

Factors Associated with Breast Self-Examination among Thai Women Living in Rural Areas in Northeastern Thailand

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Objective: To identify factors associated with monthly breast self-examination (BSE) performance among Thai women living in rural areas, Northeastern Thailand.

Material and Method: This present cross-sectional study was conducted during April to July 2008. A random sample of 705 women aged 20 to 64 years living in the rural areas of Northeastern region was interviewed using a structured questionnaire seeking information on demography, prior experience of BSE, knowledge (of breast cancer and breast examination techniques) and health belief. Logistic regression was performed to identify the potential predictors of monthly BSE performance.

Results: Seventy-five percent of women had performed BSE in the last year, and only 49% had performed BSE monthly. Monthly BSE performance was associated with having heard of BSE (OR = 2.8; 95% CI: 1.1-6.9), been taught to perform BSE (OR = 2.4; 95% CI: 1.5-3.7), higher knowledge about breast cancer and BSE procedures (OR = 2.4; 95% CI: 1.7-3.5), and higher confidence in one's ability to perform BSE (OR = 4.4; 95% CI: 3.0-6.4).

Conclusion: To increase monthly BSE performance among Thai women living in the Northeastern rural areas, health officers should address women levels of accurate knowledge of breast cancer, provide training in BSE procedures, and advocate women's confidence in performing BSE.

Keywords: Breast self-examination, Thai women, Rural areas, Health belief model

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Breast cancer is the second most commonly diagnosed cancer and the third leading cause of cancer death among Thai women⁽¹⁾. The incidence and mortality rates of breast cancer are rising rapidly in Thailand, and many women are diagnosed with a late stage of the disease^(2,3). There is solid evidence that diagnosis of breast cancer at an early stage will reduce breast cancer mortality rates, primarily through the initiation of effective therapy earlier in the disease's

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natural history^(4,5). Early detection may be sought by breast cancer screening using mammography, clinical breast examination (CBE), and breast self-examination (BSE). Only mammography screening is accepted as unequivocally effective as a screening modality⁽⁴⁾. In the absence of organized screening, early diagnosis in symptomatic women is the preferred strategy. The key prerequisites for early detection are ensuring that women are supported in seeking care and that they also have access to appropriate, affordable diagnostic tests and treatment. Early detection efforts begin through breast cancer education and awareness, CBE

and BSE are important for general breast health education in all countries⁽⁵⁾. Facilities and personnel to carry out CBE may be limited in rural areas, so BSE is then an alternative method involving only the woman herself as well as being relatively simple and low cost⁽⁶⁾. Even though BSE has not been shown to be an effective screening method (reducing death from breast cancer in the context of a randomized controlled trial)⁽⁷⁾, many studies have shown that most breast cancer patients found abnormal lumps by themselves^(8,9).

Although the Thai Ministry of Public Health (MoPH) has had national BSE screening set up since 2003 that its target being that 80% of women aged 35 and older will practice BSE⁽¹⁰⁾, most Thai women still do not perform BSE. Two national surveys showed that nearly 40% of women had performed BSE in 2003 and 2006 with only 6.7% had performed BSE monthly in 2003 and 15.5% in 2006^(11,12). It is therefore important to understand why most Thai women do not perform BSE on a regular basis. Other studies have shown that some barriers to performing BSE are associated with older age, single status, living in a rural area, low educational level, and lack of knowledge regarding to breast cancer⁽¹³⁻¹⁶⁾. The Health Belief Model (HBM) has been widely used either to describe health behaviors and identify what factors associated with women's perception on breast cancer and BSE or guide healthcare providers with activities for their interventions^(13,17,18). In Thailand, several studies had been conducted to identify potential predictors of BSE performance in municipal areas among high socio-economic statuses^(19,20). The purpose of the present study was to identify factors associated with regular performance of BSE among Thai women living in the Northeastern rural areas, including the study of the knowledge of breast cancer risks and BSE procedures, and health beliefs concerning breast cancer and BSE.

