A Causal Model of Breast Cancer Preventive Behaviors among Female Relatives of Thais with Breast Cancer

Aphorn Khamkon, Kanaungnit Pongthavornkamol, Teradech Chai-Aroon, Karin Olson, Adune Ratanawichitrasin, Nantiya Watthayu

Abstract : The purpose of this study was to test the Casual Model of Breast Cancer Preventive Behaviors among 200 first-degree female relatives of Thais with breast cancer. Development of our hypothesized Model was informed by the Health Belief Model and a literature review. A total of 200 relatives of patients receiving treatments at a tertiary care hospital in Bangkok were recruited using convenience sampling. Data collection used six self-administered questionnaires: The *Demographic Data Form, Perceived Risk Questionnaire, Impact of Event Scale, Powe Fatalism Inventory, Perceived Self-efficacy Scale*, and *Health-Promoting Lifestyle Behavior Questionnaire*. Descriptive statistics were used to describe the demographic characteristics of the participants, while path analysis was undertaken using AMOS.

The results showed that the final Model fitted well with the empirical data of all variables, except the relative breast cancer index, and explained 52% and 49 % of the total variance in breast cancer screening and healthy lifestyles, respectively. Age and education had an indirect effect on these behaviors through breast cancer fatalism, perceived self-efficacy, and perceived risk while breast cancer specific distress had indirect effect only through perceived risk. Breast cancer fatalism had the lowest effect, whereas perceived risk and perceived self-efficacy had the strongest effect on both breast cancer screening and healthy lifestyle. Our findings suggest that nurses should conduct interventions to enhance perceived self-efficacy and perceived risk of breast cancer for motivating these high-risk women to perform regular breast cancer prevention behaviors. Further, longitudinal research to refine our Model with women with a family history of breast cancer is recommended.

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Key words: Breast cancer, Causal model, Family risk, Preventive behaviors

Introduction

Breast cancer has now become the most common cancer and a leading cause of death among Thai women.[1] Although the etiology of breast cancer remains unknown, one of the risks for this is a family history of the disease.[2] The risk of women with family history of breast cancer (FHBC) developing this condition is two to four times higher than those women without a family history.[3] Furthermore,

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a study in Thailand found that approximately 3.5% of all cases and 1.6 % of control patients reported a history of breast cancer in mothers or sisters which was consistent with studies conducted in the developed world.[4] Although breast cancer is currently incurable, there is evidence that survival rate can be improved if breast cancer is detected early.[2] Besides, the healthy lifestyles such as maintaining healthy weight, staying physically active throughout life, stopping alcohol consumption, and maintaining a healthy diet can substantially reduce one's lifetime risk of developing cancer.[5]

Literature related to breast cancer preventive behaviors (BCPB) reveals that women with a FHBC who perceive themselves to be at high risk for the disease are more likely to engage in appropriate screening behaviors and physical activity than those without such a family history.[6, 7] In addition, women who perceive self-efficacy in relation to BCPB are more likely to perform these behaviors than those who do not perceive self-efficacy,[8] and as well cultural factors also may have an influence. Furthermore, previous studies have found breast cancer-specific distress to be more likely to occur in women with FHBC than those without this.[9] Older women with high education attainments are more likely to engage in such behaviors than younger women with lower education attainments.[10] Moreover, factors involved in the relative breast cancer index, such as age at onset, time at cancer diagnosis, the number and type of relatives with breast cancer have been found to affect BCPB.[11]

Although evidence has shown the great benefits of regular breast cancer screening and increasing healthier lifestyles, regular screening is underused among high-risk women including women with a FHBC.[12] In Thailand, studies reporting women with family history of breast cancer who practice regular breast self-examination (BSE) are rather low at approximately 21%.[13,14] Many women are unaware of the associations between healthy lifestyle behaviors and breast cancer risks.[15] According to previous studies demonstrating the relationships among those factors and BCPB, how those factors work to affect such behaviors has not been clearly delineated. Thus, this study was designed to test a causal model of factors influencing BCPB to guide nursing interventions focusing on breast cancer screening and healthy lifestyle behaviors.

