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Breast Cancer Prevention Behavior of Female Students at a University in Chachoengsao Province

Siriwan Turongruang [1], Supaporn Tantinantrakul *[2]

[1, 2] Lecturer, Faculty of Nursing, Rajabhat Rajanagarindra University.
*Email: [1] siriwan.tur@rru.ac.th, [2] Supaporn878@gmail.com (*Corresponding Author)*

Abstract

This study aimed to explore the levels of the 5-dimensional health belief model, which included: perceived benefits of breast self-examinations; perceived barriers to performing breast self-examinations; perceived susceptibility associated with breast cancer; perceived severity of breast cancer; and perceived self-efficacy to conduct a breast self-examination. The research investigated the impact of these beliefs on breast cancer prevention behaviors and examined the relationship of the 5-dimensional health belief model to breast cancer prevention behaviors. The sample group consisted of 380 individuals, obtained from stratified sampling and simple random sampling. The tools used for data collection included a questionnaire comprised of 3 parts: Part 1 was a general questionnaire, Part 2 focused on the 5-dimensional health belief model, and Part 3 centered on the behavior of self-examining for breast cancer. The data were analyzed to determine percentages, standard deviations, and Pearson's correlation coefficient using computer software. The study on the health belief model in breast cancer self-examination among female students with 5 aspects in total found that the perceived benefits of breast cancer self-examination had the highest average score of 3.94, indicating a high level. Meanwhile, the perceived barriers to performing self-examinations for breast cancer, perceived susceptibility associated with breast cancer, perceived severity of breast cancer, perceived self-efficacy to conduct a breast self-examination, and behavior to prevent breast cancer, overall, were at a moderate level. When considering the correlation coefficients, it was discovered that the perceived benefits of self-examination for breast cancer, perceived barriers to performing self-examinations for breast cancer, perceived susceptibility associated with breast cancer, perceived severity of breast cancer, and perceived self-efficacy to conduct a breast self-examination were statistically significantly related to behavior to prevent breast cancer at the.05 level. Specifically, the perceived benefits of self-examination for breast cancer, the perceived susceptibility associated with breast cancer, and the perceived self-efficacy to conduct a breast self-examination were highly statistically significant at the.001 level. Additionally, the perceived severity of breast cancer was statistically significant at the.01 level, and the perceived barriers to performing self-examinations for breast cancer were statistically significant at the.05 level, with a low positive relationship with behavior to prevent breast cancer (r =.170,.106,.206,.145, and.257, respectively).

Keywords: *Breast Cancer Self-Examination, Female Students, Breast Cancer Prevention Behaviors.*

BACKGROUND AND SIGNIFICANCE OF THE STUDY

Breast cancer ranks among the most common cancers globally. According to the World Health Organization report from 2021, over 2.3 million women are diagnosed with breast cancer annually, equating to 42.1 new cases per 100,000 people (Sharma, 2021). Of these, 244,000 cases annually occur in women under the age of 40 (Zhao et al., 2022). It's the second leading cause of cancer-related deaths for women aged 0–39 worldwide, with 44,800 deaths annually (Senkomago et al., 2018). Incidences of breast cancer in women aged 25–49 have increased by 16% since the 1990s (Copson et al., 2018). In Thailand, the National Cancer Institute reports over 140,000 new cancer patients every

year, with breast cancer being the most prevalent, accounting for 38,559 cases, or 34.2% (Strategic and Planning Division, Ministry of Public Health, 2022). The number of breast cancer-related deaths from 2013–2017 per 100,000 population was consecutively 9.88, 10.46, 11.34, 12.38, and 12.56, showing an increasing trend (Strategic and Planning Division, Ministry of Public Health, 2017).

Consequently, it's evident that breast cancer is a significant health concern threatening the lives of women. While the exact cause of breast cancer remains uncertain, incidents and susceptibility relating to the disease are more prevalent in women aged over 35 than those under 35 (Strategic and Planning Division, Ministry of Public Health, 2022). A report from the Asian Breast Cancer Association indicates that 13% of diagnosed women are under 40, while only 5% are under 35. The marked increase in breast cancer among women under 40, combined with this group presenting more aggressive and abnormally shaped cancer cells that spread more extensively, is a noteworthy concern when compared to older women (Lee & Han, 2014).

