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## A Test of the Self-Help Model and Use of Complementary and Alternative Medicine Among Hispanic Women During Treatment for Breast Cancer

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**Purpose/Objectives:** To describe the relationships in Braden's Self-Help Model of side-effect burden to uncertainty, complementary and alternative medicine (CAM), self-care, and quality of life (QOL) in Hispanic women during breast cancer treatment.

**Design:** Descriptive, correlational; convenience sample; cross-sectional design.

**Setting:** An outpatient oncology clinic in a public setting of a metropolitan community in southern Texas.

**Sample:** 137 Hispanic women receiving or completing treatment for breast cancer.

**Methods:** Participants completed a comprehensive set of instruments. Analyses included a correlation of variables and multiple regressions to examine variables for potential theoretical relationships.

**Main Research Variables:** CAM use, uncertainty, and enabling skills.

**Findings:** CAM use as a resource to reduce uncertainty for Hispanic women during breast cancer treatment was not supported. As a type of self-care, CAM was minimally effective in improving QOL. The greater the side-effect burden that Hispanic women experienced, the more uncertainty and depression and lower QOL scores were found. In contrast, women who were involved in CAM self-care had higher QOL scores.

**Conclusions:** The study results provide valuable information about understanding CAM's role during breast cancer therapy among Hispanic women. The model-testing findings indicated strong support for a predicted pattern in Braden's Self-Help Model with a slight trend for CAM as a special type of self-care.

**Implications for Nursing:** The findings further inform the concept development of CAM and model building. Additional research with a longitudinal design is needed to understand how CAM is used throughout the breast cancer treatment trajectory and will contribute to knowledge guiding nurses in facilitating self-care interventions for Hispanic women.

Complementary and alternative medicine (CAM) is very popular among the general population (Tindle, Davis, Phillips, & Eisenberg, 2005), with use increasing among women with breast cancer (Adler, 1999; Henderson & Donatelle, 2004). However, despite more than a decade of research about the use of self-help resources by patients with chronic diseases, theoretical relationships to inform healthcare professionals about how or if CAM is a helpful resource for Hispanic women during treatment for

### Key Points . . .

- ▶ Braden's Self-Help Model is an excellent framework for testing hypotheses regarding self-care and side-effect burden.
- ▶ The relationship between side-effect burden and uncertainty is not affected by the use of complementary and alternative medicine (CAM) for Hispanic women with breast cancer.
- ▶ Complementary therapy scales should be tailored to the local areas where they are being used.
- ▶ CAM self-care was more frequent in women who had high levels of enabling skills and the ability to problem solve.

breast cancer have not been studied. Braden's (1990) Self-Help Model specifies essential variables and relationships for a learned response to chronic illness experience but does not address CAM as a specific self-help resource. The present study sought to describe the relationship of side-effect burden to uncertainty, self-care, and quality of life (QOL) in Hispanic women receiving breast cancer treatment.

### Background Information

Complementary medicine is defined as methods used in the diagnosis, treatment, or prevention of disease that supplement Western medicine. In contrast, alternative medicine is used as a substitute for Western medicine (Cassileth, 1999). The construct, CAM, includes two concepts: the amount and types of CAM used and the perceived efficacy of CAM as a self-care

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strategy. CAM and integrative therapy are terms that recently have been used interchangeably to refer to the combination of mainstream and complementary methods (National Center for Complementary and Alternative Medicine [NCCAM], 2006). The methods do not cure disease; rather, they are believed to reduce symptoms or side effects and improve QOL.

Increasingly in the United States, self-care decisions involve a form of CAM (Tindle et al., 2005). Researchers have reported that women diagnosed with breast cancer seek to enhance or complement conventional approaches with interventions, such as nutritional approaches and immunologic or physical treatments, including massage, acupuncture, relaxation, aromatherapy, and mind and body approaches (e.g., hypnotherapy, prayer, and meditation). Reasons for using CAM include increasing hope (Hann, Baker, Denniston, & Entrekin, 2005), coping with disease and the rigors of treatment (Lengacher et al., 2006), regaining control during experiences of uncertainty (O'Brien, 2004), becoming active in treatment decisions (Cassileth & Vickers, 2005), feeling unhappy with the present healthcare system, and maintaining specific beliefs about health and disease (Sparber et al., 2000).

Stressful life events, including chronic stressors and major traumatic experiences, such as breast cancer, increase consumer interest in and need for CAM (Gray, Fitch, Goel, Franssen, & Labrecque, 2003). To date, no research has shown whether CAM, when used as a resource, is integral to women's cultural way of coping or regarded as a resource that can supplement traditional therapies to mitigate uncertainty experienced during illness. In addition, research has not shown whether the perceived effectiveness of CAM changes QOL with the uncertainty associated with the chronic illness state during breast cancer treatment.

Patients attribute their selection of self-help and CAM therapies to interpersonal and psychosocial factors, such as health values and social support (DiGianni, Garber, & Winer, 2002; Sollner et al., 2000). Recent studies have inquired about reasons why patients choose CAM in response to illness experiences (O'Brien, 2004). However, little data exist regarding CAM interventions that are linked to maintenance of or increase in health-related QOL among Hispanic women during treatment for breast cancer. The purposes of the present study were to describe the self-help theoretical framework with CAM and to delineate relationships in Braden's Self-Help Model of side-effect burden to uncertainty, CAM self-care, and QOL in Hispanic women undergoing breast cancer treatment.

