

THE IMPACT OF SEXUALIZED BREAST CANCER CAMPAIGNS ON
OBJECTIFICATION, COGNITIVE PERFORMANCE, AND WELL-BEING IN WOMEN
WITH BREAST CANCER

by

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The Impact of Sexualized Breast Cancer Campaigns on Objectification, Cognitive Performance, and Well-being in Women with Breast Cancer

According to the American Cancer Society (2016), more than 240,000 women in the United States learn that they have breast cancer each year. Although more than 60% of Americans associate cancer with death (Moser et al., 2014), early detection and medical advancements have increased survival rates to approximately 90% (Capocaccia et al., 1990; Chu et al., 1996). Currently, there are over 2.8 million women in the United States who have either survived or are currently being treated for breast cancer (American Cancer Society, 2016). Given the high survival rate, more research has been geared towards identifying factors to improve the quality of life of these individuals (e.g., Carver, Smith, Petronis, & Antoni, 2006; Helgeson & Tomich, 2005; Mols, & Vingerhoets, Coebergh, & van de Poll-Franse, 2005; Reid-Arndt, Hsieh, & Perry, 2010).

Women with breast cancer not only experience lower cognitive performance and diminished well-being (e.g., emotional, psychological; Bloom & Spiegel, 1984; Falletti, Sanfilippo, Maruff, Weih, & Phillips, 2005; Lerman, Kash, & Stefanek, 1993; Spencer et al., 1999), but they also report greater concerns about their physical appearance and perceived femininity (Carver et al., 1998; Figueiredo, Cullen, Hwang, Rowland, & Mandelblatt, 2004; Helms, O'Hea, & Corso, 2008). For example, treatment procedures such as radical mastectomies and breast-conserving surgeries (e.g., a lumpectomy) can result in the scarring and disfigurement of the breast. Women also have the potential to experience swelling of their limbs, weight loss (or weight gain), and hair loss from the side effects of chemotherapy and radiation treatments (e.g., Al-Ghazal, Fallowfield, & Blamey, 2000; Contant et al., 2004; Denmark-Wahnefried et al., 1997). Such detriments

in physical appearance have been associated with lower levels of self-esteem (Bertero, 2002; Carver et al., 2006), diminished feelings of femininity (Fobair et al., 2006; Kraus, 1999; Lasry et al., 1987), and increased instances of depression and other mental health problems (Burgess et al., 2005; Deshields, Tibbs, Fan, & Taylor, 2006; Somerset, Stout, Miller, & Musselman, 2004). Given that body image concerns are relevant to women's breast cancer experience, one question is how they might respond to breast cancer campaigns that are overly focused on females' physical appearance?

The current research utilized an objectification theory perspective (Fredrickson & Roberts, 1997) to examine whether increased body consciousness (i.e., objectification) leads to a decline in the cognitive performance and well-being of women with breast cancer. With the rise of sexualized breast cancer campaigns in the media (e.g., "Hugs for Jugs," "I Love Boobies," "Save the Ta-Tas"), breast cancer survivors may be more vulnerable to experiencing objectification because of heightened appearance concerns associated with post-treatment body changes (e.g., surgery scars; hair loss) compared to women who have not been diagnosed with the disease. Thus, the present research was designed with three goals in mind. First, Study 1 examined the extent to which sexualized versus neutral breast cancer slogans increase objectification in women with breast cancer. Second, Study 2 explored the associative link between sexualized breast cancer campaigns and cognitive performance. Specifically, the experiment assessed whether increased objectification following exposure to sexualized breast cancer slogans is associated with lower cognitive functioning in women with breast cancer compared to non-cancerous control persons. Finally, Study 3 examined whether increased objectification following exposure to sexualized breast cancer campaigns results in lower

psychological and physical health in women with breast cancer. This last study also took into consideration women's pre-existing appearance concerns as a variable of interest in the observed effects.

Objectification Theory

Humans have the ability to focus their attention on themselves - their own feelings, thoughts, and desires. This is known as a sense of *self* (Baumeister, 2010; James, 1891; Sedikides & Spencer, 2007). At the same time, however, individuals are also influenced by their social and cultural environments, which can impact their thoughts, feelings, motivations, and behaviors (Aronson, 1986; Hull, 1986; McGuire, McGuire, & Cheever, 1986). According to self-awareness theory (Duval & Wicklund, 1972), when people see themselves as an object, they are more likely to compare themselves to cultural standards/ideals. If they meet society's standards, they feel good about themselves and will engage in behaviors to maintain this positive evaluation (Greenberg & Musham, 1981; Ickes, Wicklund, & Ferris, 1973). When people do not meet the cultural standards, however, they experience negative consequences, including greater feelings of negative affect, depression, anxiety, and seek to avoid a state of self-awareness (Fejfar & Hoyle, 2000; Heatherton & Baumeister, 1991; Hull, 1981; Mor & Winquist, 2002). For example, individuals may engage in unhealthy behaviors (e.g., alcohol & drug use, binge eating; Baumeister, 1991; Heatherton & Baumeister, 1991) as a means of escaping self-awareness.

Objectification is an extension of self-awareness theory with the belief that it is more detrimental in women than in men. Whereas men are evaluated based on their financial success and power, women are judged primarily based on their physical

attractiveness (e.g., Buss, 1989; Buss & Barnes, 1986). This is congruent with an evolutionary theory perspective, which places importance on women's beauty as a signal of fertility and reproductive potential (Schmitt & Buss, 1996). According to the theory, objectification is a cognitive process whereby women focus their attention on their bodies and compare their physical appearance to society's standards of beauty (Fredrickson & Roberts, 1997). That is, rather than focusing on how well their body can function or perform (i.e., competency-based attributes), women emphasize how their body looks (i.e., appearance-based attributes) in comparison to other women or an ideal (Fredrickson & Roberts, 1997; McKinley & Hyde, 1996; Noll & Fredrickson, 1998). The greater the disparity between their real body and that of the ideal standard, the more negative their self-evaluation will be (e.g., anxiety, shame; Szymanski, Moffitt, & Carr, 2011).

There are several ways in which objectification theorists have manipulated appearance concerns in women, especially with respect to the media. For instance, women's bodies are often used to sell beverages and food (e.g., beer), as well as other consumer products and services (e.g., personal hygiene, clothing, sports cars). In a content analysis of different magazines and television shows, researchers searched for instances of objectification, including increased focus on bare chests, cleavage, bare stomachs, and buttocks (Kolbe & Albanese, 1996; Rudman & Hagiwara, 1992; Sommers-Flanagan, Sommers-Flanagan, & Davis, 1993). Whereas men's faces and heads are shown in greater frequency and detail than women (i.e., "face-ism;" Archer, Iritani, Kimes, & Barrios, 1983), the focus for females is on their bodies and body parts, often times eliminating women's heads and faces altogether ("body-ism;" Unger & Crawford, 1996). Several studies have shown, for example, that women report greater concerns

about their physical appearance (e.g., objectification, body consciousness, body shame) after viewing sexualized advertisements compared to neutral advertisements (e.g., Aubrey, Henson, Hopper, & Smith, 2009; Harper & Tiggemann, 2008; Knauss, Paxton, & Alsaker, 2008; Peter & Valkenberg, 2007)

Another way to elicit objectification in women is through interpersonal interactions. This can include overhearing another person discuss one's body (Swim, Hyers, Cohen, & Ferguson 2001), experiencing a male gaze (Colegero, 2004), and activating thoughts of romantic relationships (Sanchez & Broccoli, 2008). For instance, in one study, undergraduate women were told they would later engage in "small talk" with a male student or a female student. Women who had anticipated experiencing a man's gaze reported greater body shame and anxiety compared to those who anticipated interacting with and being gazed at by another woman (Colegero). Lastly, objectification can be induced through self-evaluations (e.g., trying on a swimsuit vs. a sweater, Fredrickson et al., 1998). In the hallmark objectification study, women who were asked to try on a swimsuit in front of a mirror in a private changing room later reported increased objectification compared to those who were asked to try on a sweater (Fredrickson et al.).

Regardless of the method used to induce body consciousness, the psychological consequences of being in a state of objectification remain consistent (e.g., Fredrickson et al., 1998; Harper & Tiggemann, 2008; McKinley & Hyde, 1996). For instance, objectification has been associated with impairments in cognitive functioning. Fredrickson and colleagues (1998), found that women who were asked to evaluate themselves while trying on a swimsuit reported heightened self-objectification and

performed more poorly on math problems. Similar effects were not found among women who tried on a sweater. Consistent with these findings, females who engaged in an interview with a male confederate who looked at them from head to waist performed more poorly on a math assessment compared to females who were interviewed by a male confederate who did not visually survey their body (Gervais, Vesico, & Allen, 2011). Finally, Gapinski and colleagues (2003) demonstrated that women who scored higher on trait objectification exhibited poorer logical reasoning compared to those who scored lower on the trait.