Material and Method

Study design

A cross-sectional survey was conducted in April-July 2008 after approval was obtained from the Ethical Committee for Human Research of the Faculty of Medicine, Khon Kaen University, Thailand. Multi-stage cluster sampling was used to enroll women from randomly selected non-municipal areas in 4 provinces (Khon Kaen, Nong Khai, Nakhon Ratchasima, and Si Sa Ket) of the Northeastern region, Thailand as described elsewhere⁽²¹⁾. Briefly, four provinces out of the nineteen provinces in the Northeastern region were selected

randomly. Secondly, 6 to 7 villages classified as rural areas were selected randomly from each province. Thirdly, approximately 30 households in each village were selected by systematic sampling and only one woman in each household was asked to participate. Eligible women aged 20 to 64 who were not pregnant, not have hearing or memory lost, and who had never been diagnosed with breast cancer were interviewed. The calculated sample size was 720, and of the women contacted, 15 eligible women refused to participate; 12 women had insufficient time, and 3 women felt that the questions were not applicable. Following informed consent, 705 women were subsequently interviewed by trained female interviewers and completed the questionnaires. The final response rate was 97.9%.

Questionnaire

Respondents gave information on their family histories of breast cancer and their socio-demographic variables (*e.g.*, age, marital status, number of children, education, occupation and income). The respondents were asked whether they had ever performed BSE, and reported the frequency of their BSE in each month of the previous year. Respondents who reported performing BSE at least once in each month during the previous year were classified as performing BSE monthly.

Knowledge of risk factors of breast cancer (9 items) and BSE techniques (8 items) were also included. A correct answer scored one while an incorrect answer scored zero. Mean knowledge score was computed by totaling the number of correct answers divided by the total number of items ($n = 17$) and then classified by the mean in to 2 levels ($<$ mean as low and \geq mean as high level).

Permission to use and adjust the Champion Health Belief Model Scale (CHBMS) was obtained from Champion. This instrument has been previously tested and has been proven to be valid and reliable^(13,17). The CHBMS was adjusted to assess 6 major subscales; perceived susceptibility (5 items), perceived seriousness (10 items), perceived benefits (7 items), perceived barriers (13 items), confidence (10 items) and motivation (7 items). For each item participants rated their response on a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5). Higher scores indicated higher perception related to all subscales, except the perceived barriers' subscale. A mean score for each subscale was used to classify its perception level ($<$ mean as low and \geq mean as high level). Content validity of the questionnaire was evaluated by a panel

of experts [2 oncologists (1 doctor and 1 nurse) for breast cancer and BSE and 1 expert on HBM theory]. The overall item-objective congruence for content validity was 0.89. The reliability test indicated that all subscales had good level of internal consistency (Cronbach's alpha coefficient, $\alpha \geq 0.70$); susceptibility ($\alpha = 0.91$), benefits ($\alpha = 0.88$), barriers ($\alpha = 0.92$), confidence ($\alpha = 0.92$), health motivation ($\alpha = 0.88$) and seriousness ($\alpha = 0.86$) with overall perception ($\alpha = 0.82$) as well as the knowledge of risk factors of breast cancer ($\alpha = 0.79$) and knowledge of BSE techniques ($\alpha = 0.82$), with over all knowledge ($\alpha = 0.82$).

Statistical analysis

Descriptive statistics were used to describe the sample characteristics. Cronbach's alpha coefficient was used to test internal consistency of the instrument on the knowledge and health belief subscales. Data were analyzed for association between categorical variables by Pearson Chi-square or Fisher exact test, where appropriate. Logistic regression analysis was conducted where the full model included all potential factors significant in bivariate analysis ($p \leq 0.10$). Monthly BSE performance was considered as the dependent variable. Goodness of fit of the model was assessed using the Hosmer-Lemeshow test. The adjusted odds ratio (OR_{adj}) was estimated with their 95% confidence intervals (CI) to identify the potential predictors of monthly BSE performance. A p-value of less than 0.05 was judged for statistical significance.

Results

The socio-demographic characteristics of the 705 participants are shown in Table 1. The mean age was 42.5 (SD = 10.8) years, ranging from 20 to 64. Most of the participants (83%) were married or were living with a partner. Fifty-nine percent of the women had 1 or 2 children and 72% had had completed high school or less. Sixty-one percent of the women worked in agriculture or as laborers. Of all the participants, 49% had a monthly household income of less than 5000 Baht per month.