## Conceptual Framework

Many studies have examined the phenomenon of the use of CAM among women with breast cancer; however, few studies have provided a theoretical framework to demonstrate the network of interrelated concepts of CAM and outcome measurement. For example, CAM use was found to be related to greater psychosocial distress and worse QOL among women who received standard therapy for early-stage breast cancer (Burstein, Gelber, Guadagnoli, & Weeks, 1999). A theoretical framework was not identified for the basis of the study; therefore, a prediction of what motivated the women to use CAM remains poorly appreciated. Researchers have hypothesized a link between CAM use by patients with cancer to increased side effects and lack of hope for cure without an informing theory (Chou, Horng, Tolmos, & Vargus, 2000;

Morris, Johnson, Homer, & Walts, 2000). Concurrently, the prevalence of CAM use among patients with cancer from diverse ethnic backgrounds was studied without a guiding framework to identify the relationship of CAM to QOL (Mas-karinec, 2000). In the present study, the theoretical framework is based on Braden's (1990) Self-Help Model (see Figure 1). Braden's Self-Help Model has been tested as a basis for self-help, promoting interventions in women who were being treated for breast cancer (Braden, Mishel, & Longman, 1998). Uncertainty about illness often undermines self-care, self-help outcomes, and overall QOL (Braden et al., 1998). Braden's Self-Help Model is supported as an excellent source of information regarding the manner in which people use enabling skills to mediate uncertainty about illness (LeFort, 2000). The present study was undertaken to test QOL and behaviors that are logically expected in regard to side effects, uncertainty, enabling skills, and CAM use.

Braden's Self-Help Model has five stages. The first stage is the side-effect burden or level of perceived debility (i.e., physical and psychological complaints or problems) attributable to side effects of therapy or disease course (Braden, 1990; Longman, Braden, & Mishel, 1999).

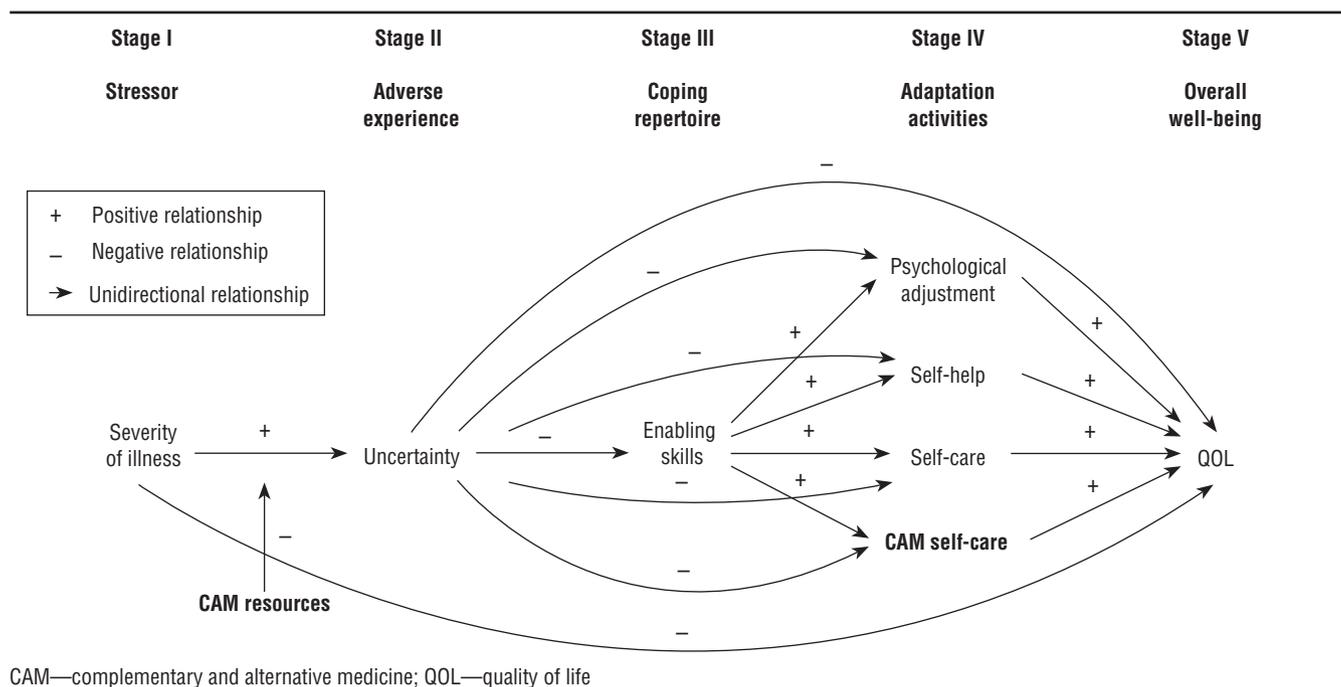
The second stage is uncertainty that occurs as a result of the disease and treatment side effects. Braden (1986) discussed the conditions that lead to uncertainty in chronic illness as cues for reinforcement because of uncertainty for events that are likely to occur. Mishel (1981) defined uncertainty as the extent to which patients are unable to derive meaning from illness and treatment experiences.

The third stage is related to patients' perceived coping or perceived enabling skills. Enabling skills are defined as the level of problem solving or cognitive reframing used to eliminate or modify effects of adversities to reach desired goals.

The fourth stage uses four adaptation activities that are considered instrumental in carrying out adult role functions (Braden, 1990). Psychological adjustment is defined as patients' psychological and social adjustment to illness. The self-help variable represents an outcome that is defined as patients' perceived levels of adult role performance. Self-care denotes the activities that are devoted to enhancing or maintaining health.

The additional variable of CAM in Braden's Self-Help Model encompasses five therapeutic categories established by NCCAM (2006). The categories are (a) alternative systems in medical care, (b) mind and body medicine, (c) biologicals, such as herbs, diet and nutrition, and supplements, (d) energy therapies (e.g., therapeutic touch, acupuncture, magnets), and (e) manual healing methods (e.g., massage, Healing Touch). In the present study, CAM was defined as healthcare activities and services sought from individuals not generally considered to be conventional healthcare professionals.

