
Kidney & renal pelvis	44,120	5%		Thyroid	37,810	4%
Non-Hodgkin lymphoma	41,090	5%		Non-Hodgkin lymphoma	33,110	4%
Oral cavity & pharynx	38,140	4%		Kidney & renal pelvis	29,700	3%
Leukemia	35,920	4%		Pancreas	26,830	3%
Pancreas	29,940	3%		Leukemia	25,860	3%
All Sites	**870,970**	**100%**		**All Sites**	**891,480**	**100%**

Estimated Deaths

Males				Females		
Lung & bronchus	76,650	24%		Lung & bronchus	66,020	23%
Prostate	31,620	10%		Breast	41,760	15%
Colon & rectum	27,640	9%		Colon & rectum	23,380	8%
Pancreas	23,800	7%		Pancreas	21,950	8%
Liver & intrahepatic bile duct	21,600	7%		Ovary	13,980	5%
Leukemia	13,150	4%		Uterine corpus	12,160	4%
Esophagus	13,020	4%		Liver & intrahepatic bile duct	10,180	4%
Urinary bladder	12,870	4%		Leukemia	9,690	3%
Non-Hodgkin lymphoma	11,510	4%		Non-Hodgkin lymphoma	8,460	3%
Brain & other nervous system	9,910	3%		Brain & other nervous system	7,850	3%
All Sites	**321,670**	**100%**		**All Sites**	**285,210**	**100%**

Figure 1.1: *Ten Leading Cancer Types for the Estimated New Cancer Cases and Deaths by Sex, United States, 2019. Source: American Cancer Society (2019)*

Hence, prostate, lung and bronchus (referred to as lung hereafter), and colorectal cancers (CRCs) account for 42% of all cases in men, with prostate cancer alone accounting for nearly 1 in 5 new diagnoses. For women, the three most common cancers

are breast, lung, and colorectum, which collectively represent one-half of all new diagnoses; breast cancer alone accounts for 30% of all new cancer diagnoses in women. Thus, the data indicate that most of cancer associated among women population are breast cancer. Breast cancer in women is a major public health problem throughout the world. It is the most common malignant disease among women both in developed and developing countries (WHO, 2017).

According to the Malaysian National Cancer Registry (2019), cancer is one of the leading causes of death in Malaysia and breast cancer is the most common form of malignancy affecting women. The disease burden of breast cancer affects 31.1% of all women living with cancer in this country. According to the Malaysian National Cancer Registry (MNCR) report, the percentage of breast cancer cases diagnosed at stage I and II was 57%. At this stage, the disease is usually operable and can be treated with curative intent.

However, according to Lance Duan, a general manager of Roche Malaysia, about 25-45% of patients experience relapse and those with metastatic or unresectable disease are generally incurable. Based on the New Straits Times (2019) mentioned that everyone in a woman's life plays an important role in fighting breast cancer. Overcoming cancer is one of life's many challenges not a death sentence. Breast cancer is curable, and they need to send out a hopeful message that women can resume their lives, and even do more after treatment.

However, breast self-examination (BSE) is a check-up a woman does at home to look for changes or problems in the breast tissue. Many women feel that doing this is important to their health (MedLinePlus, 2019). Breast self-examination (BSE) is a useful and important screening tool, especially when used in combination with regular physical

exams by a doctor, mammography, and in some cases ultrasound or magnetic resonance imaging (MRI) and each of these screening tools works in a different way and has strengths and weaknesses. Breast self-examination is a convenient, no-cost tool that you can use on a regular basis and at any age (Breastcancer.org, 2019). Its purpose is to make women familiar with both the appearance and feel of their breasts as early as possible, so that they will be able to easily detect changes in their breast (Philip, Harris, Flaherty, & Joslin, n.d.).

1.2 Problem statement

Nowadays in globalization, breast cancer is most commonly occurring cancer in women and has second-highest rate in the global cancer incidence (Renganathan, Ramasubramaniam, Al-Touby, Seshan, Al-Balushi, & Al-Amri, 2014). In 2012, nearly 1.7 million cases of breast cancer diagnosed in worldwide and make it the major cause of death and most of common cancer among women in developing countries (Akhtari-Zavare, Juni, Irmi, Said, & Latiffah, 2015; World Cancer Research Fund International, 2017).

Hence, according to the study that conducted in Pakistan by Naqvi *et al.* (2018), knowledge regarding breast cancer symptoms and risk factors was found to be fairly low in this study. Breast lump was reported the most common symptom of breast cancer by respondents, however, discharge from nipples, swelling or changes in skin color were not known to be alarming signals for the disease. This is a matter of grave concern because poor knowledge regarding symptoms adversely affects screening behavior.

