

# Teachers' Knowledge, Beliefs and Practices of Breast Self-Examination in a City of Philippine: A Most Cost-Effective Tool for Early Detection of Breast Cancer

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## ABSTRACT

Breast self-examination (BSE) is a most cost-effective screening-tool for early-detection of breast cancer. The objective of this study was to investigate knowledge, beliefs and practices of BSE among teachers. It was a cross-sectional questionnaire survey conducted in Philippine in 2009. A standardized questionnaire was administered among 450 randomly selected different school-level teachers. Responses were 70% of which 50%, 42% and 8% from elementary, secondary and tertiary school-level teachers respectively. Thirty percent teachers were 11-20 years experienced. BSE knowledge on frequency, starting age and techniques varied from 60%-70%. Only 25% and 39% possessed accurate knowledge on BSE timing during regular and irregular menstruation and 45% knew right position for BSE. Believed to do BSE confidently were only 33%, although 65% motivated. Majority respondents were un-believable about breast cancer susceptibility. Of 73% BSE practiced respondents, only 17% and 24% practiced at recommended interval and time. Main reasons for not practicing BSE did not know how to do, report by 82% respondents. Participants' knowledge, beliefs on BSE were good but practice was low. Planned integrated-educational programs by policy-makers, health care-providers and mass-media are necessary to promote BSE for early detection and management of breast cancer aimed to promote a healthy life.

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## INTRODUCTION

Breast cancer is the most prevalent cancer in women worldwide (Adibi *et al.*, 2015; Puri *et al.*, 2009). It is estimated that 31% of cancers among women are due to breast cancer and it accounts 19% of deaths among women due to cancer (Jemal *et al.*, 2005). There are about 1.2 million breast cancer cases worldwide and globally every 3 minutes a woman is diagnosed with breast cancer amounting to 1 million annually (Parkin *et al.*, 2001). The incidence could go up by 50% i.e. 1.5 million by 2020 as reported by world cancer in 2008 (Parkin *et al.*, 2005). The three recommended screening methods for breast cancer are breast self-examination (BSE), clinical breast examination (CBE), and mammography. Among these methods, mammography is the method of choice. However, owing to the high cost, its use is limited in the developing world (Devi *et al.*,

1998). 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 of high expenses and limited availability, especially in third world countries like Philippines. Under these circumstances BSE is an appropriate, convenient and cost effective method that can be done by every woman themselves with little training (Rutledge *et al.*, 2001). Most of the early breast tumors are self-discovered and that the majority of early self-discoveries are by BSE performers (Smith *et al.*, 1980). Breast cancer patient's retrospective self-reports showed that there is a positive association between performance of the BSE and early detection of breast cancer (Philip *et al.*, 1986; Sharma *et al.*, 2013). The Canadian Cancer Society (CCS, 2005) and the American Cancer Society (ACS, 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 *et al.*, 2003).

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Women in Philippine are facing the highest risk of breast cancer in Southeast Asia that continues to rise by as much as 5 percent annually. Statistics from Philippine Cancer Society in 2005 revealed that 25% of the female population in the country was suffering from breast cancer. There is a 10% risk of getting the disease to every Philippine-woman and some 6,360 breast cancer patients die each year in the country, making it the leading cause of death among Philippine women (Alegre and Ramo, 2007). Therefore, screening for early detection and diagnosis of breast cancer is very important.

School teachers play an important and unique role in health education by helping young people to develop healthy practices including BSE. Through health education in school, students are able to gain an understanding and appreciation of healthy lifestyles that promote lifelong wellbeing. There are various studies that breast cancer awareness profile at community level is largely unrepresented. The objectives of this paper is to address the knowledge, beliefs and practices of BSE among the teachers in a city of Philippine aimed to plan future interventions in this field.

## MATERIALS AND METHODS

### Study Design and Subjects

This was an observational cross-sectional study conducted on BSE among the teachers of primary, secondary, and tertiary schools from private and public settings in Baguio City, Philippine. The study was carried out during the periods of August and September 2009. Subjects were 450 teachers, selected randomly from different levels of schools in Baguio City, Philippine.

### Instrument

The questionnaire was designed keeping consistency with the relevant literatures (Budden, 1999; Odusanya and Tayo, 2001; Demirkiran *et al.*, 2007) and then piloted. The questionnaire was divided into four sections: socio-demographic, knowledge, beliefs, and practices. Socio-demographic section included information about participants' age, sex, marital status, level of teaching, years of teaching experience and family history of breast cancer. Knowledge section included questions on BSE awareness such as, who should perform BSE, when BSE should be started, positioning and techniques used, frequency and timing of BSE in relation to menstrual cycle. Beliefs section was determined using 'Health Belief Model' consisted of statements rated using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The belief statements were about: Perceived confidence in performing BSE, motivation or stimulus to accept the process, susceptibility and seriousness of the disease, BSE-benefits and BSE-barrier (Champion and Scott, 1997; Champion, 1995; Champion, 1993). The practice section included questions on participants' BSE practices such as: whether they had performed BSE previously and, if so, the age at which they began to perform

BSE; the most important factor that caused them to perform BSE; the frequency of performing BSE in the prior 12 months; the time at which they performed BSE in relation to menstrual cycle; and the positioning and techniques used. If participants did not perform BSE, they were asked to provide reasons of not perform.