Conceptual Framework and Literature Review

The conceptual framework of this study was based on the Health Belief Model (HBM) and literature related to BCPB among women with a FHBC. HBM has been one theory frequently used to explain cancer prevention behaviors. According to the HBM, individuals are more likely to take action toward preventing or detecting ill health if they: (1) feel susceptible to a specific condition; (2) perceive the severity of that condition and (3) believe their actions will be beneficial with few barriers.[16] The HBM and recent modifications of this theorize that five factors are related to the performance of a surveillance behavior, namely; perceived seriousness of the disease, perceived susceptibility to the disease, perceived benefits of engaging in the surveillance behavior, perceived barriers to engaging in the behavior and confidence in correctly performing the surveillance behavior to maximize its utility.[17]

The literature on the relationship and factors influencing BCPB shows that women with a family history are at least aware of their increased risk.[18] Women assigned a high relative risk for breast cancer often seek information to alleviate risk through screening and breast cancer preventive behaviors.[19] The findings of one qualitative study provided evidence that breast cancer risk was perceived to be greatly influenced by family history.[20] Women with high risks for developing breast cancer are more likely to perceive their risk for developing the disease and more motivated to

participate in breast cancer screening programs.[6,21] and to engage in regular physical activity.[7] Moreover, women who report confidence in their ability to perform BSE are more likely to practice this regularly. Consistently, a study by Quach[22] revealed that perceived self-efficacy predicted health behaviors. Another factor influencing BCPB among female relatives of breast cancer patients is fatalism, a complex phenomenon with potentially far-reaching implications for health behaviors. Cancer fatalism has been identified as a barrier to participation in cancer screening, detection and treatment[23] and another study found breast cancer fatalism to be significantly, negatively correlated with mammography screening in African-Americans.[24] A similar finding was found by Franklin[25] who discovered dietary health behaviors (fat-increasing and fat-decreasing behaviors) to be associated with fatalistic beliefs.

Women who have awareness of high risk of FHBC frequently face psychological distress, anxiety, worry and fear[26] and this distress is more likely to occur in women with a FHBC than those without this history.[9] Other studies demonstrate that individuals reporting higher distress to be more likely to engage in specific cancer screening before reaching the recommended age.[11, 27]

In regards to demographic factors, personal factors have been shown in several studies as a strong determinant of health attitudes and preventive health behaviors in women with a FHBC. Previous studies in first-degree female relatives (FDFRs) of breast cancer patients found that age, and education were associated with adopting physical activity, alcohol consumption and dietary intake.[7, 22, 28] Furthermore, evidence suggests the relative breast cancer index including age at onset, time at cancer diagnosis, the number and type of relatives with breast cancer was positively associated with engaging in breast cancer preventive behaviors among female relatives of breast cancer patients.[11]

Based on the HBM[29] and the literature review, a causal model of factors influencing BCPB in women with a FHBC was constructed. It was hypothesized that perceived risk, perceived self-efficacy, and breast cancer fatalism mediated the relationship between personal factors of age and educational level, breast cancer-specific distress, relative breast cancer index and the outcomes variables of breast cancer screening and healthy lifestyle. The model and directions of the relationships are presented in **Figure 1**

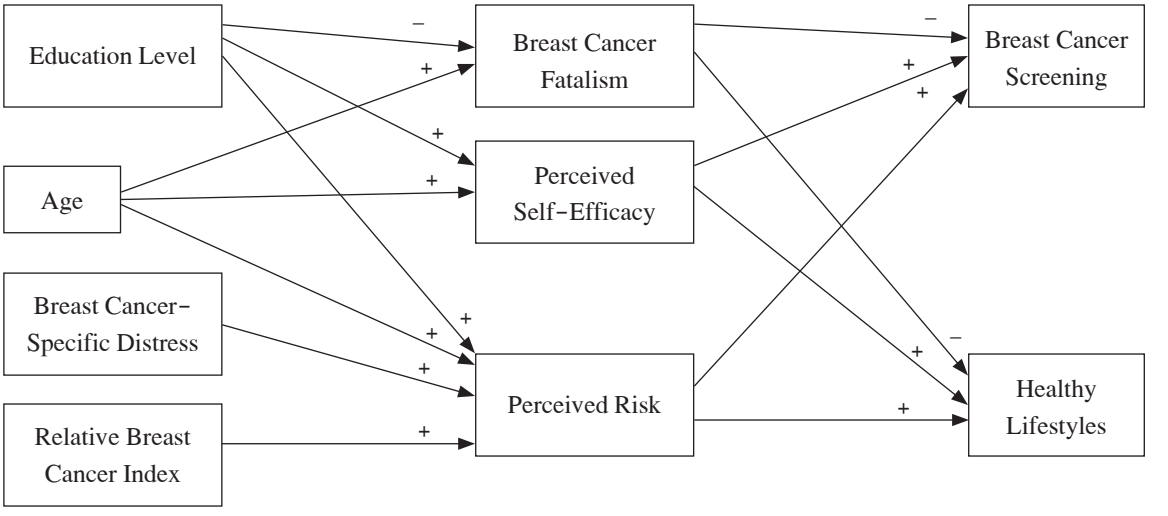


Figure 1 A hypothesized model of factors influencing breast cancer preventive behaviors among female relatives of Thais with breast cancer

Method

Design: A model testing design was used in this study.

