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A Path Analysis: A Model of Depression in Korean Women With Breast Cancer—Mediating Effects of Self-Esteem and Hope

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The survival rate of breast cancer in South Korea is 90% at five years postdiagnosis (National Cancer Information Center, 2010). However, since 2005, the prevalence of breast cancer increased 11%, and the death rate increased 54% from 1996 (Ha et al., 2008; Korean Institute for Health and Social Affairs, 2010). In South Korea, breast cancer is diagnosed most often in women who are 40–49 years old, which is younger than the average age of diagnosis in Western countries. Korean women suffer many emotional problems, particularly the fear of cancer recurrence as they age (Ha et al., 2008; Korean Breast Cancer Society, 2008). During the time following treatment, many Korean women with breast cancer experience physical as well as psychological distress symptoms (e.g., depression, hopelessness), which are related to uncertainty of prognosis, guilt, damage to self-identity, and fear of recurrence (Lee et al., 2007).

The Korean male-centered system may foster unfairness in terms of support, home and work responsibilities, financial equity, health, and women's daily lives (Park & Lee, 2009; Shin, 2001; Sung, 2002). The rate of depression in Korean women is twice that of Korean men (Lee, 2005). Cho and Lee (2003) found that the rate of depression in a group of healthy middle-aged women was three times that of men in same age group. Korean women also have higher rates of depression than Western women (Nam & Choi, 2000). Therefore, when examining models of depression in Korean women with breast cancer, models developed for Western women may not be applicable. Establishing the relationships of direct and indirect factors that contribute to depression in Korean women with breast cancer is important for the development of effective nursing management of depression. In this article, the authors will suggest and test a model of depression of Korean women following treatment for breast cancer.

Purpose/Objectives: To test a hypothetical model of depression in Korean women with breast cancer and to test the mediating effects of self-esteem and hope.

Design: Cross-sectional design.

Setting: Participants were recruited from three general hospitals and one cancer hospital in Busan, South Korea.

Sample: 214 Korean women diagnosed with breast cancer (stages I–III).

Methods: All participants completed questionnaires (e.g., Zung Self-Rating Depression scale, Herth Hope Scale, Rosenberg Self-Esteem Scale, Health Self-Rating Scale in Health and Activity survey, Kang's Family Support Scale). Based on the literature, Mplus, version 3.0, was used to determine the best depression model with path analysis.

Main Research Variables: Depression, self-esteem, hope, perceived health status, religious beliefs, family support, economic status, and fatigue.

Findings: Self-esteem was directly affected by perceived health status, religious beliefs, family support, economic status, and fatigue. Hope was directly affected by family support, self-esteem, and how patients perceived their health status. Depression was directly affected by self-esteem and hope. The path analysis model explained 31% of the variance in depression in Korean women with breast cancer.

Conclusions: A model of depression in Korean women with breast cancer was developed, and self-esteem and hope were mediating factors of depression.

Implications for Nursing: Self-esteem and hope must be considered when developing services to reduce depression in Korean women with breast cancer.

Background

Depression in Korean Women With Breast Cancer

The development of depression in women is influenced by various physical, emotional (e.g., low self-esteem), and sociocultural factors. Fifty percent of American

women with breast cancer develop depression when they are diagnosed; 25% develop depression two to four years postdiagnosis, and 15% develop it five years postdiagnosis (Burgess et al., 2005). Depression may be linked to the threat or reality of breast cancer recurrence, as well as survival, in Korean women with breast cancer. Women with breast cancer who die earlier have a higher rate of depression than women who survive more than two years (Brothers & Andersen, 2009). In women with breast cancer, depression has been associated with an increase in hospitalization and decreases in self-care ability and quality of life (Burgess et al., 2005).

The rate of depression in Korean women with breast cancer is currently unknown. However, the level of mild and severe depression in Korean patients with breast cancer older than 40 years is higher than that of other groups of patients with cancer (Han, Han, & Sohn, 2005). In a study of patients with cancer, Lee, Kim, and Park (2008) found that patients with metastatic cancer had higher rates of depression than patients with localized cancer. For Korean women, the diagnosis of breast cancer may be seen not only as a stressor but also as life-threatening, as the meaning of the cancer is seen as a death sentence in Korean society (Park & Lee, 2009).