The fifth stage is overall well-being or the degree of perceived satisfaction with QOL. QOL is a subjective phenomenon that includes physical, psychological, and social domains (Aaronson, 1990). The fifth stage is defined as patients' perceptions of their positions in life in the context of the culture and value systems in which they live and in relation to goals, expectations, standards, and concerns (Orley, 1996). The relevance of exploration of the responses in the context of the culture of Hispanic women is crucial to understand the salient characteristics among women who respond differently to similar situations.



**Figure 1. Self-Help Model With Complementary and Alternative Medicine**

## Methods

### Design

A descriptive, correlational research design in a cross-sectional sample was used to examine the relationship between CAM use and uncertainty relative to side-effect burden in women with breast cancer. The major scaling methodologies were Likert and visual analog response formats. The methodology used for testing the model was multiple regression. Using the F-test when  $\alpha$  is 0.01 and  $\beta$  is 0.10, a sample size of 75 was sufficient to detect a moderate effect ( $R^2 = 0.2$ ) of the two main variables of side-effect burden and uncertainty negatively predicting QOL. A pilot study (Owens, 2002) was conducted to test and refine the instrument used. The results of the study were used to estimate the length of time required to complete the questions, which was about 30 minutes, and to revise two of the study instruments. In addition, recruitment of study participants from the hospital's support group was avoided because evidence from the pilot study pointed to a bias about use of support groups. The study was approved by the appropriate human subjects institutional review board.

### Setting and Sample

The researchers selected a convenience sample of women receiving treatment for breast cancer at an outpatient clinic located in a southern Texas metropolitan community. Women were recruited for the study through a poster announcement or from physicians and nurses who provided a handout written in English and Spanish. The investigator explained the study to participants. Participant inclusion criteria were that each woman received or just completed therapy for breast cancer, could read Spanish or English, and was 18 years or older. The study was explained to each woman interested in participating; if she agreed to participate, the research instruments were given to her for completion. Return of questionnaires was considered consent

for the study. Any unclear meaning of questions was clarified for the participants while they completed the instruments. The women were given a \$20 gratuity upon returning the instruments whether they completed all of them or not. Three partially completed subject forms were excluded from the database.

### Instruments

Table 1 summarizes the study concepts, conceptual definitions, and instruments used to measure each concept. Table 2 provides the published reliability estimates for the instruments. The studies on which the reliability information was based were among women who were in a similar stage of breast cancer treatment. All instruments were translated into Spanish to facilitate the enrollment of Spanish- and English-speaking subjects. The instruments were translated into Spanish and back translated into English to verify that word use was correct for the constructs being measured. The translation of the English form to the Spanish form was done initially by one person and then checked for local word use by two independent bilingual translators. The second phase was back translation of the questions read aloud and recorded, for the meaning as it sounded when read quickly, as patients would do. The resulting back-translated version was compared with the original. Translation probes (Marin & Marin, 1991) were used to test the accuracy of the translation by comparing how closely the target Spanish language version was related to the English.

Equivalency of reliability between the Spanish and English versions of all instruments is reported in Table 3. Rogers, Howard, and Vessey (1993) introduced the concept to determine whether groups are sufficiently similar to be considered equivalent. They used the same method typically used by biostatisticians to determine whether two drugs have an equivalent effect. The a priori decision of 0.1 for tolerance, or less than 10% difference between the English and Spanish versions, is considered sufficiently similar to be considered

**Table 1. Conceptual Definitions and Instruments**

Concept	Conceptual Definition	Instrument
Side-effect burden	The level of perceived burden or debility because of the disease or side effects of treatment	Side-Effects Burden Scale (revised as described in text) (Longman et al., 1999)
CAM resources	The number and categories of nontraditional medical therapy used by patients seeking care for chronic illnesses	Use and Intent Subscale (Bennett & Lengacher, 1998)
Uncertainty	The extent to which one is unable to find meaning from illness and treatment experiences	Mishel Uncertainty in Illness Scale (Mishel, 1983)
Enabling skills	The level of problem solving and cognitive reframing available to eliminate or modify effects of adversities to reach desired goals	Self-Control Schedule (Rosenbaum, 1980)
Psychological adjustment	The level of psychological and social adjustment of women to illnesses	Psychological Adjustment to Illness Scale (Derogatis, 1986)
Self-help	Patients' perceived level of adult role performance	Inventory of Adult Role Behavior (Braden, 1993)
Self-care	The level of adult role behaviors devoted to enhancing or maintaining health	Self-Care Inventory-Wellness Promotion Scale (Pardine et al., 1983)
CAM self-care	The level of use of complementary and alternative therapy chosen to improve health and reduce side effects of treatment sought from individuals not generally considered as conventional healthcare providers	Effectiveness Rating Subscale (Bennett & Lengacher, 1998)
QOL	Patients' perceptions of their positions in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns	Cantril's ladder (Cantril, 1965) and Index of Well-Being (Campbell, 1976)

CAM—complementary and alternative medicine; QOL—quality of life

equivalent. An equivalency check demonstrated a small non-zero difference in reliability between the English and Spanish versions of all instruments except the Index of Well-Being and the Effectiveness Rating Subscale. Therefore, results of the study were reported with the Spanish and English language versions combined into one statistical value. The scale items were written at a sixth-grade reading level.

The **Side-Effects Burden Scale** (Longman, Braden, & Mishel, 1997) measured the perceived levels of physical and psychological complaints or problems. The specific side ef-

fects included nausea, change in appetite, difficulty sleeping, pain, fatigue, bowel pattern, difficulty concentrating, appearance, breathing, skin changes, arm weakness or swelling, hair loss, depression, hot flashes, and weight gain. The side effects are evaluated according to frequency, participants' lives, and how effectively they can be managed.