Ethical Considerations: Approval to conduct the study was granted by the Institutional Ethics Committee on Research Involving Human Subjects of the hospital where data collection was taken place. Each potential participant was informed of the study's objectives and provided information regarding what would be involved in participation. In addition, the recruits were informed that they could terminate participation at any time without repercussions and they were assured that anonymity and confidentiality would be maintained. Those FDFRs willing to participate signed informed consent forms.

Setting and Samples: Participants were selected from women who had at least one first-degree relative (mothers, sisters, or daughters) with breast cancer diagnosis who were either attending a follow-up visit or receiving cancer treatment at the tertiary care hospital in Bangkok, Thailand. Potential participants were approached directly by the first researcher. Inclusion criteria were that participants must have been a minimum of 20 years old; had no mental illness and had ability to understand and communicate in Thai.

The sample size was estimated using the power analysis with a desired power of 80%, a significance level of 0.05, a medium effect size[30] (r = 0.30, λ=17.4) and included a 15% attrition rate. This resulted in a required sample size of 200 participants who were then recruited by convenience sampling.

Instruments: The following six instruments were employed in the study: *Demographic Data Form*; *Perceived Risk Questionnaire; Impact of Event Scale; Powe Fatalism Inventory; Perceived Self-efficacy Scale;* and h*ealth-Promoting Lifestyle Behavior Questionnaire.* The original author of each of the copyrighted instruments granted permission for use and translation into Thai. The *Powe Fatalism Inventory* had never been used in Thailand. Thus, a complete process of translation from English to Thai and then back-translation was carried out before using the instrument.

The Demographic Data Form was developed by the primary investigator (PI) to obtain demographic data in three parts as follows: 1) personal information, which included age, educational attainment, marital status, religion, health insurance, family income, age at menarche, age at prim parity, height and weight. To calculate the body mass index (BMI), the weight in kilograms was divided by the height in square-meters (m^2). The classification of the WHO[31] was used in this study. 2) Personal risk factors for breast cancer, such as history of abnormal breast condition (non-cancerous or benign breast disease, the method for detection and treatment received; 3) Caregiver role and breast cancer patient information about the family member with breast cancer including the participant's relationship, time since diagnosis, age at onset and stage of disease.

The Perceived Risk Questionnaire[32] measured the perceived risks of women with a FHBC using six items, examples of which were: "I have a chance of getting breast cancer during my lifetime" and "Compared to the women without a family history of breast cancer, I am at greater risk for getting the disease". Each item had possible responses ranging from 1 = strongly disagree to 5 = strongly agree with the exception of one item in which the scores were converted as follows; 1= strongly agree; 2 = agree; 3 = neither agree nor disagree; 4 = disagree and 5 = strongly disagree. A total score of the six items represented the level of risk perception. Possible scores ranged from 6-30 and the mean score was calculated. A higher score indicated higher perceived risk. In this study, the Cronbach's alpha for the Perceived Risk Questionnaire was 0.81.

The Impact of Event Scale (IES) [33]was used to measure breast cancer-specific distress. The IES was translated into Thai by Assanangkornchai *et al.*[33]

The IES contains 15 items which can be tailored to a specific event, namely 'breast cancer' in this study. Examples of the items were as follows: "I tried not to think about being diagnosed with the breast cancer of my relative" and "I had trouble falling asleep or staying asleep because of pictures or thoughts that came into my mind". Possible responses were: 0 = not at all; 1 = seldom; 3 = sometimes; and 5 = often. The scoring ranged from 0 to 75 in which a higher score reflected higher breast cancer-specific distress. In this study, the Cronbach's alpha for the IES was 0.90.

The Powe Fatalism Inventory (PFI) was used to measure breast cancer fatalism. The PFI was developed by Powe[23] in 1995 to identify fatalistic beliefs about breast cancer prevention. The PFI is a 15-item questionnaire based on the philosophic origins and attributes of cancer fatalism (fear, predetermination, pessimism and inevitable death). Examples of items were as follows: "I think if someone gets breast cancer, it doesn't matter whether they find it early or late, they will still die from it" and "I think if someone is meant to have breast cancer, it doesn't matter if they eat healthy foods, they will still get breast cancer". Possible responses to all of the items were either 0 = yes or 1 = no. The total score, which had a total possible range of 0-15, was obtained by summing the response values across all items in which a higher score meant greater fatalism. This tool was translated to Thai using the translation and back translation method by the researcher and a bilingual Thai PhD-prepared nurse. The re-translated version and the original tool were compared for discrepancies about the clarity and accuracy of the original language. In this study, the Kuder-Richardson 20(KR-20) reliability coefficient of the PFI was 0.82.

