Predictors of Perceived Barriers to Mammography in Korean Women

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Purpose The purpose of the study was to investigate the effects of cancer fatalism, breast cancer fear, and health motivation on perceived barriers to mammography in Korean women living in the community.

Methods The sample for this study was a convenience sample of 138 Korean women. Data were collected through a questionnaire that included Cancer Fatalism, the Breast Cancer Fear Scale, Health Motivation, and the Revised Barriers Scale for Mammography. The data were analyzed by multiple regression using SPSS version 11.0.

Results The level of cancer fatalism was low with a mean of 1.07. The levels of fear of breast cancer, health motivation and barriers to mammography were moderate with means of 27.10, 26.44 and 25.80, respectively. Age (F=3.22, p=.02) was significantly related to mammography barriers but breast-related characteristics were not significantly associated with any mammography barriers. Health motivation (β=-.34, p=.00) and breast cancer fear (β=.22, p=.00) were predictive variables of perceived barriers to mammography. The model explained 19% of the variance in mammography barriers scores (F=9.98, p=.00).

Conclusion Nurses who work with Korean women for breast cancer screening need to assess these predictive factors, including health motivation and breast cancer fear. Further extensive research will be needed to demonstrate the relationship between breast cancer fatalism and perceived barriers to mammography. [Asian Nursing Research 2008;2(2):74–81]

Key Words breast cancer, fear, mammography, motivation

INTRODUCTION

The incidence and mortality rates of female breast cancer have been increasing in Korea since the 1980s (Ministry of Health & Welfare, 2004). These increases in prevalence and morbidity rates are attributed to changes in lifestyle and risk factors related to breast cancer (Kim, 2003). Female breast cancer in Korea will continue to increase in the future. The mortality rates of breast cancer per 100,000 persons were 2.84 in 1983 and 6.26 in 2003. The mortality rates are expected to reach 7.37 by 2010 and 9.07 by 2020. Compared with the figures for 1983, this indicates a more than three-fold increase in breast cancer cases in Korea by 2020 (Choi, Kim, Shin, Noh, & Yoo, 2005).

With the increasing incidence in breast cancer, mammography screening is becoming even more important and could reduce breast cancer mortality (Wallace, MacKenzie, & Weeks, 2006). Despite evidence that breast cancer screening reduces morbidity...
and mortality, many women do not take advantage of mammography screening opportunities. The number of women who are compliant with having mammography performed at regular intervals is still low in Korea (Jeong, Kim, & Kim, 2004; Kim & Kim, 2006). Kim and Kim reported that 55.7% of Korean women had had a mammogram within the last 15 months. About 19% had never had a mammogram and were not thinking about having one in the next 6 months, and 10.9% had never had a mammogram but were thinking about having one in the next 6 months.

The Korean National Cancer Center has issued guidelines for the early detection and prevention of breast cancer (National Cancer Center, 2005). Although the National Cancer Program has provided the targeted population with free screening services for breast cancer prevention (Ministry of Health & Welfare, 2002), not all women have taken up this screening opportunity. The delay in presentation was associated with cultural values of disease and poverty (Parsa, Kandiah, Abdul Rahman, & Zulkefli, 2006). According to Frank-Stomborg and Olsen (1993), Asian women did not feel comfortable touching their own breasts and consequently felt uncomfortable about having mammograms. This sociocultural perception of screening behavior might contribute to mammography uptake in Korean women.

Furthermore, Schettino, Hernández-Valero, Moguel, Hajek, & Jones (2006) suggested that minority populations in particular have many misconceptions about breast cancer, which may have a negative impact on preventive behaviors. A fatalistic view of breast cancer appears to be a significant barrier to women’s participation in cancer screening services (Kwok & Sullivan, 2006; Moy, Park, Feibelman, Chiang, & Weissman, 2006; Russell, Perkins, Zollinger, & Champion, 2006). The women who were fatalistic and believed that a breast cancer diagnosis would inevitably lead to death perceived fewer benefits from screening (Moy et al.; Russell et al.).

Women over 15 years old associated the words “breast cancer” with fear even though breast cancer is common (Ely & Vioral, 2007). Greater understanding of the seriousness of breast cancer was significantly associated with breast cancer screening behavior and methods, including breast self-examination (BSE) and mammography (Secginli & Nahcivan, 2006).