Many factors contribute to depression in women with breast cancer. Sociodemographic factors such as age, level of education, economic status, marital status, employment, and religious beliefs are associated with depression (Bardwell et al., 2006; Cho & Lee, 2003; Ha et al., 2008; Kwon, 2006). Disease-related factors, including pain and fatigue, are linked hypothetically to depression (Chen, 2003; Kwon, 2006; So et al., 2009). Personal and environmental factors such as perceived health status and family support may modify or modulate depression. For example, Korean and Western patients with cancer who report less depression have a more positive perception of their disease, more support from religious beliefs, more family support, and higher income (Hamilton, Moore, Powe, Agarwal, & Martin, 2010; Ha et al., 2008; Hirai et al., 2002; So et al., 2009; Tae & Kim, 2009).

More than half of women with breast cancer in Korea are older than 40 years. As a result of early detection and improved treatments, more women now live with the disease and must adjust to changes in body image as a result of hair loss, loss of one or both breasts, or weight change. In addition, changes in relationships, including marriage and family, occur (Ha et al., 2008; Rabin et al., 2009). Therefore, a number of factors, some of which may be inter-related, contribute to depression.

Self-Esteem, Hope, and Depression

Self-esteem and a sense of hopelessness have been shown to be important variables in the psychosocial response to cancer (Curbow, Somerfield, Legro, & Sonnega, 1990). Johnson (1997) defined self-esteem as the

degree of worth, value, respect, and love that individuals hold for themselves as human beings in the world. High self-esteem is associated with an ability to cope more effectively with life's problems and lower levels of depressive symptoms (Schroevers, Ranchor, & Sanderman, 2003).

Brown, Andrew, Harris, Adler, and Bridge (1986) suggested that high self-esteem reduces perception of stress, whereas hopelessness, which commonly occurs with depression, increases the perception of stress (Aspinwall & Taylor, 1992; Berterö, 2002). Previous studies on depression in Korean and Western women suggested that self-esteem mediates the effects of stress (i.e., cancer diagnosis and treatment) on mood (Aspinwall & Taylor, 1992; Kim, 2007; Lepore, Glaser, & Roberts, 2008; Park, 2008; Sung, 2002). In a study of American women following mastectomy, Berterö (2002) found that self-esteem and the woman's view of herself were directly related to mood state, and this could take several years to overcome, even with breast reconstruction.

According to the Cognitive Adaptation Theory proposed by Taylor, Kemeny, Reed, Bower, and Gruenewald (2000), adaptation to life-threatening diseases such as cancer depends on the ability of the individual to draw on psychological resources, including three positive outlook components (i.e., self-esteem, optimism, and self-control). Korean women with breast cancer with low levels of self-esteem in the Korean male-centered system may be at greater risk for depression following a diagnosis of breast cancer than Western women with breast cancer.

Hope has been found to be an important coping resource for people experiencing difficult situations, including women with breast cancer (Ebright & Lyon, 2002; Fitzgerald Miller, 2007). Hope affects emotions, coping behavior, goal-oriented thinking, goal achievement, and optimal well-being (Farran, Herth, & Popovich, 1995; Fitzgerald Miller, 2007). Lazarus (1991) suggested that hope results from unique thought patterns. Hope also affects how a situation is evaluated and appears to be important for sustaining commitment to goals. A sense of hope also strengthens the belief that difficulties can be managed (Ebright & Lyon, 2002).