In various studies that shown attitude that influenced the behavior towards detecting breast cancer by early diagnosis, it is stated that the main factors blocking the behaviors of women regarding early diagnosis of breast cancer are lack of knowledge, shame, pain, cost, lack of time, fear of receiving radiation, finding the operations unnecessary and

concern of encountering a bad result (Yucel *et al.* 2014; Akhtari-Zavare *et al.* 2015). Not only that, there were wide gaps can be revealed by finding that have been done by previous researcher towards the practice towards BSE. The reason for not aware to practice BSE revealed that in accordance with the findings by Ahmed *et al.* (2015) also identified that some reasons for not practicing BSE were forgetfulness, lack of time and belief that there was is nothing wrong with their breast. Furthermore, in the age ranges of 15 to 24, roughly 3.1 in a million in the UK are affected (Ranasinghe, Rodrigo, Seneviratne, & Rajapakse, 2013).

In contrast, a cross sectional survey done among 500 females aged 15-19 years old in Malaysia demonstrated an inadequate knowledge level of breast self-examination and risk factors for breast cancer (Che *et al.* 2014). According to Kim *et al.* (2014) conduct a study on Korean immigrant women to assess BC knowledge and perceived health beliefs. They found no significant correlation between women's knowledge and their beliefs about BC screening behaviors, except for perceived barriers which was found to be significant predictor for participating in screening behaviors. The author further correlated that to the higher age range (≥ 30 years) of the studied immigrant women in this contradictory study with less perceived barriers to BC screening behaviors.

The current data in the previous study shows that there is a gradual rise of breast cancer research, but is still greatly lacking, particularly in the areas of breast cancer screening which would enable detecting breast cancer early and reduce deaths among women. Hence, the aim of this study is to investigate the knowledge, attitude and awareness towards breast cancer among female nursing students in SHS, USM.

1.3 Research objective

1.3.1 General objective

To determine the knowledge, attitude and awareness towards breast cancer among female nursing students in School of Health Sciences (SHS), Universiti Sains Malaysia (USM).

1.3.2 Specific objectives

1. To determine the level of knowledge towards breast cancer among female nursing students in SHS, USM.
2. To determine the attitude towards breast cancer among female nursing students in SHS, USM.
3. To determine the awareness towards breast cancer among female nursing students in SHS, USM.
4. To determine the association between selected socio-demographic information on age with the level of knowledge towards breast cancer among female nursing students in SHS, USM.
5. To determine the significant median difference between selected socio-demographic information on educational status (year of study in university) with the level of knowledge towards breast cancer among female nursing students in SHS, USM.

1.4 Research questions

1. What is the level of knowledge towards breast cancer among female nursing students in SHS, USM?
2. What is the attitude towards breast cancer among female nursing students in SHS, USM?
3. What is the awareness towards breast cancer among female nursing students in SHS, USM?

4. What is the association between selected socio-demographic information on age with the level of knowledge towards breast cancer among female nursing students in SHS, USM?
5. What is the median difference between selected socio-demographic information on educational status (year of study in university) with the level of knowledge towards breast cancer among female nursing students in SHS, USM?

1.5 Hypotheses

Hypotheses

Null hypotheses, H_0: There is no association between selected socio-demographic information on age with the level of knowledge towards breast cancer among female nursing students in SHS, USM.

Alternative hypotheses, H_A: There is association between selected socio-demographic information on age with the level of knowledge towards breast cancer among female nursing students in SHS, USM.

Hypotheses

Null hypotheses, H_0: There is no significant median difference between selected socio-demographic information on educational status (year of study in university) with the level of knowledge towards breast cancer among female nursing students in SHS, USM.

Alternative hypotheses, H_A: There is significant median difference between selected socio-demographic information on educational status (year of study in university) with the level of knowledge towards breast cancer among female nursing students in SHS, USM.

1.6 Conceptual and or operational definitions

Below is the list of terms for defined the purpose of this research study.

1.6.1 Knowledge: Understanding of or information about a subject that you get by experience or study, either known by one person or by people generally (Cambridge Dictionary, 2019). In this study, knowledge is a specific information regarding to the breast cancer among female nursing students in SHS, USM that will be obtained consist of knowledge of breast cancer, risk factor, preventive practice and screening behavior.

1.6.2 Attitude: A feeling or opinion about something or someone, or a way of behaving that is caused by this (Cambridge Dictionary, 2019). In this study, the attitude towards breast cancer among female nursing students in SHS, USM whether they portray positive or negative regarding to their opinion towards breast cancer.

1.6.3 Awareness: Knowledge that something exists or understanding of a situation or subject at the present time based on information or experience (Cambridge Dictionary, 2019). In this study, the awareness towards breast cancer among female nursing students in SHS, USM will be assessed whether they aware or not aware regarding to the breast cancer.

