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Factors associated with breast self-examination practices among junior and senior nursing students in baguio city

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ABSTRACT

Background/Objectives: Breast cancer appears to be a disease of both the developing and developed worlds. It is the leading type of cancer in women. Hence, screening for early detection and diagnosis of diseases and health conditions is an important public health principle. Breast Self Examination (BSE) is a process whereby women examine their breasts regularly to detect any abnormal swelling or lumps in order to seek prompt medical attention. The main aim of the study was to determine the factors associated with breast self-examination among medical allied students in selected universities of Baguio City. Specifically, it sought to investigate the knowledge, attitude and practices of breast self-examination among junior and senior nursing students in Baguio City.

Methods: A descriptive cross-sectional study was conducted in 3 selected universities in Baguio City using a standard survey questionnaire from September 2-26, 2009. A questionnaire comprising four parts; socio-demographic, knowledge, attitudes, and practices were utilized to gather data.

Results: The majority of respondents were young catholic females with no history of breast cancer in the family who had heard about BSE and had information on BSE. The knowledge of the majority on BSE is generally high and above average. Out of seven questions, 76% of the respondents scored average and above average with 6% having perfect score. Only 24% got a score below the mean. On the other hand, the subjects' practice on BSE is not done on a consistent basis and with correct technique. Thus, it needs improvement even though they had the knowledge of BSE and its benefits. The practicing of BSE by student nurses calls for improvement as they will be the front line personnel educating people who need to perform BSE.

Conclusion: The effectiveness of BSE depends on education, compliance, and outreach among women and on conscientious and regular self-examination; therefore, BSE should be thoroughly discussed and demonstrated in the nursing curriculum.

INTRODUCTION

Background of the study

Recent global cancer statistics indicate rising incidence of breast cancer making it the commonest cancer not only in developed countries but in developing world too (Puri, Mangat, Bhatia, Kalia, Sehgal & Kaur, 2009). Number of breast cancer cases is estimated to have reached 1.2 million worldwide. Globally every 3 minutes a woman is diagnosed with breast cancer amounting to 1 million annually (Parkin, Bray, Devesa, 2001). The incidence could go up by 50% i.e. 1.5 million by 2020 said world cancer report 2008.The report also points that breast cancer

accounts for 16% of cancer deaths globally (Parkin, Bray, Ferlay, Pisani, 2002).

Filipino women are facing the highest risk of breast cancer in Southeast Asia and this disease will continue to rise by as much as 5 percent annually. In 2005, the Philippine Cancer Society revealed that 25 percent of the female population in the country had been suffering from breast cancer. Every Filipino woman faces a 10 percent risk of getting it and some 6,360 breast cancer patients die each year in the country, making it the leading cause of death among Filipino women (Alegre, Ace, Ramo, Lyn, 2007).

The three screening methods recommended for breast cancer includes breast self-examination (BSE), clinical breast examination (CBE), and mammography. Mammography is the method of choice in other side of globe but in developing world its use is limited (Devi, Singh, Kumar, Walia, 1998) owing to high cost and its abysmal awareness in masses. Clinical breast examination performed by a physician is also expensive. A combination of CBE and mammography is used frequently, although most women worldwide are not able to undergo regular CBE and mammography because healthcare insurance does not include everyone and the availability of health care is limited in many countries, especially in third world countries like the Philippines. Under these circumstances breast self examination (BSE) is an appropriate, convenient and cost effective method that can be done by every woman themselves with little training (Rutledge, Barsevick, Knobf, Bookbinder, 2001). The researcher believes BSE also seems to be an important viable optional substitute available in rural areas, where access to CBE and mammograms is difficult and might still detect breast cancer early enough for treatment which can be offered to prolong women's lives and reduce suffering.

Several studies, based on breast cancer patient's retrospective self-report on their practices of the exam, have established that a positive association exists between performance of the exam and early detection of breast cancer (Philip, Harris, Flaherty, Joslin, 1986). There is also evidence that most of the early breast tumors are self-discovered and that the majority of early self-discoveries are by BSE performers (Smith, Francis, Polissar, 1980).

The Canadian Cancer Society (Canadian Cancer Society, 2005) and the American Cancer Society (American Cancer Society, 2005) continue to advise all women over 20 years old to perform regular BSE. By these means, women become familiar with the normal appearance and feel of their breasts and are better able to recognize changes and report them to their doctor for further professional evaluation (Anderson, Braun, Carlson, Gralow, Lagios, Lehman, Schwartsmann, Vargas, 2003).

Although the usefulness of BSE has been seriously questioned in the past decade, after influential organizations such as CTFPHC downgraded their BSE recommendation citing evidence of no benefit and much evidence of harm in 2001, recent publications highlight its potential benefits (Anyanwu, 2008; Lepecka-Klusek, Jakiel, Krasuska, & Stanisławek, 2007; Tara, Agrawal, & Agrawal, 2008). Therefore, policy makers and healthcare professionals are cautioned that a prudent approach to BSE promotion as an early and cost effective cancer screening measure is best.

Despite for the fact that breast cancer is one of the few cancers which is able to be detected in its preclinical stage, BSE and mammography are still only practiced by a low proportion of the population in our country, and this irregularity forms the basis of this study. Various studies shows that breast cancer awareness profile at community level is largely unrepresented. Hence, the present study is designed to gather information pertaining to breast self-exam and related variables, so as to plan future interventions in this field. The aim of this study is to evaluate the health belief model about BSE in a group of nursing students in Baguio City.

Problem, Objective and Research Questions

The main aim of the study is to determine the knowledge, behavior and attitudes of selected junior and senior medical allied students regarding breast self-examination. The research seeks to specifically answer the following questions:

1. What is the level of knowledge, attitudes and practices of junior and senior nursing students regarding breast self examination?
2. What stage of transtheoretical model of change (TMC) is most prevalent among the sample population?
3. What are the relationships between and among samples' profile, knowledge, TMC, variables of human belief model (HBM), and practices?

Research Framework

Breast cancer is a kind of tumor that develops in the cell of the person's breast. Breast self-examination is a procedure performed by individual to physically and visually examine oneself for any changes in the breast and underarm of the body. The observance of development of a lump, discharge other than breast milk, swelling of the breast, skin irritation or dimpling, and nipple abnormalities must prompt one to consult a specialist. Physicians however stressed that though BSE is a tool for early detection of breast cancer, it is not a substitute for clinical breast examination and mammography.

The success of BSE in finding masses in breast tissue depends largely on the thoroughness of the examination. For example, examinations must be performed regularly (monthly) using correct inspection and palpation techniques (standing in front of a mirror and in the supine position) (Khatib & Modjtabai, 2006) and the best time to perform a breast self-exam (BSE) is when the breasts are not tender or swollen. Because many women experience tenderness and lumpiness in their breasts prior to menstruation, breast self-exams should be performed after menses. Many health care providers advise women to perform breast self-examination regularly every month, on the day following their menstrual period (American Cancer Society, 2005).