The **Uncertainty in Illness Scale** (Mishel, 1983) was used to measure uncertainty. The instrument has four subscales: ambiguity, complexity, lack of information, and unpredictability. Items are scored in a positive direction for uncertainty on a five-point Likert scale from "strongly agree" to "strongly disagree." The total possible range is 26–130, with a high score indicating a great amount of uncertainty.

The **Self-Control Schedule** (Rosenbaum, 1980) was used to measure enabling skills, which were defined as the level of problem solving and cognitive reframing available to eliminate or modify effects of adversities to reach desired goals. A 10 mm horizontal line visual analog scale response format that ranged from 1 (not true about me) to 10 (true about me) was used. Scores can range from 0–200, with a higher score indicating a greater amount of enabling skills. The 20-item measure covers use of cognitions and self-instructions to cope with stressors, application of problem-solving strategies, ability to delay immediate gratification, and a general belief regarding the ability to control stressors.

The **Psychosocial Adjustment to Illness Scale** is an assessment of how patients have adjusted to their illnesses (Derogatis, 1986). A four-point Likert response format is used. Scores range from 4–20, with higher scores indicating excellent adjustment and lower scores indicating poorer adjustment to changes in their lives.

The **Inventory of Adult Role Behavior (IARB)** (Braden, 1993) represents the self-help variable. This outcome variable is defined as patients' perceived levels of adult role performance. Items from the IARB address maintenance of involvement in social events, community activities, routine errands and household activities, work activities, recreational activities, and visiting with friends. A visual analog scale is used, with a rating from 1–10 of the amount of change in activities since cancer was diagnosed. Total scores can range from 0–60, with higher scores indicating more involvement in adult self-help behaviors.

The wellness promotion aspects of self-care were measured with 15 items from the **Self-Care Inventory-Wellness Promotion Subscale** (Pardine, Napoli, & Dytell, 1983). Items addressed were eating the right amount of healthful foods, receiving the basics of good nutrition, avoiding junk foods, pacing self at work and play, making time for relaxation, practicing relaxation exercises, taking time to exercise, reducing negative self-talk, and increasing positive self-talk. The scale is scored in a four-point Likert response format, with higher scores indicating higher levels of self-care and wellness promotion behavior.

The **Complementary Therapy Rating Scale** (Bennett & Lengacher, 1998) collects demographic information and rates the complementary therapies patients with cancer use or intend to use and their effectiveness. The scale includes two subscales: the **Use and Intent Subscale** and the **Effectiveness Rating Subscale**. The Use and Intent Subscale measures 14 complementary therapies on a five-point Likert scale ranging from 0 (I am currently doing this) to 4 (definitely would not try this). The items include exercise, humor, hypnosis, massage, chiropractor, acupuncture, relaxation therapies and groups, prayer, vitamins, herbs, health foods, and support

**Table 2. Reliability Reported in the Literature of the Research Instruments**

Scale	Number of Subjects	Number of Items	Reported Cronbach Coefficient Alpha	Source
Side-Effects Burden Scale	307	16	0.91	Braden, 2002
Center for Epidemiologic Studies–Depression Scale	4,996	20	0.84–0.90	Radloff, 1977
Mishel Uncertainty in Illness Scale	253	34	0.91	Mishel, 1981
Self-Control Schedule	288	34	0.86	Braden, 1990
Psychosocial Adjustment to Illness Scale	307	10	T1 = 0.90 T2 = 0.92 T3 = 0.92	Braden et al., 1998
Inventory of Adult Role Behavior	193	14	0.93 at baseline T2 = 0.94 T3 = 0.95	Braden et al., 1998
Self-Care Inventory–Wellness Promotion Subscale	193	15	T1 = 0.82 T2 = 0.84 T3 = 0.86	Braden et al., 1998
Complementary Therapy Rating Scale	32	14	0.86	Bennett & Lengacher, 1998
Index of Well-Being	84	9	0.91	Dirksen, 2000
	53	9	0.91	Longman et al., 1996
	307	9	0.91	Longman et al., 1999

T—time

groups. The Effectiveness Rating Subscale rates how effective a complementary therapy is on a three-point Likert scale ranging from 1 (very helpful) to 3 (not helpful). The Effectiveness Rating Subscale allows patients to list the complementary therapy they are using, as well as describe one therapy and provide any additional information.

QOL was measured by two questions using **Cantril's ladder**, a single-item visual analog response format that has a potential score range from 0 (the worst possible life) to 10 (the best possible life). The first question asked, "Where are you on this ladder?" The second question asked, "Where would you be on the ladder if you did not use CAM?" These two questions were formatted to discern differences in QOL in a very broad sense. The other measure for QOL was the **Index of Well-Being (IWB)** (Campbell, 1976), which consists of nine items on a semantic differential scale with higher scores indicating a greater overall satisfaction with life as currently experienced. The IWB uses a visual analog scale response format and has a potential score range of 0–90. Patients with higher scores perceive greater overall well-being.

The Side-Effects Burden Scale listed depression as a side effect. A second measure of depression burden as a side effect associated with breast cancer diagnosis and treatment was indexed using the **Center for Epidemiologic Studies–Depression Scale** (Radloff, 1977), which measures a range of cognitive, affective, motivational, and somatic symptoms of depression. Twenty questions are scored from 0–3 on a scale of frequency of occurrence, ranging from rarely or none of the time (less than one day) to most or all of the time (five to

seven days). The possible range of scores is 0–60, with higher scores indicating more symptomatology.

