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Body Image, Attitudes, and Self-Efficacy as Predictors of Past Behavior and Future Intention to Perform Breast and Skin Self-Examinations

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Body Image, Attitudes, and Self-Efficacy as Predictors of Past Behavior and Future

Intention to Perform Breast and Skin Self-Examinations

by

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A thesis submitted in partial fulfillment
of the requirements for the degree of
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ABSTRACT

Breast self-examinations (BSE) and skin self-examinations (SSE) provide people
with a cost-effective and time-efficient approach to the detection of cancer. Given the
utility of these self-examination behaviors, it is important to determine who is likely to
perform them regularly and why. Prior research has demonstrated a relationship of
attitudes and self-efficacy with performance of and intention to practice the exams. Body
image, although not previously studied, can be hypothesized to influence performance of
these behaviors as well. To address these issues, the current study sought to determine if
there are relationships between attitudes, self-efficacy, and body image and the practice
of BSE and SSE. One hundred and six women completed measures assessing attitudes,
self-efficacy, body image, past performance of BSE and SSE, and future intention to
perform BSE and SSE. Results indicated that attitude was positively related to past
performance of BSE and SSE and future intention to perform SSE. Self-efficacy was
positively related to past performance and future intention to perform BSE and SSE.
Body image was positively related only to past performance of SSE. Future research
should further examine the relationship between body image and SSE utilizing
longitudinal designs and a more diverse population.

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Introduction

It is estimated that 214,640 people will be diagnosed with breast cancer and 68,780 will be diagnosed with skin cancer (excluding basal and squamous cell cancer) in the United States in 2006 (American Cancer Society, 2006). While there is currently no definitive cure for either form of cancer, the earlier it is detected, the greater the chances are of a full recovery. Detection of cancer in its earlier stages translates to increased survival rates; as such, early detection is crucial. Public education resources have been employed to disseminate information regarding such screening tools as mammography, colonoscopy, and prostate exams. In addition to screening measures performed by a medical professional, there have been efforts to encourage the public to engage in regular self-screening methods. Self-screening measures provide people with a cost-effective and time-efficient approach to the detection of cancer. Two self-examinations shown to be potentially effective in detecting cancer early are breast self-exams (BSE) for the detection of breast cancer and skin self-exams (SSE) for the detection of skin cancers. Given the utility of these self-examination measures, it is important to determine who is likely to perform them regularly and why. To address this issue, the current study seeks to identify factors associated with performance of BSE and SSE.

Breast Self-Examinations

BSE is a relatively easy, noninvasive way for women to familiarize themselves with their own breasts, making the detection of abnormalities easier. As it is a free

method of early detection, BSE is often an appealing option for those women looking for a cost-effective, time-efficient method when a clinical breast exam does not provide those benefits (Chouliara, Papadioti-Athanasiou, Power, & Swanson, 2004). Additionally, research has shown that attendance to regular mammograms is associated with performance of BSE, suggesting further benefits of adhering to regular BSE (Rodriguez, Plasencia, & Schroeder, 1995). Despite this, recent findings indicate that only about one third of US women regularly perform BSE (Elmore, Armstrong, Lehman, & Fletcher, 2005). For example, Frank, Rimer, Brogan, and Elon (2000) found that only 21% of respondents in the Women Physicians' Health Study reported performing BSE on a monthly basis. Although controversy exists regarding the benefits and consequences of performing BSE, there is evidence that engaging in regular BSE is effective in detecting early stage breast cancer. Newcomb et al. (1991) found that women who engaged in BSE with greater proficiency had a decreased risk of death from breast cancer. BSE may be particularly effective among women who are not obtaining regular mammograms, such as women below the age of 40 years and those who cannot afford regular mammograms. Harvey, Miller, Baines, and Corey (1997) reported that among women 40 to 45 years of age, a population that is generally not having routine mammograms, 65% of all breast cancers were detected by self-detection; it is important to note that self-detection included BSE and breast lumps found by women accidentally. Of over 3,000 cases of invasive breast cancer diagnosed in Wisconsin between 1988 and 1990, 55% were detected by the patient herself (Reeves, Newcomb, Remington, & Marcus, 1995). Given the evidence that BSE is a potentially efficient and easy method of detecting breast

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cancer early, it is alarming that so few women in the United States report performing it regularly.

Because of the existing controversies regarding the benefits and consequences of BSE, the American Cancer Society no longer recommends that women perform monthly BSE; however, they do suggest it as an option for women starting in their 20's (Smith et al., 2003). The organization describes the self-screening measure as a useful tool for the detection of any changes or abnormalities in the breast tissue; performing regular BSE is seen as allowing a woman to become familiar enough with her own breasts so as to detect such changes. Despite mixed findings, most organizations and health professionals agree that BSE is still an effective tool for the early detection of breast cancer. Given the ongoing debate, a shift in emphasis has occurred highlighting the need for women to familiarize themselves with their own breast tissue through the use of BSE, rather than emphasizing the need for women to engage in routine, monthly BSE (Mayo Clinic, 2005). Consequently, while organizations still recommend BSE as an option for women, the emphasis has moved from the routine nature of the exam to the benefit of becoming familiar with one's own breast tissue.

Skin Self-Examinations

Similar to BSE, the importance of performing SSE is highlighted by the fact that the most common way in which skin cancer is currently detected is through self-examination (Oliveria et al., 2004). Furthermore, Berwick, Begg, Fine, Roush, and Barnhill (1996) demonstrated that SSE has the potential to reduce mortality from melanoma, a particularly deadly form of skin cancer, by 63%. Melanoma lesions detected early are generally thin and surgical removal of these lesions usually leads to a

cure; by examining one's skin regularly, it is possible to identify any abnormalities before they develop into later-stage melanoma, thus decreasing the risk of this potentially fatal skin cancer (Miller et al., 1996). Like other self-screening measures, SSE is a free, relatively easy method of detecting skin cancer. Despite the evidence emphasizing the benefits of practicing SSE, research shows that SSE is still not performed as regularly or as thoroughly as possible (Koh et al., 1992; Miller et al., 1996; Weinstock et al., 1999). In a survey examining knowledge, awareness, and screening practices for melanoma, Miller et al. (1996) found that while 46% of respondents reported examining themselves for signs of skin cancer, only 26% of respondents reported looking specifically at moles in order to detect either changes or new growths, indicating a lack of thoroughness among those that perform SSE. Weinstock et al. (1999) conducted a survey in an attempt to determine the frequency and adequacy of skin examinations. The researchers distinguished between SSE and a thorough skin examination (TSE). They asked participants how frequently they examined each of eight body regions (arms and face, chest and front of legs, side of body, back of legs, upper-back and tops of shoulders, sides of legs and bottoms of feet, middle and lower parts of back, and back of thighs). A skin-examination was considered a TSE if the participant "always" or "almost always" examined at least seven of the listed regions and the eighth region was examined at least "sometimes." The authors found that 59% of respondents performed SSE, defined as looking "at all the different areas of the skin deliberately and systematically at least sometimes" or having a partner do so. However, a much smaller proportion of the sample (9%) performed TSE at least once every few months, again indicating that people are generally not performing a thorough SSE. Given the potential life-saving nature of

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SSE, it is alarming that so few people perform them regularly or thoroughly. As such, it is important to determine specific barriers to and predictors of performing the exam.