Studies of knowledge, attitudes, and behaviors regarding BSE have demonstrated that women believe in the importance of BSE (Aslan, Gurkan, Selimen, & Issever, 2002; Odusanya, 2001). Despite the fact that 54%–62% of women perform BSE, only 11%–46% perform it regularly (Aslan et al.; Budden, 1998; Cavdar et al., 2007; Fung, 1998; Odusanya & Tayo, 2001; Persson, Svensson, & Ek, 1997). Therefore, women aged 20 or older should be trained in BSE. The best time to perform a breast self-exam (BSE) is when the breasts are not tender or swollen. Because many women experience tenderness and lumpiness in their breasts prior to menstruation, breast self-exams should be performed after menses. Many health care providers advise women to perform breast self-examination regularly every month, 2 days after their menstruation (Canadian Cancer Society, 2005).

In the United States it was reported that last 2002 more than 1600 men were diagnosed with breast cancer. By comparison, over 200,000 women will receive the same diagnosis. An estimated 500 men will die from breast cancer compared with over 40,000 women (Jemal A, Thomas A, Murray T, Thun M. Cancer statistics 2002). These facts show the lower incidence of breast cancer in men and its comparable higher cancer specific death rate. However, unlike breast cancer in women, where rates have stabilized and seem to be decreasing, the incidence in men younger than 40 seem to be substantially increasing (National Cancer Institute, 2001).

Breast cancer risk factors are very similar in men and women alike. Risk factors such as a strong family history of breast cancer, increasing age, significant alcohol use, being overweight, and getting little or no exercise are among the most important ones. Particularly a family history of breast cancer in the family of each parent would be a good indicator that a man should look closely at the possibility of breast cancer, and look into information about breast cancer in men (American Cancer Society, 2005). Breast cancer in men usually presents as a unilateral (occurring on one side) lump or enlargement in breast tissue. Locally advanced presentations are slightly more common in men because the condition is often not diagnosed promptly (American Cancer Society, 2005).

Nurses play a unique role in alerting the community to the early detection of breast cancer as they usually have the closest contacts with female patients (Chong, Krishnan, Hong, Swash, 2002). Nurses can use their knowledge of the health services to educate women about breast cancer risk factors and available breast cancer screening services and practices (Leslie NS, 1995).

The Health Belief Model (HBM) was one of the first models to adapt theories from the behavioral sciences in order to examine health related problems. It is still one of the most widely recognized and used models in health behavior applications. This model was originally introduced by a group of psychologists in the 1950's to help explain why people would or would not use available preventive services, such as chest x-rays for tuberculosis screening and immunizations for influenza (Health Education Behavior Models and Theories- A Review of the Literature- Part I, n.d.). Many investigators studying beliefs related to cancer screening practices have used the HBM as a theoretical framework to study

breast cancer screening behavior such as BSE or mammography screening (Wu, Yu, 2003). The HBM has frequently been applied to breast cancer screening (Champion, Scott, 1997). The model stipulates that health-related behavior is influenced by a person's perception of the threat posed by a health problem and by the value associated with his or her action to reduce that threat (Petro-Nustas, Mikhail, 2002).

According to the HBM, a woman who perceives that she is susceptible to breast cancer and that breast cancer is a serious disease would be more likely to perform regular breast examinations. Similarly, a woman who perceives more benefits from and fewer barriers to BSE would be more likely to practice BSE. A woman who has an internal cue (body perception) or who has been exposed to an external cue (e.g., the positive influence of a health care provider or the media) would also more readily adopt BSE, as would a woman who wants to improve her health and who is confident of positive results (Champion, 1993). The HBM consists of 6 concepts: (1) perceived susceptibility to an illness, (2) perceived seriousness of the illness, (3) perceived benefits for the presumed action, (4) perceived barriers for the presumed action, (5) confidence in one's ability, and (6) health motivation. Behavior is also a result of the belief that a certain action will benefit the individual and that this benefit will outweigh any barriers (Petro-Nustas, Mikhail, 2002). The investigation of attitudinal components of health-related behavior has been important. If attitudes related to health behavior can be identified, health protection interventions for attitudinal change can be developed, and an increase in desirable health behavior would result (Nystrom, 2003).

Transtheoretical model of change is an integrative model of behavioral change. The model describes how individual accepts new idea or paradigm. There are six stages described: precontemplation (no intention to take action in the next six months), contemplation (intends to take action in the next six months), preparation (intends to take action in the next 30 days with some behavioral steps in this direction), action (has change overt behavior for less than 6 months), maintenance (has changes behavior for more than 6 months), and termination (behavior will never return, there is confidence that there is no relapse) (Oakes, 2005). The knowledge on the stage of change can reflect proper action that should be taken to make health promotion appropriate.

METHODS

This study is a descriptive, cross-sectional study design through survey. The primary purpose of the study is to characterize the sample population as to profile, state of knowledge, attitudes, and practices regarding breast self examination. The study was conducted from September 2 to September 26, 2009 in Baguio City. Both male and female junior and senior nursing students in selected universities in Baguio City namely, Saint Louis University, University of the Cordilleras and National University was selected to participate in the study by simple random sampling method.

A questionnaire comprising four parts; socio-demographic, knowledge, attitudes, and practices were utilized to gather data. The participant's age, sex, religion, ethnicities, family history of breast cancer were obtained in the socio-demographic part. Seven questions regarding breast self examination was asked in the knowledge part. BSE knowledge about who shall perform BSE, appropriate age to start regular BSE, frequency of BSE, knowledge about appropriate time for BSE and knowledge on BSE proper position and procedure of BSE was assessed through multiple choice questions. In the attitude section, the transtheoretical model of change and health belief model was considered. Six choices were provided to determine the stage of behavioral change regarding BSE performance. A total of twelve questions, two questions measuring perceived susceptibility to an illness, perceived seriousness of the illness, perceived benefits for the presumed action, perceived barriers for the presumed action, confidence in one's ability, and health motivation consideration were asked for the HBM. Eight questions were listed on the practice part. Socio-demographic, knowledge and attitude portion of the questionnaire were adapted in the study entitled "How do nurses and teachers perform breast-examination: are they reliable source of information?". The TMC of the attitude part was adopted as developed by Prochaska and DiClementi (1992) and the HBM from Champion (1993) as used in the study "Correlates of Breast Self-Examination: Application of the Transtheoretical Model of Change

and the Health Belief Model". The validity and reliability of the questionnaire was already established by prior studies.

