

## Development of the Thai Breast Cancer Belief Scale for Thai Immigrants in the United States

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Asian American women have not benefited from the decline in breast cancer mortality and have lower rates of mammography use. Understanding mammography behaviors among these Asian American women requires culturally specific measures. Champion's Belief Scale was translated into Thai and cultural items were added. The Thai Breast Cancer Belief Scale (TBCBS), the Suinn-Lew Self-Identification Acculturation, and the Asian Values Scale-Revised were administered to 250 Thai immigrants. The TBCBS was tested for face validity, construct validity, and internal consistency. Factor analysis reflected the 4 constructs of the Health Belief Model and accounted for 45.8% of the variance. Cronbach's alpha ranged from .77 to .90. Modest correlations were observed between TBCBS subscales and acculturation scales. Results indicate that the TBCBS measures breast cancer beliefs among Thai immigrant population.

**Keywords:** Thai immigrants; Asian Americans; breast cancer; mammograms; Health Belief Model

The National Cancer Institute (NCI) estimates that one in eight women will be diagnosed with breast cancer at some point during their lives (Jemal et al., 2008). Fortunately, the increase in mammography screening and effective treatments has contributed to a decrease in the overall mortality rate for breast cancer by 2.1% per year from 1992 to 2006 (Horner et al., 2009). However, this decline did not occur among all ethnic minorities. Asian Americans continue to show a low rate of mammography screening and showed no change in the mortality rate over the last decade (American Cancer Society [ACS], 2011; Surveillance Epidemiology and End Results [SEER], 2009). About 61.9% of Asian Americans received mammograms within 2 years and 47.7% within 1 year compared to 67% and 51.5% respectively for Whites, 65.9% and 50.6% respectively for African Americans, and 64.4% and 46.5% respectively for Hispanics. When focusing on the use of mammography screening within immigrants, 51.6% of those who were born in the United States received mammography screening within 1 year and 67.1% within 2 years compared to 26.8% and 37.4% respectively for women living in the United States fewer than 10 years (ACS, 2011). These rates suggest low mammography use among

Asian American women making the need for increasing mammography use particularly important. The ACS advises all women age 40 years and older to have mammography screening every year, whereas the NCI (2009) recommends mammography screening every 1–2 years for women age 40 years and older. Promoting culturally appropriate programs is a promising approach to increase the use of mammography screening among Thai immigrants, a growing subgroup of Asian Americans, but first we must develop culturally appropriate measures to assess their understanding about mammograms and breast cancer. In this study, we built on Victoria Champion's work to develop a culturally specific scale to measure breast cancer beliefs and mammography use among Thai immigrants.

## BACKGROUND AND CONCEPTUAL FRAMEWORK

We used the Health Belief Model (HBM) to guide this study. This model focuses on beliefs related to breast cancer and mammography behaviors including individual perceptions of the targeted health problem, modifying factors, and the likelihood of action (Janz, Champion, & Strecher, 2002). Individual perceptions are affected by one's beliefs and attitudes toward health and the severity of the given disease. Modifying factors include demographic characteristics, perceived threat, and cues to action. Perceived health threat is influenced by three factors: general health values (ones' interest and concern about health), specific health beliefs about vulnerability to a particular health threat, and beliefs about the health problem. Individuals who perceive a threat to their health and are cued to action, who also perceive that the benefits of the action outweigh the perceived barriers to action, are those most likely to undertake the recommended preventive action. Demographic, sociopsychological, and structural variables may also influence individuals' decisions (Becker, 1974; Janz et al., 2002).

Applied to breast cancer and mammography screening, women must first believe that they have the possibility of having breast cancer (perceived susceptibility), they must have the confidence that they can successfully plan to obtain a mammogram (self-efficacy), and they must believe that the consequences of having breast cancer are serious for them (perceived seriousness). They must also perceive that having a mammogram could effectively decrease the threat from breast cancer and that the benefits of having a mammogram outweigh the consequences of not having one (Janz et al., 2002). Champion based her Breast Cancer Beliefs Scale (1999), which measures beliefs related to breast cancer and mammograms, on the HBM. Her scale has been found to be reliable and valid for measuring beliefs related to breast cancer and mammograms with White and African American women. However, the validity of the HBM within Thai culture and a scale to measure such beliefs among Thai immigrant women has not been demonstrated. In this study, we translated the Breast Cancer Belief scale from English to Thai language and explored beliefs related to breast cancer and mammography screening among Thai immigrant women for face validity. In addition, we assessed construct validity of the Thai version.