The American Cancer Society recommends performing SSE regularly, preferably on a monthly basis, suggesting that each individual should become familiar with any moles, freckles, or marks on her body in order to detect changes (American Cancer Society, n.d.). An SSE performed correctly requires an individual to stand in front of a full-length mirror and carefully inspect all areas of the skin, paying particular attention to all marks. In order to help examine hard-to-see regions of the body, such as the lower back, the American Cancer Society recommends using a hand-held mirror or having a friend or family member check one's skin.

Psychological Predictors of BSE

Because of the utility of BSE and the large number of women who do not practice it regularly, numerous studies have sought to identify psychological predictors of who will perform BSE. As demonstrated by Lerman, Rimer, Trock, Balshem, and Engstrom (1990), intention to practice the behavior is one of the strongest predictors of actual performance. Other variables consistently found to predict practice of BSE include positive attitude towards BSE and perceived self-efficacy in performing BSE. Luszczynska and Schwarzer (2003) suggest that BSE may be more influenced by self-efficacy than professionally administered screening measures, such as mammograms. Given that an effective BSE requires that the participant have the necessary knowledge and skills, it seems likely this would be more heavily influenced by one's self-efficacy in performing the exam. In a study of 160 college students, it was found that attitude and confidence were predictors of BSE and that outcome expectancies, or participants' beliefs

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about the costs and benefits of performing BSE, were predictors of attitude (Ronis & Kaiser, 1989). Egbert and Parrott (2001) found that, in a population of rural women, the greater their self-efficacy in performing BSE, the more likely they were to engage in the behavior. Numerous other studies have demonstrated similar findings in that the lower a woman's confidence in her ability to perform BSE, the less likely she is to perform it regularly (Duke, Gordon-Sosby, Reynolds, & Gram, 1994; Fletcher, Morgan, O'Malley, & Earp, 1989; Katz, Meyers, & Walls, 1995; Ronis & Kaiser, 1989).

Several studies have indicated that more positive attitudes toward the exam and greater self-efficacy also predict stronger future intentions to practice BSE and not just past behavior (Calnan & Rutter, 1988; Moore, Barling, & Hood, 1998; McCaul, Sandgren, O'Neill, & Hinsz, 1993). For example, in a study aimed at determining if self-efficacy and perceived control should be added to the theory of reasoned action, male and female college students participated in an experiment in which they were taught how to properly perform either a testicular self-exam or a BSE and were instructed to perform one such exam each month for three months. At the three-month follow-up, participants were assessed for how many times they had performed the self-exam behavior in the three-month interval. The researchers found that, among other variables, both attitudes and self-efficacy predicted intention to perform BSE (McCaul et al., 1993).

Psychological Predictors of SSE

Similar to BSE, there has been an interest in identifying psychological predictors of who will perform SSE since this self-exam is a useful tool for the detection of skin cancer. There is growing evidence in the literature that positive attitude and self-efficacy both predict SSE behaviors and intentions. As part of the first phase of a randomized

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controlled trial of a community-based melanoma screening program, Janda et al. (2004) recruited a random sample of Australians over the age of 30. Those respondents who had a more positive attitude towards skin cancer screening were found to be more likely to examine their skin for abnormalities. These researchers also determined that those participants reporting a more positive attitude towards skin cancer screening were more likely to report stronger intentions to perform SSE. In a study aimed at determining predictors of SSE performance among individuals at increased risk due to family history of skin cancer and/or the presence of skin nevi, Robinson, Fisher, and Turrisi (2002) compared participants who had never performed SSE with those who examined only their face, and those who had examined their face and other body parts. The findings identified several predictors of conducting a more thorough SSE; these included greater confidence in one's ability to perform SSE and a more positive attitude toward SSE. In a study of unaffected first-degree relatives of individuals diagnosed with malignant melanoma, Manne et al. (2004) assessed participants on numerous variables including perceived benefits and barriers to performing SSE and SSE behavior in the past year. It was found that those participants who had engaged in at least one SSE in the past year were more likely to perceive greater benefits of practicing SSE and fewer barriers to performing SSE.

Body Image

Another factor that may affect whether women perform BSE and SSE is body image. A standard definition of body image does not exist; researchers each formulate their own definition, including and excluding various aspects (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). Cash (2000), taking a multidimensional approach,

describes body image as the "attitudinal dispositions toward the physical self" (p. 1). As it regards attitudes, this multidimensional approach takes into account not only evaluative aspects, but also cognitive and behavioral aspects. This approach to understanding body image includes the notion that one's physical self is composed of one's physical appearance as well as one's physical health and fitness competence (Cash, 2000). This approach is well demonstrated by the Multidimensional Body-Self Relations Questionnaire (MBSRQ; Cash, 1990), a commonly used measure of body image. The measure assesses numerous aspects of body image including one's self-evaluation of appearance, fitness ability, and health, as well as beliefs about the importance of appearance, fitness, and health.

A poor body image can be theorized to function as a barrier to women's practice of BSE and SSE. Although the literature regarding the relationship between body image and self-screening behaviors is scarce, there is reason to believe that the two are positively related. Research has shown that one method for coping with a poor body image is to engage in avoidance behavior. In a study aimed at validating the Body Image Coping Strategies Inventory (BICSI; Cash, Santos, & Williams, 2005), a measure of how people manage body image related stressors, Cash et al. (2005) assessed college students on several aspects of body image as well as on the BICSI. Included in the BICSI are items measuring avoidance, which refers to "an attempt to escape or avert stressful body-image situations" (Cash et al., 2005, p. 192); items on this subscale include "I avoid looking at myself in the mirror" and "I try to ignore the situation and my feelings." It was found that, among women, avoidance was significantly related to greater body dissatisfaction and body image dysphoria. These results suggest that when faced with a

threat to her body image, a woman may employ avoidance in an effort to minimize

discomfort (Cash et al., 2005). Of the various aspects of body image, the dynamics

related to appearance evaluation and satisfaction seem most likely to affect a woman's

willingness to engage in self-screening behaviors. In the face of a self-exam that requires

a woman to manually and visually scrutinize her body and familiarize herself with any

potential abnormalities, namely BSE or SSE, a woman with poorer body image, or, more

specifically, a woman who evaluates her appearance more negatively and is less satisfied

with her physical appearance, may engage in avoidance and fail to practice the behavior,

thus eliminating the threat to her body image.

The factor structure of the MBSRQ further suggests that body image may be

correlated with self-examination behavior. Brown, Cash, and Mikulka (1990) performed

a factor analysis of the Body-Self Relations Questionnaire (BSRQ), an earlier version of

the MBSRQ, in order to determine the validity of the conceptual basis of this measure;

the MBSRQ is comprised of the revised BSRQ subscales and two additional groups of

subscales. This study demonstrated that subscales related to health and fitness,

specifically Health Orientation, Health Evaluation, Fitness Orientation, and Illness

Orientation, were positively correlated with the Appearance Evaluation subscale. The

Appearance Evaluation subscale is a measure of one's feelings about level of

attractiveness or unattractiveness and level of satisfaction with one's looks. The direction

of the correlations indicate that women who tend to value physical fitness, who feel their

bodies are in good health, who try to maintain a healthy lifestyle, and who pay close

attention to their physical symptoms are more likely to find their own body attractive and

to be satisfied with their appearance. Furthermore, this study also found that Fitness

Orientation, Health Orientation, and Illness Orientation were positively correlated with Appearance Orientation. This indicates that women who value fitness, lead a healthy lifestyle, and pay close attention to physical symptoms are likely to place more importance on their physical appearance and engage in more extensive grooming behaviors (Brown et al., 1990; Cash, 2000). It follows from these findings that women who have a poorer body image (i.e., those who score lower on the Appearance Evaluation and Appearance Orientation subscales of the MBSRQ) might be less likely to engage in health promotion behaviors such as BSE and SSE.