Knowledge and practice section of the questionnaire was scored. One point was given for correct answer and zero for wrong answer. The total score was categorized to poor or good based on median of the full mark. In the attitude section, four or three points were given to positive attitude depending on degree, two points for neutral, and one or zero for negative attitude depending on degree. Data that were gathered from the questionnaire were tallied and analyzed using the WHO-CDC Epidemiologic Information (EPI Info) statistical software version 3.5.1.

Statistical data were evaluated by descriptive statistics, factor analysis, chi-squared and t-tests. The results were expressed as mean ± standard deviation (SD), and differences between the groups were considered significant if the p value was less than 0.05.

RESULTS

Demographic

The total number of questionnaire given out was six hundred (600), but four hundred sixteen (416) were found suitable for analysis after sifting and editing. The highest proportion of the respondents, 133 (32%) were in the age of 18 years, 111 (26.70%) were 19 years old respectively. Most of the respondents, 317 (76.20%) were females while 99 (23.80%) were males. Majority of the respondents are predominantly Catholic 303 (73.20%), 50 (12.10%) are Born-again Christians, 45 (10.90%) indicated others, 10 (2.40%) are Inglesia ni Cristo, 5 (1.20%) are Jehovah's Witnesses while only 1 (0.20%) is a Muslim. Two hundred eleven (50.70%) of the respondents are non-cordilleran while 205 (49.30%) are cordilleran. Majority of the respondents, 373 (89.70%) has no history of breast cancer in their families while a few 43 (10.30%) has a history of breast cancer in their families. Most of the respondents, 379 (91.10%) had heard about BSE at one time or another whereas 37 (8.90%) had not heard about breast self-exam. Three hundred fifty seven (85.80%) of the respondents had information about BSE while 59 (14.20%) had no information about BSE.

Knowledge on Breast Self-Examination

Table 1 and *Fig.* 1 shows respondents' knowledge of breast self-examination measured through a seven item questionnaire. A high level of correct answers was observed on five of the items with a percentage of correctness ranging from 64.60% to as high as 88.90%. These are items one, two, three, five, and seven. The item with the most correct responses was item two (Breast Self-examination should be started after age 20) followed by item three (Breast Self-Examination should be done regularly every month). These two items are above the 80 percentile mark. Items one, five, and seven scored relatively high. These items situated at the mid to upper 60 percentile mark are as follows 'Breast Self-Examination is done by inspection and palpitation techniques', 'Both male and female should perform Breast Self-Examination', and 'Women with irregular menstruation should perform Breast Self-Examination at a specific day each month' tallying 68.80%, 65.80%, and 64.60% correct answers respectively.

Table 1. ***Knowledge on Breast Self-Examination***

		Correct		Incorrect	
		n	%	n	%
1.	Both male and female should perform Breast Self-Examination.	273	65.80	142	34.20
2.	Breast Self-Examination should be started after age 20.	369	88.90	46	11.10
3.	Breast Self-Examination should be done regularly every month.	334	80.50	81	19.50
4.	Women with regular menstruation should perform Breast Self-Examination within two days after menstruation.	143	34.60	270	65.40
5.	Women with irregular menstruation should perform Breast Self-Examination at specific day each month.	266	64.60	146	35.50
6.	Breast Self-Examination is done by standing and lying position.	207	49.90	208	50.10
7.	Breast Self-Examination is done by inspection and palpation techniques	285	68.80	129	31.20

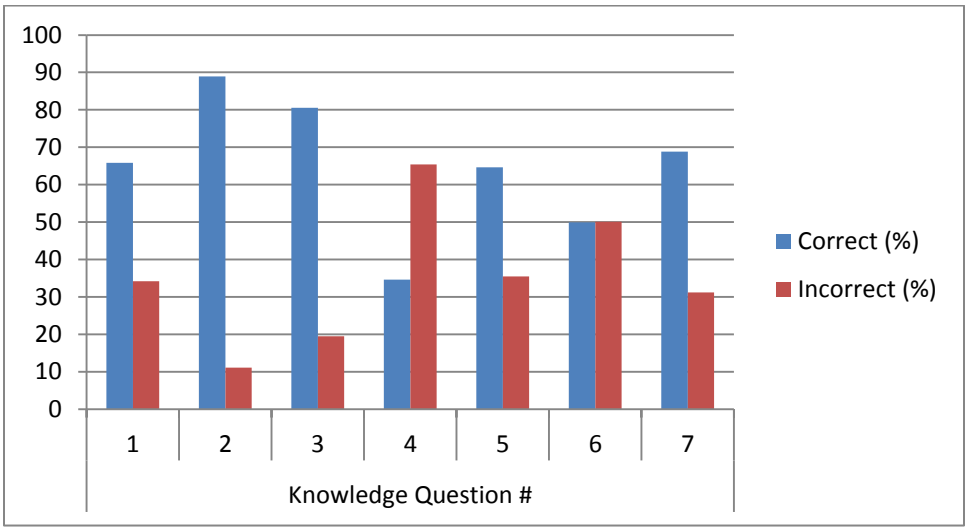


Figure 1. **Knowledge on Breast Self-Examination**

The respondents scored low on the fourth item and relatively low on the sixth item which are 'women with regular menstruation should perform Breast Self-Examination within two days after menstruation' and 'Breast Self-Examination is done by standing and lying position' with only 34.60% and 49.90% correct answers respectively. *Table* 2 and *Fig.* 2 shows that majority of the respondents said that one week after menstruation is the most appropriate time to perform BSE this is due to the fact that community health information disseminates such information that BSE be perform within a week after menstruation. *Table* 3 and *Fig.* 3 shows the responses on the position when performing BSE. Although percentage of those who answered correct is below the mean of the total respondents, majority answered the correct answer.

Table 2 ***Knowledge on when to perform BSE***

Women with regular menstruation should perform Breast Self-Examination within	**Frequency**	**Percent**
Two days before menstruation	82	19.9%
Two days after menstruation	143	34.6%
One week after menstruation	173	41.9%
Two weeks after menstruation	15	3.6%
Total	413	100.0%

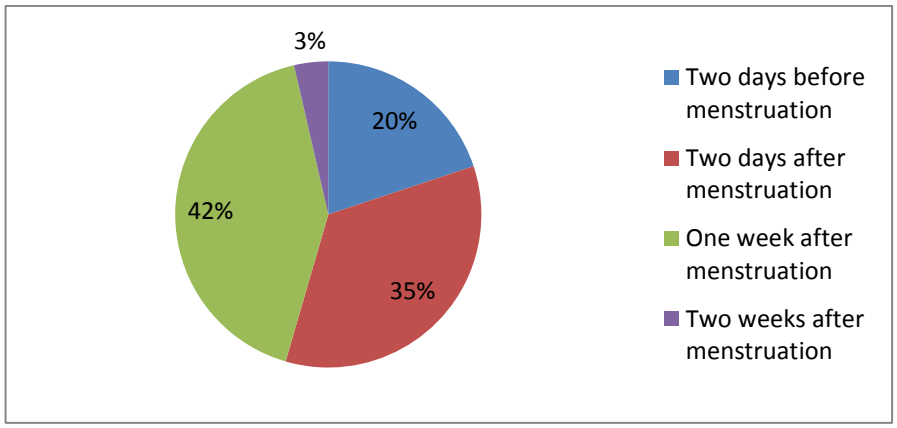


***Figure 2*. Knowledge on when to perform BSE**

Table 3 *Knowledge on the proper position to perform BSE*

Breast Self-Examination is done by	**Frequency**	**Percent**
Standing position.	131	31.6%
Lying position.	72	17.3%
Sitting position.	5	1.2%
Standing and lying position.	207	49.9%
Total	415	100.0%