In Chachoengsao province, the female population in 2020 stood at 95,677. Reports indicate a breast cancer incidence rate of 7.63% (Chachoengsao Ministry of Public Health Office, 2021). Breast cancer screenings for women aged 30-70 in 2019-2021 showed percentages of 68.23, 68.68, 75.30, and 56.30, with Bang Khla district revealing 91.74, 89.84, 62.69, and 81.83, respectively (Chachoengsao Public Health Office, 2021). Mortality rates due to breast cancer in Chachoengsao between 2017 and 2021 per 100,000 were 13.09, 17.71, 15.40, 16.98, and 15.28 per 100,000, with Bang Khla showing 4.21, 21.09, 16.87, 25.27, and 20.95, respectively (Chachoengsao Public Health Office, 2021). From the statistics, the prevalence and mortality rates of breast cancer remain present, with a potential upward trend. In the academic year 2023, there were 3,187 regular students, predominantly females aged 18 to 35. This age group is crucial as it represents the schooling phase, entry into the workforce, and family formation (Havighurst, 1976). Illness impacts the quality of life for patients and their families, the economy, societal costs, and the loss of the national workforce, hindering national development. This highlights that breast cancer affects not just individuals but also families and communities.

From the study of factors related to self-breast examination behavior, it was found that knowledge about breast cancer has a correlation with self-breast examination behavior (Thanomsri Intanon & Rujira Ampan, 2023). Self-breast cancer examination, if done correctly and regularly, is a method that can detect breast cancer in its early stages (Dadzi & Adam, 2019), and women who self-detect breast cancer in its early stages (Zejda & Kaleta, 2020) can benefit from self-breast examination. From the literature review, for patients to have preventive behavior against disease, they must believe and realize that the potential disease could be severe and affect life, and they must believe that if they change their behavior to be appropriate, it will reduce the risk or severity of the disease (Strecher, Champion, & Rosenstock, 1997). Belief, therefore, is one factor that drives good health behavior. The health model (Strecher et al.) focuses on disease prevention and behavior adjustment. For individuals to be able to practice behaviors to prevent or reduce the severity of the disease, they must believe that they have a chance of getting it or that the disease that occurs is severe and affects their lives (Strecher et al., 1997).

Therefore, in this study, the researcher is interested in studying breast cancer prevention behavior in female students and examining the relationship between the perceived benefits of self-breast examination, perceived barriers to self-breast examination, perceived susceptibility to breast cancer, perceived severity of breast cancer, and perceived self-efficacy to perform a breast examination in relation to the breast cancer prevention behavior of female students at a university in Chachoengsao province. This is to understand the health beliefs of female students in Chachoengsao province and monitor and control breast cancer, which is consistent with local issues. This allows for

appropriate care patterns to help female students reduce deaths from breast cancer and provides guidelines for relevant agencies to act in order to monitor and prevent breast cancer in women.

OBJECTIVES OF THE RESEARCH:

1. To study the perceived benefits of self-breast examination, perceived barriers to self-breast examination, perceived susceptibility to breast cancer, understanding the severity of breast cancer, self-confidence in performing breast examinations, and breast cancer prevention behaviors.
2. To investigate the relationship between the perceived benefits of self-breast examination, perceived barriers to self-breast examination, perceived susceptibility for breast cancer, understanding the severity of breast cancer, self-confidence in performing breast examinations, and breast cancer prevention behaviors.

Benefits obtained from the research

1. Understanding the health beliefs of female students allows us to use the data for monitoring and controlling breast cancer, which aligns with the goal of reducing breast cancer-related deaths in the region.
2. The research results can serve as a guideline for relevant organizations to implement breast cancer prevention and monitoring measures for women.

Operational Definitions

1. Female students currently in their 1st to 4th year of study, aged between 18 to 35 years (Havighurst, 1976).
2. Breast cancer preventive behavior refers to the self-care actions taken by female students to prevent breast cancer.
3. Breast cancer is a malignant growth resulting from the uncontrolled proliferation of cells in the breast area.