In order to properly conduct a BSE or SSE, a woman must both feel her own body and examine it closely in a mirror; additionally, for a SSE, it is recommended that she consider having someone else examine hard-to-see regions of the body. It can be theorized that the dynamics of body image related to attitudes towards and satisfaction with one's physical experience will be related to a woman's willingness to engage in such self-examination behaviors. If a woman is dissatisfied with her overall appearance, she is presumably less likely to want to examine it closely or to have someone else view it.

Aims

A primary goal of this study was to examine the relationship between body image, as measured by the Appearance Evaluation, Appearance Orientation, and the Body Areas Satisfaction Scale (BASS) subscales of the MBSRQ, and the practice of engaging in self-examinations for the detection of cancer, specifically BSE and SSE. This study also aimed to examine the relationship between one's self-efficacy for performing BSE and SSE and frequency of doing so. Another goal of this study was to examine the relationship between one's attitude towards self-screening behaviors for the detection of

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cancer and one's frequency of engaging in those activities. Finally, exploratory analyses were conducted in order to evaluate whether body image accounts for significant variability in BSE and SSE behavior above and beyond the relevant demographic and psychological variables.

Hypotheses

1. There will be a positive relationship between body image, as measured by the Appearance Evaluation, Appearance Orientation, and the BASS subscales of the MBSRQ, and the practice of BSE and SSE.

    a. A more positive body image will be related to having engaged in BSE and SSE more frequently in the past year.

    b. A more positive body image will be related to intending to perform BSE and SSE more frequently in the coming year.

    c. Greater satisfaction with one's breasts will be related to having engaged in BSE more frequently in the past year.

    d. Greater satisfaction with one's breasts will be related to intending to perform BSE more frequently in the coming year.

    e. Greater overall satisfaction with one's body parts will be related to having engaged in SSE more frequently in the past year.

    f. Greater overall satisfaction with one's body parts will be related to intending to perform SSE more frequently in the coming year.

2. There will be a positive relationship between positive attitude toward self-screening measures for cancer, namely BSE and SSE, and the practice of such activities.

a. A more positive attitude toward these self-exams will be related to having engaged in BSE and SSE more frequently in the past year.

b. A more positive attitude toward these self-exams will be related to intending to perform BSE and SSE more frequently in the coming year.

3. There will be a positive relationship between self-efficacy about performing BSE and SSE and the practice those behaviors.

a. Greater self-efficacy toward these self-exams will be related to having engaged in BSE and SSE more frequently in the past year.

b. Greater self-efficacy toward these self-exams will be related to intending to perform BSE and SSE more frequently in the coming year.

Method

Participants

Participants in this study were women who were currently enrolled in a non-cancer comparison group in a study titled "Cognitive Behavioral Aspects of Cancer-Related Fatigue" at the Moffitt Cancer Center. Eligibility criteria for the aforementioned study were: 1) age greater than or equal to 18 years; 2) no presence of any discernable psychiatric or neurological disorder that would interfere with study participation; 3) the ability to speak and read standard English; and 4) no history of cancer or other potentially life-threatening diseases; 5) no history of a chronic disease or disorder in which fatigue is a prominent symptom; and 6) no plans to move more than 50 miles within the next three years.

Procedure

In order to obtain a non-cancer comparison sample for the ongoing fatigue study, the investigators purchased contact lists from Marketing Systems Group, Inc (Fort Washington, PA). These lists provide contact information for randomly selected females who were of similar age (i.e., within five years) and who resided in the same zip code as the patient to whom they were matched. Potential participants were mailed an introductory letter providing basic information about the study; a member of the research team subsequently contacted them by telephone approximately 10 days after the letter was mailed out. Eligibility was determined over the telephone and, if eligible and

interested, the participant provided verbal consent. Once consented, an appointment was

set up for the participant to come to Moffitt to complete the baseline assessment. Prior to

the appointment, the participant was mailed a packet of questionnaires which she was

asked to complete and bring to her in-person assessment.

All participants completed neuropsychological testing, psychosocial measures,

and questions regarding current health behaviors and beliefs at baseline and will complete

those same measures again three years following their baseline assessment. For their

participation in the aforementioned fatigue study, participants were paid $100 upon

completion of each assessment. The present study used data from the baseline

assessment to which additional measures were added. The next section describes those

measures specific to the current study.

Measures

Demographic Information. Demographic information was obtained through use

of a standard questionnaire. Variables assessed include: date of birth, race, marital status,

income, education, body mass index, and menopausal status.

Body Image. The Multidimensional Body-Self Relations Questionnaire

(MBSRQ; Cash, 1990) was used to assess body image. This is a 69-item self-report

measure designed to assess the self-attitudinal aspects of body image. Participants rate

on a five-point scale (1=Definitely Disagree to 5=Definitely Agree) the extent to which

they agree or disagree that each statement applies to them. The survey, derived from a

longer initial version (Winstead & Cash, 1984), was developed and normed using a

national body image survey (Cash, Winstead, & Janda, 1985; Cash, Winstead, & Janda,

1986). The measure consists of 10 subscales: 1) Appearance Evaluation; 2) Appearance

Orientation; 3) Fitness Evaluation; 4) Fitness Orientation; 5) Health Evaluation; 6) Health

Orientation; 7) Illness Orientation; 8) Body Areas Satisfaction Scale (BASS); 9)

Overweight Preoccupation; and 10) Self-Classified Weight. Only the first eight subscales

were administered. Given that this study was primarily interested in overall body image

and site-specific satisfaction, analyses were conducted only on the Appearance

Evaluation, Appearance Orientation, and BASS subscales. Because it was hypothesized

that satisfaction with one's breasts would be related to BSE behavior and intention, an

additional item was added to the BASS assessing satisfaction with breast appearance.

The BASS yields a total score and also includes a single item assessing satisfaction with

overall appearance. As used in this study, the expanded BASS yielded three outcome

measures: an item assessing satisfaction with one's overall appearance, an item assessing

satisfaction with one's breasts, and the overall scale score. The specific MBSRQ

subscales of interest have demonstrated adequate internal consistency reliability among

females in a normative population, with alphas ranging from .75 to .90 (Cash, 2000).

Cronbach alpha coefficients were calculated to evaluate internal consistency of the

Appearance Evaluation subscale ($\alpha = .87$), the Appearance Orientation subscale ($\alpha = .85$),

and the BASS ($\alpha = .85$) in the current study.

   Self-Exam Behaviors. As part of a larger set of questions regarding current health

behaviors, participants were asked how often they performed BSE and SSE in the past

year, using separate four-point scales ranging from "never" to "more than once a month."

These items were adapted from other studies that have examined past performance of

BSE and SSE (e.g., Berwick et al., 1996; Chouliara, et al., 2004; Erblich, Bovbjerg, &

Valdimarsdottir, 2000).

S*elf-Exam Intentions.* In order to determine future intentions, participants were asked to indicate how often they plan to perform BSE and SSE in the next year using a six-point scale ranging from "never" to "more than once a month." These items were adapted from other studies that have examined future intention to perform BSE and SSE (e.g., Janda et al., 2004; Luszczynska & Schwarzer, 2003).