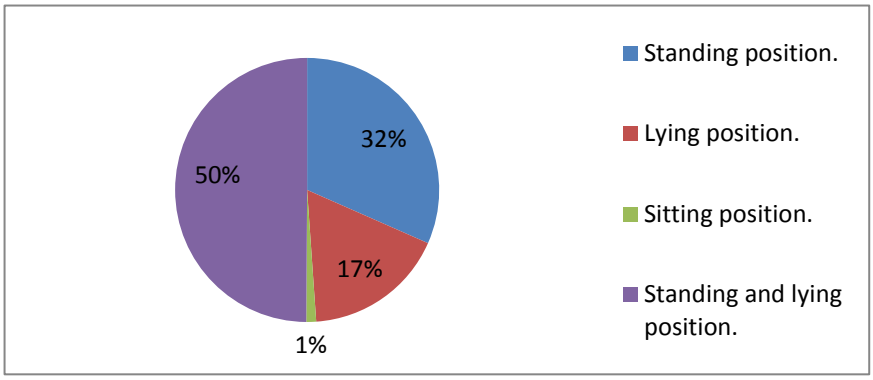


***Figure 3*. Knowledge on the proper position to perform BSE**

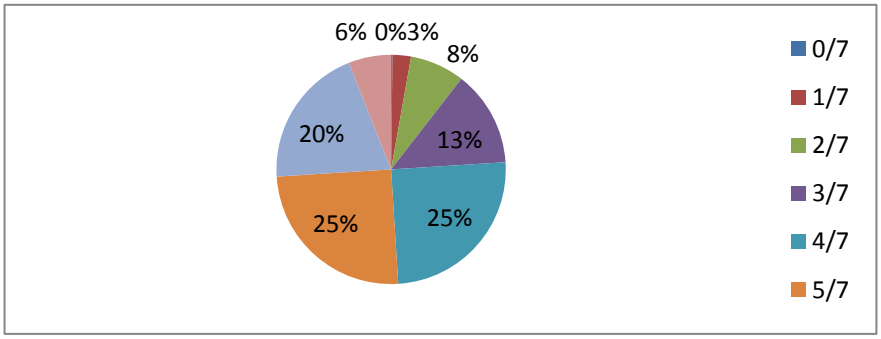


***Figure* 4. Score of the Respondent in Knowledge**

Base on the total score of the nursing student, the knowledge of the majority on BSE is generally high and above average. Out of seven questions, 76% of the respondents scored average and above average with 6% having perfect score. Only 24% got a score below the mean. This reflects the effectiveness of the education received by the student. This is validated by high positive response on questions of whether respondents have heard about BSE (91.10%) and whether respondents have any information about BSE (85.80%). No significant association was observed between the knowledge scores and age (p=0.8059), religion (p=0.8059), ethnicity (p=0.3326) and family history of breast cancer (p=0.7762). Significant association however was observed between knowledge score and sex (p=0.0117), heard about BSE (p=0.0022), and any information about BSE (p=0.0029). Females have higher score than males. Knowledge about BSE is directly related to having heard about BSE and having any information about BSE.

Attitude towards BSE

Transtheoretical Model of Change of Female Respondents

Most of the female participants (39%) reported that the preparation stage (intended to change their behavior within the next month) of the TMC best described their behavior, with approximately 19% in the action stage (changed their behavior during the previous six months); 13% in the contemplative stage (seriously thinking about changing their behavior within the next six months); 12% in the maintenance stage(continued to work toward a healthy lifestyle), 9% in the precontemplative stage (did not intend to change behavior at any time in the foreseeable future), and 8% in the termination stage (maintaining the new behavior was no longer a difficulty). Female respondents' religion (p=0.7430), ethnicity (p=0.2458), family history of breast cancer (p=0.9245), and knowledge score (p=0.2251) show no significant relationship with TMC. Age (p=0.0001), heard about BSE (p=0.0441), and any information about BSE (p=0.0083) statistically show significant association with female respondents' TMC.

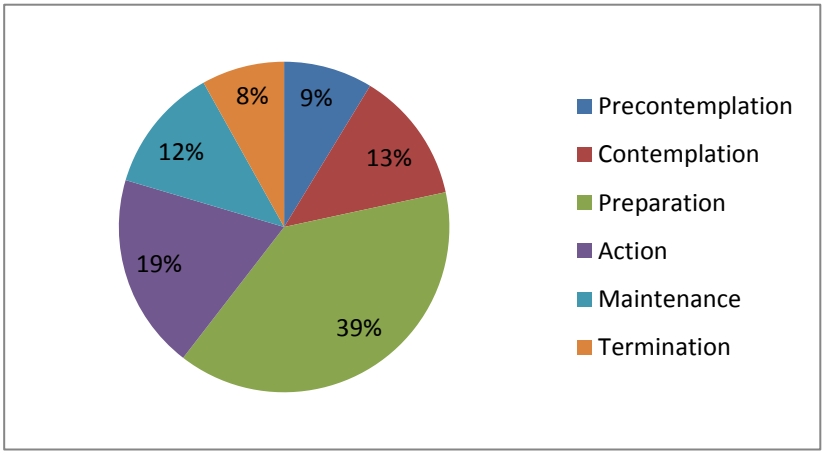


***Figure 5*. TMC of Female Respondents**

Transtheoretical Model of Change of Male Respondents

As presented in *Fig.* 6, most of the male participants (39%) reported that the precontemplative stage (did not intend to change behavior at any time in the foreseeable future) of the TMC best described their behavior, with approximately 23% in the preparation stage (intended to change their behavior within the next month), 16% in the contemplative stage (seriously thinking about changing their behavior within the next six months), 14 % in the action stage (changed their behavior during the previous six months),6% in the maintenance stage (continued to work toward a healthy lifestyle), and 3% in the termination stage (maintaining the new behavior was

no longer a difficulty) (*Fig*. 6). No significant correlation was observed between male respondents' TMC and age (p=0.0554), religion (p=0.2926), ethnicity (p=0.1273), family history of breast cancer (p=0.8140), heard about BSE (p=0.0667), and any information about BSE (p=0.2301) and knowledge score (p=0.6775).