Of all the participants, Seventy-five percent of the women had performed BSE and forty-nine percent of them performed BSE monthly. Most of participants (90%) had heard of BSE, 71% had been taught to perform BSE and 43% had had a Pap smear. Few of the women (4%) had found an abnormal lump at their breasts and only 1% reported that they had a history of breast cancer in their families as shown in Table 2.

Table 1. Socio-demographic characteristics of women living in the Northeastern rural area (n = 705)

Characteristics	Number	Percentage
Age (years)		
20-34	167	23.7
35-49	343	48.6
50-64	195	27.7
Mean (SD): 42.5 (10.8)		
Marital status		
Single	56	7.9
Married/Partner	587	83.3
Divorced/Separated/Widowed	62	8.8
Number of children		
None	41	6.3
1-2	381	58.7
3 or more	227	35.0
Education		
High school graduate or lower	506	71.8
higher than high school graduate	169	28.2
Occupation		
Agriculturist/Laborer	432	61.3
Government/Enterprise officers	28	4.0
Private employee/Commerce	97	13.8
Unemployed	30	4.3
Housewives/Retired	118	16.6
Monthly household income (Baht)		
< 5,000	342	48.5
5,000-9,999	207	29.4
$\geq 10,000$	156	22.1
Median = 5,000; Min-Max: 500-100,000		

SD = standard deviation; Min-Max = minimum-maximum

Table 2. BSE performance and potential factors related to the BSE of women living in the rural Northeastern region (n = 705)

Potential factors	Number	Percentage
BSE performance		
Have performed BSE	530	75.2
Performed monthly BSE	348	49.3
Have heard of BSE	631	89.5
Have been taught to perform BSE	497	70.5
Have had Pap smear	305	43.3
Have family history of breast cancer	7	1.0
Have found an abnormal lump at their breasts	27	3.8

BSE = breast self-examination

None of the socio-demographic characteristics (age, marital status, number of children, educational level and household income) was associated with monthly performance of BSE. Table 3 presents factors associated with monthly BSE performance. The mean knowledge score and mean score on each of the HBM subscales are shown in column 1, and were used to convert each to a binary variable as low and high levels. All factors except perceived susceptibility and general health motivation were significantly associated with regular BSE performance in bivariate analysis. In

the multivariate model, women who had heard about BSE were 2.8 times more likely to perform BSE monthly (adjusted OR = 2.75; 95% CI: 1.10-6.86). Similarly, women who had been taught to perform BSE were 2.4 times more likely to perform BSE monthly (adjusted OR = 2.36; 95% CI: 1.48-3.74). Significant associations were found among those participants who had a higher knowledge of both breast cancer risks and BSE techniques (adjusted OR = 2.42; 95% CI: 1.69-3.47). Women who had greater self confidence to perform BSE were more likely to practice BSE monthly (adjusted

Table 3. The association between potential factors and monthly performance of BSE

Characteristics	% performing BSE monthly	Crude OR (95% CI)	p-value	Adjusted OR (95% CI)	p-value
Had heard of BSE					
No	9.5	1		1	
Yes	54.0	11.25 (5.09-4.90)	<0.001	2.75 (1.10-6.86)	0.030
Had been taught BSE					
No	23.1	1		1	
Yes	60.4	5.08 (3.51-7.34)	<0.001	2.36 (1.48-3.74)	<0.001
Had found an abnormal at their breasts					
No	48.1	1		1	
Yes	72.2	2.80 (1.33-5.90)	0.005	2.24 (0.96-5.20)	0.061
Have had a Pap smear					
No	40.8	1		1	
Yes	60.7	2.24 (1.65-3.04)	<0.001	1.16 (0.80-1.67)	0.430
Knowledge					
Low (< 8.9)	34.1	1		1	
High (≥ 8.9)	68.3	4.15 (3.03-5.70)	<0.001	2.42 (1.69-3.47)	<0.001
Health beliefs					
Susceptibility					
Low (< 2.5)	51.8	1		N/A	
High (≥ 2.5)	46.8	0.82 (0.61-1.10)	0.184		
Seriousness					
Low (< 3.2)	45.6	1		1	
High (≥ 3.2)	55.2	1.47 (1.01-2.00)	0.012	1.08 (0.75-1.56)	0.664
Barriers					
High (≥ 3.9)	39.3	1		1	
Low (< 3.9)	57.8	2.12 (1.57-2.87)	<0.001	1.32 (0.91-1.92)	0.137
Benefits					
Low (< 4.1)	45.2	1		1	
High (≥ 4.1)	55.0	1.48 (1.10-2.00)	0.010	0.76 (0.52-1.12)	0.166
Confidence					
Low (< 3.4)	26.9	1		1	
High (≥ 3.4)	71.0	6.67 (4.80-9.27)	<0.001	4.38 (2.99-6.43)	<0.001
Health motivation					
Low (< 4.2)	47.5	1		N/A	
High (≥ 4.2)	51.8	1.19 (0.88-1.60)	0.256		