The Perceived Self-Efficacy Scale, related to the Health-Promoting Lifestyle Profile, was developed by Chaikulwattana[34]and contains 26 items, of which only 11 items related to BCPB were used in this study. This scale consists of only positive statements including dietary intake (4 items), physical activity (3 items), alcohol consumption (1 item) and breast cancer screening (3 items). Examples of the items were as follows: "I believe that I am capable of doing exercise at least five times per week and using 45-60 minutes for each session" and "I believe that I am capable of avoiding eating a high-fat diet". The items were evaluated on a 3-point attitude test ranked on a Likert scale ranging from 1 = low perceived self-efficacy to 3 = high perceived self-efficacy. The total scores ranged from 11-33 with higher scores indicating better perceived self-efficacy. Cronbach's alpha coefficient for the 3-point scale was 0.77.

The Health-Promoting Lifestyle Profile used to measure BCPB was modified by Chaikulwattana[34] and contains 26 items. In this study, however, only 11 items directly related to BCPB were used and divided into two parts, breast cancer screening behaviors, and healthy lifestyle behaviors with six positive statements and two negative statements. Examples of the items included: "I perform monthly breast self-examinations" and "I eat a high-fiber diet, for example, vegetables, fruits, beans, coarse rice". The scores were based on the attitude test ranked on a 3-point Likert scale as follows: 1) positive statements ranging from 1 = none/poor to 3 = regularly/good; and 2) negative statements ranging from 1 = regularly/good to 3 = none/poor. The total scores ranging from 3-9 for breast cancer screening, and from 8-24 for healthy lifestyle behaviors, were obtained by summing the numerical responses across all items. The Cronbach's alpha coefficient was 0.75 for breast cancer screening, and 0.77 for healthy lifestyle behaviors.

Procedures: The PI collected the data in person from the participants who were asked to complete the set of questionnaires during interviews lasting approximately 30 minutes. The researcher helped read the questions for the participants who experienced eye problems. The participants who were not ready to be interviewed on the appointed

day were given new appointments. The participants completed all of the questionnaires.

Data Analysis: Descriptive statistics were used to characterize the participants and examine the distribution properties of the variables. A structural equation model using *Analysis of MOment Structures* (AMOS) was utilized[35] to test the relationships among the factors influencing BCPB in FDFRs of Thai with breast cancer.

Results

The range, mean scores, skewness and kutosis of the study variables are presented in **Table 1**. The participants ranged in age from 20-74 years with a mean age of 40.67 years (SD = 13.50). The mean weight of the subjects was 58.74 kg (SD = 11.90) and the mean height was 157.71 cm (SD = 5.79). The BMI of FDFRs of breast cancer ranged from 14.88 to 47.56 kg/m^2 which was classified into healthy women at 66% (n = 132), overweight women at 21% (n = 42), and obese women at 13% (n = 26). The mean BMI of these women was 23.66 kg/m^2. Some participants had early menarche, or menarche at less than 12 years of age (25.50%, n = 51). The mean age at first menstruation was 13.47 years (SD = 1.82). In addition, more than half of participants were nulliparous (54%, n = 108). Among those who had at least one child, the mean age of women at birth of their first child, or primiparity, was 26.93 years (SD = 5.00). Only 16% (n = 32) had a history of abnormal breast lumps and of these, only 40.6% had ever had breast lump biopsies; all of these biopsies were normal. Regarding the relative breast cancer index characteristics, the mean age of patients with breast cancer was 52.53 (SD = 10.30). The majority of the participants had only one FDFRs of breast cancer patients(86.5%, n = 173) and 52.2% were mothers/daughters. The mean time since breast cancer diagnosis was 11.62 months (SD = 10.66). With regard to the stage at breast cancer diagnosis, approximately one-third of the women did not know their relative's stage of breast cancer diagnosis (30.00%, n = 60), while the remainder had Stage 0-I (20.50%, n = 41), Stage II (28.5%, n = 57), Stage III (14.5%, n = 29), and Stage IV (6.5%, n = 13).