Dufault and Martocchio (1985) defined hope as a multidimensional dynamic life force characterized by confidence in the face of uncertainty. Hopeful people expect to achieve a personally significant future good. Hope constitutes (a) a delicately balanced approach to painful life experiences, (b) a sense of interconnectedness with others, (c) a reliance on one's spiritual nature, and (d) the ability to maintain a rational or mindful approach to these life experiences (Farran et al., 1995). Herth (1991) defined hope as (a) a belief that a positive desired outcome was reality and probably would occur in the near or distant future, (b) a feeling of confidence based on plans initiated to accomplish the desired

outcome, and (c) a recognition of interdependence and interconnection between self and others and between self and spirit. Gibson and Parker (2003) referred to hope as maintaining psychological well-being.

In an earlier study of Korean women with breast cancer, the authors showed that hope was significantly and inversely related to depression (Tae & Kim, 2009). In that sample, women who had a high level of depression also reported a low level of hope. Self-esteem and depression were strongly correlated with hope in Korean women with breast cancer, suggesting that women with breast cancer who have low self-esteem and less hope may be more likely to report depression.

Stress Appraisal: Coping Theory and Cognitive Adaptation Theory

Adaptation of a patient with breast cancer to illness is dependent on accurate stress appraisal of a stressful situation and effective coping (Wonghongkul, Moore, Musil, Schneider, & Deimling, 2000). According to Lazarus and Folkman (1984), individuals vary in their stress levels, depending on how they appraise life events and how they use psychological mechanisms to cope with them. Coping consists of cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the individual (Folkman & Lazarus, 1988). In the current study, the authors hypothesized that appraisal variables, including personal (e.g., health status, religious belief), environmental (e.g., family support, economic status), and disease-related (e.g., pain, fatigue) factors, affect depression levels in women with breast cancer.

Franks and Roesch (2006) suggested that individuals who appraise their cancer as a challenge most likely will use problem-focused coping strategies and approach coping strategies. Approach coping strategies, including believing in the effectiveness of one's action in managing cancer, optimism, self-control, positive interpretation, and acceptance of the cancer, contribute to coping with the challenge of cancer (Franks & Roesch, 2006; Roesch & Weiner, 2001).

Pinquart, Fröhlich, and Silbereisen (2007) suggested that adaptation to life-threatening events such as cancer depends on the ability of the individual to mobilize psychological resources. Taylor and Brown (1994) argued that people with three positive psychological resources—optimism, a sense of control, and self-esteem—cope more effectively during stress.

In 1983, Taylor proposed the Cognitive Adaptation Theory, which described self-esteem and a sense of control as characteristics of women with breast cancer who were coping well (Taylor, 1983). In a later study, Taylor et al. (2000) confirmed that self-esteem, a sense of control, and optimism are related to psychological

well-being and suggested that positive psychological resources produce positive physical changes such as boosting the immune system.

In the cognitive model of depression, people with depression have negative perceptions about their present and their future, feel that they have lost everything, and view themselves as flawed and weak. They may feel that suffering and difficulty will continue forever and interpret experiences negatively (Kring, Davison, Neale, & Johnson, 2006). Thus, a positive outlook may be key to decreasing depression and adapting to life-threatening illness and may be a type of coping strategy. In the current study, the authors hypothesized that hope, which is defined by optimism, a sense of control, and discovering meaning, mediates depression in women with breast cancer. Self-esteem and hope are positive psychological resources and coping strategies that can influence depression in women with breast cancer.

Therefore, the authors hypothesize that women with breast cancer who have higher levels of self-esteem and hope will be less depressed. Those with better perceived health status and religious beliefs, more family support, higher economic status, and less fatigue and pain will have higher levels of self-esteem and hope.

The purpose of the current study was to construct a hypothetical model based on a review of the literature, and to test how the data and the hypothetical model fit together. Finally, a model of depression in Korean women following treatment for breast cancer will be suggested.

Methods

Participants and Setting

This was a cross-sectional study of 214 female inpatients and outpatients diagnosed with breast cancer recruited from three general hospitals and one cancer hospital in Busan, South Korea, from June 2009 to August 2009. Measures of self-esteem, hope, depression, perceived health status, religious beliefs, family support, economic status, and fatigue were used.