Previous researchers demonstrated that specific cultural beliefs influence mammography behavior among ethnic groups (Kreuter et al., 2005). For example, a study with African American women showed that (a) interpersonal space preferences, referring to a need to control their personal space and feeling threatened when individuals lose control of their space; (b) health temporal orientation, applying to individuals' perspective on current health beliefs and behaviors as related to concerns about their future health; and

(c) perceived internal control, referring to the ability of an individual to plan activities to control the environment and to direct factors within the environment predicted mammography screening (Russell, Champion, & Perkins, 2003). This evidence demonstrates that when the HBM is used to describe mammography behavior within an ethnic group, cultural beliefs would influence breast cancer screening behaviors. Therefore, we added culturally specific items to a cancer beliefs scale to allow for cultural beliefs related to mammography behaviors among Thai immigrant women.

Acculturation is a merging of cultures as a result of prolonged contact. It occurs when individuals move from their countries of origin to live in another host country. Individuals may keep their ethnic identity and values while adapting them to fit in the host country (Berry, 1997). It is likely that Asian immigrants retain their cultural beliefs but adapt them to the American culture to varying degrees when they live in the United States. For example, Asian immigrants who refused cancer screening stated that they did so because "they haven't had problems or symptoms" (Kandula, Wen, Jacobs, & Lauderdale, 2006). Thai immigrants who acculturate to American culture increase their consumption of American foods such as white bread and dairy products, whereas decreasing their favoring of Thai foods (Sukalakamala & Brittin, 2006). Based on these findings, we hypothesized that the degree cultural beliefs were effected by immigrants' acculturation would influence mammography beliefs and behavior. Consequently, we measured acculturation to examine its associations with the constructs of the Health Beliefs Model regarding breast cancer and mammography screening. We pose that acculturation to American culture brings an increase in exposure to information and beliefs supporting mammography use. Consequently, beliefs related to mammography screening among Thai immigrant women are hypothesized to be moderately associated with measures of acculturation.

### Research Questions

1. Is the Thai Breast Cancer Belief Scale (TBCBS) valid to measure breast cancer beliefs and mammography behavior among Thai immigrants?
2. Is the TBCBS associated with acculturation scale scores as measured by the Suinn-Lew Self-Identity Acculturation (SL-ASIA) and the Asian Values Scale-Revised (AVS-R)?

### Hypotheses

1. The TBCBS is valid to measure breast cancer beliefs and mammography behavior.
2. The subscales of the TBCBS are associated with the acculturation scales: the SL-ASIA and the AVS-R.

### METHOD

The study received approval from the Institutional Review Board of Saint Louis University before we approached the participants. The study had 3 phases: (a) development of Thai Breast Cancer Belief Scale, (b) assessment of construct validity, and (c) assessment of the relationship between the TBCBS subscales and the acculturation scales—the SL-ASIA and the AVR-R.

## Measures

**Development of Thai Breast Cancer Belief Scale.** Development of TBCBS included a translation of Champion's Breast Cancer Beliefs Scale and verification of breast cancer belief and mammography behavior with Thai immigrant women. The Breast Cancer Beliefs Scale (Champion, 1984, 1995, 1999) consisting of 38 questions were based on the constructs of the HBM: perceived susceptibility to breast cancer, perceived seriousness of breast cancer, perceived benefits of mammograms, and perceived barriers to mammograms. The scale uses a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Reliability and validity of the scale have been demonstrated among White women and African American women with Cronbach's alpha for the subscales ranging from .75 to .93 and test-retest reliability ranging from .45 to .70. Exploratory factor analysis of the scale for measuring mammography beliefs showed three factors: perceived susceptibility, perceived benefits, and perceived barriers to mammography and accounted for 54% of the variance (Champion, 1995, 1999).