Self-Efficacy for Self-Exam Behaviors. To determine participants' self-efficacy in performing BSE and SSE, participants were asked how confident they feel in their ability to perform these exams using separate five-point scales ranging from "not at all confident" to "extremely confident." These items were adapted from other studies that have examined confidence in personal ability to perform BSE and SSE (e.g., Erblich et al., 2000; Robinson et al., 2002).

Attitudes Toward Self-Exam Behaviors. To assess attitudes towards BSE and SSE, participants were asked to rate on a 5-point scale, ranging from "strongly disagree" to "strongly agree," the extent to which they agree or disagree with a series of statements about the benefits of performing these behaviors. Examples of items include: "A woman would be less anxious if she did a monthly breast self-exam" and "I believe that checking one's skin for growths or changes in spots or moles would be beneficial." These questions were adapted from previous studies that have examined attitudes towards BSE and SSE (e.g., Erblich et al., 2000; Ho et al., 2005; Manne et al., 2004). Cronbach alpha coefficients were calculated to evaluate internal consistency of the total score for the BSE attitude scale ($\alpha = .84$) and SSE attitude scale ($\alpha = .75$) in the current study.

Statistical Analyses

To test the study hypotheses, correlational analyses were conducted to determine:

the relationship between body image and past performance and future intentions to perform BSE and SSE; the relationship between attitudes toward BSE and SSE and past performance and future intentions to perform BSE and SSE; and the relationship between self-efficacy regarding BSE and SSE and past performance and future intentions to perform BSE and SSE. In addition, multiple regression analyses were conducted to identify variability in BSE and SSE related to body image above and beyond other significant (< .05) correlates of BSE and SSE. The general strategy was to enter the demographic and psychological variables found to be significantly related to BSE and SSE in univariate analyses before entering body image into the model.

The projected sample size for the current study was guided by consideration of statistical power, based on administering the first seven subscales of the MBSRQ, not the BASS. Based on previous research, there is reason to believe that the relationship of body image, attitudes, and self-efficacy to BSE and SSE will reflect a medium effect size (r=.30). Calculations indicated that 80 participants would be required in order to have adequate statistical power (0.80) to detect a medium effect size (r=.30) at alpha=.05 (two-tailed). Therefore, we sought to obtain complete data on 80 individuals. However, after data collection began, we decided to administer the BASS in order to examine the relationship between site-specific satisfaction and BSE and SSE behaviors; the committee agreed that the overall sample size should be increased such that there would be complete data on at least 60 participants. Thus, we have conducted analyses on a total of 106 participants, 60 of whom completed the BASS.

Results

Participants

Eight hundred forty six letters were mailed out to potential participants; of these,
142 were ineligible, 291 refused to participate, and 240 could not be reached. Of the
women who were eligible, 27% (n = 106) agreed to participate in the study. A total of
106 women completed the measures of BSE and SSE behavior, BSE and SSE attitude
and self-efficacy, and the MBSRQ. A subset of these participants (n = 60) also
completed the BASS. Participants ranged in age from 28 to 77 years old (M = 56.59; SD
= 9.09). The majority of the participants graduated high school or higher (97%), were
married (74%), had a gross annual income greater than $40,000 (79%), and were
Caucasian (98%). See Table 1 for complete demographic information.

Description of BSE and SSE Behaviors

Of the 106 participants, 18% reported not having performed BSE at all in the past
year, 40% reported performing BSE less than once a month in the past year, 39%
reported performing BSE about once per month in the past year, and 3% reported
performing BSE more than once per month in the past year. In regards to intentions to
perform BSE in the coming year, 10% reported no intention to perform BSE, 4% reported
intending to perform it once, 15% reported an intent to perform BSE two to five times in
the coming year, 16% reported an intent to perform the exam six to 11 times in the

coming year, 52% reported intending to perform BSE about once per month, and 3% reported an intent to perform BSE more than once per month in the coming year.

Of the 106 participants, 34% reported not having performed SSE at all in the past year, 49% reported performing the exam less than once per month, 12% reported performing SSE about once per month in the past year, and 5% reported performing the exam more than once per month in the past year. In regards to intention to perform SSE in the coming year, 10% reported no intention to perform SSE in the coming year, 14% reported an intent to perform the exam once in the coming year, 27% reported intending to perform the exam two to five times, 12% reported an intent to perform SSE six to 11 times in the coming year, 29% reported intending to perform the exam once per month, and 8% reported an intent to perform SSE more than once per month in the coming year.

Relationship of MBSRQ Subscales to Performance of BSE and SSE

Correlational analyses were conducted to test hypotheses that scores on the Appearance Evaluation and Appearance Orientation subscales of the MBSRQ would be positively related to measures of past BSE and SSE behavior and future intentions regarding BSE and SSE (see Table 2). Inconsistent with what was predicted, the Appearance Evaluation and Appearance Orientation subscales of the MBSRQ were not significantly positively correlated with measures of past BSE behavior or future intentions. Likewise, the same subscales did not demonstrate hypothesized relationships with SSE intentions. However, as hypothesized, there was a significant relationship between the Appearance Evaluation subscale and past SSE behavior. Specifically, having a more positive body image was related to having performed SSE more frequently in the past year.

Relationship of BASS Scale to Performance of BSE and SSE

A second set of correlational analyses was conducted to test hypotheses that

scores on the BASS total scale and the BASS item assessing satisfaction with one's

breasts would be positively related to measures of past BSE behavior and future

intentions regarding BSE (see Table 3). Correlational analyses were also conducted to

test hypotheses that scores on the BASS total scale and BASS item assessing satisfaction

with overall appearance would be positively related to measures of past SSE behavior

and future intentions regarding SSE. Inconsistent with what was predicted, no significant

relationships were found between the BASS total scale and the BASS item assessing

breast satisfaction with the measures of past BSE behavior and future intentions

regarding BSE. Also inconsistent with predictions, no significant relationships were

found between the BASS total scale score and the BASS item assessing overall

appearance satisfaction with the measure of future intention to practice SSE. However,

as predicted, the BASS item assessing satisfaction with one's overall appearance and the

average BASS score were significantly correlated with the measures of past SSE

behavior. Specifically, results indicated that having a greater satisfaction with one's

overall appearance, as assessed by the overall composite score and the single item, was

related to having performed SSE more frequently in the past year.

In order to determine if satisfaction with specific body parts was responsible for

the significant relationship between the BASS and past performance of SSE, correlational

analyses were conducted to analyze the relationship between the individual items making

up the BASS with SSE past behavior. Performance of SSE in the past year was

significantly correlated with satisfaction with one's hair ($p < .05$), satisfaction with one's

breasts (p < .05), and satisfaction with one's muscle tone (p < .005). In addition, the

relationships between SSE past behavior and satisfaction with one's lower torso, upper

torso, and weight were all approaching significance (p = .05).

Relationship of Attitudes Toward BSE and SSE and Performance of BSE and SSE

A third set of correlational analyses was conducted to test the hypotheses that

scores on measures of attitudes would be positively related to measures of past BSE and

SSE behavior and future intentions regarding BSE and SSE (see Table 4). Inconsistent

with hypotheses, attitude towards BSE was not significantly related to future intention to

perform the exam. However, as hypothesized, attitude toward BSE was significantly

related to past performance of BSE. Specifically, results indicated that having a more

positive attitude towards BSE was related to having performed BSE more frequently in

the past year. With regard to SSE, results confirmed hypotheses that attitude toward SSE

would be significantly correlated with past behavior of the exam and future intention to

perform the exam. Specifically, results indicated that having a more positive attitude

toward SSE was related to having performed the exam more frequently in the past year

and to intending to perform the exam more frequently in the coming year.