In total, 220 women with breast cancer at four hospitals were approached to participate in the study. Of those, 214 (97%) agreed to participate. The inclusion criteria for participants were (a) a minimum age of 18 years; (b) stage I, II, or III breast cancer; (c) awareness of cancer diagnosis; and (d) the capacity to answer and understand the questionnaire. Patients diagnosed with a terminal disease, defined as a prognosis of less than six months of life, were excluded. The sample size was based on Boomsma, Duijn, and Snijders's (2001) statistical theory, where a sample size larger than 200, irrespective of model size, suggests a correct conclusion. The data were collected by self-administered forms. The study was approved by the Research Ethics Committee of

Kosin University Gospel Hospital within Kosin Medical Cancer Center in South Korea, and all participants signed agreements of informed consent.

Instruments

In the study, the **Zung Self-Rating Depression scale**, as modified by Kwon (1984), was used for the measurement of depression in patients with cancer. Zung's (1965) scale has 20 items; however, the modified scale consisted of 15 items, including depression severity and interference items. The four-point Likert-type scale ranged from 1 (a little of the time) to 4 (most of the time) and measured depression on a continuum, from a normal to a pathological condition. The instrument showed reliability with a Cronbach alpha of 0.85.

The **Herth Hope Index** was used to measure the level of hope. Items were developed by Herth (1991), based on Dufault and Martocchio's (1985) conceptual framework, and translated by Youn (2004). The index consists of 12 four-point Likert-type items, ranging from 1 (strongly disagree) to 4 (strongly agree). The instrument showed reliability with a Cronbach alpha of 0.86.

The **Rosenberg Self-Esteem Scale** was used to measure the level of self-esteem. Items were developed by Rosenberg (1965) and translated by Chon (1974). The scale consists of 10 five-point Likert-type items, ranging from 1 (strongly disagree) to 5 (strongly agree). The instrument showed reliability with a Cronbach alpha of 0.8.

The **Health Self-Rating Scale in Health and Activity survey** was used to measure the level of perceived health status. The scale was developed by Northern Illinois University, translated by Kim (1991) and modified by Park and Lee (2002). The scale consists of three three-point Likert-type items, ranging from 1 (bad) to 3 (good). Higher total scores indicate greater perceived health status. The instrument showed reliability with a Cronbach alpha of 0.75.

The religious beliefs of the participants were measured by a single item, ranging from 1 (strongly disagree) to 6 (strongly agree). The scale was investigator-developed. High scores indicate more significant effects of religion on the participant. The scale has been validated.

Kang's (1985) Family Support Scale was used to measure the level of perceived family support. The scale measures family function of exchanging love and support, which includes caring for and respecting the patient and having her self-worth level rise through interaction of family members. The scale consists of 10 five-point Likert-type items, ranging from 1 (strongly disagree) to 5 (strongly agree). The instrument showed reliability with a Cronbach alpha of 0.82.

Economic status was measured by one item, ranging from 1 (very low income) to 5 (very high income). "Very low income" was defined as less than \$10,488 (U.S.) per

year, and "very high income" was defined as more than \$63,600 per year. The scale was investigator-developed. Higher scores indicate higher income. The scale has been validated.

Pain, defined as the physical pain related to breast cancer, was measured by a visual analog scale of one item, ranging from 1–10. Higher scores indicate greater pain.

Fatigue, defined as the physical and emotional fatigue related to breast cancer, was measured by a visual analog scale of one item, ranging from 1–10. Higher scores indicate greater fatigue.

Data Analysis

General characteristics were analyzed by descriptive statistics using SPSS®, version 14.0. Pearson's correlation coefficients were used to measure the magnitude of the relationship among depression, self-esteem, hope, perceived health status, religious beliefs, family support, economic status, pain, and fatigue. A *p* value of 0.05 or less was regarded as statistically significant. Path analysis was performed using Mplus, version 3.0, to evaluate direct and indirect relationships among the variables.

To determine whether the data fit the hypothetical model, values of the chi-square, comparative fit index (CFI), Tucker-Lewis index (TLI), and root mean square error of the approximation (RMSEA) were evaluated. Parameter estimates represent the strength of the path between two variables and are read as standardized regression coefficients.