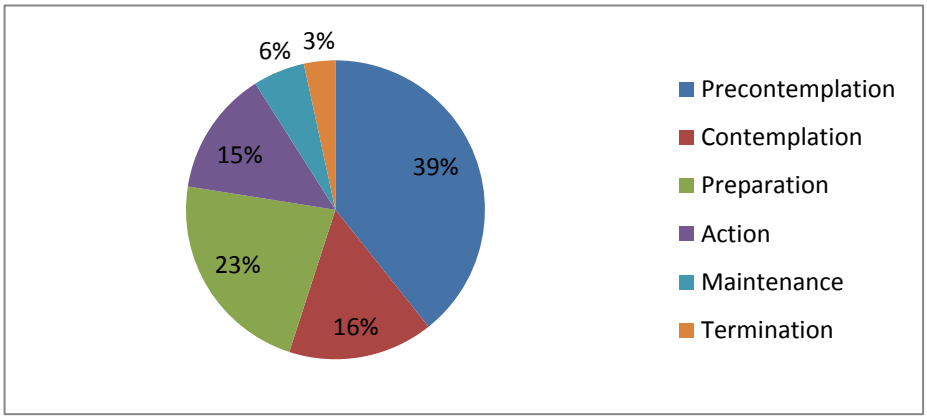
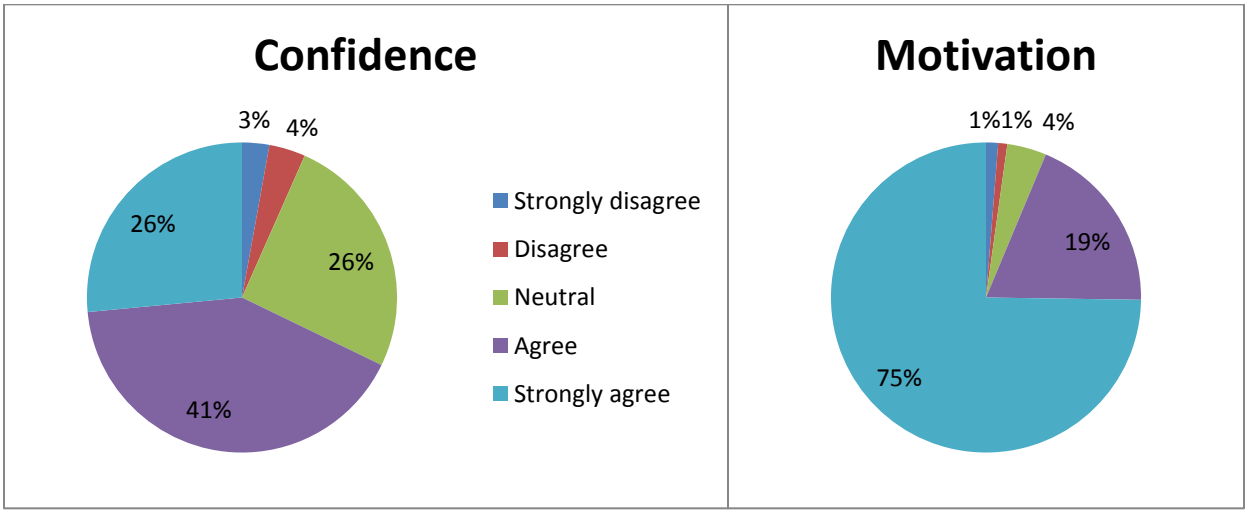


***Figure 6*. TMC of Male Respondents**

Participants' Health Beliefs

As shown in *Fig*. 7 almost one third of the female respondents perceived confidence in performing BSE, motivation to perform BSE, perceived seriousness of breast cancer, and perceived benefits in performing BSE were positive. Perceived susceptibility to breast cancer gathered more than three fourth negative responses and perceived barriers in performing BSE rates only one eight.

Fig. 8 shows the health beliefs of male respondents. Generally the results are parallel with the responses of the female respondents. It is apparent that one fourth of the male respondents are motivated to perform BSE. Susceptibility to breast cancer as perceived by male respondents is also low covering only less than one fourth of the male respondents. Perceived barrier in BSE performance is also low.