**Translation Procedure.** The Breast Cancer Beliefs Scale was translated into the Thai language. Hilton and Skrutkowski (2002) stated that translating instruments for cross-cultural research challenges the validity of the scale in a target language because of inconsistent meanings between the source and target languages. Developing a culturally sensitive instrument should be based on the nuances of the target language and reflect concepts meaningful in the target culture. In addition, it is essential to conduct a qualitative study to identify culturally relevant concepts that may not be present in the first culture and to use a dual-focus approach with a bilingual/bicultural person and a researcher making decisions about culturally equivalent meanings. Therefore, Brislin's (1970) translation model guided translation of the Breast Cancer Beliefs Scale. The translation procedure requires at least two independent translators who include professional experts, laypeople from the population of interest, translators with the source language (English) as their first language, and translators with the target language (Thai) as their first language. The method requires several repetitions of independent translation and blind back-translation by a team of bilingual translators until the back-translation reflected congruence of meaning between the English and Thai versions. Brislin's translation model and the recommendations of qualified translators suggest that the scale written in the source (English) and target (Thai) languages have consistent meanings. This method allows the translators carefully selected words in the Thai language to have the similar meanings and concepts as English language (Maneesriwongul & Dixon, 2004).

The authors first contacted Victoria Champion for her permission to translate her scale into the Thai language. After receiving her approval, the first translator, a registered nurse (her first language was Thai), translated the scale into Thai. The second translator, an educated woman (her first language was English), blindly back-translated the Thai version into English. After the first round of this translational process, the first author met with the translators to compare words used in the Breast Cancer Beliefs Scale and the back-translated English version and discuss any dissimilar meaning between the words used. During discussion, the author and the translators agreed to change some words used in the Thai version. Another translator, who spoke English as a first language, again blindly converted the Thai version into English. The words and meanings of items in the Breast Cancer Beliefs Scale were compared with the second round of English version for their consistent meaning. After the second round of back-translation, the first and second authors agreed that the English words used in the original English version and English

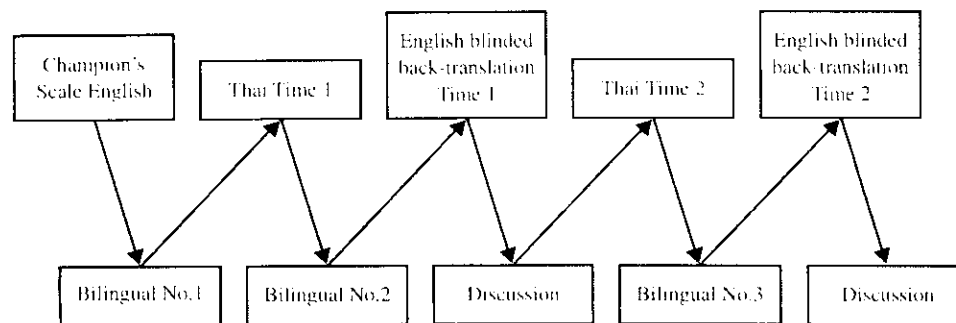


Figure 1. Illustration of Brislin's translation method.

back-translation was similar in terms of its meaning. Therefore, the translated Thai version from the second round was used to measure breast cancer beliefs for the Thai immigrant women. The translation procedure is described in Figure 1.

The development of the TBCBS included the translated Breast Cancer Beliefs Scale and addition of items based on culturally specific beliefs related to breast cancer and mammograms. Beliefs regarding breast cancer and mammography behavior among Thai immigrants were explored through focus groups to examine the validity of the HBM concepts in Thai culture and to identify cultural beliefs specific to Thai culture. Three focus groups of Thai immigrants were conducted (two focus groups with 14 participants in St. Louis, Missouri and one with 5 women in Chicago). The focus groups lasted between 60 and 90 min and took place in Buddhist temples and Thai restaurants. Questions were based on perceived susceptibility to breast cancer, perceived seriousness of breast cancer, and perceived benefits and barriers to mammograms. Thai immigrants reported that they were susceptible to breast cancer because they were female, they were aging, or they had gained weight. They said that breast cancer was a threat to women's lives resulting in financial and family relationship difficulties and it would ruin a woman's body image and career. The women expressed sorrow and sympathy when they learned that their friends or relatives had breast cancer.