Results

Most of the women participating were younger than 60 years, had at least a high school diploma, and had been diagnosed with breast cancer within the past two years (see Table 1). Significant correlations found among the variables ranged from –0.192 to 0.661. Eight independent variables had a significant correlation (*p* < 0.05) with the dependent variable depression (see Table 2). All relationships between variables were included in the full model.

Path Analysis of Hypothetical Model

The hypothetical model proposed for this study demonstrated a good fit with data derived from the sample of Korean women with breast cancer. The chi-square was not significant ($\chi^2 = 6.94$, *p* > 0.05), which indicated that the model did not differ significantly from the data and, therefore, a good fit of model was supported.

A CFI of 0.997 indicated a good fit from data (a score of 0.9 or higher shows good fitness). A TLI score of 0.989 resulted when the hypothetical model was compared with the basic model (0.9 or higher shows good

fitness). An RMSEA score of 0.027 also indicated a good fit (a score of 0–1 shows a good model). Therefore, the model does not differ significantly from the data. The final model (see Figure 1) was simple and clear after removing noncausal-related paths. In the final model, pain was removed because pain did not affect any of the variables in the model. In the hypothetical model, the path of pain was considered.

Analysis of Effects of Variables

Depression was directly affected by self-esteem (total effect = -0.498) and hope (total effect = -0.217). Self-esteem was directly affected by perceived health status (direct effect = 0.252), religious beliefs (direct effect = 0.161), family support (direct effect = 0.26), economic status (direct effect = 0.173), and fatigue (direct effect = -0.183). Hope was directly affected by perceived health status (direct effect = 0.174), family support (direct effect = 0.189), and self-esteem (direct effect = 0.488).

Depression was indirectly affected by perceived health status (indirect effect = 0.163), religious beliefs (indirect effect = 0.094), family support (indirect effect = -0.17), economic status (indirect effect = -0.091), and fatigue (indirect effect = 0.104). This path analysis model explained about 31% of the variance in depression in Korean women with breast cancer.

Discussion

The current study tested a hypothesized model of breast cancer variables that influence depression in Korean women following treatment for breast cancer. In the final model (with pain removed), self-esteem and hope mediated the effects of personal, environmental, and disease-related factors on women's report of depression.

Factors Affecting Self-Esteem

Results from the analysis are consistent with the hypothesized model in which self-esteem would be inversely and directly related to depression in Korean women with breast cancer. In the sample, self-esteem was directly affected by perceived health status, religious beliefs, family support, economic status, and fatigue level. Of those, family support had the strongest relationship with self-esteem. That finding is similar to that of Kim (2007) and Park (2008), who studied healthy middle-aged Korean women. In Korean women with breast cancer, family support was shown to be important because Korean women may perceive their value and self-concept as defined by their husband and children (Park & Lee, 2002).

Perceived health status is the second factor influencing self-esteem. That may be related to alterations in body image from mastectomy, as well as physical

Table 1. Sample Characteristics

Characteristic	n	%
Age (years)		
40 or younger	23	11
41–50	82	38
51–60	75	35
60 or older	34	16
Education		
Primary school	20	9
Middle school	53	25
High school	96	45
College or more	45	21
Occupation		
Housewife	173	81
Office worker	38	18
Manual laborer	3	1
Marriage status		
Married	170	79
Widowed	21	10
Divorced	17	8
Never married	6	3
Religion		
Buddhism	103	48
Christianity	67	31
None	44	21
Time since diagnosis		
6 months or less	85	40
7 months to 2 years	64	30
3–5 years	38	18
6 years or more	27	13
Treatment method		
Surgery	34	16
Surgery and chemotherapy	60	28
Surgery, chemotherapy, and radiation	65	30
Surgery, chemotherapy, radiation, and diet	55	26
Cancer insurance		
Yes	158	74
No	56	26
Payer of medical fees		
Husband	96	45
Self	90	42
Children	18	8
Parents or other relatives	10	5

N = 214

symptoms subsequent to chemotherapy and radiation therapy. Perceived health status also has been shown to be related to feelings of shame because of loss of sexual functioning in both Western and Korean women with breast cancer (Anderson & Johnson, 1994; Berterö, 2002; Chun & Kim, 1996). Thus, family support and perceived health status are key factors that influence self-esteem in women treated for breast cancer.