### Data Analyses

SPSS® 11.0 (SPSS, Inc.) was used to summarize demographic data and perform statistical procedures. Correlation statistics, including Pearson's correlation coefficient, were calculated for all study variables using an alpha less than 0.05 as the significance level. Multiple regression was used to analyze the effects of the mediator variables on the relationships between predictor and outcome variables. The t tests for independent samples were calculated for selected demographics (i.e., age, education, and parity) and analyzed for differences in CAM use and perceived efficacy. Pearson correlation coefficients

**Table 3. Equivalency of Reliability Between Spanish and English Versions of Research Instruments**

Instrument	English	Spanish
Side-Effects Burden Scale	0.95	0.95
Center for Epidemiologic Studies–Depression Scale	0.89	0.87
Mishel Uncertainty in Illness Scale	0.87	0.92
Self-Control Schedule	0.94	0.97
Psychosocial Adjustment to Illness Scale	0.73	0.72
Inventory of Adult Role Behavior	0.74	0.82
Self-Care Inventory–Wellness Promotion Subscale	0.83	0.83
Use and Intent Subscale	0.65	0.73
Complementary Therapy Rating Scale	0.70	0.84
Index of Well-Being	0.91	0.47

were performed on all variables to determine the direction and magnitude of any relationships. Significance for the correlations was set at alpha equal to 0.05. For the present study, the researcher fit the model that was generated to matrices of interrelationship indexes (i.e., covariance or correlation matrices) between all pairs of observed variables, and sometimes to variable means. Next, multiple regression was used to explore the variables in Braden's Self-Help Model with the addition of CAM as a resource or a type of self-care strategy.

Theoretical relationships between the concepts in Braden's Self-Help Model with CAM were specified, and then the empirical relationships between the measures of the concepts were examined. The empirical evidence was interpreted in terms of how it clarified the construct validity of the CAM variables in the context of Braden's Self-Help Model.

## Results

### Sample

Data for the analysis were provided by 140 Hispanic women who ranged in age from 33–80 years ( $\bar{X} = 54$ ,  $SD = 10.22$ ). Thirty-four (25%) chose to complete the instrument in Spanish. Fifty percent were married or partnered, and 50% were not partnered. Nine percent were working full- or part-time, and 29% were on medical leave from their jobs. The remaining 62% were retired (19%) or homemakers (43%). Seventy-four percent earned less than \$20,000 per year, and the average education was 10 years. Thirty-six percent had a high school degree or its equivalent, and 13% had some college.

Twenty-six percent of the women had stage I disease, 36% had stage II disease, 13% had stage III disease, and 25% had stage IV disease. Twenty-seven percent had recurrent disease, and 43% had positive nodes. Sixty percent underwent modified radical or partial mastectomy, 32% had lumpectomies, and 7% had no surgery. Eighty-one percent of the women received chemotherapy, 58% received radiation therapy, and 26% received hormone therapy. Thirty-five percent were premenopausal, 9% perimenopausal, and 56% postmenopausal.

Three surveys were excluded from the data because they had greater than 25% missing data, making the final number of participants 137. Reasons for not participating in the study were being too ill, not having time, being busy with the Christmas sea-

son, and not being able to read very well. In addition, healthcare providers did not refer some women whom they perceived as incapable of completing the instruments, either because of a psychological condition or because of the large amount of information being given to them during the appointment.

The relationship between CAM variables and demographic variables was examined for selection bias. The Use and Intent Subscale was positively correlated with family income ( $r = 0.21$ ,  $p < 0.05$ ) and the Effectiveness Rating Subscale also was positively correlated with education ( $r = 0.24$ ,  $p < 0.01$ ) and family income ( $r = 0.20$ ,  $p < 0.05$ ) (see Table 4). No other demographic variables were significantly correlated with the CAM variables. Figures 2 and 3 show that the greater the income, the more CAM was used. The effectiveness rating also was higher when income was greater.

### Relationship of Side-Effect Burden to Uncertainty, Self-Care, and Quality of Life

To describe the relationship of side-effect burden to uncertainty, self-care, and QOL in Hispanic women undergoing breast cancer treatment, the variables were correlated and multiple regression analyses were conducted to examine the variables for valid theoretical relationships. Next, the empirical relationships between measures of concepts were examined. The determining factor was the amount of explained variance in uncertainty ( $R^2 = 0.14$ ) resulting from the interaction effect of complementary therapy use with side-effect burden ( $\beta = 0.32$ ), which was evidenced by a similar direct positive relationship between side effects and uncertainty ( $\beta = 0.33$ ;  $R^2 = 0.11$ ). CAM as a strategy to moderate side-effect burden and, therefore, predict reduction in uncertainty was not supported in the analysis. However, CAM as a type of self-care during breast cancer treatment accounted for a small amount of the variance that contributed to QOL or well-being ( $\beta = 0.7$ ).

Braden's Self-Help Model with CAM demonstrated that the greater the side-effect burden ( $\beta = 0.33$ ) and depression ( $\beta = 0.48$ ) the Hispanic women experienced, the more uncertainty was experienced as well ( $R^2 = 0.11$  and  $0.22$ , respectively). When more uncertainty was experienced, a trend of fewer enabling skills was present ( $\beta = -0.16$ ,  $R^2 = 0.02$ ). More enabling skills did increase psychological adjustment ( $\beta = 0.39$ ,

