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COMMENTARY

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Impact of regular Breast Self-Examination on breast cancer size, stage, and mortality in Thailand

Vallop Thaineua MD[1] | Tamnit Ansusinha MD[1] | Nanta Auamkul MD, MPH[2] | Surasak Taneepanichskul MD, MPH[2] | Chonlatit Urairoekkun MD, MPH[3] | Jaruwun Jongvanich MPH[3] | Chalermdej Kannawat MD[1] | Patrinee Traisathit PhD[4] | Imjai Chitapanarux MD[5]

[1]Breast Foundation Under The Patronage of Her Royal Highness The Princess Mother, Bangkok, Thailand

[2]College of Public Health Sciences, Chulalongkorn University, Bangkok, Thailand

[3]Department of Health, Ministry of Public Health, Nonthaburi, Thailand

[4]Data Science Research Center, Faculty of Science, Chiang Mai University, Chiang Mai, Thailand

[5]Chiang Mai Cancer Registry, Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand

Correspondence
Imjai Chitapanarux, Faculty of Medicine, Chiang Mai Cancer Registry, Chiang Mai University, Chiang Mai, Thailand.
Email: imjai@hotmail.com

The incidence of breast cancer in Thailand has increased during the past decade. Besides, most of the patient present with the locally advanced stage.[1] Mammography has not reached all women in Thailand. Breast self-examination (BSE) is simple and feasible for breast cancer screening among developing countries comparing to mammography and clinical breast examination (CBE).[2]

We evaluate a cohort study of 1 906 697 women without a history of breast cancer aged 30-70 years who participated in a breast cancer awareness program in Thailand. We excluded women with known breast cancer or in process of investigation. BSE program in this study was shown in Figure 1. The village health volunteers (VHV) helped reminding the cohorts to perform BSE regularly through the use of BSE record booklet. The innovative BSE record booklet contained the instruction to help cohort to perform BSE precisely and record monthly in the booklet which was verified by the VHV and confirmed by health personnel. The participants had been followed up from October 2012 to September 2017. The participants who reached the regularity (at least once in every 2 months) of BSE within 12 months before diagnosis were defined as regular BSE. When abnormalities presented, the participants were referred for screening by CBE then confirmed by imaging and pathology. The data of BSE and Breast Cancer Individual (BCI) Record Form were collected and analyzed. There were 2,956 women diagnosed with breast cancer in this study (Figure 2). Breast cancer size and stage were diagnosed according to the AJCC 7th staging system. We categorized tumor size into small (≤2 cm) and large (>2 cm) and stage into early (0–II) and late (III-IV). Death due to breast cancer was also recorded.

Of 1 906 697 women who participated in this study, 61% were aged < 50 years. 72% of participants performed BSE regularly. During 5 years of follow-up, 2956 participants were diagnosed with breast cancer. The average incidence rate per year was 31 (range 27.5-33.5) per 100 000 women aged between 30 and70 years old (Table 1). 97.9% of them found a breast lump themselves and were sent for confirmation by imaging and histopathology. The other presenting symptoms were breast pain (12.8%) and unequal breast size (7.9%). Some of participants (1.2%) did not have any signs or symptoms. Data on breast cancer size were available for 2,031 patients (68.7% of all patients with breast cancer). The risk of a large tumor size in nonregular BSE patients was 1.348-fold higher than regular BSE patients. Data on breast cancer stage were available for 2659 patients (90.0% of all patients with breast cancer). Most of the patients were diagnosed with stage II, (47.9%) and 31.5% were diagnosed with stage III-IV. The risk of late-stage breast cancer in nonregular BSE patients was 1.319-fold higher than in regular BSE. Of 2956 patients, 176 (5.9%) died during 5 years of follow-up. The survival rate of regular BSE patients was significantly higher than nonregular BSE