Factors Affecting Hope

In the current sample of women, hope was affected directly by perceived health status, family support, and self-esteem. Religious beliefs, economic status, and fatigue, through their effect on self-esteem, indirectly affected hope. Those results differ from the authors' earlier study in a separate sample of Korean women

Table 2. Correlation Matrix of Model Variables

Variable	Health Status	Religious Beliefs	Family Support	Economic Status	Fatigue	Self-Esteem	Hope	Depression
Health status	1							
Religious beliefs	0.12	1						
Family support	0.314***	0.163*	1					
Economic status	0.252***	-0.268**	-0.253***	1				
Fatigue	-0.478***	0.116	-0.159*	-0.033	1			
Self-esteem	0.417***	0.249**	0.417***	0.299***	-0.286***	1		
Hope	0.434***	0.229**	0.458***	0.256***	-0.265***	0.661***	1	
Depression	-0.312***	-0.192*	-0.332***	-0.223**	0.268***	-0.535***	-0.476**	1

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

with breast cancer (Tae & Kim, 2009), in which religious beliefs, economic status, and fatigue were predictive of hope. The current study's results also differ from the findings of Ebright and Lyon (2002). In that study, hope was predicted by self-esteem, social support, and religious beliefs. However, the predictive factors for hope were determined by multiple regression analyses in both of those studies. The path analysis used in the current study clearly suggested a causal relationship. These factors (i.e., perceived health status, family support, and self-esteem, in particular) are key in promoting hope for women with breast cancer.

Factors Affecting Depression

Depression was affected directly by self-esteem and hope. Personal factors (e.g., perceived health status, religious beliefs), environmental factors (e.g., family support, economic status), and disease-related factors (e.g., fatigue) affected depression indirectly. Those effects on depression were indirect and mediated through self-esteem and hope. That finding agrees with prior studies of Western and Korean women with breast cancer (Ha et al., 2008; Bardwell et al., 2006). Ha et al. (2008) and Bardwell et al. (2006) both showed that the objective factors (i.e., personal factors, cancer-related factors, and physical symptoms) are not significant in explaining depression. However, when psychosocial variables (e.g., optimism and self-esteem) are included, they become significant.

Other studies support the notion that women with breast cancer use inner psychological resources such as self-esteem to cope with a life-threatening illness. Hirai et al. (2002) reported that psychological self-efficacy acts as a mediating factor between physical condition and psychological adaptation in patients with terminal cancer. That suggests that patients with breast cancer can adapt through psychological mediators, even if their physical condition is poor.

In the current study, perceived health status, family support, and self-esteem were shown to affect depression indirectly through hope. The results of the current study are consistent with Kwon's (2006) study, which suggested that hope may influence depression. Brothers and Andersen (2009) suggested that hopelessness is a predictor of depression. The current study's results also indicate that hope is a key psychological resource that can decrease depression in women with breast cancer. Ideally, clinical