Table 1 Range, mean, standard deviation, skewness and kurtosis of study variables (n = 200)

Variables	Possible Range	Actual Range	Mean	Standard Deviation	Skewness (SE=.17)	Kurtosis (SE=.34)
Age		20-74	40.67	13.50	0.40	-0.76
Age at Onset		28-87	52.53	10.34	0.41	0.51
Time since Diagnosis		1-39	11.62	10.66	0.86	-0.51
Perceived Risk	6-30	6-29	17.40	5.20	0.06	0.44
Breast Cancer-Specific Distress	0-75	0-62	19.20	13.52	0.69	-0.14
Perceived Self-Efficacy	11-33	15-33	25.13	4.93	-0.37	-0.64
Breast Cancer Fatalism	0-15	0-15	4.60	4.37	0.83	-0.43
Breast Cancer Preventive Behaviors						
Breast Cancer Screening	3-9	3-9	5.54	1.84	0.56	-0.65
Healthy Lifestyles	8-24	12-24	17.95	2.71	0.23	-0.54

Note: SE = Standard Error

The majority of participants (96.5%, n = 193) were Buddhists and married (48.5%, n = 97). As for educational attainment, nearly half (47%) had earned a bachelor degree, 43.5% had education levels below bachelor degree, and 9.5% a qualification higher than a bachelor degrees. Slightly more than half (68%) of participants were employed. Approximately 41% of participants had family incomes amounting to >30,000 baht/month and 22% earned <10,000 baht/month. With regard to health insurance, about 30%had universal health coverage, while 20.5% had public/state welfare benefits and 21.5% had social security welfare benefits. In addition, more than half of these (57%) had taken on the role of caregiver for their relative with breast cancer.

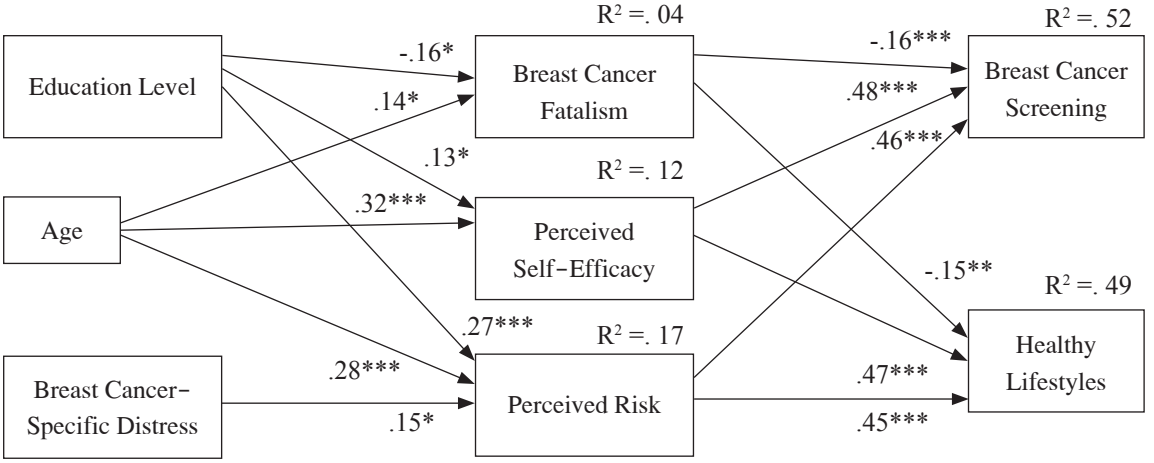
Model testing: To determine the effects of the variables on BCPB, the simplest strategy involved constructing a model corresponding to the hypotheses based on the HBM and the literature review. The start-up and testing of the first proposed model was composed of the core variables in the HBM acting as exogenous variables (perceived risk, breast cancer fatalism and perceived self-efficacy). The endogenous variable was the BCPB. Next, the breast cancer-specific distress variable was added in the second proposed model. Then the other variables, namely, personal factors and relative breast cancer index associated with BCPB, were added in the third and the fourth proposed model, respectively. Thus, the four proposed models for this study were constructed and a suitable model for this study was determined by hierarchical model testing. Choosing the best model or model fit with the data was done by computing the chi-square difference testing between each pair of the models (Proposed Models 1 and 2, Proposed Models 2 and 3, and Proposed Models 3 and 4) (See **Table 2**).