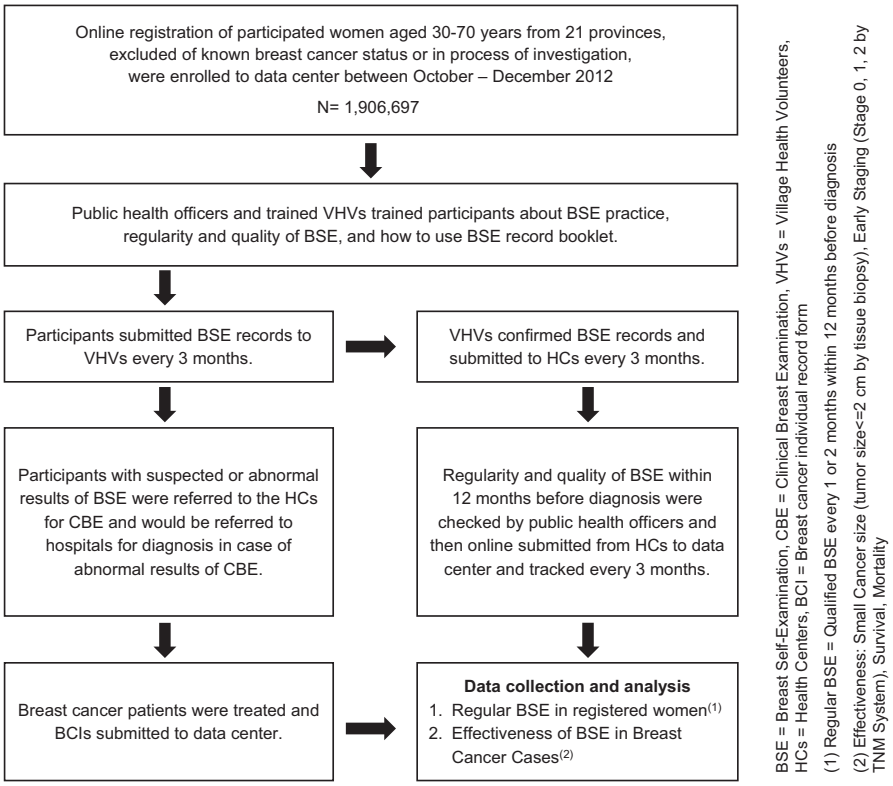

FIGURE 1 The process of data collection and analysis

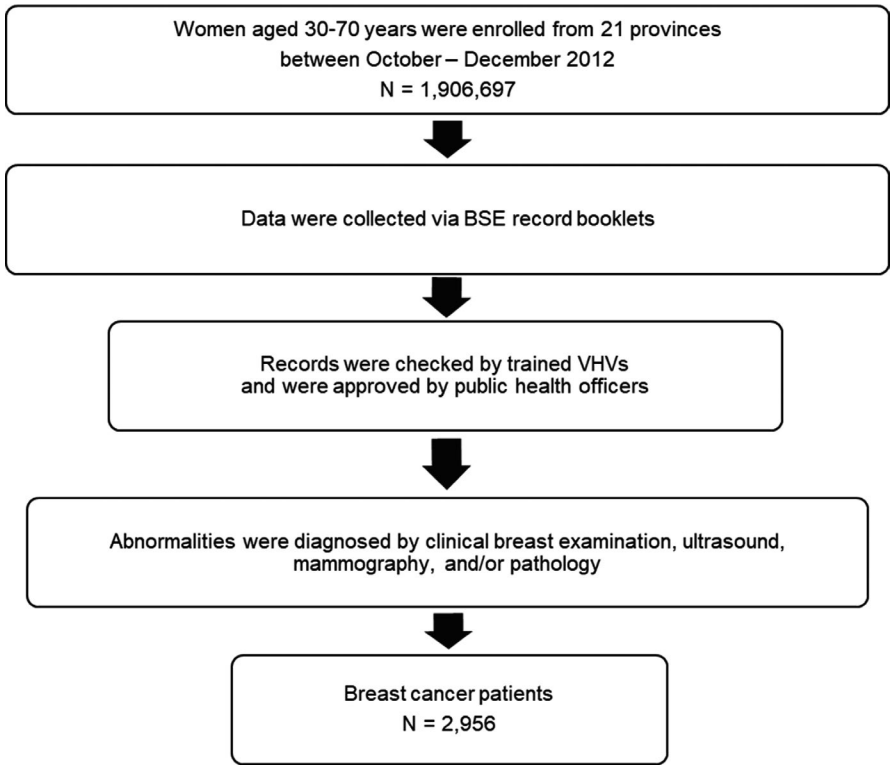

FIGURE 2 Flow chart of breast cancer diagnosis

patients (95.7% vs 92.6%, *P*-value < .001). Nonregular BSE patients had a 1.702-fold higher incidence of mortality than regular BSE patients (OR = 1.702; 95%CI = 1.235-2.347; *P*-value < .05) (Table 2).