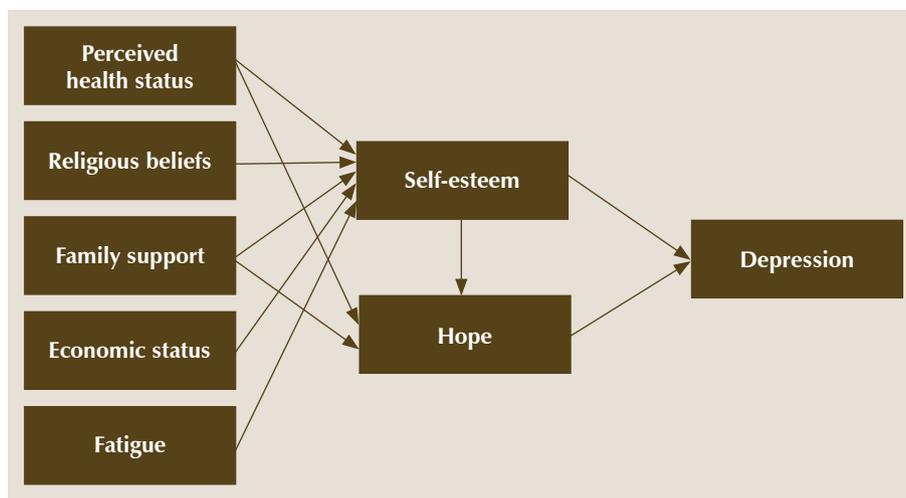


Figure 1. Path Diagram of the Final Model of Depression in Korean Women With Breast Cancer

nurses would help patients with breast cancer use their own positive psychological resources.

Previous studies suggest that personal factors such as perceived health status and religious beliefs affect depression directly (Chi, 2007; Hirai et al., 2002; Park, 2008; Tae & Kim, 2007). However, the current study's results indicate that those factors affect depression indirectly, through self-esteem and hope. Although it has been suggested that religious beliefs are important in women's lives, particularly during difficult times (Lee, 2003), the current study found that the patients' inner psychological resources played a bigger role than religious beliefs. In this study, most of the women were Buddhist or did not observe a religion, which may explain the differences in findings between the current work and Lee (2003).

In previous studies (Brothers & Anderson, 2009; Chen, 2003), family support and economic status were shown to affect depression directly in women with breast cancer. In the current study, those variables affected depression only indirectly through self-esteem and hope. Those results are consistent with Northrup (2001), who suggested that depression of middle-aged women results from negative thought patterns rather than the environment. She argued that when middle-aged women contract a life-threatening disease such as breast cancer, these internal issues must be addressed.

Previous studies found fatigue to be a cause of depression in women with breast cancer (Dodd, Miaskowski, & Lee, 2004; Lee, 2001; So et al., 2009). However, the authors found that fatigue only affected depression indirectly through self-esteem, despite the fact that fatigue is a common symptom in this population.

Pain was removed as a possible factor in the model because it did not affect any study variables. Previous studies suggested that pain affects depression (Han et al., 2005; Spiegel, Sands, & Koopman, 1994). However, So et al. (2009), in a study of women receiving treatment for breast cancer, found that pain affected depression only indirectly through fatigue. Although it appears that fatigue is more important than pain, this may be because of treatment side effects in women with breast cancer. A more intensive study on pain and depression is needed.

Limitations

This study used cross-sectional data. The sample included only women with breast cancer, ranging from immediately post-treatment to six years post-treatment. Patients at different phases of the cancer treatment and survivor trajectory have different needs and physical and

emotional issues. Those factors should be considered in future studies.

Several of the instruments used (e.g., religious belief scale) had only one question to characterize the variable. A multiple-item scale with additional components of those instruments should be considered in future studies.

This path analysis model explained about 31% of the variance in depression in Korean women with breast cancer, which shows that depression is complex, with multiple variables and mediating effects. Additional studies of these variables and their relationship to depression are needed. The model needs more testing before interventions can be developed and tested.

Implications for Nursing

First, the current study identified mediating effects of self-esteem and hope that affect depression in women with breast cancer. A need exists for the development of depression interventions for Korean women with breast cancer that promote self-esteem and hope.

Second, low self-esteem is directly linked to increased depression. In the future, care for Korean women with breast cancer should promote self-esteem and take sociocultural characteristics into account.

Third, previous studies have found that family support affects depression directly and, as a result, the number of family support programs for women in cancer treatment has increased. However, the current study found that family support affects depression only indirectly, through self-esteem and hope. Therefore, treatment programs also should focus on developing self-esteem and hope as positive psychological resources and coping strategies.

Finally, patients with breast cancer need interventions to strengthen positive psychological resources. Patients may possess such resources inherently.

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