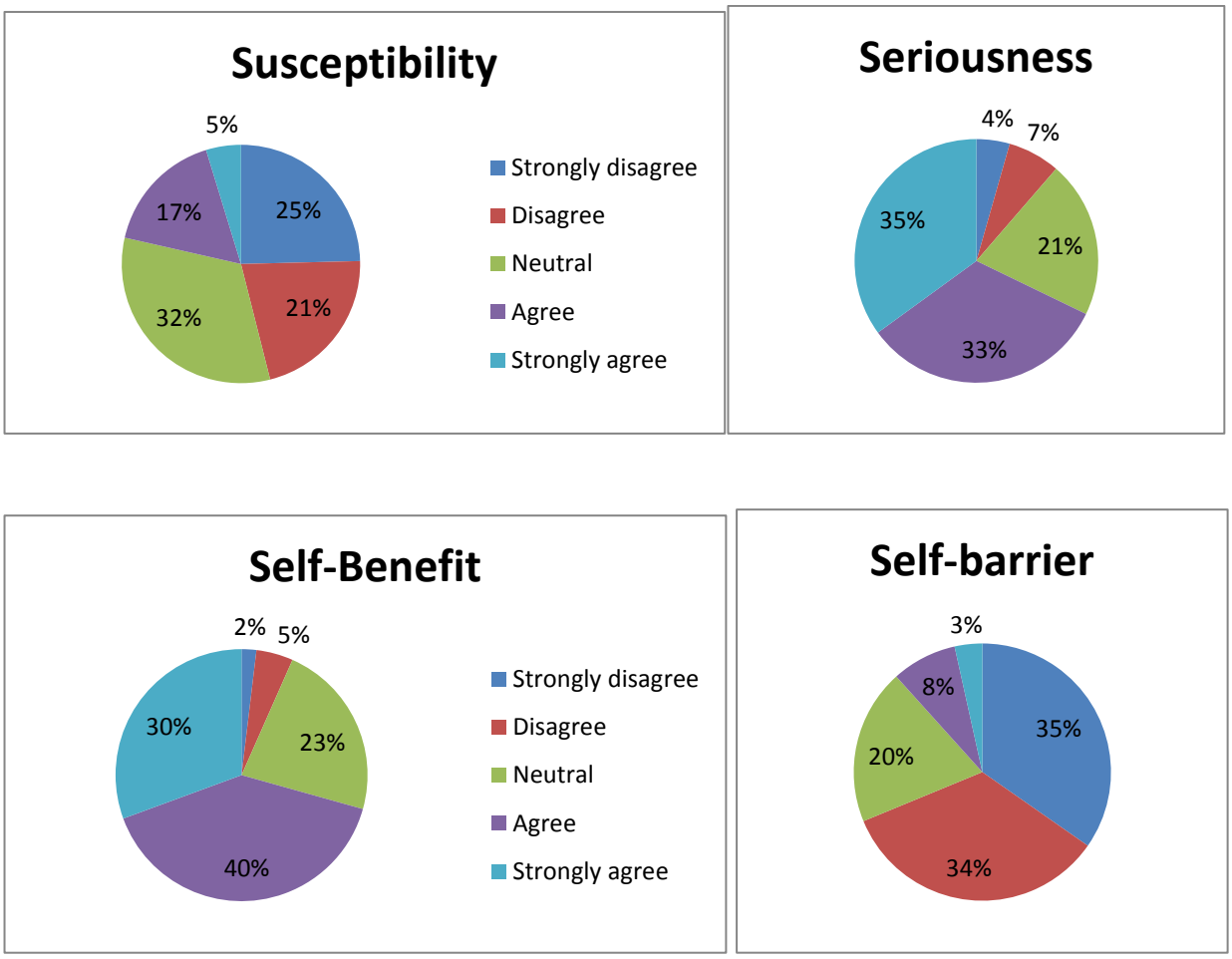


***Figure 7*. HBM of Female Respondents**



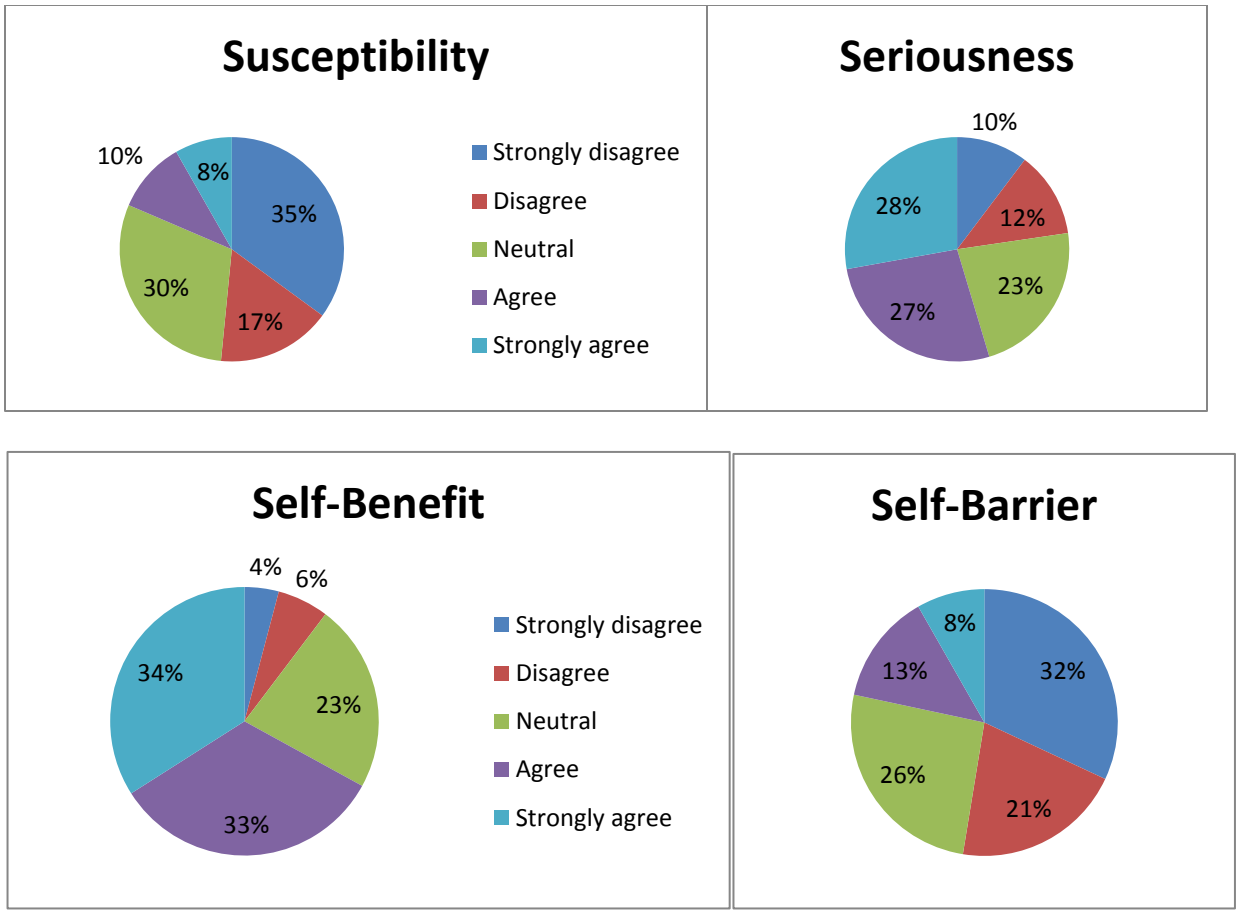


Figure 8. **HBM of Male Respondents**

Practice of BSE

Two thirds of the respondents are performing BSE. Religion (p=0.0331), having heard about BSE (p=0.0059), having any information about BSE (p=0.0000), and knowledge score (p= 0.0049) are statistically correlated to practice of BSE. Knowledge and awareness is an important factor that contributes to practice of BSE. *Fig.* 10 and 11 show the reasons for performing BSE and reasons for not performing BSE.

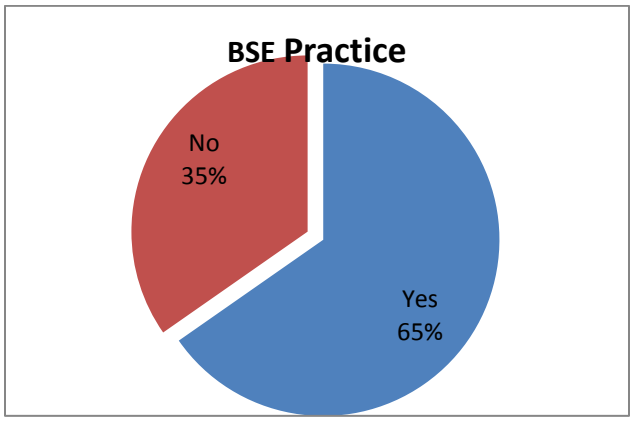


Figure 9. **Respondents' Practice of BSE**

Table 4 shows the correctness of respondents' practice of BSE. Only half of the respondents perform the correct technique and position in the practice of BSE. One fourth of the respondents started performing BSE after the age of 19 years. Most of the respondents practicing BSE started before the age of 18 years. Only one fifth of those practicing BSE perform it regularly amounting to 10 to 12 times a year, majority of them perform BSE only one to three times a year. It is also apparent that the time of BSE performance is practice by only one third of those practicing BSE. Most perform BSE one week after menstruation in congruence to the knowledge of the respondents. It shows that what people know is what people practice.