This research is important because it extends the impact of objectification to tasks not associated with gender stereotypes. Specifically, research on stereotype threat (Spencer, Steele, & Quinn, 1999) suggests that females perform poorly on math assessments in fear of confirming the stereotype that women are inferior in math abilities. Instead, an objectification theory perspective suggests that diminished cognitive performance results from an increased allocation of mental resources on surveying one's physical body. Supportive evidence shows that women who try on a swimsuit (vs. a sweater) while evaluating themselves in front of a mirror exhibit diminished attentional resources during a Stroop task (Quinn, Kallen, Twenge, & Fredrickson, 2006). Additionally, Gay and Castano (2010) found that women in a state of self-objectification experienced increased cognitive load which, in turn, led to diminished performance on a letter number sequencing task, a measure of executive functioning. Collectively, these results demonstrate that when women are focused on their bodies, cognitive resources are consumed by assessing their physical appearance, resulting in decreased cognitive functioning.

Objectification also has an impact on women's psychological and physical well-being. When aware of society's increasingly thin and unrealistic standard of attractiveness, women in a state of objectification report lower self-esteem (Garner, Garfinkel, Schwartz, & Thompson, 1980; Mercurio & Landry, 2008), experience greater body shame and anxiety (Fredrickson et al., 1998; McKinley & Hyde, 1996; Tiggemann & Slater, 2001), and report more negative affect and depression (Harper & Tiggemann, 2008; Szymanski et al., 2011). Harper and Tiggemann (2008) found that women who were exposed to objectifying advertisements reported greater anxiety about their weight, heightened feelings of negative affect, and reported more dissatisfaction with their bodies compared to those who viewed neutral advertisements. Additionally, objectified females are more likely to engage in disordered eating in an attempt to reach cultural standards of beauty (Calogero, Davis, & Thompson, 2005). For example, in a study examining the role of body shame in the relationship between self-objectification and eating disorders, women who were higher in trait self-objectification reported greater body shame, which in turn, predicted higher anorexia and bulimia symptomology (Noll & Fredrickson, 1998).

Importantly, there is now a need to assess objectification in breast cancer populations given the recent surge of sexualized breast cancer campaigns (King 2004, Sulik, 2012a, 2012b). For example, "Save the Ta-Tas" (www.savethetatas.org) has a product line of t-shirts, handbags, and liquid soap ("Boob Lube") to increase breast cancer awareness (also see "Save Second Base," Project Boobies," Hugs for Jugs," "Save the Girls," & "I Love Boobies" for similar campaign slogans). In a less subtle approach, a campaign for the *Rethink Pink* charity event was promoted by a video of a young female

in a white bikini at the swimming pool where she eventually exposed her breasts with information for their “Boobyball” event (www.rethinkpink.com). Another objectifying strategy is to use objects that resemble breasts in campaign advertisements (e.g., apples placed to look like breasts; Sulik, 2012b). One recent Susan G. Komen for the Cure fundraiser sold cupcakes to represent various ethnicities’ and sizes of women’s breasts with the food described as, “java jugs, “honey nut hooters,” “mango melons,” and “rocker knockers” (Sulik, 2012a).

Based on these sexualized breast cancer campaigns, Van Enkevort, Cox, and Swanson (2016) conducted a series of studies to explore whether exposing women to such slogans increased feelings of objectification and decreased breast health behavior. For example, in two experiments, female participants were randomly assigned to complete a study in a room with an experimenter wearing an “I Love Boobies” t-shirt (i.e., a sexualized breast cancer campaign) versus a “Frogs for the Cure” t-shirt (i.e., a neutral breast cancer advertisement). Next, everyone was asked to complete a measure of objectification (Studies 1 & 2) and to report their attitudes toward conducting BSEs (e.g., “I believe it is wise to examine my breasts regularly,” “I feel it is useful to examine my breasts regularly;” Study 2). As predicted, compared to a neutral t-shirt, women in the sexualized breast cancer condition reported greater objectification. Further, females reported less positivity toward breast self-exams (BSEs) to the extent that the sexualized breast slogan increased body consciousness. The implications of this research are alarming as they suggest that breast cancer awareness campaigns have the potential to diminish preventative health behaviors in college-age women. One question, however, is whether detrimental effects will also be found in women diagnosed with breast cancer?

Breast Cancer and Well-being

Breast cancer occurs when a malignant tumor forms in the cells of a breast. The growing tumor can invade surrounding tissues or spread (i.e., metastasize) to other areas of the body. Although breast cancer can be found in men, the disease occurs primarily in women (American Cancer Society, 2016). The diagnosis and treatment of breast cancer is often complex and varied. Treatment options can involve surgery to remove the cancerous tissue, which can include a portion of the breast (i.e., lumpectomy) or the entire breast altogether (i.e., mastectomy). Adjuvant hormonal therapies, including chemotherapy and radiotherapy, are also utilized to reduce tumor size prior to surgery or to prevent reoccurrence of the disease. Although there are physical consequences of the disease (e.g., pain, fatigue, weakness), breast cancer is also associated with several emotional and psychological detriments. Given that the current work is interested in appearance concerns, cognitive functioning, subjective well-being, and the physical health of breast cancer survivors, the following paragraphs will focus primarily on these areas of interest.

Body image reflects the attitudes, thoughts, and feelings that individuals have about their bodies (Fang, Chang, & Shu, 2014). This can consist of concerns about one's physical appearance, sexuality, body function, and/or state of health (Krueger, 2004). Women with breast cancer often report anxieties about their femininity and attractiveness (Fobair et al., 2006; Mock, 1993; Schover, 1993); experience reduced feelings of desirability (Sheppard & Ely, 2008; Schover, 1991); and express worries about the physical consequences of treatment (e.g., fatigue, weight gain, hair loss; Knobf, 1986; Shapiro & Recht, 2001). For example, females who have undergone treatment for breast

cancer often report feeling “different” and “unattractive” when compared to other women or in relation to their previous self-evaluations (Carver et al., 1998; Fang, Chang, & Shu, 2014; Helms, O’Hea, & Corso, 2008; Stevens et al., 1984). One study examining the body image of 254 breast cancer survivors had women photograph their breasts, coded those photographs for post-treatment deformity, and assessed women’s body image concerns (Al-Ghazal et al., 1999). The results found that greater breast deformity was associated with lower levels of self-esteem and greater feelings of depression, anxiety, and increased body image concerns.

Not only does the surgical treatment of breast cancer increase appearance concerns in women (Fobair et al., 2006; Ganz et al., 1992; Harcourt et al., 2003; Hartl et al., 2003; Lund-Nielsen, Muller, & Adamsen, 2005; Ogden & Lindridge, 2008; Schover et al., 1995), but it also affects future treatment plans. For example, in a sample of 52 mastectomy patients, only 55% of them were willing to undergo the same procedure because of breast disfigurement (Margolis et al., 1989). Hair loss and weight gain from adjuvant hormonal therapies also increase appearance monitoring and negative affect. In a survey of 40 women undergoing chemotherapy, researchers found that women with hair loss reported a more negative body image compared to those who did not lose their hair (Baxley, Kendrick, & Brown, 1984). Although most cancers are associated with severe weight loss (Denmark-Wahnefried, Rimer, & Winer, 1997), 80% of women with breast cancer experience weight gain (Goodwin et al., 1999). Weight gain in women with breast cancer can reach up to 50 pounds (Rimer & Winer, 1997), which is high in comparison to non-cancerous men and women who typically gain an average of 3.35 pounds in a 4-year period (Mozaffarian, Hao, Rimm, Willett, & Hu, 2011). The weight gain breast cancer

survivors experience further separates them from the thin ideal body type embraced by society, resulting in increased appearance anxieties (Forbes, Doroszewicz, Card, & Adams-Curtis, 2004; Knauss, Paxton, & Alsaker, 2007; Thompson & Stice, 2001).