Table 2 Model fit statistics and indices associated with the proposed models

Model	χ^2	df	χ^2/df	*p*	CFI	NNFI	NFI	RMSEA	$\Delta\chi^2$	Δdf	*p*
Proposed Model 1	3.68	4	0.92	0.45	1.00	1.00	0.99	0.00	-	-	-
Proposed Model 2	13.20	8	1.64	0.11	0.98	0.97	0.96	0.06	9.52	4	<.05
Proposed Model 3	27.27	15	1.82	.027	0.97	0.94	0.93	0.06	14.07	7	<.05
Proposed Model 4	184.58	49	3.77	0.00	0.71	0.61	0.66	0.12	157.31	34	<.001

As shown in Table 2, a comparative test for the first and second proposed models indicated a significant difference in that the second proposed model fitted the data better than the first. Moreover, the third proposed model fitted the data better than the second proposed model and the results of the comparison between the third and fourth proposed models indicated adequate fit indices, thereby showing the data to fit well with the third proposed model as indicated by decreased chi-square statistics and increased the values of other goodness-of-fit indices. Therefore, a model was chosen to examine the causal relationship in the third proposed model with the results showing that this final model fitted best with the empirical data (See **Figure 2**). The final model of BCPB explained 52 % (R^2 = 0.52) and 49% (R^2 = 0.49) of the total variance in breast cancer screening, and healthy lifestyles respectively (See **Table 3**). Perceived self-efficacy (PSE), perceived risk (PR), and breast cancer fatalism (BCF) are significant factors mediating the relationships among age, education, breast cancer-specific distress (BCSD) with breast cancer screening and healthy lifestyle (See **Figure 2**). The strongest predictor in the final model was perceived self-efficacy (β = .48 for BCS, β = .47 for HL), followed by perceived

risks (β = .46 for BCS, β = .45 for HL) and breast cancer fatalism (β = -.16 for BCS, β = -.15 for HL), respectively. In addition, age had a positive indirect effect on both BCS and HL through a positively direct effect on BCF, PSE and PR, while BCSD had positively indirect effect on BCS, and HL through only direct positively effect on PR. In addition, educational level had a positive indirect effect on BCS, and HL through negatively direct effect on BCF, and positively direct effect through PSE and PR. All direct, indirect and total effect of each variable on other variables in the final model indicated by β and p value has been shown in Table 3 and figure 2, respectively.



Chi-square = 27.27, df = 15, p-value = .027, CFI = .97, NFI = .93, NNFI = .94, RMSEA = .06
* p<.05, ** p<.01, *** p<.001

Figure 2 The final model of factors influencing breast cancer preventive behaviors among female relatives of Thais with breast cancer

Table 3 Direct, indirect and total effects of variables on affected variables in the final model (n = 200)

Causal Variables	Affected Variables														
	PR			PSE			BCF			BCS			HL		
	D	I	T	D	I	T	D	I	T	D	I	T	D	I	T
Age	.28***	-	.28***	.32***	-	.32***	.14*	-	.14*	-	.26***	.26***	-	.26***	.26***
Edu	.27***	-	.27***	.13*	-	.13*	-.16*	-	-.16*	-	.21***	.21***	-	.21***	.21***
PR	-	-	-	-	-	-	-	-	-	.46***	-	.46***	.45***	-	45***
BCSD	.15*	-	.15*	-	-	-	-	-	-	-	.07*	.07*	-	.07*	.07*
PSE	-	-	-	-	-	-	-	-	-	.48***	-	.48***	.47***	-	.47***
BCF	-	-	-	-	-	-	-	-	-	-.16***	-	-.16***	-.15**	-	-.15**
	R^2 = .17			R^2 = .12			R^2 = .04			R^2 = .52			R^2 = .49		

Note: *p<.05; **p< .01; ***p< .001, D = direct effect; I = indirect effect; T = total effect,
Edu = education; PR = perceived risk; BCSD = breast cancer-specific distress; PSE = perceived self-efficacy; BCF = breast cancer fatalism; BCS = breast cancer screening; HL = healthy lifestyles

Discussion

The result of this study showed that all relationships among the causal variables (except relative breast cancer index) and affected variables in the hypothesized Model of BCPB were supported. The casual variables including perceived self-efficacy, perceived risk, breast cancer fatalism, breast cancer-specific distress, age and education are capable of explaining 52% and 49% of the total variance in breast cancer screening behaviors, and healthy lifestyle behaviors respectively among Thai female relatives with breast cancer. These findings concurred with previous studies which found that a number of concepts in the HBM are capable of predicting BCPB.