To investigate knowledge and practice questions concerning BSE position, techniques, frequency and timing for performing BSE, the following operational definitions were made.

### Position

The position of BSE was considered correct if the participants performed BSE in both standing in front of the mirror and supine positions. If answers were recorded as BSE performed in only standing or supine position, they were considered incorrect.

### Technique

The correct answer regarding techniques for conducting BSE was "inspection and palpation (by using the pads of the middle three fingers of one hand without removing the fingers from the breast, in circular motions)." If the answer was one of either inspection or palpation, it was considered to be incorrect.

### Frequency

If the answer was once a month, it was considered to be correct.

### Timing for conducting breast self-examination

The correct answer was "within two days after the end of the cycle" for those with regular menstrual periods and "on a specific day every month" for those with irregular or no menstruation.

### Data Collection and Analysis

Data was collected by administering the questionnaire among the participants through institutional head. Before administering questionnaire, informed consent was obtained from all participants and was told all information would be kept confidential. After administration, the questionnaire was collected, compiled and analyzed using SPSS. The results were then expressed in terms of number and percentage distribution.

### Results

Of 450 distributed questionnaires, 369 teachers returned the filled in questionnaire, but 52 questionnaires were excluded due to incomplete data. As such 317 questionnaires were analyzed giving a response rate of 70%. Table-1 explored the socio-demographic characteristics where mean age of the participants was 40.77 with a range from 22-64 years. Among 317 teachers, 14% were male and 86% were female and most of the respondents (72%) were married. Majority teachers (50%) were from elementary level school, while 42% from high school and 8% from

tertiary level schools. Thirty percent teachers possessed 11-20 years of teaching experiences. Somehow 77-87% teachers were aware of BSE while 14% had history of breast cancer in their families.

**Table 1:** Socio-demographic characteristics of respondents, n=317.

Socio-demographic characteristics of study participants		n	%
Age	<30	62	19.56
	30-39	100	31.55
	40-49	82	25.87
	50-59	51	16.09
	>60	22	6.94
Sex	Male	45	14.2
	Female	272	85.8
Marital status	Single	67	21.1
	Married	228	71.9
	Separated	12	3.8
	Widow	10	3.2
Level of school at teaching	Elementary level	158	49.8
	High School level	133	42
	College level	26	8.2
Teaching experience in years	0-5	74	23.3
	6-10	72	22.7
	11-20	94	29.7
	>20	77	24.3
Family history of breast cancer	Yes	43	13.6
	No	274	86.4
Heard about breast self-examination	Yes	276	87.1
	No	41	12.9
Any information about breast self-examination	Yes	245	77.3
	No	72	22.7

**Table 2:** Knowledge related to BSE among the teachers, n=317.

Knowledge related to BSE	Answered correctly	
	n	%
Do both sex people should perform BSE?	172	54
Age at performance of BSE should be started	223	70
Frequency of performance of BSE	189	60
Time of BSE performance in women with regular menstrual cycle (within two days after menstruation)	79	25
Time of BSE performance in women with irregular menstrual cycle (at a specific day each month)	123	39
Position of BSE performance should done (standing in front of a mirror and lying down)	143	45
Technique of BSE performance (inspection and palpation)	221	70

Teachers' knowledge on BSE as shown in Table-2 revealed that 54% of the participants knew both male and female should perform BSE, 70% knew correct age to start BSE and 60% knew that it should be done regularly at every month. However, knowledge about BSE timing in relation to menstrual cycle is poor (25-39%).

Furthermore, only 45% participants knew correct position of BSE although 70% knew correct technique, that it should be conducted by inspection and palpation. Teachers' perceived beliefs towards BSE (Table-3) showed only 33% of the teachers were confident in performing BSE correctly and 65% were motivated to accept the process of BSE. Only a small percentage (9%) of respondents believes that they were susceptible to develop breast cancer. The table also revealed that 50%

participant perceived the benefit of BSE while two third of the participants did not understand the seriousness of the disease. Table-4 reflected that 73% participants practiced BSE. Of 232 practiced participants, 92% started BSE practices after the age of 19 and only 17% practiced BSE regularly with 10-12 times in the past 12 months.