Appearance concerns experienced by women with breast cancer can be severe and long lasting. In a study of 248 breast cancer survivors, 31% of them ($n = 76$) expressed body image concerns 4 years after their breast cancer surgery, and 27% of them ($n = 67$) continued to report appearance dissatisfaction 7 years following surgery (Falk Dahl, Reinertsen, Nesvold, Fossa, & Dahl, 2010). Because of increased salience of the physical body and heightened appearance concerns, women with breast cancer may be more strongly impacted by the sexualization of breast cancer campaigns compared to other populations. Specifically, as these women are struggling with how the physical consequences of breast cancer are impacting their femininity (Al-Ghazal et al., 1999; Freitas, 1998; Petronis, Carver, Antoni, & Weiss, 2003), and an increased disparity between their appearance and the societal ideal, they may become more conscious about their bodies as they are reminded of the importance of female beauty.

Another area of research which has garnered much attention is on the cognitive performance of women with breast cancer (Bender et al., 2006; Collins et al., 2009; Quesnel, Savard, & Ivers, 2009; Silberfarb, et al., 1980; Tager et al., 2010; van Dam et al., 1998; Wefel et al., 2004). Specifically, compared to healthy controls, women who receive treatment for breast cancer are nearly twice as likely to experience short-term cognitive deficits (Shilling et al., 2005). Breast cancer survivors have also been found to exhibit diminished working, verbal, and delayed memory (Ahles, et al., 2002; Brezden, Phillips, Abdolell, Bunston, & Tannock, 2000; Meyers, Byrne, & Komaki, 1995); as well

as, problems with attention (Bender et al., 2006; Collins et al., 2009; Quesnel, et al., 2008; Tager et al., 2010), visuospatial skills (Bender et al.; Collins et al.; Quesnel et al.; Tager et al.; Wefel et al., 2004), executive functioning (Falletti, Sanfilippo, Maruff, Weih, & Phillips, 2005; Jansen et al., 2005; Stewart, Bielajew, Collins, Parkinson, & Tomiak, 2006), psychomotor speed (Ahles et al., 2002; Meyers et al., 1995; van Dam et al., 1998), and cognitive processing speed (Silberfarb, et al., 1980; van Dam et al., 1998). Other research suggests that one-third of women diagnosed with breast cancer have diminished cognitive functioning prior to beginning treatment (Hermelink et al., 2007), with some work suggesting a psychological explanation for some of these impairments (Reid-Arndt & Cox, 2012).

Although the exact cause of these cognitive deficits remains unclear, explanations include biological (e.g., fatigue, hormone changes, direct neurotoxic effects; Dietrich, Monje, Wefel, & Meyers, 2008; Faletti et al., 2005; Mehnart et al., 2007) and psychological factors (e.g., stress, anxiety, coping style; Cimprich, 1992, 1993; Cimprich & Ronis, 2003; Kaplan & Kaplan, 1982). Further, the incidence rate of such cognitive complaints ranges from 12-69% (Shilling, Jenkins, & Trapala, 2006), suggesting that not all breast cancer survivors experience deficits. Although yet to be empirically examined, women with breast cancer might report poorer cognitive performance as a result of increased objectified body consciousness. That is, all women should experience detriments in cognitive performance as a function of objectification primes based on the results of previous research (Gapinski et al., 2003; Gay & Castano, 2010). These effects, however, should be exaggerated in breast cancer populations given that they experience

heightened concerns about their physical appearance (Carver et al., 1998; Helms et al., 2006; Shapiro & Recht, 2001; Sheppard & Ely, 2008).

Beyond deficits in cognitive functioning, breast cancer survivors also experience several psychological and social consequences from the disease. For example, breast cancer survivors report greater feelings of depression (Somerset, Stout, Miller, & Musselman, 2004; Spiegel, 1996; Watson et al., 1991), anxiety (Badger, Segin, Dorros, Meek, & Lopez, 2007; Schreier & Williams, 2004), and anger and hostility (Derogatis, Abeloff, & Melisaratos, 1979; Shapiro et al., 2001; Vachon & Lyall, 1976). In one study, for instance, 10% of women who had undergone a single mastectomy exhibited signs of clinical depression and reported more appearance concerns compared to women who did not have a breast removed (Al-Ghazal et al., 2000). Another study by Broeckel and colleagues (2002) found that women who had more negative body image following breast cancer treatment reported increased anger, guilt, sadness, and frustration. Although correlational, this research suggests appearance concerns are related to breast cancer survivors' well-being. Paired with the heightened appearance concerns, objectification may act to further worsen the subjective well-being of women who have been diagnosed with the disease.

Finally, the diagnosis and treatment for breast cancer can have a significant influence on women's physical health. For instance, two of the most common complaints are fatigue and difficulty sleeping (Bower et al., 2000; Janz et al., 2007; Mock et al., 1997). One cross-sectional study that included 377 women with breast cancer found that one in four women experienced fatigue and decreased physical functioning (Ho, Verkooijen, Gernaat, & Hartman, 2016). Additionally, compared to healthy controls,

women with breast cancer report lower vitality, higher levels of physical exhaustion, and poorer general body functioning (Ganz et al., 2002; Griggs et al., 2007; Kroenke, et al., 2004; McKenszie & Kalda, 2003; Rowland et al., 2000; Segal et al., 2001). One study examining the physical factors that influence the quality of life of 202 women with breast cancer found that 70% of women reported increased body pain (Avis, Crawford, & Manuel, 2005). Similar studies have found higher rates of joint pain, headaches, and hot flashes after being diagnosed with breast cancer (Ganz, Rowland, Desmond, Meyerowitz, & Wyatt, 1998 Hürny et al., 1996; Janz et al. 2007). This research demonstrates the physical toll receiving breast cancer treatment has on women, which causes not only physical discomfort, but also increases women's feelings of fatigue. Taken together, breast cancer is associated with several impairments including appearance anxieties, lower cognitive functioning, reduced subjective well-being, and detriments to physical health. Integrating these findings with work on objectification suggests that these effects may be enhanced in response to sexualized breast cancer media.

The Present Research

The present research examined how sexualized breast cancer campaigns influence objectification, cognitive functioning, and well-being in women with breast cancer. Specifically, there were four aims to the following work. First, in light of prior research demonstrating increased body image concerns in breast cancer populations (Fang et al., 2014; Fobair et al., 2006; Helms at al., 2008; Ogden & Lindridge, 2008), and the findings of Van Enkevort et al. (2016) demonstrating greater objectified body consciousness in response to sexualized breast cancer advertisements, it was hypothesized that women with breast cancer would report greater objectification following exposure to a sexualized

breast cancer campaign versus two neutral ones (i.e., “Think Pink” vs. no advertisement). That is, to the extent that an “I Love Boobies” slogan increases objectification, women with breast cancer should report being more focused on the appearance-related aspects of their bodies. Given the exploratory nature of the first experiment, objectification was assessed with three different measures (i.e., self-objectification questionnaire, objectified body consciousness scale, and body image scale; Fredrickson et al., 1996; Hopwood, Fletcher, Lee, & Al Ghazal, 2001; McKinley & Hyde, 1996).

Second, because objectification consumes cognitive resources (Gay & Castano, 2010; Muehlenkamp, & Saris-Baglama, 2002; Quinn, Chaudoir, & Kallen, 2011), it was believed women with breast cancer would experience a decline in their cognitive performance following exposure to a sexualized breast cancer slogan compared to a neutral slogan or no slogan. Different cognitive performance tests were included in Study 2 to examine this possibility (e.g., attention, executive function, memory, verbal fluency). An additional goal of the second experiment was to examine the role that objectification plays in the relationship between sexualized campaigns and women’s cognitive performance. Specifically, because objectification utilizes cognitive resources to focus on the physical body, which results in increased body shame and anxiety, it was expected that exposure to a sexual campaign would diminish cognitive performance to the extent that cognitive resources were consumed. To test this, a mediational model examined whether exposing women to an “I Love Boobies” header was associated with greater body focus, which in turn, was associated with lower cognitive functioning.

Third, given that women with breast cancer report heightened appearance concerns in comparison to women who have not been diagnosed with breast cancer

(Fobair et al., 2006; Ganz et al., 1992; Hartl et al., 2003; Harcourt et al., 2003; Lund-Nielsen, Muller, & Adamsen, 2005; Ogden & Lindridge, 2008; Schover et al., 1995), it was hypothesized that breast cancer participants, in comparison to women without cancer, would be more sensitive to a objectification prime. To examine this possibility, Study 2 included women who were either diagnosed or not diagnosed with breast cancer. Overall, it was expected that women with breast cancer, in comparison to control participants, would experience greater objectified body consciousness, which in turn would be associated with a decline in cognitive functioning.