BSE = breast self-examination

OR = odds ratio; 95% CI: 95% confidence interval; N/A = not applicable

OR = 4.38; 95% CI: 2.99-6.43). The overall BSE model accounted for 36.8% of the variance for practicing BSE monthly as shown in Table 3.

Discussion

The present study showed that a relatively high percentage of Thai women living in the rural area of the Northeastern region (75%) reported having practiced BSE, while 49% practiced BSE monthly. This is considerably higher than other studies found in Thai women (7% in 2003 and 16% in 2006)^(11,12), and other Asian women- for example, Thai migrants in Brisbane (25%)⁽²²⁾, and Vietnamese women in Texas (27%)⁽²³⁾.

Several explanations may account for the high proportion of women apparently practicing BSE. As it is based on self report (with no observation of performance or proficiency) the prevalence could be an over-estimate, given the possibility of respondents providing a socially desirable answer⁽²⁴⁾. The Thai National Health Promotion goals state that “80% of women aged 35 and older practice BSE monthly⁽¹⁰⁾” and it is possible that a major cause of this achievement is the promotion of BSE performance through mass media campaigns coupled with the efforts of health care providers. Another explanation is that rural Northeastern women generally accept information from health personnel including specific advice in regards to the benefits of monthly BSE practice.

None of socio-demographic characteristics (age, marital status, number of children, educational level and household income) was associated with the monthly performance of BSE. These results accord with previous studies that women’s age, marital status, educational level and household income were not found to be predictors of BSE performance^(6,14). Other studies have, however, found an association with age, marital status, and educational level^(17,18,25). A family history of breast cancer and having found an abnormal lump in the breast were also not associated with the monthly performance of BSE, although the low prevalence of these variables in the study population makes interpretation uncertain. The observation that family history does not influence performance is consistent with other studies^(18,26,27).

Not surprisingly, women who said that they had heard of BSE performed it more often, as did those who reported having been taught BSE; so too did women with a greater than average knowledge of the risk factors for breast cancer and BSE techniques as well as those who had a greater level of confidence also performed BSE more regularly. These present

finding are consistent with other studies reporting that information about breast cancer and knowledge about BSE techniques were positively associated with BSE performance^(6,27) and that women who had higher confidence performed BSE more frequently^(6,13,18). It seems that advice from a health care provider encourages participant’s awareness of BSE. Health officers are the major source of BSE information for Thai women living in rural areas; they also influence and encourage women to take care of their health and teach them how to perform BSE⁽²⁸⁾. The absolute level of knowledge of the risk factors for breast cancer and BSE techniques was not, however, very high (mean score 9 of 17). This present study suggests that there is scope to increase women’s knowledge of breast cancer and BSE techniques as well as providing training in BSE to enhance performance in this population. Routine encouragement and BSE training programmes might help Thai women living in rural areas feel more confidence in performing BSE and improve the women’s knowledge about the correct techniques of BSE.

In the present study, women’s perceptions of breast cancer; susceptibility, seriousness, benefits and motivation were not significantly associated with practicing BSE monthly. Previous studies have shown inconsistent results^(6,13). Women in this study did not perceive themselves as being susceptible, or concerned that breast cancer could be serious. This may be due to the relative rarity of breast cancer in the Northeastern region of Thailand⁽³⁾. In addition, only a few women (1%) had had a family history of breast cancer was reported in the present study. Another explanation is that Thai women believe breast cancer is a disease of Western women, and therefore not relevant to them⁽¹⁰⁾.