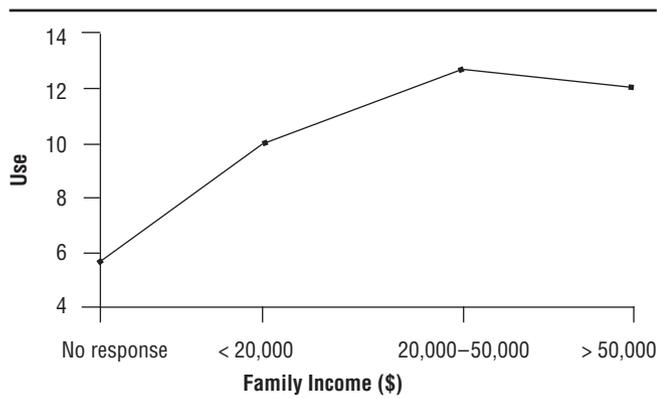
**Table 4. Relationships Between the Demographic Variables and Complementary and Alternative Medicine (CAM) Use and Perceptions of Efficacy**

Variable	CAM Efficacy	Language	Acculturation	Family Income	Years of Education	Number of Children	Marital Status	Age
CAM use	0.688**	-0.097	0.033	0.207*	0.107	-0.002	-0.130	0.165
CAM efficacy	-	-0.089	-0.016	0.195*	0.236**	-0.165	-0.120	0.071
Language	-	-	0.733**	0.006	0.266**	-0.160	-0.088	-0.100
Acculturation	-	-	-	0.147	0.453**	-0.129	-0.179*	-0.191*
Family income	-	-	-	-	0.278**	-0.116	-0.058	-0.023
Years of school	-	-	-	-	-	-0.265**	-0.186*	-0.141
Number of children	-	-	-	-	-	-	-0.058	0.127
Marital status	-	-	-	-	-	-	-	-0.042

\*  $p = 0.05$  level (two tailed)

\*\*  $p = 0.01$  level (two tailed)

Note. The relationships were determined by Pearson's  $r$ .



**Figure 2. Income Versus Complementary and Alternative Medicine Use**

$R^2=0.14$ , self-help ( $\beta = 0.45$ ,  $R^2=0.20$ ), self-care ( $\beta = 0.58$ ,  $R^2=0.33$ ), and CAM self-care ( $\beta = 0.27$ ,  $R^2=0.07$ ). Women who were involved in adult role activities, including self-care, and CAM self-care had higher QOL ( $R^2 = 0.31$ ); however, those who experienced more side effects ( $\beta = -0.20$ ) and uncertainty ( $\beta = -0.19$ ) had lower QOL scores ( $R^2=0.16$ ).

## Discussion

In a national survey by Eisenberg et al. (1998), the estimated out-of-pocket expenditure for CAM was a conservative \$12.2 billion, which exceeded the out-of-pocket expenditure for all U.S. hospitalizations. The annual income range of the majority of women with breast cancer who participated in CAM surveys was in the mid-to-upper category (Burstein et al., 1999; Lengacher, Bennett, Kip, Berarducci, & Cox, 2003; Rees & Bath, 2000). Lee, Lin, Wrensch, Adler, and Eisenberg (2000) studied CAM use among four ethnic groups with breast cancer and reported that having an annual income greater than \$20,000 and private health insurance were significantly associated with the use of certain types of therapies.

Few data exist specifying that variables associated with the use of CAM correlate with QOL for Hispanic women during breast cancer treatment in southern Texas. The reported literature is mixed regarding the motivation for use of CAM by patients with cancer. Researchers recently reported that patients need to do something to regain control of their health (Lengacher et al., 2006), whereas other researchers have hypothesized that patients with cancer use CAM because they have more side effects and lack of hope for a cure (Chou et al., 2000; Morris et al., 2000). The theoretical perspective of Braden's Self-Help Model assumes that people who use more CAM are actively seeking solutions to problems without predetermining the degree or number of side effects. The present study showed that Hispanic women who used CAM had higher QOL. When asked what their QOL would be without CAM activities, the average reduction on Cantril's QOL ladder was 33%. Other researchers have supported the notion that resources mediate the effect of adverse side effects of breast cancer and its treatment on QOL (Braden, Mishel, & Longman, 1993). CAM self-care may be greater if a sufficient number of enabling skills exist, such as the ability to make successful plans and to think positively, even when the direct impact of breast cancer disease and treatment is burdensome.

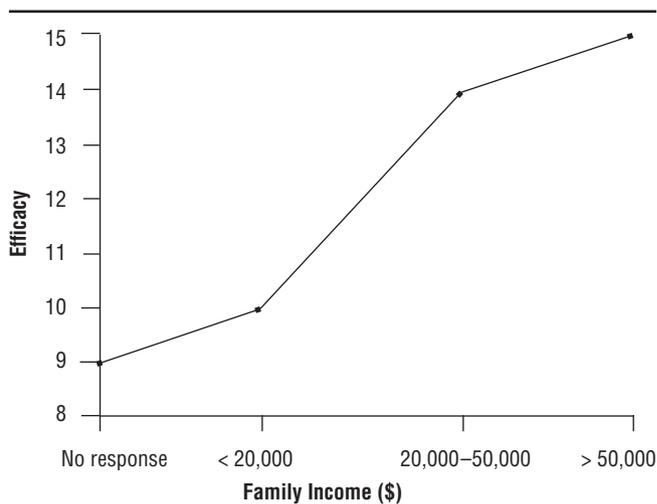
Theory testing of Braden's Self-Help Model has shown how a given range of enabling skills helps women meet situational and psychological challenges of uncertainty that are associated with breast cancer (Braden et al., 1998; Longman et al., 1997). Enabling skills such as problem solving, cognitive reframing, and belief in self mediate adverse situations that accompany breast cancer experiences relative to fulfillment of desired goals (Braden, 1990; Rosenbaum & Jaffe, 1983). The essential constructs in and the predictive power of Braden's Self-Help Model appeared stable and robust in study participants.