Personal factors that helped women to overcome barriers to mammography were awareness and knowledge of risk factors, knowledge and trust about early detection, and personal responsibility for own health and wellbeing (Ahmed, Fort, Elzey, & Bailey, 2004). This kind of motivation can lead to improved health promoting behaviors (Champion, 1993).

However, there is little information about how fatalism, fear of breast cancer and health motivation influence the take-up of mammography opportunities in Korea. Also, most health promotion research has not focused on barriers, but rather on the facilitation of health programs in Korea.

The purpose of the present study was to investigate the effects of cancer fatalism, breast cancer fear, and health motivation on perceived barriers to mammography in Korean women living in the community. The specific research aims were to investigate: (a) the level of cancer fatalism, breast cancer fear, health motivation and perceived barriers to mammography in Korean women; (b) the level of perceived barriers to mammography according to general characteristics and breast cancer-related characteristics; and (c) the effects of fatalistic attitudes, breast cancer fear and health motivation on perceived barriers to mammography in Korean women.

**METHODS**

**Study design**

The research design was a secondary analysis and the sample was derived from a larger study designed to examine mammography seeking behaviors in Korean women.

**Sampling**

The study was approved by the institutional review board of a nursing research center at a university in Seoul. Data were collected through a questionnaire that included general characteristics, from August 2005 to December 2005. We contacted the directors of two public health centers in Seoul and participants
were recruited from these centers. The sample was a convenience sample of 230 Korean women who attended a culture class located in a public health center. Participants completed the questionnaire in about 10–15 minutes after the class. The inclusion criteria were women less than 65 years of age who were able to speak and read Korean. In this study, 92 women in the low income group were excluded from the survey because the two public centers provided low income women with a free mammography service. Data from 138 women were therefore analyzed.

The participants were assured of anonymity and confidentiality, and all gave written consent to participate in the study. All information was collected by means of self-reporting using the questionnaires.

**Instruments**

**Breast cancer fatalism**
Breast cancer fatalism was measured by the Revised Powe Fatalism Inventory (Mayo, Hunter, & Parker, 2002). The Inventory has 11 items, ranging from yes (1) to no (0), with a total score of 0–11. A higher score indicates a more fatalistic attitude towards breast cancer. The Cancer Fatalism Inventory was first developed by Powe (1995); Mayo et al. consequently developed the Revised Powe Fatalism Inventory specifically to report on breast cancer. The Breast Cancer Fatalism Scale was translated into Korean using back translation by a pair of individuals who were bilingual and who had majored in English. In a validity test, fear of breast cancer was significantly correlated with mammography adherence (Champion et al.). The reported Cronbach’s α value was .91 (Champion et al.). In this study, Cronbach’s α was .93.

**Health motivation**
Health motivation was also measured in this study. The Health Motivation Scale consists of seven items and is scored on a 5-point Likert scale from strongly agree (5) to strongly disagree (1) with a total possible score of 7–35 (Champion, 1993). A subject with a higher score has a higher level of health motivation. The reported Cronbach’s α value was .74 (Chung, 2000). In this study, Cronbach’s α was .63.

**Perceived barriers to mammography**
The perceived barriers to mammography were translated into Korean using back translation by a pair of individuals who were bilingual and who had majored in English. The scale designed for the research has been shown to be both a reliable and valid measure for women (Champion, 1999). Reported test–retest reliability was .71 (Champion) and Cronbach’s α was .80 in this study.

**Statistical analysis**
Statistical tests (two-tailed, *p* < .05) were carried out using SPSS version 11.0 (SPSS Inc., Chicago, IL, USA). Descriptive statistics were used to analyze the general and breast cancer-related characteristics. The *t* test and ANOVA were conducted to assess the level of perceived barriers to mammography according to general and breast cancer-related characteristics. Multiple regression analysis was used to test which variables had significant effects on perceived barriers to mammography.

**RESULTS**

**General characteristics**
The general characteristics of the sample are presented in Table 1. The mean age of the sample was
50.12 years, with a range of 30–64 years. Fifty percent of the women were aged between 40 and 50 years. The majority of the sample was married, and had at least one child. About 80% of the participants had been educated to high school level or above. About half of the sample regarded their economic status as inadequate and were unemployed in this study.