Finally, given that women with breast cancer report poorer psychological and physical health (Calogero, Tantleff-Dunn, & Thompson, 2011; Hess & Insel, 2007; Szymanski, & Henning, 2007), with similar effects being found in the literature on objectification, the final goal of this research was to examine the impact that sexualized breast cancer campaigns have on well-being outcomes. Participants in the third experiment were exposed to the same sexualized breast cancer prime used in the previous experiments, followed by the completion of different body consciousness measures. However, unlike the previous experiments, individuals were asked to complete various measures of emotional, (e.g., Profile of Mood States; McNair, Lorr, & Droppleman, 1971), psychological (e.g., Satisfaction with Life Scale, Meaning in Life; Diener, Emmons, Larsen, & Griffins, 1985; Steger, Frazier, Oishi, & Kaler, 2006), and physical health (e.g., Brief Fatigue Inventory; Mendoza et al., 1999). Following previous objectification studies (Breines, Crocker, & Garcia, 2008; Calogero, Tantleff-Dunn, & Thompson, 2011; Mercurio & Landry, 2008), it was hypothesized that women with breast cancer would report declines in well-being following exposure to a sexualized

breast cancer slogan compared to the neutral conditions. Additionally, a mediational model was conducted to examine whether exposing females to the “I Love Boobies” slogan was associated with heightened objectification, which in turn, accounted for decreases in psychological, emotional, and physical well-being.

Study 1

Previous research has manipulated the sexualization of breast cancer in women by randomly assigning participants to view either an “I Love Boobies” slogan, “Think Pink” slogan, or no slogan at all (control condition; Van Enkevort et al., 2016). This work, however, has been conducted primarily among college-aged samples without extending the results to women who have been diagnosed with the disease. For this reason, this first experiment was performed with two goals in mind. The first aim was to replicate the results of Van Enkevort et al. (2016) in women with breast cancer. To do this, participants in the current study were randomly assigned to complete questionnaires with a sexualized breast cancer survey header (“I Love Boobies”), a neutral breast cancer header (“Think Pink”), or no survey header at all. For all studies, the survey header was presented at the top of the survey page throughout the entirety of the experiment.

The second aim of this work was to identify the best objectification measure to use in breast cancer populations. That is, although objectification is the extent to which women become more conscientious of their bodies, there are a variety of ways in which heightened body focus has been assessed. One line of research, for example, has focused on the extent to which women think about their physical characteristics (e.g., sex appeal, weight) in comparison to body competency (e.g., health, physical coordination). For this reason, in the current experiment, women completed the Self-Objectification

Questionnaire (SOQ; Fredrickson et al., 1996), a widely used measure of objectification (Harper & Tiggemann, 2008; Miner-Rubino, Twenge, & Fredrickson, 2002; Noll, & Fredrickson, 1998; Tiggemann, & Lynch, 2001). Additionally, a separate line of work has examined women's body shame (e.g., "I feel ashamed of my appearance," McKinley & Hyde, 1996) as a proxy for self-objectification (Calogero, 2004; Melbye, Tenenbaum, & Eklund, 2007; Noll & Fredrickson; Tiggemann, & Boundy, 2008). An abbreviated version of the body shame subscale of the Objectified Body Conscious Scale (OBCS: McKinley & Hyde) was thus included in the first study. Finally, although research has yet to examine objectification in women with breast cancer, a large body of research has examined their appearance focus including body image satisfaction (e.g., "...dissatisfied with my appearance;" Hopwood et al., 2001). Building on this work, the Body Image Scale (BIS; Hopwood et al., 2001) was included as a proxy measure of objectified body consciousness (see Grabe & Ward, 2008; Groesz, Levine, & Muren, 2002; Heinberg & Thompson, 1995 for similar procedures). Although it was hypothesized that women would report greater feelings of objectification following the "I Love Boobies" header versus the control conditions, the exact measure of objectification remained unclear. Thus, this first study was largely exploratory by testing the effects of the breast cancer headers along with identifying the best measure of objectification in women diagnosed with the disease.

Method

Participants

Forty-six breast cancer survivors, women who were currently receiving and/or had received treatment for breast cancer in the past, were recruited using Amazon's

Mechanical Turk (mTurk), an online survey database (Gosling & Mason, 2015). After examining the original sample, eight women were statistical outliers because their means were over three standard deviations away from the group mean (Howell, 1998) and six reported being dishonest or they rushed through the survey by not paying attention. After dropping the 14 participants, the final sample consisted of 32 women (“I Love Boobies” $n = 11$; “Think Pink” $n = 12$; no slogan $n = 9$). See Table 1 for demographic information for the participants. Everyone, regardless of whether they were removed from the final sample, received monetary compensation (\$1.00) in exchange for their participation.

Table 1

Study 1 Final Sample Demographic Information

Characteristic	<i>M</i>	<i>SD</i>
Age (years)	37.91	10.72
Education (years)	15.94	3.22
	<i>N</i>	%
Race/ethnicity ¹		
White/Caucasian	24	75.0
Black/African American	2	6.3
Hispanic	1	3.1
Other	5	15.6
Marital Status ¹		
Single (never married)	8	25.0
Married/Cohab > 7 years	20	62.5
Divorced	2	6.3
Widowed	1	3.1
Other	1	3.1
Socioeconomic Status ¹		
Very Poor	0	0
Poor	5	15.6
Somewhat Poor	5	15.6
Middle Class	16	50.0
Somewhat Wealthy	5	15.6

Wealthy	1	3.1
Very Wealthy	0	0

Note. *SD* = Standard Deviation, *N* = Number of Participants ¹ Indicates missing data because of lack of participant response.

Materials and Procedure

Study 1 was conducted online presumably on an individual basis. Women completed electronic questionnaires through the *Qualtrics* surveying platform after providing informed consent (Snow & Mann, 2013). Additionally, all participants signed a Health Insurance Portability and Accountability Act (HIPPA) form because of the medical information collected in the experimental session. For example, participants reported their date of diagnosis, date of surgery (if applicable), stage of cancer at the time of diagnosis (e.g., Stage 0, Stage 1, Stage 2, Stage 3, vs. Stage 4), and their treatment plan. At the end of the experiment, participants were thoroughly debriefed. The content and order of the materials are described below.

Breast cancer slogan. Given the online nature of the study, the manipulation involved viewing one of three different watermarks as part of the computer survey header. In the experimental condition, women completed the survey with “I Love Boobies” displayed on top of the survey page (see Table 2 for a summary of materials for all experiments and Appendix A for a copy of the materials). Not only is this a popular breast campaign in American society (Dale, 2011; Moen, 2010), but it has also been used in prior work to elicit a state of objectification in women (Van Enkevort et al., 2016). To determine if the results generalized to breast cancer awareness campaigns in general or were specific to sexualized slogans, women in the neutral breast cancer condition saw a “Think Pink” breast cancer awareness watermark. This is also a popular breast cancer

campaign slogan in American society (Carollo, 2010; Dale). Finally, participants in a third condition completed a survey that did not contain a breast cancer-related watermark.

This condition served as a true control condition.

Table 2

Summary of Study Materials

Construct	Measure	Description
Objectification (Studies 1-3)	SOQ	On the Self-objectification Questionnaire participants are asked to indicate the importance of ten characteristics that include 5 appearance-based and 5 competency-based attributes.
	Body Shame	On the modified body shame subscale of the Objectified Body Consciousness Scale, participants indicate the extent to which they feel they are a bad person if they do not look as good as they believe they should.
	BIS	The modified Body Image Scale is a measure used to assess body image focus. Participants indicate the extent to which they feel they are self-conscious, physical attractive, and dissatisfied with their appearance.
Cognitive Performance (Study 2)	COWAT	The Controlled Oral Word Association Task is a measure of verbal fluency. The COWAT has three trials; for each trial, the participant is given a letter (e.g., “F”) and asked to name in 1-min as many words as possible beginning with that letter. For the same semantic fluency task, the participant is asked to list as many items as possible in 1-min belonging to a specific category, in this study, “animals.”
	WAIS	The Wechsler Adult Intelligence Scale is comprised of two parts: during the first, the examiner reads a series of digits and the respondent is asked to repeat them. During the second, the examiner reads a series of digits, and the respondent is asked to state them in reverse order.
	TMT	The Trail Making Test consists of 25 circles distributed over a sheet of paper in Part A, the circles are numbered 1-25, and the person should draw a line connecting the circles in ascending order. In Part B, the circles include both numbers (1-13) and letters (A-L); as in Part A, the person draws lines to connect the circles in an ascending

		pattern, but with the added task of alternating between the numbers and letters (e.g., 1-A-2-B 3-C).
	WMS	Participants are read two thematically independent stories (A & B) and are asked to recall each story immediately after hearing it using as many of the same words from the original passage. Extraneous utterances unrelated to the task are coded.
	RAVLT	The Rey Auditory Verbal Learning Test is a list of words that are presented to participants. For this test, a list of 15 words are read by the experimenter five times; after each presentation the respondent is asked to repeat as many words as he/she is able to.
Appearance Anxiety (Study 3)	WBSG	The Weight and Body-related Shame and Guilt Scale measures appearance anxiety. Participants indicate the extent to which they agree with 6 statements that assess the shame and guilt they feel about their bodies.
Well-being (Study 3)	Brief POMS	The brief Profile of Mood States is a measure of psychological/emotional well-being. Participants are asked to indicate the extent to which they feel 37 different adjectives.
	BFI	On the Brief Fatigue Inventory participants indicate the extent to which fatigue following their cancer diagnosis interfered with their general activity, work, and walking ability.
	SWLS	On the Satisfaction with Life Scale participants are asked to indicate the current satisfaction with life on 5 items.
	MIL	To assess meaning in life, participants completed the Meaning in Life Scale. On this scale participants indicate the extent to which they are searching for meaning or believe meaning is currently present in their life.