Table 4.: ***BSE Practices Responses***

	Correct		Incorrect	
	n	**%**	**n**	**%**
When did you start Breast Self-Examination	61	24.80	185	75.20
How often do you do Breast Self-Examination	51	20.90	193	89.10
When do you perform Breast Self-Examination	75	30.86	168	69.15
Which examination technique should be applied during Breast Self-Examination	121	49.59	123	50.41
What will be the position of the body while performing Breast Self-Examination	130	52.85	126	47.15

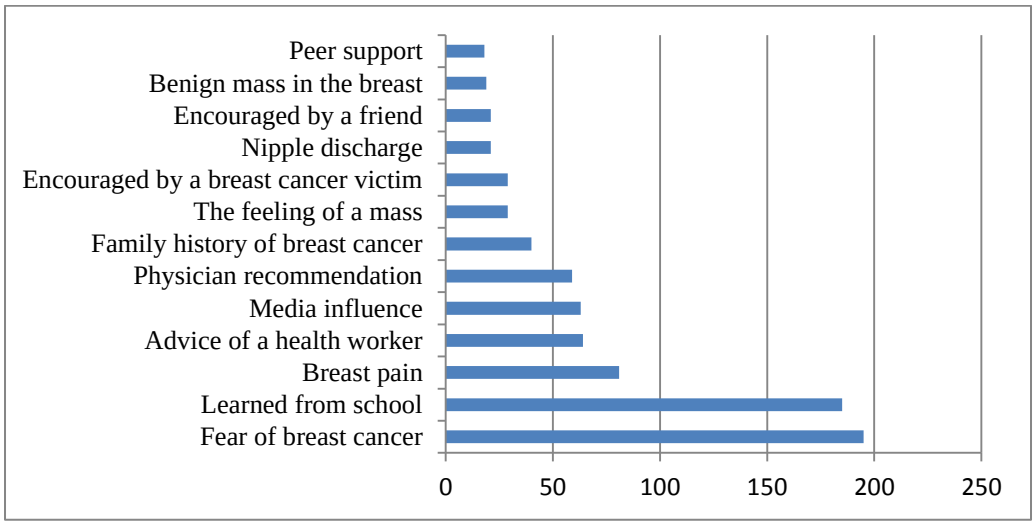


Figure 10. **Reasons for Performing BSE**

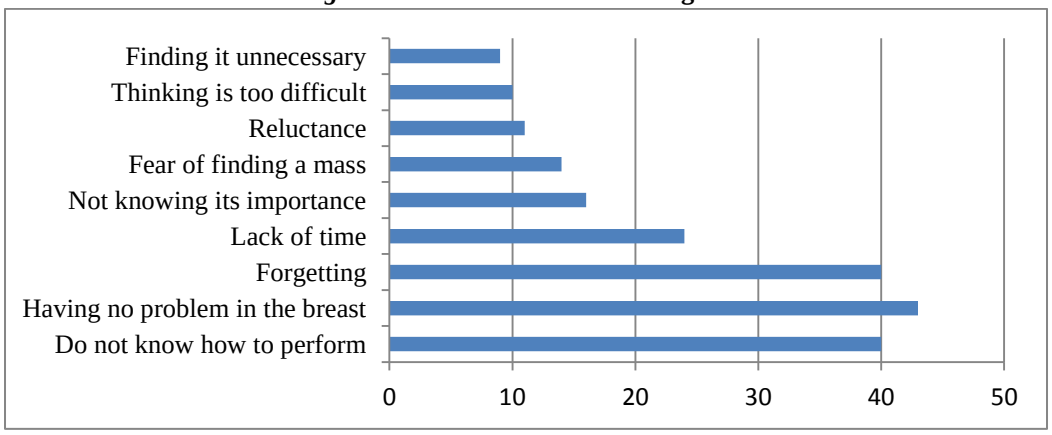


Figure 11. **Reasons for Not Performing BSE**

DISCUSSION

Preliminary studies have demonstrated that nurses are quite knowledgeable about BSE and that this information generally is acquired through written media (Budden, 1995; Uzun, Karabulut, & Karaman, 2003). Budden (1999) investigated BSE-related knowledge, attitudes, and practices of 71 first-year nursing students in Australia and found that 38% knew the correct time to perform BSE and 62% knew correct technique. The current study was an in-depth evaluation of participants' BSE knowledge. In studies, attitudes related to breast cancer and BSE have shown that women attach importance to breast cancer and believe BSE should be performed regularly; however, the same subjects did not believe they were at risk for breast cancer (Budden, 1995, 1999; Odusanya & Tayo, 2001). The participants in the current study also believed that BSE plays an important role in the early diagnosis of breast cancer. Despite the fact that they worry about breast cancer and perceive their risk of getting breast cancer as high, a significant portion of participants did not perform BSE or did not perform it regularly. The findings are similar to those in the studies cited previously.

Several studies showed that students at nursing and midwifery schools start performing BSE at younger ages (Budden, 1999) and 56%–99% perform BSE; still, the percentages of those performing BSE regularly and at the correct time in the menstrual cycle are very low (11%–46%) (Bailey, 2000; Budden 1999). Budden (1999) noted that percentages of students performing BSE increased with the length of training. The current study also demonstrated that nursing students start performing BSE at younger ages.

However, the results also showed that the students generally do not perform the examination in the correct position (50%), at the correct time in the menstrual cycle (31%) or time of the month, or at regular intervals (21%). The findings correlate with those of previously published studies (Bailey; Budden, 1999). The most influential factors relating to initiation of performance of BSE by students were media, academician nurses, a history of breast cancer in their families, encouragement from peers, and recommendations by physicians (Budden, 1995). However, the current study findings indicate that fear of breast cancer (73%) and school was the most important factor for initiation of BSE. Pain in the breast, advice of a health worker, media influence, and physician recommendation were other influential factors. The findings clearly demonstrate that students are positively affected by the information gained from nursing training.

Forgetfulness is the most important reason for not performing BSE. Furthermore, the fear of finding a mass, not having self-confidence, not being knowledgeable about how to perform BSE, laziness, and the absence of breast cancer in the family were the other reasons students refrain from the procedure (Budden, 1995). The main reasons for not performing BSE in the current study also were having no problem in the breast (30%), not knowing how to perform the examination (28%), forgetfulness (28%), and lack of time (16%).