1.6.4 Breast cancer: Breast cancer refers to a malignant tumor that has developed from cells in the breast (Breastcancer.org, 2018). Usually breast cancer either begins in the cells of the lobules, which are the milk-producing glands, or the ducts, the passages that drain milk from the lobules to the nipple and less commonly, breast cancer can begin in the stromal tissues, which include the fatty and fibrous connective tissues of the breast (Breastcancer.org, 2018).

1.6.5 Female nursing students: The definition according to Cambridge Dictionary, (2019), female is a woman or girl. While, nurse or nursing is a title given to a person whose job is to care for people who are ill or injured, especially in a hospital

and a student is a person who is learning at a college or university. So, in this study it refers to the female nursing students in School of Health Sciences (SHS), Universiti Sains Malaysia (USM).

1.7 Significance of the study

This study is significant for female students. In other words, female students will be able to maintain a healthy lifestyle even in breast cancer prevention. This can help them improve their quality of life and health. Previous findings indicate that female students in Jordan possessed lack of knowledge and awareness towards breast cancer (Abu-Helalah, Alshraideh, Al-Serhan, Kawaleet, & Nesheiwat, 2015). Therefore, their findings are disappointing. Not only that, the lack of knowledge and belief in breast cancer prevention among women indicates for negative perceptions of cancer risk is detected early and screening tests whether it works or not.

In this study, it is also significant for families of female students. This affects students' knowledge, attitudes and awareness of breast cancer based on their demographic background that is closely linked to their mothers and other female family members.

Moreover, this study is important to the nursing profession especially in the scopes of nursing education, nursing practice and nursing administration. If nursing education has been obtained, so information regarding the knowledges and attitudes can be applied to find new advances, then this can be promoted as evidence-based treatment for a population of women with breast cancer.

Meanwhile, nursing practice will be effective through better support and care in raising awareness about breast cancer in the female population as well as themselves as nursing students. On the other hand, nursing administration will be implemented as this reflects the responsibility of nurses to engage in excellent experience in managing various

issues. Thus, it can reduce the incidence of death among the female population in our environment.

In addition, it can benefit governments and countries. Due to the knowledge and attitudes towards breast cancer, it is likely to increase awareness among the female student's population, where breast cancer is commonly diagnosed as early as possible and the risk of breast cancer being reduced. Costs in the health sector and institutions can also be reduced without spending more money on medicine and treatment. Furthermore, governments can launch campaigns that increase their knowledge, attitudes and awareness to be the most effective way of promoting health education and can be used through television and for the development of other countries.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the past and current literature related to general information about the problem of breast cancer, knowledge towards breast cancer, knowledge of risk factor related to breast cancer, attitude towards breast cancer, awareness of breast cancer towards preventing practice and screening behavior and performance towards BSE. This chapter also discusses details about conceptual framework that guiding this study.

2.2 The General Information about the Problem of Breast Cancer

World Health Organization (WHO) had announced in the World Cancer Day in 2018 that cancer is currently responsible for almost one in six deaths worldwide. It is also considered to be the second leading cause of death globally causing about 8.8 million deaths in 2015 where about 70% of all cancer related deaths occurred either in low- and middle-income countries. Based on the WHO estimates Breast Cancer (BC) is not only one of the most widespread cancers but also it is one of the leading causes of cancer death accounting for 571.000 deaths among females worldwide in 2015 (WHO, 2018). It is considered to be a global health emergency where every 3 minutes a woman is diagnosed with BC with 1.7 million new cases yearly and it is the principal reason of cancer related deaths in developing countries (United Nations, World Cancer Day, 2017).

Among females, breast cancer remains one of the most prevalent causes of mortality. Around 16% of females who die of cancer are breast cancer patients. Modifiable management approaches include maintenance of a healthy weight, regular exercise, and cutting down on alcohol consumption. On the other hand, these strategic approaches may not always get rid of many types of breast cancers (Almutairi, Tamrin, Wirza, & Ahmad,

2019). Basically, women with breast cancer who perform early detection will increase their survival rates after diagnosis and also reduces the related mortality (Iz & Tumer, 2016; Ardahan *et al.* 2015).

2.3 Knowledge towards Breast Cancer

Besides, previous studies on Breast Cancer Knowledge, Attitudes, Practices and Self-Examination conducted among female undergraduate students in Karachi, Pakistan, found that they could not interpret the lump present in the breast (Rasool *et al.* 2019). The majority of the students were not aware of some of the early signs of breast cancer such as change in color or shape, any discharge from the nipple etc. Another study that survey among the university students in Angola stated that, there is lack of knowledge and awareness of breast cancer irrespective of medical or non-medical programs. Kohler *et al.* (2017) conducted a study on Malawian women to assess their BC knowledge, behaviors, and preferences. The study explored a significant correlation between knowledge level about BC and participants' beliefs especially the degree of perceived susceptibility to the disease where most respondents with good BC knowledge believed that they might get it at any time during their life.