Relationship of Self-Efficacy for Performing BSE and SSE and Performance of BSE and

SSE

A fourth set of correlational analyses was conducted to test the hypotheses that

self-efficacy for performing BSE and SSE would be positively related to measures of past

BSE and SSE behavior and future intentions regarding BSE and SSE (see Table 5). As

hypothesized, self-efficacy for performing BSE was significantly related to past

performance of the exam and future intention to perform the exam. Specifically, results

indicated that having more confidence in one's ability to perform BSE was related to having performed BSE more frequently in the past year and to intending to perform the exam more frequently in the coming year. Also consistent with hypotheses, results confirmed that self-efficacy for performing SSE was significantly related to past performance of the exam and future intention to perform the exam. Specifically, results indicated that having greater confidence in one's ability to perform SSE was related to having performed SSE more frequently in the past year and to intending to perform the exam more frequently in the coming year.

Relationship of Demographic Variables to BSE, SSE and Body Image

Univariate analyses were conducted to examine the relationship between demographic variables and BSE and SSE behaviors and intentions. The demographic variables examined were age, education, marital status, menopausal status, and income (see Table 6). Education and income were both significantly negatively correlated with BSE past behavior; specifically, results indicated that greater education and greater income were associated with less frequent performance of BSE in the past year. No other significant relationships were found between demographic variables and BSE and SSE past behavior or future intentions. Based on these findings, education and income were identified as variables that were possible candidates for inclusion in the regression analyses described below.

Exploratory univariate analyses were conducted to examine the relationship between the same demographic variables and the measures of body image, specifically the Appearance Evaluation and Appearance Orientation subscales of the MBSRQ and the three scores yielded from the BASS (see Tables 7). The only significant relationship

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detected was between Appearance Orientation and age; specifically older age was associated with a more positive body image.

Regression Analysis of SSE Behavior

Based on findings that scores on the Appearance Evaluation subscale, the self-efficacy measure, and attitudes scale were all related to SSE behavior, a hierarchical regression analysis was conducted to determine if body image, as measured by the Appearance Evaluation subscale of the MBSRQ, accounted for significant variability in SSE behavior above and beyond that accounted for by self-efficacy and attitudes towards SSE (see Table 8). No demographic variables were included in this analysis since none examined were significantly correlated with SSE behavior. Self-efficacy for performing SSE and attitude towards SSE were controlled for by being entered into the equation first. The Appearance Evaluation subscale was then entered into the equation on the second step. Self-efficacy and attitude accounted for 29% of the variance in SSE behavior ($p < .0001$). Body image, as measured by the Appearance Evaluation subscale of the MBSRQ, subsequently accounted for 32% of the remaining variance ($p = .0194$). Together, these variables account for 61% of the total variance in SSE behavior.

Based on findings that scores on the BASS scale, the self-efficacy measure, and the attitudes scale were all related to SSE behavior, a second hierarchical regression analysis was conducted to determine if body image, as measured by the BASS scale, accounted for significant variability in SSE behavior above and beyond that accounted for by self-efficacy and attitudes towards SSE (see Table 9). No demographic variables were included in this analysis since none examined were significantly correlated with SSE behavior. Self-efficacy for performing SSE and attitude towards SSE were

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controlled for by being entered into the equation first. The BASS scale was then entered

into the equation on the second step. Self-efficacy and attitude accounted for 41% of the

variance in SSE behavior ($p < .0001$). Body satisfaction, as measured by the BASS,

accounted for 43% of the remaining variance; this result was not statistically significant

($p = .2774$). It is important to note that this regression analysis was conducted with 60

participants, not the entire sample of 106 women.

Discussion

The primary aim of the current study was to examine the relationship between body image and women's past practice of BSE and SSE and their intention to perform these self-exam behaviors in the future. This study also sought to examine the relationship between other psychological variables, specifically self-efficacy and attitude, and their relationship with women's practice of BSE and SSE and intention to perform these exams.

It was hypothesized that body image would be positively related to the frequency with which women performed BSE and SSE in the past year. It was also hypothesized that body image would be positively related to the frequency with which women intend to perform BSE and SSE in the coming year. Contrary to what was expected, body image was not significantly related to women's past behavior of BSE nor was it significantly related to their intention to perform BSE in the future. Also contrary to expectations, body image was not significantly related to women's intention to perform SSE in the coming year. However, as hypothesized, body image was significantly related to women's past performance of SSE. Specifically, the results of this study indicate that women with a more positive body image performed SSE more frequently in the past year.

It was hypothesized that attitude towards BSE and SSE would be positively related to the frequency with which women performed these exams in the past year. It was also hypothesized that attitude towards BSE and SSE would be positively related to

the frequency with which women intend to perform these exams in the coming year. Consistent with what was predicted, attitude towards BSE was significantly related to performance of BSE in the past year; specifically, the results indicated that having a more positive attitude towards the exam was related to having performed the exam more frequently in the past year. The results did not confirm the hypothesis that attitude would be significantly related to intention to perform BSE in the coming year. As expected, attitude towards SSE was significantly related to both past performance of the exam and future intention to perform the exam. Specifically, the results indicated that having a more positive attitude towards SSE was related to having performed the exam more frequently in the past year and to intending to perform it more frequently in the coming year.

Finally, it was hypothesized that self-efficacy for performing BSE and SSE would be positively related to the frequency with which women performed these exams in the past year. It was also hypothesized that self-efficacy for performing BSE and SSE would be positively related to the frequency with which women intend to perform these exams in the coming year. As predicted, self-efficacy for performing BSE was significantly related to both past performance of BSE and future intention to perform the exam; the results indicated that having a greater self-efficacy for performing BSE was related to having performed it more frequently in the past year and to intending to perform it more frequently in the coming year. Also consistent with hypotheses, self-efficacy for performing SSE was significantly related to both past performance of SSE and future intention to perform the exam. The results indicated that having a greater self-efficacy

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for performing SSE was related to having performed it more frequently in the past year and to intending to perform it more frequently in the coming year.

Exploratory regression analyses revealed that body image, as measured by the Appearance Evaluation subscale of the MBSRQ, accounted for a significant amount of variance in past SSE behavior above and beyond that accounted for by both attitude and self-efficacy. However, hierarchical regression analyses conducted with body image as measured by the BASS total scale score and SSE behavior did not reveal the same finding; in this analysis, body image did not account for a significant amount of variability in SSE behavior above and beyond that which was accounted for by self-efficacy and attitude. It is important to note that the BASS scale was only completed by 60 participants, while the MBSRQ subscales were completed by 106 participants. This likely affected the results of the hierarchical regression analyses; specifically, the relatively small sample size of 60 reduced power in the analysis, making it difficult to detect any significant findings.

Exploratory univariate analyses examining the relationship between body image and demographic variables revealed only one significant relationship; as age increased, body image improved, as measured by the Appearance Orientation subscale of the MBSRQ. While these analyses were for exploratory purposes only and did not factor into the selection of variables to include in the regression analyses, it is important to note that the lack of relationship between demographics and body image measures suggests that body image is not merely a correlate of these other variables; SSE behavior is more likely to be affected by body image and not simply by demographic variables that are related to body image. While the current study did not detect relationships among most

demographic variables with body image, some previous research has identified such relationships. Among studies examining the relationship of various demographic variables and body image, findings indicate that culture has an influence; for example, it has been demonstrated that African American women experience less body dissatisfaction than Caucasian women (e.g., Abood & Chandler, 1997; Snooks & Hall, 2002; Stevens, Kumanyika, & Keil, 1994). While the literature regarding SES and body image is somewhat scarce, there is some evidence indicating that there exists a relationship; for example, some studies have found that higher SES is related to having a better body image among women (e.g., Story, French, Resnick, & Blum, 1995).