The reasons for undertaking this investigation were that no information existed and no accurate data were previously published about Baguio nursing students' knowledge, attitudes, and behaviors about BSE. The Baguio Health Department has asked nurses to be primarily responsible for educating the public about breast cancer and BSE; therefore, documenting nurses' baseline knowledge is important to identify where improvements can be made in the educational process to better prepare them to educate women**.** For one thing, student nurses are not comfortable with performing BSE on themselves (only 25% correct about when to start, only 20% correct about how often, and only 30% correct in how often to perform), then they will have problems in instructing others how to do it – especially in a one on one setting. Nurses need to have the knowledge and comfort level as front line workers. The finding in the current study that barriers to performing BSE were associated with a lower stage of change is also supported by Champion's (1994) study. The current study found that students, who have no problem with breast, do not know how to perform and forgetting, or too time-consuming were in a lower stage of change. Similarly, Champion (1994) found that women who scored lower on barriers were more likely to have complied with mammography screening guidelines.

Given these findings, the current study supports Champion's findings that there is a relationship between HBM variables and the TMC with regard to behavioral stage. Champion (1994) found that HBM

variables differed with respect to mammography stage adoption. This study found that women who were compliant with mammography screening guidelines (at a higher stage of change) had significantly higher scores on HBM variables of seriousness, benefits, health motivation, and control as well as significantly lower scores on barriers. Also, scores on susceptibility, seriousness, benefits, barriers, and health motivation were significantly different across TMC stages of mammography adherence (precontemplation, contemplation, and action/maintenance).

The effectiveness of BSE depends on education, compliance, and outreach among women and on conscientious and regular self-examination; therefore, BSE should be incorporated in nursing, and other healthcare provider curricula (Baig & Ali, 2006) so these groups can then better educate women in the society.

CONCLUSION AND RECOMMENDATIONS

Most of the students who participated in this study were not currently performing BSE. Almost three-quarters of the respondents in this study reported that they did not currently perform BSE, and less than half of these women had any intention of changing their behavior at some point in the future. Although many reported having performed BSE an average of six times in their lives, they did not engage in the behavior on a regular, monthly basis. Base on the total score of the nursing student, the knowledge of the majority on BSE is generally high and above average.

Learned from school and fear of breast cancer were the only demographic variables related to HBM variables. Students who were enrolled in a health-related subject that tackles BSE were more likely to report that they were motivated about their general health than students who did not yet enroll subjects that tackles BSE. In addition, students who reported a fear of breast cancer were more likely to perform regular BSE.

Only half of the respondents perform the correct technique and position in the practice of BSE. The results of this study suggest that using the TMC to stage college women to ascertain their stage readiness to perform BSE can result in useful information for health educators. Health educators could then specifically target their interventions based on a woman's particular stage readiness to perform BSE, potentially resulting in more appropriate interventions according to the HBM variables that are most appropriate within a particular stage.

To date, the cause of breast cancer is undetermined and enough primary prevention is not the answer. Therefore, an early detection measure continues to be the front burner for national health promotion program.

Base on the results of the study the following are recommended:

- Recommendations are to have student nurses get more familiar with BSE as part of their education.
- The integration of BSE on primary health care needs more emphasis.
- An educational programme needs to be designed and implemented with the aim of increasing nurses' competence in BSE, thus enabling them to teach the practice to women.
- Research should be conducted to identify reasons for not practising BSE in order to select suitable strategies to sustain regular practice over time.
- BSE is an important tool for a country like the Philippines where the majority of people cannot afford to get mammograms or CBE as these require the services of medical professionals. Nurses having the knowledge and comfort level to impart the knowledge about BSE to the people in their jurisdiction will be an important part of helping getting people to perform BSE and detect breast abnormalities early.

REFERENCES

[1] Alegre, A., Ramo, L. 2007. Breast Cancer Incidence Highest among Filipinas in SEA - Bulatlat.com

[2] Ali TS, Baig S (2006). Evaluation of a cancer awareness campaign: experience with a selected population of Karachi. Asian Pac J Cancer Prev, 7, 391-5.

[3] Anderson BO, Braun S, Carlson RW, Gralow JR, Lagios MD, Lehman C, et al. Increasing Our Understanding of Breast Self-Examination: Women Talk About Cancer, the Health Care System, and Being Women 2003;9 Suppl 2:S42-50. 7.
[4] Anyanwu SNC. Breast cancer in Eastern Nigeria: a ten year review. W Afr, J Med. 2000;19(2):120–125. [PubMed]
[5] Aslan FE, Gurkan A, Selimen D, et al (2002). Breast cancer screening acception by the women living in Istanbul. Cagdas Cerrahi Dergisi, 16, 86-96.
[6] Budden L (1998). Registered nurses' breast self-examination practice and teaching to female clients. J Community Health Nurs, 15, 101-2.
[7] Champion, V.L. Instrument development for health belief model constructs. Advance in Nursing Science. 1984;6:73–85.
[8] Champion, V.L. Instrument refinement for breast cancer screening behaviors. Nursing Research. 1993;42:139–143.
[9] Chong PN, Krishnan M, Hong CY, Swah TS (2002). Knowledge and practice of breast cancer screening amongst public healthnurses in Singapore.
[10] Singapore Med J ,43, 509-16
[11] Ferlay J., Soerjomataram I., Dikshit R., Eser S., Mathers C., Rebelo M., Parkin D.M., Forman D., Bray F. (2015) Cancer incidence and mortality worldwide: Sources, methods and major patterns in GLOBOCAN 2012 International journal of cancer; 136(5):E359-E386. PMID: 25220842
[12] Jemal A, Siegel R, Ward E, at al (2008). Cancer statistics, 2008. CA Cancer J Clin, 58, 71-96.
[13] Khatib O., & Modjtabai, A., (2006). Guidelines for the early detection and screening of breast cancer. (World Health Organization. Technical Publications Series, 30). Eastern Mediterranean: WHO.
[14] Odusanya, O.O., Tayo, O.O. Breast cancer knowledge, attitudes and practice among nurses in Lagos, Nigeria. Acta Oncologica. 2001;40:844–848.
[15] Petro-Nustas, W., Mikhail, B.I. Factors associated with breast self examination among Jordanian women. Public Health Nursing. 2002;19:263–271.
[16] Philip J, Harris WG, Flaherty C, Joslin CA. Clinical measures to assess the practice and efficiency of breast self-examination. Cancer. 1986 Aug 15;58(4):973–977. [PubMed]
[17] S Puri, C Mangat, V Bhatia, M Kalia, A Sehgal, A Kaur. *Awareness Of Risk Factors And Aspects of Breast Cancer Among North Indian Women*. The Internet Journal of Health. 2008 Volume 8 Number 2.
[18] Smith EM, Francis AM, Polissar L. The effect of breast self-exam practices and physician examinations on extent of disease at diagnosis. *Prev Med.* 1980 May;9(3):409–417. [PubMed]