SCOPE OF THE STUDY

This research focuses specifically on the breast cancer prevention behavior of female students in Chachoengsao province.

Content Scope

1. The study covers self-examination for breast cancer, including the perceived benefits and severity of self-examination, perceived barriers to self-examination, understanding of the susceptibility associated with breast cancer, comprehension of the severity of breast cancer, perceived self-efficacy to perform self-examinations, and behaviors to prevent breast cancer.
2. It delved into the perceived benefits of self-examination, perceived barriers to self-examination, perceived susceptibility associated with breast cancer, perceived severity of breast cancer, perceived self-efficacy to perform self-examinations, and behaviors to prevent breast cancer.
3. The behavior of breast cancer prevention among female students.

Population Scope

The population under study consisted of 3,187 students in their 1st to 4th years, aged between 18 to 35 years, in Chachoengsao province. The target group was specifically 3,187 female students in the same year range and age group from a university in Chachoengsao, obtained by stratified sampling and simple random sampling methods. This resulted in the selection of a sample size of 380 individuals. The chosen sample size was determined based on the table provided by Krejcie & Morgan, and it was set with a reliability level of 95% (Krejcie & Morgan, 1970).

Setting Scope

The study area was a university situated in Chachoengsao province.

RESEARCH METHODOLOGY

This study employed descriptive research.

CONCEPTUAL FRAMEWORK:

The research delved into understanding the behavior related to breast cancer prevention among female students at a particular university in Chachoengsao. In order to provide a conceptual framework for the study, the researcher used the Health Belief Model.

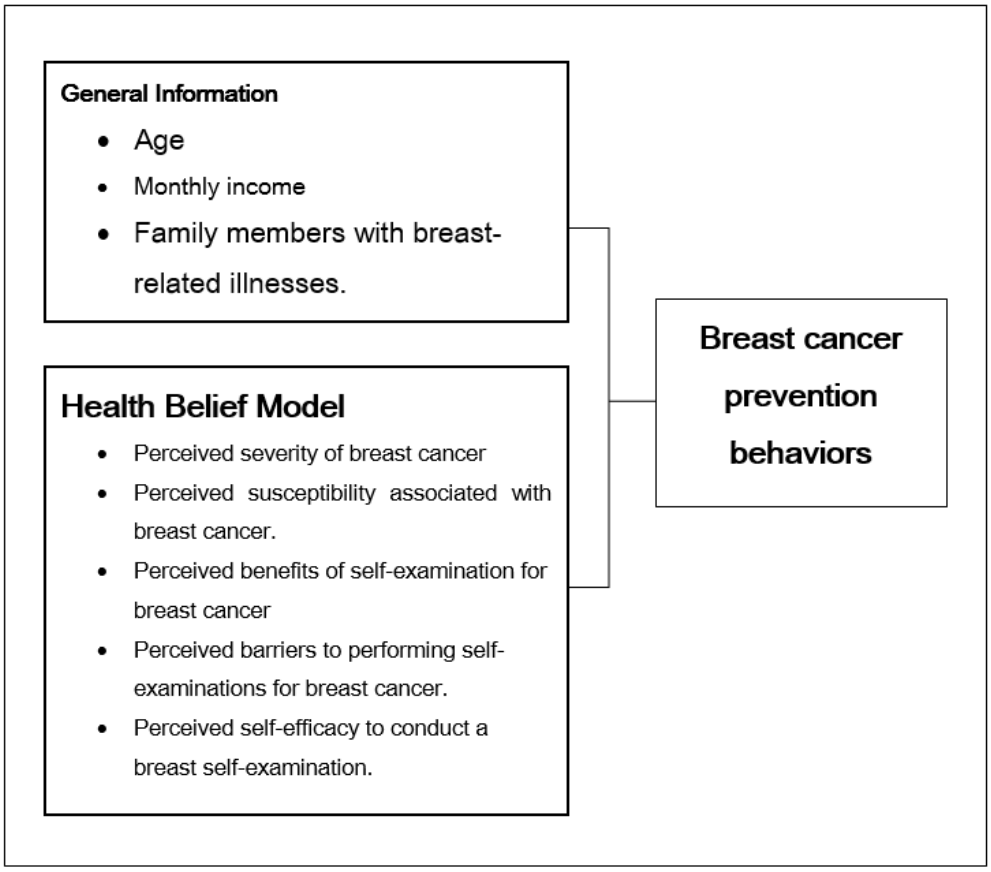

Figure 1: Conceptual framework

Variables of Study:

1. Independent Variables:

1.1 General Information: Age, monthly income, family members with breast-related illnesses

1.2 Health Belief Model:

a) Perceived severity of breast cancer

b) Perceived susceptibility associated with breast cancer

c) Perceived benefits of self-examination for breast cancer

d) Perceived barriers to performing self-examinations for breast cancer

e) Perceived self-efficacy to conduct a breast self-examination

Dependent Variable:

Breast cancer prevention behaviors among female students at a university in Chachoengsao Province

Inclusion Criteria:

1. Female students currently in their 1st to 4th year of study, aged between 18 to 35, from a university in Chachoengsao Province
2. Understands the Thai language
3. Willing to participate in the survey

Research Instrument Development:

For quantitative research, a questionnaire is used as the tool for data collection and is characterized as follows:

Section 1: General Information Questionnaire covering age, monthly income, and family members with breast-related illnesses, consisting of 3 questions.

Section 2: Health Belief Questionnaire Regarding Breast Cancer:

2.1 Perceived benefits of self-examination for breast cancer, comprised of 12 questions.

2.2 Perceived barriers to performing self-examinations for breast cancer, comprised of 8 questions.

2.3 Perceived susceptibility associated with breast cancer, consisting of 12 questions.

2.4 Perceived severity of breast cancer, consisting of 12 questions.

2.5 Perceived self-efficacy to conduct a breast self-examination, comprised of 8 questions.

Section 3: Self-breast Examination Behavior Questionnaire, consisting of 14 questions it was adapted from Supaporn Tantinantrakul's study in 2006 on breast cancer prevention behavior at the Ratchaburi Hospital Center. The questionnaire features multiple-choice questions on a 3-point Likert scale.

Data Analysis:

1. General information questionnaire: analyzed by calculating the mean, percentage, and standard deviation.
2. Self-breast examination behavior questionnaire for young adult women: analyzed by calculating the mean, percentage, and standard deviation.
3. Determine the correlation between the perceived severity of breast cancer, the perceived susceptibility associated with breast cancer, the perceived benefits of self-examination, the perceived barriers to performing self-examinations, the perceived self-efficacy to conduct a breast self-examination, and the self-breast examination behavior of young adult women using Pearson's correlation coefficient.

Ethical consideration

In this quantitative research, which studied female students in years 1-4, aged 18 to 35, in the Chachoengsao province, the researcher acknowledged potential risks and complications during data collection or participation in the activities. Therefore, preventive and supportive measures were set as follows:

1. Approval for the research involving humans was sought from the Ethics Committee for Research on Humans of the Chachoengsao Provincial Public Health Office.
2. Participants were informed that they could withdraw or terminate their participation in the research or activities at any time they desired. This research directly benefited them and would contribute to the overall system. If they felt uncomfortable, they could refuse or halt the process immediately without any repercussions.
3. The data analysis for participants was conducted as an overall analysis without individual-specific insights.
4. The data collected from participants was kept confidential, both in document form and in electronic files. Access was restricted by password-protecting the computer and data files. All data documents were scheduled to be destroyed after 2 years.
5. The duration of each participation session did not exceed 15 to 25 minutes to minimize inconvenience to the participants.

RESULTS

General information about female students aged 18 to 35 who responded to the questionnaire showed that 201 respondents, or 52.90%, were between the ages of 18 to 20. Following that, 165 respondents, or 43.40%, were between 21 to 23 years old. The average age was 20. Most of them had an income in the range of 3,001–9,000 baht, with 206 respondents, or 54.20%. From the interviews regarding medical history related to breast diseases such as breast cancer, breast lumps, breast inflammation, and breast cysts, the majority of 345 respondents, or 90.80%, answered that no family members had ever suffered from such diseases. Meanwhile, 35 respondents, or 9.20%, reported having family members who had experienced breast-related diseases.