According to this study's finding, Thai FDFR's abilities to engage in BCPB was influenced by direct effect of their perceived self-efficacy, and the indirect effect of education and age through perceived self-efficacy. Congruent with a prior study's findings, perceived self-efficacy was found to be a significant predictor of breast cancer screening behaviors.[8, 36] Similarly, Quach *et al.*[22] revealed that perceived self-efficacy could predict all health behaviors in terms of diet, exercise and vitamin use modification. Based on the HBM,[29] these women would take health-related actions if the women believed they could be successful in health prevention with this activity. Moreover, FDFRs of Thais with breast cancer who are older and educated showed higher perceived self-efficacy for performing BCPB. One possible reason is that these women develop their perceived self-efficacy through assimilated meanings of information related to BCPB, and with more understanding, mastery experiences and vicarious learning than younger women with lower education levels under the same circumstances.[37]

The second causal variable for predicting breast cancer preventive behaviors in the BCPB Model among FDFRs of Thai with breast cancer was perceived risks. This finding is consistent with a previous study[21] which found risk perception to have significant associations with regular breast cancer screening. In other words, increasing risk perception leads to practice BCPB.[38] Consistent with the literature suggesting perceived risk as a central concept of many theories used to explain health behaviors, one possible explanation is due to the receipt of information about assessing breast cancer risks from health care providers while accompanying relatives in receiving treatment and from the patients who often receive health education. Such circumstances might make these Thai FDFRs more aware of their risks for breast cancer. Moreover, in the BCPB Model, age, education and breast cancer distress were also found to have indirect effects on breast cancer screening and healthy lifestyles through perceived risks. Older educated FDFRs with high levels of breast cancer distress were more likely to increase perceived risks with a direct effect on breast cancer preventive behaviors. One possible reason is that older women generally have increased perceived severity of breast cancer as age increases and immunity declines. Therefore, the chance of having breast cancer may be increased.

In addition, breast cancer-specific distress appears to be a normative response to awareness of enhanced risks, especially among FDFRs of Thai with breast cancer. Similarly, previous studies have revealed psychological distress to frequently occur in women with a FHBC due to awareness of the risk for breast cancer.[9, 36] Previous studies comparing women with and without a family history of the disease found the women with at least one first-degree relative with breast cancer to have higher levels of distress than those women without positive family history.[26,39] One possible explanation would be that FDFRs of Thai with breast cancer (57%) have experience as a primary caregiver of a patient with breast cancer or have lived with breast cancer patients at home. Thus, psychological distress is more likely to occur in women with a FHBC[9] which serves as a motivator for seeking information related to breast cancer screening and modifications in lifestyle behaviors.

The current study highlights an important finding that breast cancer fatalism has been discovered to have direct negative effects on BCPB among FDFRs of Thai with breast cancer. These women held fatalistic attitudes associated with the idea that "death is inevitable when breast cancer is present". In their view of fatalistic beliefs, illness and healing only occur by fate. All events are fated to happen and human beings have no control over the future, nor are humans able to change outcomes.[25] Consistent with the findings of this study, nearly half of the women (41.5%) believed that there is no cure for breast cancer and that a diagnosis with breast cancer is considered a death sentence. The abovementioned findings concur with a qualitative study[20] finding that women who fail to perform BSE often have fatalistic views. In other words, breast cancer can neither be prevented nor detected.

As previously mentioned about the BCPB Model, we conclude that perceived self-efficacy, perceived risks of breast cancer and breast cancer fatalism are key predictors of BCPB behaviors among FDFRs of Thai with breast cancer. These women felt threatened by current risks (family history) and believed that changes of a specific kind would result in a valued outcome such as reducing breast cancer risks. Therefore, they were more likely to perform BCPB due to perceiving themselves as susceptible to developing the disease. Then, these women felt competent (perceived self-efficacy) about reducing breast cancer risks and taking actions (breast cancer screening and healthy lifestyle). However, women who had fatalistic views tended to think less about preventing breast cancer due to insufficient knowledge about breast cancer.

Limitations

The findings of this study were obtained using a cross-sectional approach in the sense that factors such as time since breast cancer diagnosis in a family member were not controlled. This proposed BCPB Model has demonstrated the usefulness of the structural equation modeling, however, the causal relationships explained should be interpreted cautiously because the study used a cross-sectional design. In addition, generalization was limited by the use of convenience sampling.

Conclusions and Recommendations

This study has provided new knowledge regarding factors influencing BCPB among Thai women with FHBC. Our findings suggest that the casual variables in the final Model, derived from the HBM and related-literature, are perceived risks, perceived self-efficacy and breast cancer fatalism. These appear to be effective in promoting regular breast cancer screening and adopting health lifestyles among women with positive FHBC, particularly if distress, age and education are taken into account. Moreover, the results of this study support the assertion that perceived self-efficacy and perceived risk were the most significant factors influencing the performance of breast cancer preventive behaviors in FDFRs of Thai with breast cancer. Therefore, nurses as well as other health care providers should encourage these women to be aware of their risk for breast cancer and thus engage in activities for breast cancer screening based on the recommended guidelines, and to promote the adoption of healthy lifestyles among women at high risk for breast cancer.