**Breast cancer-related characteristics**

As shown in Table 2, the majority of the subjects had not been previously diagnosed with breast cancer and did not perform regular BSE. About half of the participants had a family member, neighbor or friend who had been diagnosed with breast cancer. About 50% were not menopausal.

**Fatalism, fear, health motivation and perceived barriers to mammography**

The level of cancer fatalism was low with a mean of 1.07 (SD = 1.52). The levels of fear of breast cancer, health motivation and barriers to mammography were moderate, with means of 27.10 (SD = 7.07), 26.44 (SD = 3.70) and 25.80 (SD = 6.59), respectively (Table 3).

**Perceived barriers to mammography according to general characteristics**

Perceived barriers to mammography according to the general characteristics of the subjects are presented in Table 1. The level of perceived barriers to mammography was significantly different according to age
Women aged 30–40 years perceived more barriers to mammography than women of other ages. However, there were no statistical differences between age categories in the post hoc Scheffé’s test. Other general characteristics including marital status, children, education, economic status and occupation were not significantly associated with any perceived barriers to mammography.

**Perceived barriers to mammography according to breast-related characteristics**

The perceived barriers to mammography according to breast-related characteristics of the sample are presented in Table 2. It was found that breast-related characteristics including breast disease, BSE and menopause were not significantly associated with barriers to mammography.

**Effects of fatalism, fear and health motivation on perceived barriers to mammography**

As shown in Table 4, health motivation (β =−.34, p =.00) and breast cancer fear (β =.22, p =.00) were predictive variables of perceived barriers to mammography in this study. The model explained 18% of the variance in perceived barriers to mammography scores (F =9.98, p =.00).

### Table 2

**Perceived Barriers to Mammography According to the Breast Cancer-related Characteristics of Subjects (N = 138)**

<table>
<thead>
<tr>
<th></th>
<th>n (%)</th>
<th>Mean ± SD</th>
<th>F or t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnosis of breast cancer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>8 (5.8)</td>
<td>25.00 ± 7.03</td>
<td>−0.35</td>
<td>.72</td>
</tr>
<tr>
<td>No</td>
<td>130 (94.2)</td>
<td>25.85 ± 6.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family, neighbors or friends with breast cancer</td>
<td></td>
<td></td>
<td>−1.03</td>
<td>.30</td>
</tr>
<tr>
<td>Yes</td>
<td>72 (52.2)</td>
<td>25.23 ± 6.97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>66 (47.8)</td>
<td>26.41 ± 6.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breast self-examination</td>
<td></td>
<td></td>
<td>0.40</td>
<td>.68</td>
</tr>
<tr>
<td>Yes</td>
<td>19 (13.8)</td>
<td>26.36 ± 5.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>119 (86.2)</td>
<td>25.70 ± 6.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menopause</td>
<td></td>
<td></td>
<td>1.55</td>
<td>.21</td>
</tr>
<tr>
<td>Not applicable</td>
<td>71 (51.4)</td>
<td>26.60 ± 6.53</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perimenopausal</td>
<td>17 (12.3)</td>
<td>26.37 ± 6.05</td>
<td></td>
<td></td>
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<tr>
<td>Postmenopausal</td>
<td>50 (36.2)</td>
<td>24.50 ± 6.78</td>
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</tbody>
</table>

### Table 3

**Breast Cancer Fatalism, Fear of Breast Cancer, Health Motivation and Perceived Barriers to Mammography (N = 138)**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean ± SD</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Possible range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast cancer fatalism</td>
<td>1.07 ± 1.52</td>
<td>0.00</td>
<td>10.00</td>
<td>0–11</td>
</tr>
<tr>
<td>Fear of breast cancer</td>
<td>27.10 ± 7.07</td>
<td>8.00</td>
<td>40.00</td>
<td>8–40</td>
</tr>
<tr>
<td>Health motivation</td>
<td>26.44 ± 3.70</td>
<td>18.00</td>
<td>35.00</td>
<td>7–35</td>
</tr>
<tr>
<td>Perceived barriers to mammography</td>
<td>25.80 ± 6.59</td>
<td>12.00</td>
<td>45.00</td>
<td>11–55</td>
</tr>
</tbody>
</table>
DISCUSSION