This study has higher rate of regular BSE than others [3-5] because of the strong collaboration from VHV and BSE booklet. Most of women who developed breast cancer from BCI record found breast lump themselves. Our findings are consistent with the others [6,7]; we

TABLE 1 Participants characteristics

	n (%)
Participants	1 906 697 (100)
BSE data	1 754 310 (92.0)
Regular BSE	1 262 241 (72.0)
Breast cancer patients	2956 (0.2)
2013	631 (21.3)
2014	582 (19.7)
2015	579 (19.6)
2016	639 (21.6)
2017	525 (17.8)
Incidence rate/year (per 100 000)	31.0
Size ≤ 2 cm	843 (41.5)
Stage 0–II	1820 (68.5)
Breast cancer mortality	176 (5.9)

TABLE 2 Breast self-examination and breast cancer size, stage, and mortality

	Size (N = 1938)				Stage (N = 2557)				Mortality (N = 2804)			
Breast self-examination	≤2 cm n (%)	>2 cm n (%)	Odds ratio (95%CI)	*P*-value	Early n (%)	Late n (%)	Odds ratio (95%CI)	*P*-value	Alive n (%)	Dead n (%)	Odds ratio (95%CI)	*P*-value
Regular	602 (43.1)	794 (56.9)	1.348 (1.090-1.667)	<.01	1300 (70.3)	550 (29.7)	1.319 (1.094-1.591)	<.01	1901 (95.0)	100 (5.0)	1.702 (1.235-2.347)	<.05
Nonregular	202 (37.3)	340 (62.7)			458 (64.8)	249 (35.2)			737 (91.8)	66 (8.2)		

reported a significantly higher proportion of smaller tumor size, earlier stage, and better survival rate in regular BSE practiced women rather than nonpracticing women.

In the developed countries, they recommend women aged 50-74 years should have mammography screening once every 2-3 years,[8,9] which indicates that mammography could not cover all age groups. Despite the efficacy of BSE to decrease breast cancer mortality is largely unproven. This large Thai cohort study indicates that regular BSE recorded in the BSE record booklet and monitored by VHV is effective for the early detection of breast cancer.

ORCID

Patrinee Traisathit https://orcid.org/0000-0003-2918-1928
Imjai Chitapanarux https://orcid.org/0000-0002-8552-0149

REFERENCES

1. Rakkapao N, Promthet S, Moore MA, Solikhah S, Hurst C. Assessing breast cancer awareness in Thai Women: Validation of the breast cancer awareness scale (B-CAS). *Asian Pac J Cancer Prev*. 2017;18:995-1005.
2. Bebis H, Altunkurek SZ, Acikel C, Akar I, Altunkurek SZ. Evaluation of breast self-examination (BSE) application in first and second degree relatives of patients with breast cancer. *Asian Pac J Cancer Prev*. 2013;14:4925-4930.
3. Yoo BN, Choi KS, Jung KW, Jun JK. Awareness and practice of breast self-examination among Korean women: results from a nationwide survey. *Asian Pac J Cancer Prev*. 2012;13:123-125.
4. Loh SY, Chew SL. Awareness and practice of breast self examination among malaysian women with breast cancer. *Asian Pac J Cancer Prev*. 2011;12:199-202.
5. Gür K, Kadıoğlu H, Sezer A. Breast cancer risks and effectiveness of BSE training among women living in a district of Istanbul. *The journal of breast health*. 2014;10:154-160.
6. Le Geyte M, Mant D, Vessey MP, Jones L, Yudkin P. Breast self examination and survival from breast cancer. *Br J Cancer*. 1992;66:917-918.
7. Kuroishi T, Tominaga S, Ota J, et al. The effect of breast self-examination on early detection and survival. *Jpn J Cancer Res*. 1992;83:344-350.
8. Siu AL. Screening for Breast Cancer: U.S. Preventive Services Task Force Recommendation Statement. *Ann Intern Med*. 2016;164:279-297.
9. Miller AB, Wall C, Baines CJ, Sun P, To T, Narod SA. Twenty five year follow–up for breast cancer incidence and mortality of the Canadian National Breast Screening Study: randomised screening trial. *BMJ*. 2014;348:g366.