According to a study that conducted at Royal College of Medicine, Perak stated that 23%, 21%, 19%, 18%, 13% and 6% of the study respondents cited as a source of information about BC from the internet, pamphlets, book and etc.; television either documentaries or advertise, academic classes, relatives, friends and lecturers and radio respectively (Haque *et al.* 2016) while a study from Arab American/Jenin among nursing students by Ayed *et al.* (2015) the least reported source of information was the relatives of the respondents (3.4%). This is one of the gaps existing in family life education as parents and care givers have no time to discuss pertinent health issues with their children.

It may also be due to the fact that some of the parents have no information or knowledge on some of these topics and as such have little or nothing to discuss.

2.3.1 Knowledge of Risk Factor related to Breast Cancer

Basically, based on American Society of Clinical Oncology (ASCO) (2019), risk factor is anything that increases a person's chance of developing cancer. Although risk factors often influence the development of cancer, most do not directly cause cancer. Some people with several risk factors never develops cancer, while others with no known risk factors do. Most breast cancers are sporadic, meaning they develop from damage to a person's genes that occurs by chance after they are born. Participants in a study Abu Samah, Ahmadian, & Latiff, (2016) showed deprived understanding of major breast cancer risk factors such as overweight, oral contraceptive, breast feeding, late menopause, and early onset of menses. Similarly, in another study among Muslim women in the Middle East, participants had also limited knowledge about breast cancer risk factors such as obesity, oral contraceptive, late menopause, and early onset of menses (Alharbi *et al.* 2012).

According to the Breast Cancer Risk Model (BRISK), a retrospective case-control study, to assess breast cancer risk factors and to develop a model for predicting breast cancer risk in Pacific populations of Asians and Pacific Islanders living on Guam and Saipan by Leon Guerrero *et al.* (2017) one of the risk factors include never having children, having elevated normal levels, benign breast disease, early menarche, menopause at late age (around age 54). Not only that, a recent study carried out among 10,242 undergraduate university students in 24 countries across Asia, Africa and America revealed that 35.4% of the women were not aware of any risk factors (e.g. heredity, alcohol, exercise, overweight, stress, smoking, dietary fat and fiber) influencing breast cancer (Peltzer & Pengpid, 2014).

2.4 Attitude towards Breast Cancer

The participants from the survey conducted among women in Pakistan by Naqvi *et al.* (2018) were also asked about their attitude towards breast cancer and its early detection techniques. Nearly half of the women (49.5%) believed that undergoing breast screening was good for early detection and fear of having the disease which to be a common reason for undergoing a screening. The issue of shyness and feelings of discomfort towards discussion about breast and breast cancer is worth mentioning here. Although a majority of respondents (69.8%) negated the existence of feelings of embarrassments while talking about breast cancer in the society, a large number of respondents (77.3%) in another question highlighted that they did not feel comfortable in consultation about breast cancer with a physician. Despite large awareness campaigns running in the country, cancer of the breasts is still shrouded in shame, secrecy and embarrassment. The word 'breast' itself is highly stigmatized in the society and cannot be spoken out loud. There is an urgent need to break this cultural stigma attached to the word and these social barriers for early detection must be addressed because shyness and reluctance can have adverse consequences (Gupta, Shridhar, & Dhillon, 2015).

2.5 Awareness of Breast Cancer related towards Preventing Practice and Screening Behavior

The cross-sectional study on Knowledge, Barriers and Attitudes Towards Breast Cancer Mammography Screening in Jordan was conducted by Abu-Helalah, Alshraideh, Al-Serhan, Kawaleet, & Nesheiwat, (2015) showed that there is a low participation rate in early detection of breast cancer practices amongst study participants. In the absence of a nationwide regular screening program for breast cancer, it was expected that a high rate of study participants would never have undergone a mammography screening; the rate

was 87.6%. Only 8.6% of study participants reported undergoing periodic screening, while 3.8% underwent breast cancer screening at least once but not periodically.

In the current study conducted among women participants in Pakistan, the researcher (Naqvi *et al.* 2018) stated that most of respondents (83%) belonged to the 18-30 age group and were unmarried (72.7%). This is worth mentioning because raising awareness amongst younger women can have a positive lifelong impact especially with regards to early diagnosis and survival. On the contrary, lack of awareness among younger women puts them at danger of being diagnosed in advanced stages of disease. According to the enforcement of the Macao Health Bureau by Gan, Lao, & Chan (2018) they do not specify how often to perform breast cancer screening, moreover, usually where local healthcare providers provide referrals based on guidelines used in areas such as Hong Kong.