Note. SOQ = Self-objectification Questionnaire, BIS = Body Image Scale, COWAT = Controlled Oral Word Association Test, WAIS = Wechsler Adult Intelligence Scale, TMT = Trail Making Test, WMS = Wechsler Memory Scale, RAVLT = Rey Auditory Verbal Learning Test, WBSG = Weight and Body-related Shame and Guilt Scale, POMS = Profile of Mood States, BFI = Brief Fatigue Inventory, SWLS = Satisfaction With Life Scale, MIL = Meaning in Life

Objectification. Objectification was assessed in three ways. First, following previous research (e.g., Fredrickson et al., 1998; Roberts & Noll, 1998; Noll &

Fredrickson, 1998), all women completed the SOQ (Fredrickson et al., 1998) to measure body focus. Specifically, participants were asked to report the importance of 10 characteristics; five of which were related to appearance (e.g., sex appeal, physical appearance, body measurements) and five of which were related to body competence (e.g., physical coordination, health, energy level). Each characteristic was rated on a 9-point scale (1 = *not at all important*, 9 = *very important*). Two separate composite scores were calculated, the first averaged the five physical attributes ($\alpha = .86$) together and the second averaged the five competency ($\alpha = .82$) attributes together.

Next, two measures commonly used as proximal measures of objectification were included (Melbye, Tenenbaum, & Eklund, 2007; Moradi, & Huang, 2008; Tiggemann, & Boundy, 2008). The one-item shortened Body Shame subscale of the OBCS (McKinley & Hyde, 1996) assessed participants' discomfort with their physical bodies (i.e., "I feel like a bad person when I don't look as good as I could"). Participants indicated their agreement to the statement on a 7-point scale (1 = *strongly disagree*; 7 = *strongly agree*). A higher score indicated greater body shame. Finally, women completed the abbreviated three-item BIS (Hopwood et al., 2001). Participants were instructed to indicate how "self-conscious," "physically attractive," and "appearance dissatisfied" they were with their bodies. Responses were made on a 4-point scale (1 = *not at all*, 4 = *very much*), and all items were averaged together ($\alpha = .83$), with a higher score indicating greater body anxiety.

Results and Discussion

Objectification. This study was primarily interested in whether exposure to an "I Love Boobies" slogan increased objectification in women with breast cancer more than a

neutral slogan (“Think Pink”) or no slogan. To test this, four separate one-way analysis of variance (ANOVA) tests were performed on SOQ Physical, SOQ Competency, OBCS body shame, and BIS scores (see Table 4 for means and standard deviations). Although there were no significant differences between conditions on the importance women placed on their physical attributes (SOQ Physical), and the main effect of condition was only marginal on the body shame score (OBCS; $p = .06$), there were significant group differences on the competency attributes (SOQ Competency) and body image scores (BIS; see Table 3 for all inferential statistics). Follow-up tests using Tukey’s Least Significance Difference (LSD) adjustment revealed no significant differences between those who viewed the neutral slogan (“Think Pink”) or no slogan on competency characteristics, body shame, and BIS. However, both conditions scored lower than the sexualized (“I Love Boobies”) slogan on these measures of objectification. See Table 4 for all group comparisons.

Table 3

Summary of Inferential Statistics for Study 1 ANOVA Results

Measure	<i>F</i>	<i>df</i>	<i>p</i>	Partial η^2
SOQ Physical	0.45	(2,29)	.64	.03
SOQ Competency	4.17	(2,29)	.03	.22
Body Shame	3.04	(2,29)	.06	.17
BIS	6.33	(2,29)	.01	.30

Note. SOQ = Self-objectification Questionnaire, BIS = Body Image Scale

Table 4

Study 1 Means, Standard Deviations, and Pairwise Comparisons between Conditions for each Measure

Measure	<i>M</i>	<i>SD</i>
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SOQ Physical		
“I Love Boobies”	5.62	1.82
“Think Pink”	6.35	1.95
No Slogan	6.02	1.82
SOQ Competency		
“I Love Boobies”	6.44 ^{ab}	1.62
“Think Pink”	7.73 ^a	.84
No Slogan	7.64 ^b	.85
Body Shame		
“I Love Boobies”	4.09 ^{ab}	1.87
“Think Pink”	2.42 ^a	1.88
No Slogan	2.22 ^b	2.05
BIS		
“I Love Boobies”	2.58 ^{ab}	.75
“Think Pink”	1.64 ^a	.59
No Slogan	1.89 ^b	.58

Note. *M* = Mean, *SD* = Standard Deviation, SOQ = Self-objectification Questionnaire, BIS = Body Image Scale. ^{ab} Means with the same superscripts are significantly different at $p \leq .05$.

The results of this first study are important for two reasons. First, replicating the results of Van Enkevort et al. (2016), it was found that women with breast cancer responded to the “I Love Boobies” slogan with greater objectification than the other two control conditions. Given that previous work has focused primarily on college-aged populations, Study 1 was able to extend the results to women who are battling breast cancer as a disease. Second, given the variety of ways to assess objectification, an additional goal of the present experiment was to identify what measures to use in the subsequent studies. Replicating previous objectification work (Grabe & Jackson, 2009; Grippo & Hill, 2008; Roberts, 2004), women placed less emphasis on the importance of competency characteristics. Further, they also reported greater body-related anxiety and body shame (see e.g., Calogero, 2004; Monro & Huon, 2005; Motl & Conroy, 2000 for

similar findings). Moving forward, objectification was assessed in the following experiments using the competency subscale of the SOQ and the abbreviated BIS. Body shame was also examined given the marginal results, although more emphasis was placed on the other measures of objectification.

Although Study 1 provides the first step in examining objectification in women with breast cancer, little is known about the consequences of increased body focus in this population. As previously mentioned, women with breast cancer often experience cognitive difficulties (Ahles et al., 2002; 2007; Falletti et al., 2005; Jansen et al., 2005; Wagner et al., 2006), with the identified mechanism for this decline being varied (e.g., stress, chemotherapy; Bender et al., 2005; Reid-Arndt & Cox, 2012; Wefel, et al., 2004). In light of previous research demonstrating that women in a state of objectification experience poorer cognitive performance (Gapinski, Brownell, & LaFrance, 2003; Gay & Castano, 2010), one goal of the second experiment was to examine whether cognitive resources consumed by increased body consciousness are partially responsible for the cognitive decline experienced in breast cancer populations. Further, given that sexualized advertisements have been found to increase objectification in women generally (Aubrey et al., 2009; Harper & Tiggemann, 2008; Knauss, Paxton, & Alsaker, 2008; Peter & Valkenberg, 2007), Study 2 was conducted to examine whether objectified body consciousness would be exaggerated in breast cancer participants compared to non-cancerous control participants. Specifically, because women undergoing treatment for breast cancer report heightened appearance concerns (Fobair et al., 2006; Ganz et al., 1992; Hartl et al., 2003; Harcourt et al., 2003; Lund-Nielsen, Muller, & Adamsen, 2005; Ogden & Lindridge, 2008; Schover et al., 1995), they may be more susceptible to

objectification primes and experience a greater decline in cognitive performance compared to women who have not been diagnosed with the disease.