In terms of further research, a prospective, longitudinal study should be conducted to refine our BCPB Model. In addition, as fatalistic belief was found as a significant, cultural-related factor among these women in this study, a qualitative study to explore the meaning of breast cancer fatalism in the perspectives of women with a FHBC is recommended for greater depth of understanding about this phenomenon.

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แบบจำลองเชิงสาเหตุของพฤติกรรมการป้องกันมะเร็งเต้านมในสตรีไทยที่มีญาติเป็นมะเร็งเต้านม

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บทคัดย่อ: การศึกษานี้มีวัตถุประสงค์เพื่อทดสอบโมเดลเชิงสาเหตุของพฤติกรรมการป้องกันมะเร็งเต้านมในสตรีไทยที่มีญาติเป็นมะเร็งเต้านมโดยโมเดลสมมติฐานของการศึกษาครั้งนี้มีแบบแผนความเชื่อด้านสุขภาพและการทบทวนวรรณกรรมเป็นกรอบแนวคิด กลุ่มตัวอย่างที่ศึกษามีจำนวน 200 คน เลือกแบบใช้ความสะดวก โดยเป็นสตรีไทยที่เป็นญาติลำดับขั้นที่หนึ่งของผู้ป่วยมะเร็งเต้านมและมารับการรักษาที่โรงพยาบาลระดับตติยภูมิแห่งหนึ่งในกรุงเทพมหานคร ตอบแบบสอบถามจำนวน 6 ชุด ได้แก่ ข้อมูลทั่วไป แบบวัดการรับรู้ความเสี่ยง แบบวัดผลกระทบทางด้านจิตใจของการมีญาติเป็นมะเร็งเต้านม แบบวัดความเชื่อในโชคชะตา แบบวัดการรับรู้ความสามารถของตนเอง และแบบวัดพฤติกรรมการป้องกันมะเร็งเต้านม การวิเคราะห์ข้อมูลลักษณะของประชากรทั่วไปใช้สถิติบรรยาย และทดสอบแบบจำลองเชิงสาเหตุด้วยโปรแกรม AMOS

ผลการศึกษาพบว่าปัจจัยที่ศึกษาทั้งหมดในโมเดลสมมติฐานยกเว้นดรรชนีผู้ป่วยมะเร็งเต้านมสามารถอธิบายความแปรปรวนของพฤติกรรมการป้องกันมะเร็งเต้านมของสตรีไทยที่มีประวัติครอบครัวเป็นมะเร็งเต้านมดังนี้ ด้านการตรวจคัดกรองมะเร็งเต้านมสามารถอธิบายความแปรปรวนได้ร้อยละ 52 และด้านการมีวิถีชีวิตที่ดีต่อสุขภาพ สามารถอธิบายความแปรปรวนได้ร้อยละ 49 โดยการรับรู้ความสามารถของตนเองและการรับรู้ความเสี่ยงมีอิทธิพลโดยตรงมากที่สุดในทางบวกในขณะที่ความเชื่อในโชคชะตามีอิทธิพลโดยตรงในทางลบต่อพฤติกรรมการป้องกันมะเร็งเต้านมส่วนอายุระดับการศึกษาและผลกระทบทางด้านจิตใจของการมีญาติเป็นมะเร็งเต้านมนั้นมีอิทธิพลโดยอ้อมต่อพฤติกรรมดังกล่าวด้วย ผลการศึกษาบ่งชี้ว่าพยาบาลควรพัฒนากลวิธีในการเพิ่มการรับรู้ความสามารถในตนเองและการรับรู้ความเสี่ยงต่อการเป็นมะเร็งเต้านมซึ่งเป็นการสร้างแรงจูงใจให้กลุ่มสตรีที่มีความเสี่ยงต่อการเป็นมะเร็งเต้านมมีพฤติกรรมในการป้องกันมะเร็งเต้านมมากขึ้น และควรจะมีการทำวิจัยต่อไปโดยมีการติดตามการเปลี่ยนแปลงตามช่วงเวลาเพื่อปรับรูปแบบของโมเดลเชิงสาเหตุนี้ให้ดีขึ้น

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คำสำคัญ :มะเร็งเต้านม; แบบจำลองเชิงสาเหตุ; ความเสี่ยงทางครอบครัว; พฤติกรรมการป้องกันโรค

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