2.6 Importance towards Breast Self-Examination (BSE) Practices

BSE is recommended by WHO as an individual measure for raising women awareness about BC risks and its early detection. However, overutilization of BSE and improper performance can lead to misleading or false results. Thus, the American Cancer Society screening guidelines for BC in 2015 further suggested that women should be informed about the possible advantages, disadvantages of BSE and the value of immediate reporting of any discovered breast changes to health professionals (WHO, 2018; Oeffinger *et al.* 2015). In a study of Breast Self-examination: Knowledge, Attitude, and Practice among Female Health Science Students at Adama Science and Technology University in Ethiopia, BSE should be promoted for early detection of breast cancer to prevent related morbidities and mortalities. A study conducted in Haramaya University, Ethiopia, had shown that majority of the students (77%) had never performed BSE, even though they had good knowledge of BSE. Their reasons for this were as follows: absence

of signs or symptoms (28.8%), forgetfulness (17%), fear of detecting some abnormality (16.4%), and lack of privacy (15.4%).

A cross sectional study among female Malaysia students, 189 (25.5 %) respondents perform BSE, but a small number of students (31.2 %) perform BSE once a month (Akhtari-Zavare *et al.* 2014). The main reason for practicing BSE was to check their breast regularly. Similar to their findings, a study from Iran reported that 100 (26 %) women practice BSE, and most of them 53 (13.8 %) practice BSE occasionally and this poor practice may be due to young women's perceptions that they are healthy and thus do not need to perform a BSE (Akhtari-Zavare *et al.* 2014). All women were recommended routinely perform breast self- exams as part of their overall breast cancer screening strategy (Breastcancer.org, 2016).

2.7 Theoretical/Conceptual framework of the Study

The conceptual Framework for this study will use Theory of Planned Behaviour by Ajzen (1991). Thus, Ajzen's (1991) Theory of Planned Behaviour uses attitudes, subjective norms and perceived behavioral control to predict "intention" with relatively high accuracy. The theory assumes that a person's intention, when combined with perceived behavioural control, will help predict behavior with greater accuracy than previous models (Ajzen, 1991). The theory of planned behavior (TPB) assumes that the best prediction of behavior is given by asking people if they are intending to behave in a certain way. It is also explained that people are usually rational and this situation, they will make predictable decisions in well-defined circumstances. The TPB states that behavioral achievement depends on both motivation (intention) and ability (behavioral control). According to TPB (Behavioural Change Models, 2019), it distinguishes between three types of beliefs which are behavioral, normative and control of behavior. Attitude to the behavior refers to the degree to which a person has a favourable or unfavourable

evaluation of the behavior of interest. It entails a consideration of the outcomes of performing the behavior. Subjective norms refer to the belief about whether most people approve or disapprove of the behavior. It relates to a person's beliefs about whether peers and people of importance to the person think he or she should engage in the behavior. Perceived behavioral control refers to a person's perception of the ease or difficulty of performing the behavior of interest. Perceived behavioral control varies across situations and actions, which results in a person having varying perceptions of behavioral control depending on the situation. The conceptual framework of this theory is shown as Figure 2.2.

Figure 2.2 shows the original version of Theory of Planned Behavior by Ajzen (1991)