A thorough review of the literature revealed no prior studies examining the relationship between body image and BSE or SSE behavior and intentions; the current study appears to be the first to examine this relationship. There does exist, however, literature regarding the relationship between body image and other health-related behaviors. For example, research has shown that women who exercise often have lower body satisfaction than those who do not exercise (e.g., Davis & Cowles, 1991; Lowery et al., 2005). In addition, McDonald and Thompson (1992) found that people who exercised for weight, tone, and physical attractiveness had lower body satisfaction than those who exercised for health and enjoyment.

In addition to identifying a variable that may affect women's willingness to perform SSE, this study also confirmed prior research regarding the relationship of self-efficacy to past performance of and future intentions to perform BSE and SSE. With regard to BSE, findings from this study are consistent with numerous studies showing that having greater self-efficacy for performing BSE is related to having performed the

exam more frequently in the past (e.g., Duke, et al., 1994; Egbert and Parrott, 2001; Fletcher, et al., 1989; Katz, et al., 1995; Ronis & Kaiser, 1989) and having greater intentions to perform it in the future (e.g., Luszczynska, 2004; Norman & Hoyle, 2004). The current study's findings are also consistent with prior studies that have demonstrated a positive relationship of self-efficacy to past performance of SSE (e.g., Robinson et al., 2002) and intentions to perform it in the future (e.g., Robinson et al., 2002).

The results of this study generally confirm previous findings that attitude towards BSE and SSE is related to past performance of and future intention to perform BSE and SSE (e.g., Calnan & Rutter, 1988; Janda et al., 2004; McCaul, et al., 1993; Robinson et al., 2002; Ronis & Kaiser, 1989). For example, Janda et al. (2004) found that having a more positive attitude towards SSE was related to having a great intention to perform the exam. Although prior research has shown that having a more positive attitude towards BSE is related to having a greater intention to perform the exam (e.g., Calnan & Rutter, 1988; McCaul, et al., 1993; Moore, et al., 1998), the results of the current study did not confirm those findings. However, it is important to note that, in the current study, the correlation between attitude towards BSE and future intention to perform the exam approached significance ($r = .17$, $p = .09$). Prior studies have shown that attitude towards BSE and SSE is related to past performance of the exams, a finding replicated in the current study. For example, Ronis and Kaiser (1989) demonstrated that attitude was positively related to college students' past performance of BSE. Similarly, Janda et al. (2004) found that having a more positive attitude towards SSE was related to having performed the exam more frequently in the past in adults.

Several limitations of the current study should be noted. First, this study used a cross-sectional design that does not allow for examination of temporal relationships between the variables of interest, namely body image, self-efficacy, and attitude and the outcome variables, specifically BSE and SSE behavior and intentions. Given the study design, it is not possible to confidently model causal relationships among the study variables. Furthermore, this design requires retrospective reporting on past self-examination behavior which may not be accurate as people are required to think back over a long period of time. Another limitation in the current study is the small sample size. Because the BASS was only administered to 60 women, it may have made it difficult to detect significant variability in the regression analyses. This study also utilized single-item measures to assess past behavior and future intention to perform BSE and SSE. This does not allow for determination of statistical reliability of the measures and serves as a limitation to the study design. The use of a single-item measure may also explain why body image was significantly related to past SSE behavior but not to future intentions to perform the exam; the single item may not have allowed for an accurate assessment of intention. A final limitation of this study is that it was only conducted with women, who were predominantly non-Hispanic and Caucasian; this limits the generalizability of the findings to a more diverse group with regard to both gender and ethnicity.

The results of the current study have important clinical implications. As awareness of the susceptibility to and potentially fatal threat of skin cancer increases, people are being encouraged to engage in behaviors that will lead to earlier detection. Research has found that the most common way in which skin cancer is currently detected

is through self-examination (Oliveria et al., 2004). Given this finding, it seems important

to understand potential barriers to performance of SSE. This study helps identify several

such barriers; these include self-efficacy for performing SSE, attitude towards performing

SSE, and one's body image. When barriers to performance of SSE are identified, it

allows for discovery of ways to minimize barriers, thereby increasing performance of the

exam. The findings suggest that women with a poorer body image may be less likely to

perform SSE. As this same relationship was not detected with BSE, it seems likely that

there is something unique about SSE that allows performance of the exam to be

influenced by body image; this same characteristic does not play a role in BSE. One

plausible explanation for the discrepant finding is that SSE requires one to visually

examine her entire body while standing in front of a full-length mirror. Additionally, it is

recommended that a person have a partner or spouse inspect her hard-to-see regions of

the body, such as the lower back (American Cancer Society, n.d.). A BSE requires

examination of only a small region of the body and is conducted mostly through tactile

examination, rather than visual inspection; it is also important to note that a BSE does not

require someone else to examine one's body. It makes sense, therefore, that someone

with a poor body image may not be willing to engage in SSE as it requires visual

examination of the entire body. Conversely, a woman with poor body image may not be

as inhibited in her performance of BSE as it does not require her to visually inspect her

entire body so she is not forced to confront her own dissatisfaction with her body.

Furthermore, a woman with a poor body image may be less likely to perform SSE as it is

recommended that she have someone else inspect parts of her body for her; a woman

with poor body image may be less likely to feel comfortable having someone else examine parts of her body that she cannot easily see.

Based on findings that self-efficacy and attitude towards BSE and SSE were related to past behavior and future intention to perform these exams, it stands to reason that interventions aimed at improving attitudes toward these exams and self-efficacy for performing these exams should result in an increase in examination behavior. Consistent with this view, McCaul et al. (1993) found that following instruction in how to properly perform BSE or testicular self-examination, greater self-efficacy was related to having a greater intention to perform either BSE or testicular self-examination.

The current study demonstrated that women with a more positive body image are more likely to perform SSE. These findings suggest that an intervention to increase body satisfaction in women dissatisfied with their body image may successfully increase the rates at which they perform SSE. Numerous studies have identified interventions that increase women's body image and overall satisfaction. For example, research has demonstrated the successful implementation of a dissonance induction strategy in decreasing body dissatisfaction; this type of intervention involves the use of psycho-educational components and a counterattitudinal advocacy strategy in which the participant learns to argue against the thin-ideal attitude (Roehrig, Thompson, Brannick, & van den Berg, 2006; Stice, Chase, Stormer, & Appel, 2001). Future research should investigate the use of similar interventions as a way of increasing women's body satisfaction, thereby increasing their willingness to perform SSE.

Since this is the first study identified to study the relationship between body image and BSE and SSE, it is important that future research further examine this

relationship. Based on findings that SSE, but not BSE, was related to body image, future research should seek to understand the difference between the two self-examination behaviors that appears to allow one and not the other to be influenced by body image. Furthermore, longitudinal designs should be employed in order to examine the temporal relationship between body image and self-examination behavior. To further shed light on the relationship, future research should include a more diverse population, including men, non-Caucasian people, and people from a variety of SES and educational backgrounds. It is possible that a similar relationship exists with other self-examination behaviors, such as testicular self-exams; this potential relationship should be explored. Finally, the use of interventions to improve body image should be explored as it may lead to an increase in people's willingness to perform self-examination behaviors such as SSE.