Regarding the benefits of mammography, some women mentioned that having mammograms detected breast cancer at an early stage so early treatments could be effective. Mammograms were a way to learn about their bodies. Conversely, not all women had experienced mammograms. Those women who had never heard of mammograms expressed a lack of knowledge about breast cancer and its prevention and fear of developing breast cancer. Others claimed that mammograms should be free of charge and having mammograms was painful, uncomfortable, and embarrassing. The women used metaphors to convey their concerns about mammograms such as *kuay-ping* or *mun-ping* (a Thai dessert: a banana or a potato grilled and then flattened). They said in Thai that "it made my breasts flat. During a mammogram, my breasts are compressed and that makes my breasts as if it is *kuay-ping* or *mun-ping*. I feel that my breast is flat." This meant that they were concerned about changes to their body image. The women also believed that if they were healthy and had no pain or symptoms of disease, it was not important to have mammograms. One woman said that having breast cancer was a consequence of the past—of bad karma, according to Buddhist teaching—and therefore, cannot be changed by action. Another woman reflected on the seriousness of breast cancer and said, "Dying is

These are similar to findings by Lee, Kim, and Han (2009). The women who acculturated to American values were more likely to perceive susceptibility, that mammograms bring benefits, and perceive fewer barriers to mammograms. In addition, Chen (2009) in a study guided by the HBM found that acculturation among Chinese Americans predicted more positive health beliefs and mammogram use.

This evidence suggests that designing health education programs that incorporate specific to cultural beliefs should improve mammography adherence for Thai immigrant women as it has for other Asian American women (Han et al., 2009; Kim, Menon, Wang, & Szalacha, 2010; Kreuter et al., 2005; Nguyen et al., 2008; Wang et al., 2008). For example, when a woman believes that having breast cancer is because of bad karma and could not have been prevented, a program with a tailored message addressing myths around karma could provide information about breast cancer and encourage mammograms. The message might speak specifically to these minority women to say that a bad outcome from breast cancer is not inevitable and does not come from doing bad things in the past. With annual mammograms, breast cancer can be found at an early stage when it is very treatable.

Limitations of this study include the use of self-report data, which are subject to social desirability bias. The participants may have had a tendency to say what they perceived the interviewer wanted to hear. Generalizability is limited to Thai immigrant women who volunteered at Thai restaurants and Buddhist temples in the cities of Chicago, St. Louis, and the Bay area in Northern California. In addition, the overall variance explained by the TBCBS (45.9%) is relatively low although in keeping with reports from other studies (Yarbrough & Braden, 2001) and similar to Champion's finding with her original scale (54%; Champion, 1999).

Cultural health beliefs should be explored further to determine factors that influence breast cancer screening. Two items were dropped from this factor analysis: "bad karma and home remedies" were not reflected in the four extracted constructs of the HBM. Further work needs to be done to validate these findings in other populations of Thai Americans. In addition, further enhancement of the scale could be done to reflect the particular challenges of Thai immigrants in the United States. For example, a Thai-specific cultural barriers scale could be developed as an enhancement to the current TBCBS such as Lee-Lin et al. (2008) developed for Chinese Americans. They developed a cultural barriers scale and identified four factors describing cultural barriers to mammography use in Chinese Americans: crisis orientation, use of Eastern medicine, reliance on others, and modesty.

In conclusion, this study describes the initial development of the TBCBS and provides evidence for face validity, construct validity, and internal reliability of the scale. Results suggest that the TBCBS measures beliefs related to breast cancer and mammograms among Thai immigrant women in the United States. The items in the scale and the results could be used to guide culturally appropriate education programs to increase the use of mammography screening among Thai immigrant women and reduce the current excess in breast cancer mortality observed for Asian women.

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