Study 2

Although the associative link between objectification and diminished cognitive functioning in breast cancer populations is largely unknown, there is some evidence to support this possibility. For example, pilot data by Cox, Van Enkevort, and Kersten (2016) found that breast cancer survivors who were more self-conscious experienced lower levels of verbal fluency. Further, heightened appearance concerns were associated with impairments in both immediate and delayed memory. Based on these findings, and building on the results of the first experiment, one goal of the current study was to examine whether objectified body consciousness from viewing a sexualized breast cancer slogan is associated with greater cognitive performance impairments. To test this idea, Study 2 participants were randomly assigned to view one of the three watermark conditions described in the previous experiment (i.e., “I Love Boobies,” “Think Pink,” vs. no header). After completing the SOQ (i.e., physical & competency), Body Shame, and BIS to assess for objectification, participants completed a battery of assessments to measure cognitive performance (e.g., attention, executive functioning, memory; see e.g., Reid-Arndt & Cox, 2012; Reid-Arndt, Hsieh, & Perry, 2010; Reid-Arndt, Matsuda, & Cox, 2012 for similar procedures). As with Study 1, it was hypothesized that women would report greater objectification following exposure to the “I Love Boobies” header compared to the control conditions. Additionally, given that objectification is a state of mind that depletes cognitive resources, a mediational model tested whether cognitive

problems in women were associated with greater objectification following exposure to a sexualized versus neutral headers.

An additional goal of this work was to compare effects among women who were diagnosed or not diagnosed with breast cancer. A large body of research has demonstrated that, in comparison to healthy women, breast cancer survivors report greater concerns about their appearance (Fobair et al., 2006; Ganz et al., 1992; Helms, O’Hea, & Corso, 2008; Schover et al., 1995). Although all women should experience objectification in response to sexualized advertisements, the current study hypothesized that, in comparison to control participants, women with breast cancer should report greater body focus and diminished cognitive functioning given the number of appearance concerns in this population. Finally, with respect to mediated-moderation, reduced cognitive functioning in response to objectified body consciousness from viewing a sexualized slogan was believed to be more pronounced in breast cancer survivors than women without the disease.

Method

Participants

Three-hundred and thirty-four women were recruited online using Amazon’s mTurk to participate (170 breast cancer survivors; 164 non-breast cancer survivors). Twenty-eight participants were removed from the final sample for being dishonest or for not paying attention. This resulted in a final sample of 306 women (142 breast cancer survivors [“I Love Boobies” $n = 40$; “Think Pink” $n = 59$; no slogan $n = 43$]; 164 non-breast cancer survivors [“I Love Boobies” $n = 61$; “Think Pink” $n = 55$; no slogan $n = 48$]). Although there was a significant difference between conditions on the number of

participants who were removed from the study, $F(2,331) = 3.67$, $p = .027$, partial $\eta^2 = .022$, the only significant difference was between the two control conditions. Specifically, significantly fewer women were removed in the neutral breast cancer (i.e., “Think Pink”) condition compared to the no slogan condition, $p = .07$. Everyone received compensation (\$5.00) in exchange for participation. Table 5 includes demographic information about the sample.

Table 5

Study 2 Final Sample Demographic Information

Characteristic	Women with Breast Cancer		Women without Breast Cancer	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age (years)	38.26	11.98	34.80	10.79
Education (years)	14.72	2.76	14.93	2.84
	<i>N</i>	%	<i>N</i>	%
Race/ethnicity¹				
White/Caucasian	91	64.1	120	73.2
Black/African American	12	8.5	8	4.9
Hispanic	9	6.3	6	3.7
Other	7	4.9	11	6.7
Marital Status¹				
Single (never married)	49	34.5	64	39.0
Married/Cohab > 7 years	72	50.7	73	44.5
Divorced	14	9.9	19	11.6
Widowed	2	1.4	1	.60
Other	2	1.4	4	2.4
Socioeconomic Status¹				
Very Poor	4	2.8	6	3.7
Poor	10	7.0	20	12.2
Somewhat Poor	33	23.2	44	26.8
Middle Class	75	52.8	81	49.4
Somewhat Wealthy	17	12.0	10	6.1
Wealthy	1	.70	1	.60

Very Wealthy	0	0	1	.60
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Note. M = Mean, SD = Standard Deviation, N = Number of Participants ¹
Indicates missing data because of lack of participant response.

Materials and Procedure

Participants completed all materials on an individual basis on a computer. After obtaining informed consent and HIPAA, everyone completed a Qualtrics survey with demographic information and assessments of objectification. Online versions of the cognitive performance measures were completed using the web version of *Inquisit 4*. At the end of the session, participants were thoroughly debriefed. The content and order of the materials are described below.

Breast cancer slogan. Participants were randomly assigned to one of the three conditions (i.e., “I Love Boobies,” “Think Pink,” vs. neutral control) described in Study 1.

Objectification. Following Study 1, all women completed the physical ($\alpha = .84$) and competency ($\alpha = .85$) subscales of the SOQ (Fredrickson et al., 1998), the one-item body shame question, and the three-item BIS measure ($\alpha = .89$). Higher scores indicated greater feelings of competency and body anxiety, respectively.

Cognitive performance. Following previous work with breast cancer populations (Ahles et al., 2008; Jenkins et al., 2006), cognitive functioning was assessed by testing verbal fluency, executive functioning, attention, immediate memory, and delayed memory.

Verbal fluency. Verbal fluency is the extent to which people can successfully recall specific information (Patterson, 2011). The Controlled Oral Word Association Test (COWAT; Benton & Hamsher, 1989) was used in Study 2 to assess verbal fluency. In the

COWAT, participants are asked to state as many words as possible that began with a specified letter of the alphabet in 1 min. Participants, in the present research, were asked to list as many words as possible that began with the letter “C,” “F,” and “L;” additionally, they were asked to name as many animals beginning with any letter of the alphabet (see e.g., Wieneke & Dienst, 1995 for similar procedures). Across all of the letter-naming tasks, individuals were instructed to avoid listing any proper nouns or numbers. To ensure participants were only able to generate words for 1-min, a page timer was set for each trial on the online survey program. The total words listed, disregarding repeated words, proper nouns, and numbers, were summed together to represent verbal fluency ($\alpha = .89$). A higher total COWAT score indicated better verbal fluency.

Executive functioning. Executive functioning involves the use of mental processes, such as mental control and self-regulation, to manage cognition to achieve a goal (Bhandari, 2015). Executive functioning was assessed using two cognitive performance measures: (a) the Wechsler Adult Intelligence Scale (WAIS) backward digit span task (Wechsler, 1997) and (b) the Trail Making Test (Reitan, 1958). Both measures have been shown to have good validity and reliability in breast cancer populations (Hermelink et al., 2007; Schagen, Muller, Boogerd, Mellenbergh, & Van Dam, 2006). The WAIS (Wechsler, 1997) presents a series of numbers (e.g., 1, 2) and participants are required to reverse the number in sequential order as their response (e.g., 2, 1). Commas were not required in people’s written responses. With each successful trial, the number of digits increases to a total of nine digits. The number of digit trials an individual successfully completes indicates the backward digit span score. The task ends when

participants make two errors in their recall. In the current study, a higher score indicated better executive functioning.

In addition to the WAIS, participants completed the Trail Making Test (Reitan, 1958) to connect circles, using a computer mouse, in sequential order. Specifically, the test is conducted in two parts. In Trail Making A, participants were asked to connect circles in numerical order starting at “1” and ending with “25.” In Trail Making B, participants connect circles by alternating between numbers and letters going in sequential order to the number “13” (e.g., starting with “1,” to “A,” to “2,” to “B,” to “3,” to “C” and so on). In both tasks, participants were instructed to connect the circles as quickly and accurately as possible. Participants were informed of errors by the computer program (*Inquisit*) and were instructed to correct the error made before proceeding with the task. The total time taken to complete both tasks assessed for executive functioning. A faster reaction time, in milliseconds (MS), indicated higher executive performance.

Attention. Attention was assessed using one measure. The WAIS Forward Digit Span (Wechsler, 1997) is similar to the Backward Digit Span task. However, in the Forward Digit Span, participants were asked to type a list of digits in the order that the computer displayed them on the screen. For example, when the computer displayed “0, 2,” participants were expected to type “0, 2.” (Responses were made without a comma.) After each successful trial, the number of digits increased up to nine digits. Similar to the Backward Digit Span, the number of digits the participant successfully recalled before making two errors indicated their forward digit span score, with a higher score indicating better attention.