Table 1: Displays the mean and standard deviation of health belief values regarding breast cancer examination among female students, covering five aspects in general

5 Health Beliefs	$\bar{x}$	SD	Perceived Level
1. Perceived benefits of self-examination for breast cancer	3.94	0.60	High
2. Perceived barriers to performing self-examinations for breast cancer	3.43	0.52	Moderate
3. Perceived susceptibility associated with breast cancer	3.44	0.58	Moderate
4. Perceived severity of breast cancer	3.58	0.76	Moderate
5. Perceived self-efficacy to conduct a breast self-examination	3.50	0.56	Moderate
6. Breast cancer prevention behavior	1.99	0.32	Moderate

From Table 1, it was found that the perceived benefits of self-breast examination had the highest average of 3.94, which is considered a high level. The perceived barriers to self-breast examination, perceived susceptibility to developing breast cancer, perceived severity of breast cancer, perceived self-efficacy to perform breast examination, and overall behavior to prevent breast cancer were all generally at a moderate level.

Table 2 Shows an analysis of the relationship between the perceived benefits of self-breast examination, the perceived severity of breast cancer, the perceived susceptibility to developing breast cancer, the perceived barriers to self-breast examination, the perceived self-efficacy to perform breast exams, and the behavior to prevent breast cancer among female university students in Chachoengsao province.

Perception	Breast cancer prevention behavior among early adult women	
	r	p-value
Perceived benefits of self-examination for breast cancer	0.170***	.001
Perceived barriers to performing self-examinations for breast cancer	0.106*	.038
Perceived susceptibility associated with breast cancer	0.206***	.000
Perceived severity of breast cancer	0.145**	.004
Perceived self-efficacy to conduct a breast self-examination	0.257***	.000

***P < .001, *P < .05

When correlation coefficients were looked at, it was found that the perceived benefits of self-breast examination, perceived barriers to self-breast examination, perceived susceptibility to developing breast cancer, perceived severity of breast cancer, and perceived self-efficacy to do breast examinations were all significantly related to behavior to prevent breast cancer at the.05 significance level. Specifically, the perceived benefits of self-breast examination, perceived susceptibility to developing breast cancer, and perceived self-efficacy to conduct breast examinations were significantly related at the a.001 significance level. The perceived severity of breast cancer was significantly related at the a.01 level, and the perceived barriers to self-breast examination were related at the a.05 level.

The relationships were as follows: the perceived benefits of self-breast examination, the perceived barriers to self-breast examination, the perceived susceptibility to getting breast cancer, the perceived severity of breast cancer, and the perceived self-efficacy to do breast examinations all had a positive, low-level correlation with behavior to prevent breast cancer, with r-values of.170,.106,.206,.145, and.257, respectively.

DISCUSSION

The researcher presented the research results according to the objectives as follows:

1. Perceived benefits of self-breast examination: The overall perceived average score is high (mean = 3.94). This aligns with the study by Suda Jaihao and team (2018), which investigated the health beliefs and self-breast examination behaviors among female university students in Nakhon Si Thammarat province. They discovered that the majority of students had a high perceived benefit of self-breast examination. On a detailed item-by-item analysis, the top three average scores were: Item 10: If an abnormality is found in the breast, the individual would consult a doctor for further examination, with an average score of 4.30; Item 2: Self-breast examination helps detect early breast abnormalities, with an average score of 4.21; Item 11: Detecting breast cancer at an early stage can lead to a complete cure, with an average score of 4.06. Considering that the sample group is presently undergoing undergraduate studies and is aged between 18 and 35 years, they are in the initial adult age bracket and have higher education. This group can make decisions regarding disease prevention based on their perceived benefits. They believe that certain actions, perceived as beneficial and appropriate, can lead to healing or disease prevention. Furthermore, this demographic is part of Gen Y—individuals born between 1980 and 2000 or aged 18–38 years. This new generation, having grown up in the digital era, possesses a global outlook and can effortlessly access information online. This ease of access has enhanced their perceived knowledge about various diseases sourced from online platforms.