Age was significantly associated with perceived barriers to mammography. Although there were no statistical differences between age categories in the *post hoc* test, women aged 30–40 years perceived more barriers to mammography than those of other ages. This result may indicate that younger women considered their health to be better than older women. Health professionals should be concerned with optimum utilization of mammography in women in the 30–40-year-old age group as the prevalence of breast cancer among women in this age group is relatively higher in Korea than in other countries (Choi et al., 2005). Breast cancer-related characteristics, including breast disease, BSE and menopause, are not significantly associated with perceived barriers to mammography. Previous studies have shown that women with a recent family history of breast cancer reported changes in health behavior, including level of physical activity, diet, alcohol and tobacco use (Lemon, Zapka, & Clemow, 2004). But Andersen, Smith, Meischke, Bowen, and Urban (2003) reported that a family history of breast cancer was not a significant predictor of mammography use in the multivariate model. Considering the inconsistency of these results, further research is needed to investigate breast cancer-related characteristics and barriers to mammography.

In this study, health motivation and breast cancer fear were predictive variables of perceived barriers to mammography. The model explained 19% of the variance in perceived barriers to mammography scores. Our research showed that health motivation was an important factor, but fear about breast cancer (with factors including worrying about bad news, hyperactive response and misunderstanding of breast cancer) was an important barrier to mammography. Research has consistently found that breast cancer and health motivation are significantly related to the take-up of mammography screening in women.

It has been reported that both high and low levels of cancer-specific worry were negatively associated with BSE (Anderson et al., 2003; Bowen, Alfano, McGregor, & Andersen, 2004; Hailey, 1991). In particular, with women who were highly worried about cancer, the worry may interfere with their interest in and ability to perform BSE (Bowen et al.). Women who reported moderate levels of worry were more likely to use mammography regularly than those who were either mildly or severely worried. Severe worry appeared to be a barrier to mammography take-up (Anderson et al.).

In this study, breast cancer fatalism was not associated with perceived barriers to mammography. Cancer fatalism is defined as a belief that death is inevitable once a person has cancer (Powe, 1995). Recently, cancer fatalism has been identified as a barrier to cancer screening behaviors (Mayo et al., 2002; Powe). In this study, the level of breast cancer fatalism was very low; this may be due to the exclusion of the low income group. This was in concordance with other research findings that vulnerable populations frequently indicated high perceptions of cancer fatalism (Powe & Finnie, 2003). Due to the low level of breast cancer fatalism, there may be no significant association between fatalism and perceived barriers to mammography. Powe, Daniels, and Finnie (2005) reported that health care providers believed that patients were fatalistic about cancer, but the patient’s perception of cancer fatalism was low. This difference can interfere with communication between the patient and the health care provider (Powe et al.) and can lead to ineffective health education. This result indicates that nurses should address breast cancer fatalism to provide effective health education.

Health professionals should develop detailed programs to promote general health motivation and to educate people about breast cancer. Also, nurses who work with Korean women in breast cancer screening

<table>
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<tr>
<th>Table 4</th>
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<tbody>
<tr>
<td><em>Effects of Breast Cancer Fatalism, Fear of Breast Cancer and Health Motivation on Perceived Barriers to Mammography (N = 138)</em></td>
</tr>
<tr>
<td>Independent variables</td>
</tr>
<tr>
<td>Breast cancer fatalism</td>
</tr>
<tr>
<td>Fear of breast cancer</td>
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<tr>
<td>Health motivation</td>
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</table>

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Clinics need to assess these predictive factors, including health motivation and breast cancer fear. They should also plan, implement and evaluate health education programs. More personalized intervention to prevent barriers to mammography could significantly increase the regular use of this important screening facility.

This study has a limitation regarding its application to the general population. The sample for this study was a convenience sample of Korean women at least 65 years of age and living in Seoul, Korea.

CONCLUSION

This study suggests that Korean women who have a higher level of breast cancer fear and a lower level of health motivation show more barriers to mammography. Therefore, nurses who work with Korean women in breast cancer screening clinics need to assess these predictive factors, including health motivation and breast cancer fear in order to plan, implement and evaluate health education programs. Furthermore, public health education should promote awareness of breast cancer and emphasize the advantages of earlier presentation and diagnosis of this disease.

REFERENCES