Table 1

Demographic Characteristics of Sample (N = 106)

Variable		
Mean age (SD)	56.59	(9.09)
Mean BMI (SD)	27.86	(6.21)
Education		
Partial high school	3	(2.8%)
High school graduate	18	(17.0%)
Partial college/specialized training	34	(32.1%)
College/university graduate	29	(27.4%)
Graduate degree	22	(20.8%)
Race		
White/Caucasian	98	(92.5%)
Black/African American	6	(5.7%)
American Indian/Alaska Native	1	(1.0%)
More than one race	1	(1.0%)
Ethnicity		
Hispanic	4	(3.8%)
Non-Hispanic	102	(96.2%)
Marital Status		
Single	4	(3.8%)
Married	74	(69.8%)
Divorced	21	(19.8%)
Widowed	5	(4.7%)
Separated	2	(1.9%)
Employment status		
Paid full-time employment	52	(49.1%)
Paid part-time employment	15	(14.2%)
Not employed – disabled	1	(1.0%)
Not employed – retired	25	(23.6%)
Not employed – Seeking work	3	(2.8%)
Homemaker	9	(8.5%)
Student	1	(1.0%)
Total household income		
Less than $ 10,000	1	(1.0%)
$10,000 - $19,999	6	(5.7%)
$20,000 - $ 39,999	15	(14.2%)
$40,000 - $59,999	27	(25.5%)
$60,000 - $100,000	35	(33.0%)
Greater than $100,000	22	(20.8%)

Table 2

Correlational Analyses of MBSRQ Subscales with Self-Screening Behaviors

	Appearance Evaluation	Appearance orientation
BSE in past year	.05	.01
BSE intention	-.10	.02
SSE in past year	.28*	.01
SSE intention	.13	.12

n = 106
* p < .01

Table 3

Correlational Analyses of BASS Measures with Self-Screening Behaviors

	BASS: breasts	Bass: Overall Appearance	BASS average score
BSE in past year	.14	.19	.13
BSE intention	.05	-.07	.03
SSE in past year	N/A	.27*	.36**
SSE intention	N/A	.14	.16

n = 60
* p < .05
** p < .01

Table 4

Correlational Analyses of Attitudes Toward BSE and SSE with Self-Screening Behaviors

	Attitude
BSE in past year	.21*
BSE intention	.17
SSE in past year	.28**
SSE intention	.35***

n = 106
* p < .05
** p < .01
***p < .001

Table 5

Correlational Analyses of Self-Efficacy for Performing BSE and SSE with Self-Screening Behaviors

	Self-efficacy
BSE in past year	.31**
BSE intention	.24*
SSE in past year	.51***
SSE intention	.56***

n = 106
* p < .05
** p < .01
***p < .0001

Table 6

Correlational Analyses of Demographic Variables with BSE and SSE Behaviors and Intentions

	BSE past behavior	BSE intentions	SSE past behavior	SSE intentions
Age	.04	-.01	.06	.13
Education	-.22*	-.15	.07	.13
Marital Status	.09	.11	.03	-.05
Menopausal status	.13	.07	-.08	.09
Income	-.19*	-.08	.02	-.11

*p < .05

Table 7

Correlational Analyses of Demographic Variables with MBSRQ Subscales and BASS Scales

	Appearance Evaluation	Appearance Orientation	BASS total scale	BASS: overall appearance	BASS: breasts
Age	-.03	.29**	-.13	.00	.02
Education	.20*	.02	.10	.03	.13
Marital Status	-.03	.01	-.03	-.07	-.06
Menopausal Status	-.05	.25*	-.13	-.04	.12
Income	.03	-.13	.04	-.08	.04

*p < .05
**P < .01

Table 8

Multiple Regression Analyses of SSE Behavior with the Appearance Evaluation Subscale

Variable	β	ΔR^2	Cumulative R^2	*p*
Step 1				
Attitude	.14	.285	.285	.10
Self-efficacy	.44			<.001
Step 2				
Appearance Evaluation subscale	.20	.038	.323	.02

n = 106

Model F (3, 102) = 16.21, p < .0001

Table 9

Multiple Regression Analyses of SSE Behavior with the BASS

Variable	β	ΔR^2	Cumulative R^2	p
Step 1				
Attitude	.18	.413	.413	.09
Self-efficacy	.52			<.001
Step 2				
BASS	.12	.012	.425	.28

n = 60

Model F (3, 56) = 13.85, p < .0001

References

Abood, D.A. & Chandler, S.B. (1997). Race and the role of weight, weight change, and body dissatisfaction in eating disorders. *American Journal of Health Behavior. 21,* 21-25.

American Cancer Society. (2006). *Cancer Facts & Figures 2006.* Atlanta, GA: American Cancer Society.

American Cancer Society. (n.d.). *Detailed guide: Can melanoma be found early?* Retrieved December 15, 2005, from http://www.cancer.org/docroot/CRI/content/ CRI_2_4_3X_Can_melanoma_be_found_early_50.asp?sitearea=

Berwick, M., Begg, C.B., Fine, J.A., Roush, G.C., & Barnhill, R.L. (1996). Screening for cutaneous melanoma by skin self-examination. *Journal of the National Cancer Institute, 88,* 17-23.

Brown, T.A., Cash, T.F., & Mikulka, P.J. (1990). Attitudinal body-image assessment: Factor analysis of the Body-Self Relations Questionnaire. *Journal of Personality Assessment, 55,* 135-144.

Calnan, M., & Rutter, D.R. (1988). Do health beliefs predict health behaviour? A follow-up analysis of breast self-examination. *Social Science and Medicine, 26,* 463-465.

Cash, T.F. (1990). *The Multidimensional Body-Self Relations Questionnaire.* Old Dominion University, Norfolk, VA.

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Cash, T.F. (2000). *The Multidimensional Body-Self Relations Questionnaire user's manual.* Old Dominion University, Norfolk, VA.

Cash, T.F., Santos, M. T., & Williams, E.F. (2005). Coping with body-image threats and challenges: validation of the Body Image Coping Strategies Inventory. *Journal of Psychosomatic Research, 58,* 191-199.

Cash, T.F., Winstead, B.A., & Janda, L.H. (1985). Your body, yourself: A reader survey. *Psychology Today, 19,* 22-26.

Cash, T.F., Winstead, B.A., & Janda, L.H. (1986). Body image survey report: The great American shape-up. *Psychology Today, 20,* 30-44.

Chouliara, Z., Papadioti-Athanasiou, V., Power K.G., & Swanson, V. (2004). Practice and attitudes toward breast self-examination (BSE): A cross-cultural comparison between younger women in Scotland and Greece. *Health Care for Women International, 25,* 311-333.

Davis, C. & Cowles, M. (1991). Body image and exercise: A study of relationships and comparisons between physically active men and women. *Sex Roles, 25,* 33-44.

Duke, S., Gordon-Sosby, K., Reynolds, K., & Gram, I. (1994). A study of breast cancer detection practices and beliefs in Black women attending public health clinics. *Health Education Research, 9,* 331-342.

Egbert, N. & Parrott, R. (2001). Self-efficacy and rural women's performance of breast and cervical cancer detection practices. *Journal of Health Communication, 6,* 219-233.

Elmore, J.G., Armstrong, K., Lehman, C.D., & Fletcher, S.W. (2005). Screening for breast cancer. *JAMA, 293,* 1245-1256.

Erblich, J., Bovbjerg, D.H., & Valdimarsdottir, H.B. (2000). Psychological distress,

    health beliefs, and frequency of breast self-examination. *Journal of Behavioral*

    Medicine, 23, 277-292.