Among the 50% BSE practiced participants with correct technique and 45% with correct position, only 24% participants practiced BSE at the correct time relating to their menstrual cycles (Table-5).

**Table 3:** Teachers' perceived beliefs towards BSE and breast cancer, n=317.

Perceived beliefs	Disagree		Not sure		Agree	
	n	%	n	%	n	%
Confidence in ability to perform BSE	89	28	122	39	106	33
Motivation to accept the BSE process	28	9	83	26	206	65
Susceptibility to develop breast cancer	196	61	97	30	29	9
Seriousness of breast cancer	95	30	119	38	103	32
BSE-benefits	32	10	128	40	157	50
BSE-barrier	191	60	90	29	36	11

**Table 4:** Distribution of participants BSE practice, n=317.

BSE practice	n	%
Practiced	232	73
Not practiced	85	27
Total	317	100

**Table 5:** Distribution of teachers' BSE practiced performances, n=232.

BSE practiced performances	Practices	n	%
Age at BSE practice started	Before age 19	19	8
	After age 19	213	92
Frequency of BSE practiced in the past 12 months	1-3 times	143	62
	4-6 times	49	21
	10-12 times	40	17
Timing of BSE practiced in relation to period of menstrual cycle	Correct	55	24
	Incorrect	177	76
Positioning of BSE practiced (Correct when done by standing in front of a mirror and lying down)	Correct	104	45
	Incorrect	128	55
Technique of BSE practiced (Correct when done by use of inspection and palpation techniques)	Correct	115	50
	Incorrect	117	50

Factors influencing practice of BSE and reasons of not practicing BSE are shown in Table-6. Fear of breast cancer was the most important factor that leads them to practice BSE (67%), followed by training or learned from the school (62%), recommendation by both physician and media influence 54%, advice of a health worker (49%) and encouraged by a breast cancer victim (47%).

On the other hand, the most important reason for not practicing BSE was not knowing how to perform it (82%), followed by the absence of problems in the breast (67%), fear of finding a mass (55%) and thinking it too difficult to perform BSE (41%).

**Table 6:** showed distribution of factors influencing practice of BSE and reasons of not practicing BSE, n=317.

Factor influenced BSE practice, n=232			Reasons for not practiced BSE, n=85		
	n	%		n	%
Fear of breast cancer	156	67	Do not know how to perform BSE	70	82
Learned from the school	143	62	Having no problems in the breasts	57	67
Physician recommendation	126	54	Fear of finding a mass	47	55
Media influence	126	54	Thinking it is too difficult	35	41
Advice of a health worker	114	49	Lack of time	26	31
Encouraged by a breast cancer victim	108	47	Forgetting	25	29
Breast pain	62	27	Finding it unnecessary	24	28
Family history of breast cancer	38	16	Not knowing its importance	2	24
Peer support	32	14	Reluctance	12	14
Feeling of a mass	31	14	Shamefulness	7	8
Encouraged by a friend	26	11			
Nipple discharge	16	7			

## DISCUSSION

The current study was an in-depth evaluation of participants' BSE knowledge, beliefs and practices. Thirty percent respondents possessed teaching experience of 11-20 years, 24% more than 20 years, 23% possessed 6-10 years of experiences in teaching with 50% elementary level, 42% high school level and 8% in college level where married respondents were 72% (Table-1). Study participants found to have a good knowledge in regard to who should perform BSE, age to start BSE, frequency and techniques of BSE. However, participants' knowledge on timing of performing BSE in relation to regular and irregular menstruation and position of doing BSE was very low (Table-2). Previous studies also showed that there is a lack of good knowledge regarding timing of performing BSE and position to perform BSE. In one study only 17% of participants correctly identified the recommended time for BSE (Budden, 1999). Agboola et al. (2009) showed that the correct timing of BSE in women with regular and irregular menstrual cycle is below average (Agboola *et al.*, 2009). Only 13.7% of the respondents know the correct timing to conduct the BSE (Yakubu *et al.*, 2014). However, Demirkiran *et al.*, (2007) showed that 81.5% of the nurses and 45.1% of the teachers knew the correct timing which was much higher than the other studies, but regarding the position, they showed only 16% nurses and 9% teachers correctly answered regarding position of BSE (Demirkiran *et al.*, 2007). Regarding the technique of BSE, our study revealed that teachers had good knowledge while Demirkiran *et al.* (2007) reported that none of the participants answered the question about technique for BSE correctly.

A good number of participants (87%) heard about BSE in our study, which represents that participants are well aware about BSE. Study among staff nurses in Ebonyi State University Teaching Hospital showed 92.9% of them were found to have heard of BSE (Agwu *et al.*, 2007), which is almost similar to our findings. On the contrary, study in Saudi Arabia reported only 30.3% of the participants have heard about BSE (Montazeri *et al.*, 2008; Rizwan and Saadullah, 2009).