## Limitations

The study included patients receiving different treatments for breast cancer, which may have influenced which and how much CAM the women chose to use. Sources of random error were identified as participants receiving help with reading questions, taking the instruments home and returning them later, and fatigue when completing the instruments. Types of CAM used may not have been listed on the questionnaire or captured in the study if participants did not list the activities under "other." Also, participants may have opted to avoid disclosing CAM activities or may not have considered certain activities as types of CAM. Response bias may have affected the predicted relationships in the study by not capturing attitudes and modalities of CAM used by women who were more ill. Because the prevalence of use of individual CAM varied so greatly among the patient population, 21 items that were analyzed demonstrated marginally adequate internal consistency and reliability. Further testing of the instruments in other study populations is warranted.

## Implications for Research and Practice

Several recommendations for future research can be suggested based on the study findings, such as further concept development of CAM and instrument building. CAM, as a whole set of activities, did not moderate uncertainty, which may indicate that CAM needs to be broken down into subsets for future studies to explore which CAM activities increase or reduce uncertainty. CAM use was more frequent in women with high levels of enabling skills or the ability to positively



**Figure 3. Income Versus Perceived Complementary and Alternative Medicine Efficacy**

frame issues and problem solve. Through that path, CAM self-care was associated with higher QOL. Replication with a sample in a different outpatient setting to give a total of at least 300 subjects would allow the use of structural equation analysis. A structural equation analysis would provide a means to modify Braden's Self-Help Model in several ways to explore the concept of CAM in Hispanic women who speak English and Spanish. CAM might be a subcategory of enabling skills instead of a type of self-care and, therefore, may have been lost in the enabling skill stage of the model. Further testing also would generate new aspects of Braden's Self-Help Model with CAM that are particularly relevant for oncology nursing.

The use of a longitudinal design would allow the testing of the manner in which CAM is used throughout the breast cancer treatment trajectory. Such information could elucidate differences in stages of breast cancer at diagnosis, recurrence of disease, treatment side effects experienced, and perceived helpfulness of CAM as a self-care strategy using Braden's Self-Help Model.

## Conclusion

The results of the study provided valuable feedback about the role of CAM during breast cancer therapy among Hispanic women. Braden's Self-Help Model with CAM served as a stable framework to elucidate the concept of CAM in the sample; however, the study was limited by its sample size. In addition, the overall lower income range of the sample may have limited the out-of-pocket funds that participants had for CAM self-care. Despite the limitations, results of the model testing study among a sample of Hispanic women during treatment for breast cancer indicated strong support for the predicted pattern in Braden's Self-Help Model and a trend for the added concept of CAM as a special type of self-care.

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## References

- Aaronson, N.K. (1990). Quality-of-life research in cancer clinical trials: A need for common rules and language. *Oncology, 4*, 59–66.
- Adler, S.R. (1999). Complementary and alternative medicine use among women with breast cancer. *Medical Anthropology Quarterly, 13*, 214–222.
- Bennett, M., & Lengacher, C. (1998). Design and testing of the complementary therapy rating scale. *Alternative Health Care Practitioner, 4*, 179–198.
- Braden, C. (1986). Self-help as a learned response to chronic illness experience: A test of four alternative theories. *Dissertation Abstracts International, 47*(09), 3704. (UMI No. 8623869)
- Braden, C. (1990). A test of the Self-Help Model: Learned response to chronic illness experience. *Nursing Research, 39*, 42–47.
- Braden, C., Mishel, M., & Longman, A. (1993, November). *Quality of life in treatment for breast cancer*. Paper presented at the American Nurses Association Council of Nurse Researchers, Washington, DC.
- Braden, C.J. (1993). *Final report: Learned self-help response to chronic illness experience*. Bethesda, MD: National Institute of Nursing.
- Braden, C.J. (2002). *Final report: Breast cancer management in younger minority women. "Promoting self-help: Underserved women with breast cancer"* (1 Rol CA64706). Bethesda, MD: National Institutes of Health, National Cancer Institute.
- Braden, C.J., Mishel, M.H., & Longman, A.J. (1998). Self-Help Intervention Project: Women receiving breast cancer treatment. *Cancer Practice, 6*, 87–98.
- Burstein, H.J., Gelber, S., Guadagnoli, E., & Weeks, J.C. (1999). Use of alternative medicine by women with early-stage breast cancer. *New England Journal of Medicine, 340*, 1733–1739.
- Campbell, A. (1976). Subjective measures of well-being. *American Psychologist, 31*, 117–124.
- Cantril, H. (1965). *The patterns of human concerns*. New Brunswick, NJ: Rutgers University Press.
- Cassileth, B.R. (1999). Complementary therapies: Overview and state of the art. *Cancer Nursing, 22*, 85–90.
- Cassileth, B.R., & Vickers, A.J. (2005). High prevalence of complementary and alternative medicine use among cancer patients: Implications for research and clinical care. *Journal of Clinical Oncology, 23*, 2590–2592.
- Chou, J.C., Horng, P., Tolmos, J., & Vargus, H.I. (2000). Alternative therapy use by breast cancer patients. *Medicine of the Americas, 1*(1), 26–30.
- Derogatis, L.R. (1986). The Psychosocial Adjustment to Illness Scale (PAIS). *Journal of Psychosomatic Research, 30*, 77–91.
- DiGianni, L.M., Garber, J.E., & Winer, E.P. (2002). Complementary and alternative medicine use among women with breast cancer. *Journal of Clinical Oncology, 20*(18, Suppl.), 34S–38S.
- Dirksen, S.R. (2000). Predicting well-being among breast cancer survivors. *Journal of Advanced Nursing, 32*, 937–943.
- Eisenberg, D.M., Davis, R.B., Ettner, S.L., Appel, S., Wilkey, S., Van Rompay, M., et al. (1998). Trends in alternative medicine use in the United States, 1990–1997: Results of a follow-up national survey. *JAMA, 280*, 1569–1575.
- Gray, R.E., Fitch, M., Goel, V., Franssen, E., & Labrecque, M. (2003). Utilization of complementary/alternative services by women with breast cancer. *Journal of Health and Social Policy, 16*(4), 75–84.
- Hann, D., Baker, F., Denniston, M., & Entekin, N.M. (2005). Long-term breast cancer survivors' use of complementary therapies: Perceived impact on recovery and prevention of recurrence. *Integrative Cancer Therapies, 4*, 14–20.
- Henderson, J.W., & Donatelle, R.J. (2004). Complementary and alternative medicine use by women after completion of allopathic treatment for breast cancer. *Alternative Therapies in Health and Medicine, 10*(1), 52–57.
- Lee, M.M., Lin, S.S., Wrench, M.R., Adler, S.R., & Eisenberg, D. (2000). Alternative therapies used by women with breast cancer in four ethnic populations. *Journal of the National Cancer Institute, 9*, 42–47.
- LeFort, S.M. (2000). A test of Braden's Self-Help Model in adults with chronic pain. *Journal of Nursing Scholarship, 32*, 153–160.
- Lengacher, C., Bennett, M., Kip, K., Gonzalez, L., Jacobsen, P., & Cox, C. (2006). Relief of symptoms, side effects, and psychological distress through use of complementary and alternative medicine in women with breast cancer. *Oncology Nursing Forum, 33*, 97–104.
- Lengacher, C.A., Bennett, M.P., Kip, K.E., Berarducci, A., & Cox, C.E. (2003). Design and testing of the use of a complementary and alternative therapies survey in women with breast cancer. *Oncology Nursing Forum, 30*, 811–821.
- Longman, A.J., Braden, C.J., & Mishel, M.H. (1996). Side effects burden in women with breast cancer. *Cancer Practice: A Multidisciplinary Journal of Cancer Care, 4*, 274–280.
- Longman, A.J., Braden, C.J., & Mishel, M.H. (1997). Pattern of association over time of side-effects burden, self-help, and self-care in women with breast cancer. *Oncology Nursing Forum, 24*, 1555–1560.
- Longman, A.J., Braden, C.J., & Mishel, M.H. (1999). Side-effects burden, psychological adjustment, and life quality in women with breast cancer: Pattern of association over time. *Oncology Nursing Forum, 26*, 909–915.
- Marin, B., & Marin, G. (1991). *Research with Hispanic populations*. Thousand Oaks, CA: Sage.