2. Perceived barriers to self-breast examination: The findings indicate that the sample group perceived the barriers to self-breast examination to be at a moderate level, with an average score of 3.43. This aligns with the study by Suda Jaihao and team (2018), which investigated the health beliefs and behaviors regarding self-breast examination among female university students in Nakhon Si Thammarat province. The study revealed that most students perceived barriers to self-breast examination at a moderate level. On an item-by-item basis, the top three scores were: Item 3: "Self-breast examination is not a matter of shame; thus, one can do it on their own" with an average score of 3.84; Item 4: "Self-breast examination is the best method for breast cancer screening due to its cost-effectiveness and painlessness," scoring an average of 3.74; and Item 8: "One can consistently perform a self-breast examination once a month without feeling it as a burden in their daily life," which had an average score of 3.73. The perception of barriers to self-breast examination reveals that the majority feel they are not at risk for the disease or are unaware of the severity of breast cancer. This demonstrates a lack of knowledge about breast cancer or a perceived lack of importance in getting screened. Common reasons include not having enough time for the examination, being unaware of the correct technique, or simply not recognizing the significance of regular check-ups.

3. Perceived Susceptibility for Developing Breast Cancer: The results show that the sample group's perception of the susceptibility to developing breast cancer was at a moderate level, with an average score of 3.44. This is consistent with the research by Suda Jaihao and team (2018), which explored health beliefs and behaviors concerning self-breast examination among female university students in Nakhon Si Thammarat province. The study found that most students had a moderate perceived risk associated with breast cancer. Upon itemized review, the top three scores were: Item 2: "If you have a direct family member with breast cancer, you believe you have a higher chance of developing breast cancer than other women", with an average score of 3.79; Item 8: "If you have ever found a lump in your breast, you believe you are at risk of developing breast cancer", scoring an average of 3.62; Item 10: "As you age, you believe your chances of developing breast cancer increase", with an average score of 3.60. Perceived susceptibility to developing breast cancer refers to behaviors or risk factors that may increase the likelihood of developing the disease. Most

respondents believed that the risk of developing breast cancer arises from the food they consume. This belief is due to the Ministry of Public Health raising awareness through various media outlets and informing the public that cancer can be caused by consuming certain types of food, especially those that are grilled, high in fat, or contaminated with chemicals.

4. Perceived severity of breast cancer: The study results indicate that the perceived severity of breast cancer among the sample group was moderate, with an average score of 3.58. This finding aligns with the research by Suda Jaihao and team (2018) on health beliefs and self-breast examination behaviors among female university students in Nakhon Si Thammarat province. Their research concluded that most of these students also perceived the severity of breast cancer as moderate. Breaking down the data further, the top three items with the highest average scores were: Item 12: "If breast cancer becomes severe and is left untreated, the chances of mortality increase", with an average score of 3.88; Item 9: "Having breast cancer leads to thoughts of surgical procedures, radiation treatment, or chemotherapy", with an average score of 3.83; and Item 11: "If breast cancer is not treated, it will become more severe and spread to other organs", scoring an average of 3.82. It's inferred that if women are aware of both the severity and the susceptibility associated with a disease, they'll recognize the threatening nature of that disease. This perceived threat is something that individuals naturally want to avoid. As a result, they are more likely to engage in health behaviors, like seeking prevention methods against the illness.

5. Perceived self-efficacy in breast self-examination: The findings indicate that the sample group's confidence in their ability to perform breast self-examinations lies at a moderate level, with an average score of 3.50. When dissecting the data further, the top three items with the highest average scores are: Item 7: "You can perform a breast self-examination once every month", with an average score of 3.74; Item 8: "You are capable of teaching and transferring the knowledge and technique of breast self-examination to others", scoring an average of 3.73; Item 9: "You believe that performing a breast self-examination is easy for you", which scores an average of 3.72. Considering that the sample group comprises university students studying in their 1st to 4th years of a bachelor's degree, they are likely to have adequate knowledge and confidence in performing breast self-examinations. Their ongoing education and exposure to various online sources can easily enable them to access skills and knowledge on breast self-examination.