Regarding teachers' belief on BSE, this present study showed their perceived belief towards confidence in doing BSE and belief on susceptibility and seriousness of the disease was poor. However, half of the teachers agreed with its beneficial role

in the early diagnosis of breast cancer (Table-3). This is also reflected in the practice performance rate of BSE where 73% teachers found to have practiced BSE (Table-4). Earlier studies have shown that women paid more 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, 1999; Odusanya and Tayo, 2001).

This is similar to this present study where more than half of the teachers (61%) did not think they were at susceptible to develop breast cancer (Table-3). Jarvandi *et al.* (2002) found that most teachers feel themselves at risk of developing breast cancer that led them to perform BSE routinely (Jarvandi *et al.*, 2002).

Demirkiran *et al.* (2007) reported that teachers have positive attitudes towards BSE; they were convinced to its value for early diagnosis of breast cancer and also noted that 42.5% were self-confident about performing BSE while the present study revealed only 33% teachers were confident in their ability to perform BSE correctly.

In the present study, a very good number (92%) of teachers start practicing BSE at younger ages, although their frequency, timing and technique were poor (Table-5) compared to their knowledge. This implies that they do not practice what they know. In one study, about one third of practicing women performed six or less times correctly out of 12 times in a year and only 15.6% performed 11 times in a year, and none performed all the times correctly (Al-Azmy *et al.*, 2013). Another study on female healthcare workers reported that more than 70% of the subjects had the knowledge of BSE and also strongly believed in its beneficial effects, but only 6% of them performed BSE regularly (Haji-Mahmoodi *et al.*, 2002).

Our study reported that only 17% teachers practiced BSE 10-12 times and 21% practiced 4-6 times in a year while 45% and 50% teachers practiced BSE with correct position and correct technique (Table-5).

It is reported that the ratio of practicing BSE is low in teachers (Jarvandi *et al.*, 2002). Nurses presented a BSE practice ratio between 72.1% and 93%, increasing with age (Chong *et al.*, 2002). Study showed that students at nursing and midwifery schools start performing BSE at younger ages, but the percentages of those performing BSE regularly and at the correct time in relation to their menstrual cycle are very low with a ranged from

11% - 46% (Budden, 1999).

Women health is deeply linked with the health of others (Tazhibi *et al.*, 2014). One of the important finding in our study is that, 82% respondents did not perform BSE due to not knowing how to do BSE (Table-6). Previous studies also showed that the most common reasons for not doing BSE is lack of knowledge (Jarvandi, 2002). The world, especially the developing countries are faced with a wide variety of health-related challenges (Feyzabadi *et al.*, 2015).

Cancer care has become a global health priority (Zisun Kim *et al.*, 2012) and breast cancer is the most common cancer among women (Karimian *et al.*, 2010). Medicine cannot cure all diseases (Jafari *et al.*, 2015) and it is evidenced that BSE benefits women to detect any changes in their breasts as early as possible (Doshi *et al.*, 2012).

Education is the backbone of a nation; the world in which we live today is comprised of diverse people where educators face complex-tasks in educating (Salam *et al.*, 2014). Planned interventional education programs have been shown to provide a positive impact on outcomes (Salam, 2010).

A planned and integrated breast self examination educational campaign through collaboration among the policy makers, health care providers and mass media will definitely promote a sustainable culture of BSE knowledge, beliefs and practices (Salaudeen *et al.*, 2009). Therefore, policy makers and health care professionals should give due importance on BSE as an early and most cost effective tool for detection of breast cancer and thereby to promote a healthy life.

## CONCLUSIONS

Participants' knowledge on BSE was found satisfactory except for the timing of BSE in relation to menstruation and position to perform BSE. Although participants were motivated to perform BSE, they did not believe that they were susceptible to breast diseases. A good number of participants started BSE practices at the age of 19 years but their frequency and timing for BSE was not satisfactory.

Their practice rate was low in spite of having very good knowledge on technique. These data imply that teachers in Baguio city in Philippine need more educational intervention on breast cancer and its early detection particularly by BSE. By knowing how to do thorough BSE, teachers and women in general will be able to identify breast cancer at the initial stages. This in turn may help to eventually decrease the number of premature breast cancer deaths in developing countries such as Philippines.

Breast cancer and breast-self-examination awareness campaign programs targeted at younger women are suggested to remove fear and misperceptions on BSE and thereby improve breast cancer prevention. Policymakers and healthcare professionals should implement integrated breast cancer and BSE awareness campaign to promote BSE as an early and cost-effective breast cancer screening tool.

## CONFLICT OF INTEREST

The authors declare that they have no conflict of interests.

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