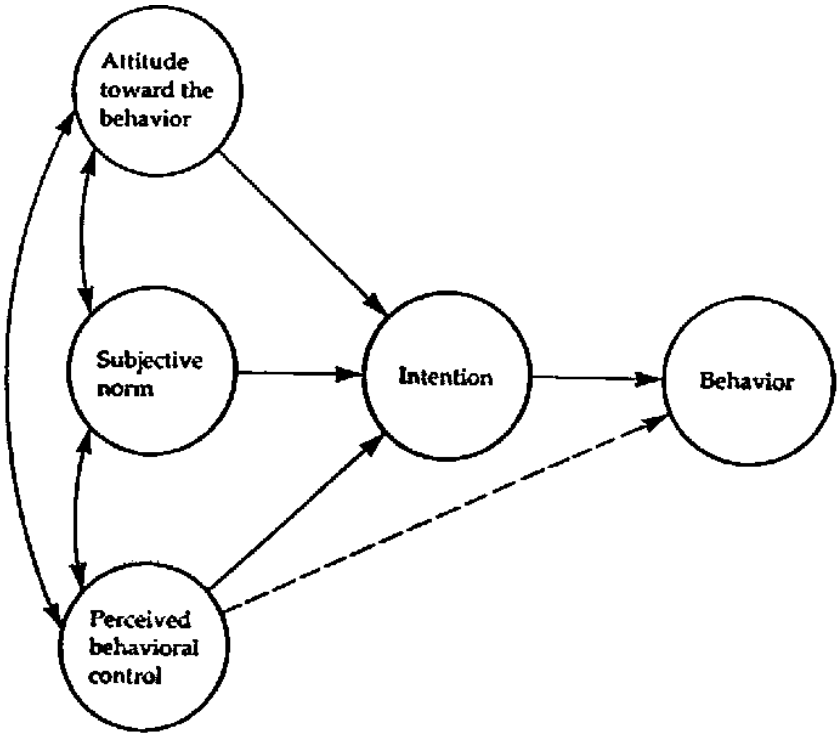


***Figure 2.2**: Theory of Planned Behavior from Ajzen (1991)*

In this study, attitude towards the behavior refers to attitude towards breast cancer among female nursing students in SHS, USM. Subjective norms in this study refers to their awareness of breast cancer towards female nursing students in SHS, USM. When they know the benefits of awareness towards breast cancer and they aware how to detect

early included sign and symptom of breast cancer so they will do one of the most simple technique with no cost, easily to practice such as Breast Self-Examination (BSE), so that would be achieved, hence they will have their own motivation to comply the practices as regularly. Perceived behavior control depends on the knowledge towards breast cancer among female nursing students in SHS, USM. These three determinants will be included in the survey questionnaire for this study. Hence, it can predict female nursing student's intention to have the knowledge and attitude towards breast cancer and how it will trigger and reflects their awareness towards breast cancer. Figure 2.3 shows the adapted version of Theory of Planned for this study.