Memory. Both immediate and delayed memory was assessed using two tasks: (a) the Logical Memory task of the Wechsler Memory Scale (WMS; Wechsler, 1998) and (b) the Rey Auditory Verbal Learning Test (RAVLT; Rey, 1964). During the WMS Logical Memory task, participants listened to an audio recording of two stories (e.g., “Anna Thompson from South Boston, employed as a cook at a school cafeteria...”). To assess for immediate memory, everyone was asked to recall each story by typing as many details as possible from the narrative. Delayed memory was assessed 30-min later by having participants recall information from the stories. Additionally, individuals were asked 15 True/False questions about each story and asked to respond (e.g., “Was the woman’s name was Diana Thompson?”). The number of details participants immediately recalled from both stories were summed together to indicate immediate memory ($\alpha = .72$) and delayed memory ($\alpha = .74$), with a higher score representing better memory. The correct responses to the recognition questions were also summed together to create a composite recognition score (i.e., delayed memory; $\alpha = .70$).

The RAVLT consisted of a list of 15 words (e.g., “drum,” “bell,” “curtain”) read to participants in an audio recording in the form of a wordlist. Following each trial (five trials total of the same word list), participants were asked recall as many of the words that they remembered from the list, with the total number of correct answers indicating better immediate memory. Following a delay of 30-min, participants were again asked to recall as many words from the list to assess delayed memory. A sum of the number of words recalled for the first five trials was calculated ($\alpha = .93$) to assess for immediate memory and the total number of words recalled after the 30-min delay measured delayed memory. A higher score for both represented better memory.

Results and Discussion

Objectification. Following Study 1, four separate 2 (participant type: breast cancer participants vs. control participants) x 3 (condition: “I Love Bobbies,” “Think Pink,” vs. neutral) ANOVA tests were used to examine group differences on objectification scores (i.e., competency scores, appearance anxiety). Although the results revealed no significant main effects or interactions for both the physical and competency subscales of the SOQ and the BIS, there was a significant main effect of participant type on body shame. Specifically, women with breast cancer reported greater body shame in comparison to those who were not diagnosed with breast cancer. There was also a significant condition by participant interaction on body shame, however, the only significant pairwise comparison was between the “Think Pink” and no header condition within women with breast cancer. See Table 6 for inferential statistics.

Table 6

Summary of Inferential Statistics for Study 2 Results

Measure	Effect	<i>F</i>	df	<i>p</i>	Partial η^2
Objectification					
SOQ Physical	2-way interaction	.21	(2,200)	.81	.002
	Condition	.27	(2,200)	.76	.003
	Participant Type	.46	(1,200)	.50	.002
SOQ Competency	2-way interaction	.15	(2,200)	.86	.001
	Condition	2.02	(2,200)	.14	.02
	Participant Type	2.78	(1,200)	.10	.01
Body Shame	2-way interaction	4.75	(2,200)	.01	.05
	Condition	1.09	(2,200)	.34	.01
	Participant Type	6.48	(1,200)	.01	.03
BIS	2-way interaction	2.21	(2,199)	.11	.02
	Condition	.276	(2,199)	.76	.003
	Participant Type	.12	(1,199)	.73	.001

Verbal Fluency					
COWAT	2-way interaction	2.49	(2,200)	.09	.02
	Condition	4.07	(2,200)	.02	.04
	Participant Type	17.31	(1,200)	≤.001	.08
Executive Functioning					
WAIS-BDS	2-way interaction	1.17	(2,213)	.31	.01
	Condition	.13	(2,213)	.88	.001
	Participant Type	.61	(1,213)	.44	.003
TMT					
TMT	2-way interaction	1.55	(2,196)	.21	.02
	Condition	1.47	(2,196)	.23	.02
	Participant Type	5.97	(1,196)	.02	.03
Attention					
WIAS-FDS	2-way interaction	.67	(2,213)	.51	.01
	Condition	.16	(2,213)	.85	.002
	Participant Type	1.11	(1,213)	.29	.01
Immediate Memory					
WMS Recall	2-way interaction	1.10	(2,242)	.34	.01
	Condition	5.36	(2,242)	.01	.04
	Participant Type	27.98	(1,242)	≤.001	.10
RAVLT					
RAVLT	2-way interaction	.33	(2,242)	.72	.003
	Condition	.68	(2,242)	.51	.01
	Participant Type	8.95	(1,242)	.003	.04
Delayed Memory					
WMS Recall	2-way interaction	4.35	(2,187)	.01	.04
	Condition	.83	(2,187)	.44	.01
	Participant Type	5.64	(1,187)	.02	.03
WMS Recognition					
WMS Recognition	2-way interaction	.41	(2,201)	.66	.004
	Condition	1.16	(2,201)	.32	.01
	Participant Type	27.59	(1,201)	≤.001	.12
RAVLT					
RAVLT	2-way interaction	1.39	(2,186)	.25	.02
	Condition	.53	(2,186)	.59	.01
	Participant Type	6.41	(1,186)	.01	.03

Note. SOQ = Self-objectification Questionnaire, BIS = Body Image Scale, COWAT = Controlled Oral Word Association Test, WAIS-BDS = Wechsler Adult Intelligence Scale-Backward Digit Span, TMT = Trail Making Test, WAIS-FDS = Wechsler Adult Intelligence Scale-Forward Digit Span, WMS = Wechsler Memory Scale, RAVLT = Rey Auditory Verbal Learning Test

Cognitive performance. Separate 2 (participant type: breast cancer participants vs. control participants) x 3 (condition: “I Love Bobbies,” “Think Pink,” vs. neutral)

between-subject analysis of variance (ANOVA) tests were performed on the cognitive performance assessments. Means and standard deviations are displayed in Table 7.

Table 7

Study 2 Means and Standard Deviations of Conditions for each Measure

Measure	Condition	Women with Breast Cancer		Women without Breast Cancer	
		Mean	SD	Mean	SD
Objectification					
SOQ Physical	“I Love Boobies”	6.06	1.66	6.11	1.63
	“Think Pink”	6.28	1.70	6.08	1.63
	No Slogan	6.41	1.80	6.14	1.58
SOQ Competency	“I Love Boobies”	6.66	1.53	6.42	1.60
	“Think Pink”	7.12	1.64	6.83	1.50
	No Slogan	7.26	1.27	6.76	1.33
Body Shame	“Think Pink”	3.54	1.71	3.28	1.61
	“No Slogan”	2.97	1.78	3.03	1.90
	No Slogan	4.21	2.04	2.50	1.66
BIS	“I Love Boobies”	1.95	.72	2.23	.84
	“Think Pink”	2.18	.88	2.15	.94
	No Slogan	2.40	1.09	2.02	.86
Verbal Fluency					
COWAT	“I Love Boobies”	44.86	20.51	63.46	17.34
	“Think Pink”	57.33	15.23	62.92	19.12
	No Slogan	59.18	17.26	66.83	18.44
Executive Functioning					
WAIS-BDS	“I Love Boobies”	6.24	3.20	6.19	2.12
	“Think Pink”	6.49	2.76	6.32	2.76
	No Slogan	5.68	2.13	6.73	2.46
TMT	“I Love Boobies”	351,956	626,293	190,283	100,335
	“Think Pink”	345,679	546,669	156,631	71,463
	No Slogan	174,431	79,144	176,857	147,956
Attention					
WAIS-FDS	“I Love Boobies”	7.15	2.40	7.74	2.17
	“Think Pink”	7.22	1.75	7.79	2.28
	No Slogan	7.75	2.80	7.56	2.18
Immediate Memory					
WMS Recall	“I Love Boobies”	14.50	6.59	17.31	6.68

	“Think Pink”	13.64	6.91	19.28	7.06
	No Slogan	16.51	7.35	22.00	6.49
RAVLT	“I Love Boobies”	47.91	16.75	53.86	12.65
	“Think Pink”	47.50	18.81	51.22	13.77
	No Slogan	48.32	17.21	55.83	9.27
Delayed Memory					
WMS Recall	“I Love Boobies”	13.81	8.11	21.07	8.38
	“Think Pink”	16.28	9.27	21.40	11.80
	No Slogan	20.84	10.18	18.41	9.53
WMS Recognition	“I Love Boobies”	21.69	4.30	24.87	2.26
	“Think Pink”	22.48	3.91	24.74	3.55
	No Slogan	23.07	3.93	25.30	2.88
RAVLT	“I Love Boobies”	8.58	4.20	11.27	3.32
	“Think Pink”	9.23	4.33	10.29	3.44
	No Slogan	10.20	4.24	10.49	3.86

Note. SD = Standard Deviation, SOQ = Self-objectification Questionnaire, BIS = Body Image Scale, COWAT = Controlled Oral Word Association Test, WAIS-BDS = Wechsler Adult Intelligence Scale-Backward Digit Span, TMT = Trail Making Test, WAIS-FDS = Wechsler Adult Intelligence Scale-Forward Digit Span, WMS = Wechsler Memory Scale, RAVLT = Rey Auditory Verbal Learning Test

Verbal fluency. The results revealed a significant main effect of condition on verbal fluency. Specifically, whereas there was no significant difference between women exposed to the “Think Pink” or no header, women who were exposed to the “I Love Boobies” header produced significantly fewer words compared to the other two conditions. Additionally, the main effect of participant type was significant demonstrating that women with breast cancer experienced lower verbal fluency than women without breast cancer. These effects, however, were qualified by a marginally significant interaction between condition and participant type ($p = .09$). Among breast cancer survivors, those who completed materials with an “I Love Boobies” header had lower verbal fluency than the “Think Pink” or neutral header conditions, which were not

significantly different from one another. No significant differences between conditions for women who were not diagnosed with breast cancer were observed. Looked at differently, the only significant difference between women with and without breast cancer was for those who completed materials in the presence of a sexualized breast cancer slogan.