- Maskarinec, G. (2000). Breast cancer—Interaction between ethnicity and environment. *In Vivo*, *14*, 115–123.
- Mishel, M. (1983). Adjusting the fit: Development of uncertainty scales for specific clinical populations. *Western Journal of Nursing Research*, *5*, 355–370.
- Mishel, M.H. (1981). The measurement of uncertainty in illness. *Nursing Research*, *30*, 258–263.
- Morris, K.T., Johnson, N., Homer, L., & Walts, D. (2000). A comparison of complementary therapy use between breast cancer patients and patients with other primary tumor sites. *American Journal of Surgery*, *179*, 407–411.
- National Center for Complementary and Alternative Medicine. (2006). *What is complementary and alternative medicine?* Retrieved June 12, 2006, from <http://nccam.nih.gov/>
- O'Brien, K. (2004). Complementary and alternative medicine: The move into mainstream health care. *Clinical and Experimental Optometry*, *87*, 110–120.
- Orley, J. (1996). The WHO program on mental health behavioral science learning modules. *International Journal of Psychiatry in Medicine*, *26*, 107–108.
- Owens, B. (2002). *Pilot study: Self-care and complementary therapies used by women experiencing side effects of breast cancer treatment*. San Antonio, TX: Wellness Center of Cancer Therapy and Research Center.
- Pardine, P., Napoli, A., & Dytell, R. (1983, August). *Health behavior change mediating the stress-illness relationship*. Paper presented at the 91st Annual Conference of the American Psychological Association, Anaheim, CA.
- Radloff, L.S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, *1*, 385–401.
- Rees, C.E., & Bath, P.A. (2000). Exploring the information flow: Partners of women with breast cancer, patients, and healthcare professionals. *Oncology Nursing Forum*, *27*, 1267–1275.
- Rogers, J.L., Howard, K.I., & Vessey, J.T. (1993). Using significance tests to evaluate equivalence between two experimental groups. *Psychological Bulletin*, *113*, 553–565.
- Rosenbaum, M. (1980). A schedule for assessing self-control behaviors: Preliminary findings. *Behavior Therapy*, *11*, 109–121.
- Rosenbaum, M., & Jaffe, Y. (1983). Learned helplessness: The role of individual differences in learned resourcefulness. *British Journal of Social Psychology*, *22*(Pt. 3), 215–225.
- Sollner, W., Maislinger, S., DeVries, A., Steixner, E., Rumpold, G., & Lukas, P. (2000). Use of complementary and alternative medicine by cancer patients is not associated with perceived distress or poor compliance with standard treatment but with active coping behavior. *Cancer*, *89*, 873–880.
- Sparber, A., Bauer, L., Curt, G., Eisenberg, D., Levin, T., Parks, S., et al. (2000). Use of complementary medicine by adult patients participating in cancer clinical trials. *Oncology Nursing Forum*, *27*, 623–630.
- Tindle, H.A., Davis, R.B., Phillips, R.S., & Eisenberg, D.M. (2005). Trends in use of complementary and alternative medicine by U.S. adults: 1997–2002. *Alternative Therapies in Health and Medicine*, *11*(1), 42–49.