Fletcher, S., Morgan, T., O'Malley, M., & Earp, J. (1989). Is breast self-examination

    predicted by knowledge, attitudes, beliefs, or sociodemographic characteristics?

    American Journal of Preventive Medicine, 5, 207-215.

Frank, E., Rimer, B.K., Brogan, D., Elon, L. (2000). U. S. women physicians' personal

    and clinical breast cancer screening practices. *Journal of Women's Health &*

    Gender-Based Medicine, 9, 791-801.

Harvey, B.J., Miller, A.B., Baines, C.J., & Corey, P.N. (1997). Effect of breast self-

    examination techniques on the risk of death from breast cancer. *Canadian*

    Medical Association Journal, 157, 1205-1212.

Ho, V., Yamal, J. M., Atkinson, E.N., Basen-Engquist, K., Tortolero-Luna, G., & Follen,

    M. (2005). Predictors of breast and cervical screening in Vietnamese women in

    Harris County, Houston, Texas. *Cancer Nursing, 28,* 119-129.

Janda, M., Youl, P.H., Lowe, J.B., Elwood, M., Ring, I.T., & Aitken, J.F. (2004).

    Attitudes and intentions in relation to skin checks for early signs of skin cancer.

    Preventive Medicine, 39, 11-18.

Katz, R., Meyers, K., & Walls, J. (1995). Cancer awareness and self-examination

    practices in young men and women. *Journal of Behavioral Medicine, 18,* 377-

    384.

Koh, H.K., Miller, D.R., Geller, A.C., Clapp, R.W., Mercer, M.B., & Lew, R.A. (1992).

Who discovers melanoma? Patterns from a population-based survey. *Journal of the American Academy of Dermatology, 26,* 914-919.

Lerman, C., Rimer, B., Trock, B., Balshem, A., & Engstrom, P.F. (1990). Factors associated with repeat adherence to breast cancer screening. *Preventive Medicine, 12,* 3339-3349.

Lowery, S.E., Kurpius, S.E.R., Befort, C., Blanks, E.H., Sollenberger, S., Nicpon, M.F., et al. (2005). Body image, self-esteem, and health-related behaviors among male and female first year college students. *Journal of College Student Development, 46,* 612-623.

Luszczynska, A. (2004). Change in breast self-examination behavior: Effects of intervention on enhancing self-efficacy. *International Journal of Behavioral Medicine, 11,* 95-103.

Luszczynska, A. & Schwarzer, R. (2003). Planning and self-efficacy in the adoption and maintenance of breast self-examination: A longitudinal study on self-regulatory cognitions. *Psychology and Health, 18,* 93-108.

Manne, S., Fasanella, N., Connors, J., Floyd, B, Wang, H., & Lessin, S. (2004). Sun protection and skin surveillance practices among relatives of patients with malignant melanoma: prevalence and predictors. *Preventive Medicine, 39,* 36-47.

Mayo Clinic Staff (2005). *Breast cancer*. Retrieved January 8, 2006, from http://www.mayoclinic.com/health/breast-cancer/DS00328/DSECTION=6.

McCaul, K.D., Sandgren, A.K., O'Neill, H.K., & Hinsz, V.B. (1993). The value of the theory of planned behavior, perceived control, and self-efficacy expectations for predicting health-protective behaviors. *Basic and Applied Social Psychology, 14,* 231-252.

McDonald, K., & Thompson, J.K. (1992). Eating disturbance, body image dissatisfaction, and reasons for exercising: Gender differences and correlational findings. *International Journal of Eating Disorders, 11,* 289-292.

Miller, D.R., Geller, A.C., Wyatt, S.W., Halpern, A., Howell, J.B., Cockerell, C., Reilley, B.A., et al. (1996). Melanoma awareness and self-examination practices: Results of a United States survey. *Journal of the American Academy of Dermatology, 34,* 962-970.

Moore, S.M., Barling, N.R., & Hood, B. (1998). Predicting testicular and breast self-examination behaviour: A test of the theory of reasoned action. *Behaviour Change, 15,* 41-49.

Newcomb, P.A., Weiss, N.S., Storer, B.E., Scholes, D., Young, B.E., & Voigt, L.F. (1991). Breast self-examination in relation to the occurrence of advanced breast cancer. *Journal of the National Cancer Institute, 83,* 260-265.

Oliveria, S.A., Dusza, S.W., Phelan, D.L., Ostroff, J.S., Berwick, M., & Halpern, A.C. (2004). Patient adherence to skin self-examination: Effect of nurse intervention with photographs. *American Journal of Preventive Medicine, 26,* 152-155.

Reeves, M.J., Newcomb, P.A., Remington, P.L., & Marcus, P.M. (1995). Determinants of breast cancer detection among Wisconsin (United States) women, 1988-90. *Cancer Causes Control, 6,* 103-111.

Robinson, J.K., Fisher, S.G., & Turrisi, R.J. (2002). Predictors of skin self-examination performance. *Cancer, 95,* 135-146.

Rodriguez, C., Plasencia, A., & Schroeder, D.G. (1995). Predictive factors of enrollment and adherence in a breast cancer screening program in Barcelona (Spain). *Soc. Sci. Med., 40,* 1155-1160.

Roehrig, M., Thompson, J.K., Brannick, M., & van den Berg, P. (2006). Dissonance-based eating disorder prevention program: A preliminary dismantling investigation. *International Journal of Eating Disorders, 39,* 1-10.

Ronis, D. & Kaiser, M. (1989). Correlates of breast self-examination in a sample of college women: Analyses of linear structural relations. *Journal of Applied Social Psychology, 19,* 1068-1084.

Smith, R.A., Saslow, D., Sawyer, K.A., Burke, W., Costanza, M.E., Evans, W.P., et al. (2003). American Cancer Society guidelines for breast cancer screening: Update 2003. *CA Cancer J Clin. 53*, 141-169.

Snooks, M.K. & Hall, S. K. (2002). Relationship of body size, body image, and self-esteem in African American, European American, and Mexican American middle-class women. *Health Care for Women International, 23,* 460-466.

Stevens, J., Kumanyika, S.K., & Keil, J.E. (1994). Attitudes towards body size and dieting: Differences between elderly Black and White women. *American Journal of Public Health, 84*, 1322-1325.

Stice, E., Chase, A., Stormer, S., & Appel, A. (2001). A randomized trial of a dissonance-based eating disorder prevention program. *International Journal of Eating Disorders, 29,* 247-262.

Story, M., French, S.A., Resnick, M.D., & Blum, R.W. (1995). Ethnic/racial and

   socioeconomic differences in dieting behaviors and body image perceptions in

   adolescents. *International Journal of Eating Disorders, 18,* 173-179.

Thompson, J.K., Heinberg, L.J., Altabe, M., & Tantleff-Dunn, S. (1999). *Exacting*

   beauty: theory, assessment, and treatment of body image disturbance.

   Washington, DC: American Psychological Association.

Weinstock, M.A., Martin, R.A., Risica, P.M., Berwick, M., Lasater, T., Rakowski, W., et

   al. (1999). Thorough skin examination for the early detection of melanoma.

   American Journal of Preventive Medicine, 17, 169-175.

Winstead, B.A. & Cash, T.F. (1984, March). *Reliability and validity of the Body-Self*

   Relations Questionnaire: A new measure of body image. Paper presented at the

   meeting of the Southeastern Psychological Association, New Orleans.