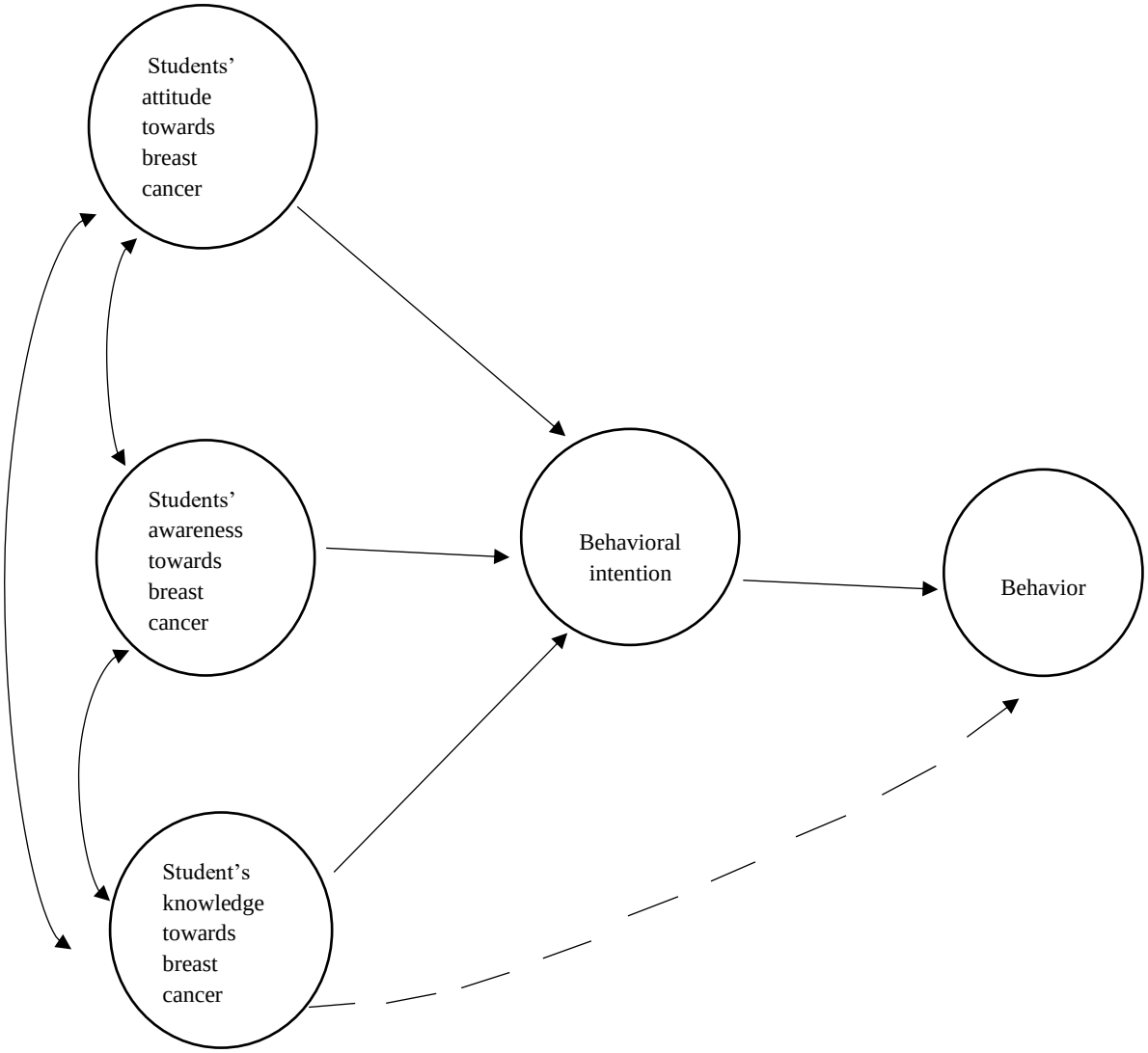


***Figure 2.3**: Theoretical Framework of the Study Adapted from Theory of Planned Behavior*

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methodology of the study in terms of research design, research location, research duration, study population, sampling and sample size calculation. It also describes the instrumentation, data collection and data analysis. The details of ethical consideration of the study as part of a requirement prior to the conduct of this study is also explained.

3.2 Research Design

The study employed a cross sectional, quantitative and descriptive study to explore the knowledge, attitude and awareness towards breast cancer among female nursing students in School of Health Sciences, Universiti Sains Malaysia.

3.3 Research Location

In this study, the location that had been chosen was in School of Health Campus, Universiti Sains Malaysia, Kubang Kerian, Kelantan.

3.4 Research Duration

In this study, the data collection was commenced from December 2019 till February 2020.

3.5 Study Population

The study population for this study were among female nursing students in School of Health Sciences, Universiti Sains Malaysia. The total number of female nursing students for academic session 2019/2020 was 262.

3.6 Sampling Criteria

When conducted a research study, certain inclusion and exclusion was considered in selecting an eligible participant from the population.

(a) Inclusion Criteria:

Subjects were selected as participants as follows:

- Female nursing students in School of Health Sciences, Universiti Sains Malaysia.
- In the Diploma and Degree of Nursing Programmes in School of Health Sciences, Universiti Sains Malaysia.
- Able to understand, speak and write in English
- Age between 18 to 32 years old (it is the recommended age to carry on this non-invasive screening test which could effectively to detect breast cancer among this population).

(b) Exclusion Criteria:

Subjects were not be selected as participants as follows:

- Students from other programmes in School of Health Sciences, Universiti Sains Malaysia
- Students who were unavailable during the period study

3.7 Sample Size Estimation

Regarding sample size estimation, the calculation for the sample size was made for each objective. Sample size that was used in this study that available for this population was 157 students from the total population is 262 students.

Regarding the sample size, it was determined by using Raosoft formula with a confidence level 95% and a margin of error that can be tolerated was 0.05 and this shown that the recommended sample size for female nursing students were 157 students. This sample size calculation software was used to calculate the sample size and to ensure that the accuracy finding would be obtained by avoiding sampling error during representatives and parameters of the sample.

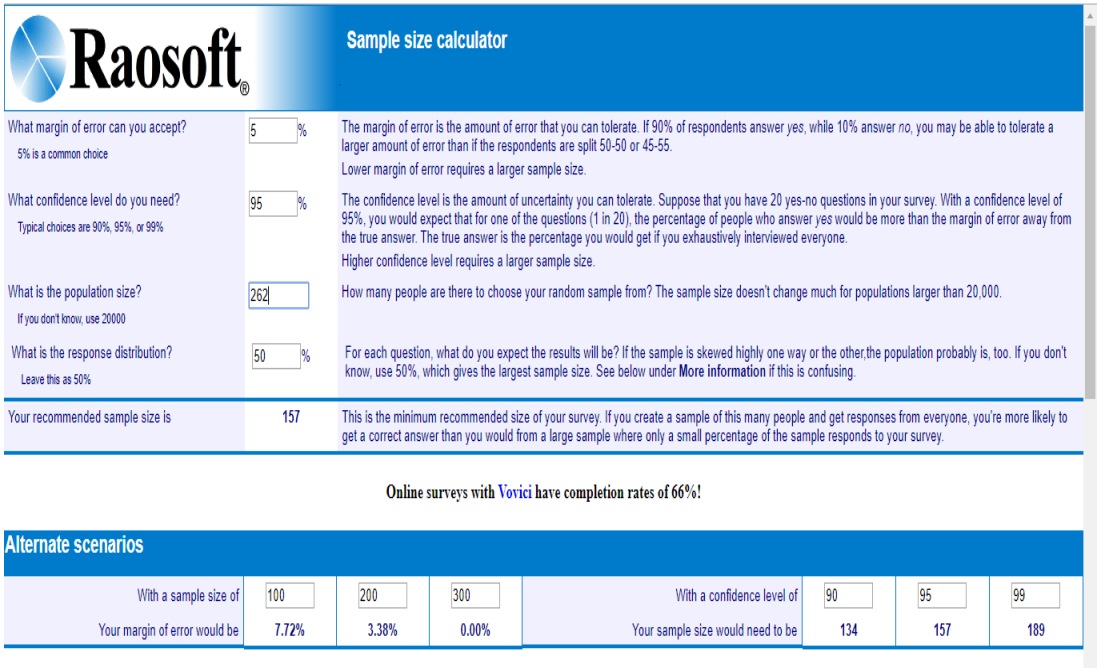


Figure 3.2: *Sample Size Calculation by Raosoft Software*

In addition, the sample size calculation included 20% drop out rates as follows:

= 157 ± drop out 20%

= 157 ± 31.4

= 157 ± 31

~ 188 of students

Therefore, out of 262 of the total nursing students, sample size of 157 nursing students were chosen. Considering 20% of drop out, the total sample size needed were 188 nursing students.

3.8 Sampling Method

Sampling was guided by the designing of the sampling criteria and a sampling frame. In this study, the total of female nursing students were 262 students in SHS. They were selected based on the inclusion and exclusion criteria of this study and selected to answer the questionnaire. The sampling method that used in this study was simple random sampling. Simple random sampling (also referred to as random sampling) is the purest

and the most straightforward probability sampling strategy. It is also the most popular method for choosing a sample among population for a wide range of purposes.

In this method, each member of population had chance to be selected as part of the sample as well as can avoid bias in this study. The Randomizer Website had been used to randomly allocate the participants. The female students from Year 1 up to Year 4 were randomly selected. The list name of the students was sorted according to their year of study. Hence, the name of the students to involve in this study were selected based on the number that had been randomized by the Randomizer Website.

3.9 Research Instruments

The instrumentation of this study comprised a set of self-administered questionnaire and has been validated by the experts which was adapted from Naqvi *et al.* (2018). The research instrument consisted of a specially developed Breast Cancer Inventory (BCI) questionnaire in English and Urdu language. However, the original author gave permission for the questionnaire that was translated into English language. It contained open and close-ended questions related to the socio-demographics information of the respondent, knowledge regarding breast cancer and physical self-screening, attitude and awareness regarding breast cancer and early detection techniques. Cronbach's alpha was measured as an indication of the internal consistency of the questionnaire. The value of Cronbach's alpha which obtained prior to this study was 0.7 and above considered will indicate good internal consistency. The permission to access for the questionnaire was granted from the author (Appendix B).

The questionnaire is divided into four sections; **Section A, Section B, Section C and Section D** as follows:

Section A:

This section consists of socio-demographic information which included of six items were age, educational status, marital status, ethnicity, history of breast cancer in family and history of breast cancer other than family. The age had been ticked by the students based on range age provided. Educational status was filled based on the year of study in university then for marital status included to identify if any of the student had been married or still single. For the ethnicity covered with Malay, Chinese, India and others. Not only that, the question for close family history, either they have a breast cancer the students must briefly answer 'yes' or 'no' and then related to the last question which history of breast cancer not coming from close family so the students was answered in the blank space provided. The researcher was modified a few of the item from demographic information which family income, number of children and occupation were terminated from the questionnaire due to question that assess for female nursing student information, not the other context included.

Section B:

This section consists of knowledge regarding breast cancer and physical self-screening. In this questionnaire consists of the knowledge component had scores for each of nine questions.

Responses were graded in terms of scores (0 or 1). If each of the question is correctly answer considered as (yes), but for incorrect answer considered as (no) and I don't know too. The maximum obtainable score is 21 and the least was score 11.

Section C:

This section consists of attitude regarding breast cancer and early detection techniques. There were seven different questions had been asked. Based on original author, there is no specific score for this section. The author only asked questions regarding the attitude regarding breast cancer and early detection techniques, either their attitude was positive or negative based on specific questions.

Section D:

This section consists of six questions of awareness regarding breast cancer and early detection techniques. The respondent was asked regarding to their awareness towards breast cancer and towards early detection techniques. Based on original author, there was no specific score for this section. The author only asked questions either they aware or not aware based on specific questions. Hence, all the gathered data then were analysed by using Statistical Package for Services Solution (SPSS) version 24.

3.9.1 Translation of Instrument

The research instrument for a study of awareness, knowledge and attitude towards breast cancer, breast screening and early detection techniques among women in Pakistan consisted of a specially developed Breast Cancer Inventory (BCI) questionnaire in English and Urdu language, but the author gave me the questionnaire was translated into English (Naqvi *et al.* 2018). The validation by experts had been made by the author. Since the respondents chosen for this study were from nursing students, and the inclusion criteria included that the respondent must be able to understand, speak and write in English, due to the background of the student which is well educated and can understand in simple English in proper way. So, the translation of instrument is not required. Thus, the questionnaire was distributed is written in English.