6. Behavior for Breast Cancer Prevention: From the research data, the sample group's behavior towards preventing breast cancer was found to be at a moderate level, with an average score of 1.99. Upon further examination of the data, the highest scoring behavior is "consuming a well-balanced diet from all five food groups", with an average score of 2.31; the second highest behavior is "being proactive and interested in following guidelines and recommendations for breast cancer prevention", with an average score of 2.28; and the third highest behavior is "regularly checking for breast abnormalities", which has an average score of 2.05.

7. Perceived benefits of self-breast examination, perceived barriers of self-breast examination, perceived susceptibility for breast cancer, perceived severity of breast cancer, and perceived self-efficacy to perform a self-breast examination are significantly related to breast cancer prevention behavior at the.05 statistical level. From literature reviews, it was found that for patients to have preventive behavior, they must believe and recognize that potential diseases can be severe and affect their lives (Strecher, Champion, & Rosenstock, 1997). They must also believe that changing behavior can reduce the risk or severity of the disease. Therefore, belief is one motivating factor for good health behavior. The Health Model (Strecher et al.) emphasizes disease prevention and behavior adjustment. For an individual to behave preventatively, they must believe they have a chance of getting sick or that the disease is severe and affects their lives (Strecher et al., 1997). When women recognize the

benefits of self-breast examination, it affects the development of self-breast examination skills. And when women are promoted to recognize the capabilities of self-breast examination, it gives women confidence in practicing and helps reduce perceived obstacles to self-breast examination (Pender et al., 2015), leading to breast cancer prevention behavior.

This aligns with the study of Nam-Oi Pakdeewong and Nuanrat Komolwipat (2018) on the knowledge, health beliefs, self-efficacy perceptions, and self-breast examination behaviors of female students who underwent a breast self-examination promotion program. It was found that after participating in the self-breast examination promotion program, the sample group had statistically significant increases at the 0.05 level in their perception of health beliefs regarding the risk of breast cancer and the benefits of self-breast examination. This shows that after the sample group received information about breast cancer, they became more aware and conscious of the risks of breast cancer and recognized the benefits of self-breast examination as a convenient method to screen for early-stage breast cancer without incurring costs. This is consistent with the study by Nanthana Kongpatanakul (2020) on the effects of a personal competency development program combined with instructive training on behavior in the prevention, self-care, and surveillance of breast cancer in public health volunteers. It was found that the experimental group had statistically significantly higher average scores ($p < .001$) in their self-efficacy perception of self-breast examination, breast self-examination skills, and breast cancer care and monitoring skills immediately after the experiment and during follow-up than before the experiment and compared to the control group. This program was designed to foster breast cancer prevention behavior among Bangkok's female public health volunteers and promote awareness among community women, enabling them to perform self-breast examinations. The program was based on the self-efficacy theory, which includes successful experiences (mastery experiences), narrative descriptions, viewing videos about breast cancer, and self-breast examinations. This makes public health volunteers confident that they can perform self-breast examinations. Behavior then depends on one's self-efficacy perception in that situation. If an individual believes they have the capability, they will be persistent. If an individual has high self-efficacy and high outcome expectations, they will be satisfied, eager to act, and perform effectively.

Suggestions for implications

The sample has a moderate level of perceived susceptibility to disease and perceived severity of disease. Government agencies should provide knowledge about the impact of breast cancer through easily accessible media for students, such as the internet. This can encourage self-breast examination and observation of breast abnormalities, which can prevent breast cancer, and possibly increase activities in Thanyarak Club, which will be beneficial for students' self-care and increase awareness of conducting continuous self-breast examination. Furthermore, the competence of students in the Thanyarak club should be developed to have knowledge and skills in self-breast examination to transfer knowledge to other female groups. Therefore, future research should study how students transfer knowledge of self-breast examination to women in communities to prevent breast cancer by evaluating the results after activities.

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