In conclusion, the present study found that half of respondents had practicing BSE monthly. Women who had heard of BSE, been taught to perform BSE, having higher knowledge about breast cancer risks and BSE procedures and having higher confidence to perform BSE were more likely to practice BSE monthly. Therefore, health officers need to address levels of accurate knowledge of breast cancer and BSE procedures, provide training in BSE procedures and advocate Thai women living in the Northeastern rural areas to have higher confidence in performing BSE.

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ปัจจัยที่มีความสัมพันธ์กับการตรวจเต้านมด้วยตนเอง ของสตรีไทยในพื้นที่ชนบท ภาคตะวันออกเฉียงเหนือ ประเทศไทย

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วัตถุประสงค์: เพื่อศึกษาปัจจัยที่มีความสัมพันธ์กับการตรวจมะเร็งเต้านมด้วยตนเองเดือนละครั้งของหญิงไทย ที่อาศัยอยู่ในชนบท ภาคตะวันออกเฉียงเหนือ ประเทศไทย

วัสดุและวิธีการ: การศึกษานี้เป็นการสำรวจภาคตัดขวาง ทำการศึกษาในช่วงเดือนเมษายน ถึง กรกฎาคม พ.ศ. 2551 กลุ่มตัวอย่างจำนวน 705 คน ถูกสุ่มจากหญิงอายุตั้งแต่ 20 ถึง 64 ปี ที่อาศัยอยู่ในเขตชนบท ภาคตะวันออกเฉียงเหนือ และสัมภาษณ์โดยใช้แบบสอบถาม เกี่ยวกับสถิติประชากร ประสบการณ์การตรวจมะเร็งเต้านมด้วยตนเอง ความรู้เรื่องปัจจัยเสี่ยงต่อมะเร็งเต้านมและขั้นตอนการตรวจเต้านมด้วยตนเอง และความเชื่อด้านสุขภาพ การถดถอยโลจิสติกนำมาใช้วิเคราะห์ เพื่อหาปัจจัยทำนายการตรวจเต้านมด้วยตนเองเดือนละครั้ง

ผลการศึกษา: ประมาณร้อยละ 75 ของผู้หญิงเคยตรวจเต้านมด้วยตนเองในช่วง 1 ปีที่ผ่านมา และเพียงร้อยละ 49 ตรวจมะเร็งเต้านมด้วยตนเองเดือนละครั้ง ปัจจัยที่มีความสัมพันธ์กับการตรวจเต้านมด้วยตนเองเป็นประจำทุกเดือน ได้แก่การเคยได้ยินเกี่ยวกับการตรวจเต้านมด้วยตนเอง (OR = 2.8; 95% CI: 1.1-6.9) การได้รับการฝึกอบรมตรวจเต้านมด้วยตนเอง (OR = 2.4; 95% CI: 1.5-3.7) การมีความรู้เรื่องปัจจัยเสี่ยงต่อมะเร็งเต้านมและขั้นตอนการตรวจเต้านมด้วยตนเองระดับสูง (OR = 2.4; 95% CI: 1.7-3.5) และการมีระดับความมั่นใจสูงในการตรวจเต้านมด้วยตนเอง (OR = 4.4; 95% CI: 3.0-6.4)

สรุป: การเพิ่มการตรวจเต้านมด้วยตนเองของผู้หญิงที่อาศัยอยู่ในเขตชนบท ภาคตะวันออกเฉียงเหนือ เจ้าหน้าที่สาธารณสุข ควรเตรียมผู้หญิงให้มีความรู้ที่ถูกต้องเกี่ยวกับมะเร็งเต้านมและขั้นตอนการตรวจเต้านมด้วยตนเอง การจัดฝึกปฏิบัติขั้นตอนการตรวจเต้านมด้วยตนเอง และการสนับสนุนให้ผู้หญิงมีความมั่นใจในการตรวจเต้านมด้วยตนเอง