Executive functioning. There were no significant main effects or interaction between condition and participant type on Backward Digit Span scores. Additionally, although there was a main effect of participant type on Trail Making scores, the remaining results were not significant. Specifically, women with breast cancer took significantly longer to complete the test in comparison to women who had not been diagnosed with breast cancer.

Attention. Similar to executive functioning, there were no significant main effects or an interaction between condition and participant type on the Forward Digit Span scores.

Immediate memory. With respect to immediate memory, there was a significant main effect of condition on WMS recall. Specifically, participants in the neutral header condition recalled more story details than the “I Love Boobies” and “Think Pink” conditions, which were not significantly different from each other. The main effect of participant type was also significant, with women with breast cancer recalling fewer details from the stories compared to their healthy counterparts. There was no significant interaction between condition and participant type on WMS recall scores.

Additionally, although the main effect and 2-way interaction between condition and participant type was not significant on RALVT scores, there was a significant main

effect of participant type. Specifically, women with breast cancer immediately recalled fewer words from the wordlist than those without breast cancer.

Delayed memory. There were three measures of delayed memory: (a) WMS recall scores, (b) WMS recognition scores, and (c) RALVT recall scores. First, although there was no significant effect of condition on WMS recall scores, there was an effect of participant type. Specifically, women with breast cancer recalled fewer details from the stories compared to those who did not have breast cancer. This main effect, however, was qualified by a significant condition by participant type interaction. For women without breast cancer, there were no significant differences between any of the header conditions. However, for women with breast cancer, those who completed the survey with the “I Love Boobies” and “Think Pink” headers recalled fewer details compared to those who did not have a header on their survey. There were no differences between the two breast cancer conditions. Looked at differently, among the two breast cancer header conditions (i.e., “I Love Boobies” & “Think Pink”), women with breast cancer recalled fewer story details compared to those who do not have breast cancer. There was no difference between women with and without breast cancer in the neutral header condition.

Second, the results revealed a significant main effect of participant type on WMS recognition scores. Women with breast cancer recognized fewer story details after a 30-min delay compared to women without breast cancer. There was no significant effect of condition or a 2-way interaction between condition and participant type on recognition scores.

Finally, although women with breast cancer recalled fewer words on the RALVT delay task compared to women without breast cancer, the condition main effect and interaction between condition and participant type were non-significant.

Mediational analyses. Mediational analyses were not performed given the non-significant *a*-path results of condition on objectification scores.

The results for the second experiment are important for several reasons. One goal was to replicate the findings from the previous study on objectification scores. This was not accomplished. Specifically, although women with breast cancer report greater body shame compared to those who have not been diagnosed, there was no significant difference between the “I Love Boobies,” “Think Pink,” and neutral conditions on the physical and competency scales of the SOQ or the appearance anxiety items of the BIS. One explanation for this failure to replicate may have had to do with the different participant samples used in both studies. Whereas Study 1 recruited only women who were diagnosed with breast cancer, Study 2 recruited both women with and without the disease. Given the results of previous research demonstrating that breast cancer survivors are overly focused on appearance concerns (Hartl et al., 2003; Lund-Nielsen, Muller, & Adamsen, 2005), this may have led to the reported effects on objectification in the first experiment. The inclusion of non-cancerous control participants in the second study may have canceled out any influence of the sexualized breast cancer header on objectified body consciousness scores. For this reason, Study 3 returned to the procedures of the first experiment and only examined objectification effects in women with breast cancer.

One would assume, however, if there were differences between women with and without breast cancer on objectification that a significant interaction would have

emerged. This was demonstrated by body shame results. Specifically, women with breast cancer reported greater body shame in comparison to those who have not been diagnosed with breast cancer; however, conditional effects did not emerge as hypothesized. There are two potential reasons for this. First, given the small sample size of breast cancer participants, it was difficult to assess for potential moderating variables. It could be that women with more advanced cancer (Stage 4 – metastasized) experience greater appearance concerns than females who have a localized tumor (Stage 0). This could be because of the more severe treatment that women with advanced breast cancer would need to undergo as part of their diagnosis. Second, the goal of this research was to assess the effects of sexualized breast cancer slogans in women with breast cancer generally, rather than their current stage of treatment specifically. Participants included women who were at all stages of treatment (e.g., a biopsy, surgery, chemotherapy, radiation therapy). Not all treatment protocols are the same, thus women who may have undergone a mastectomy with increased scarring may have experienced greater appearance concerns compared to someone who only needed to undergo a lumpectomy. Overall, supplemental analyses were performed while controlling for cancer staging and treatment type as covariates and the same pattern of results emerged. One direction for future research is to recruit a much larger sample of women with breast cancer to control for or examine the moderating effects of these individual difference variables.

A second goal of Study 2 was to determine if women with breast cancer would experience cognitive deficits as a result of being exposed to a sexualized breast cancer advertisement. Although verbal fluency scores were in the hypothesized direction, with women with breast cancer reporting lower verbal fluency compared to control

participants following the “I Love Boobies” header, the remaining cognitive performance tasks resulted in mixed findings. These results are important for several reasons.

Replicating prior work among breast cancer populations (Bender et al., 2006; Collins et al., 2009; Quesnel, Savard, & Ivers, 2009; Silberfarb, et al., 1980; Tager et al., 2010; van Dam et al., 1998; Wefel et al., 2004), Study 2 found a main effect of participant type with breast cancer survivors performing worse than control participants on verbal fluency, executive functioning, and immediate and delayed recall. These findings are informative given the online and exploratory nature of the current experiment. Further, the results revealed no significant difference between the sexualized breast cancer condition and neutral breast cancer condition (“Think Pink”) on WMS immediate and delayed memory scores. These patterns of results are interesting because they suggest that activating thoughts of breast cancer, regardless of sexual content, have the potential to diminish memory performance in women diagnosed with the disease. This is consistent with other work demonstrating that thoughts of disease salience have the potential to increase cognitive load resulting in diminished attentional resources (Ackerman, Huang, & Bargh, 2012; McCarthy & Skowronski, 2014). Although sexualized breast cancer advertisements may affect some forms of cognitive functioning in breast cancer populations (i.e., verbal memory), activating thoughts of breast cancer in general may influence other performance abilities (i.e., delayed memory).

It is also important to note that the inclusion of cognitive performance measures in Study 2 may not have been the best assessment of behavioral change. Previous research has found that participants are able to improve their performance on such tasks with practice and training (McCaffrey, & Westervelt, 1995; Meyer et al., 2001). The

number of times that individuals completed the cognitive performance tasks was not measured in the current study. Another problem had to do with the online nature of the experiment. For example, with some of the tasks (e.g., RAVLT, WMS Logical Memory) participants may have been able to write down words or details to help with later recall. Finally, as previously mentioned, individual differences in cancer staging and treatment may have played a role. Although women with breast cancer have been shown to experience cognitive problems across all stages of treatment (Hermelink et al., 2007; Shilling et al., 2005, Shilling, Jenkins, & Trapala, 2006), cognitive complaints have been found to be more pronounced following chemotherapy treatment (also known as “chemobrain;” Brezden et al., 2000; Jenkins et al., 2006; Wieneke & Dienst, 1995). Future research should take all of these problems into consideration in the methodological design of the experiments.

Although there was little malleability in women’s cognition scores in response to the sexualized advertisement, research on objectification has observed greater change on indicators of psychological and physical health. In one study, for example, females who were in a state of objectification subsequently reported having lower self-esteem and satisfaction with life (Mercurio & Landry, 2008). Objectified women also report more physical complaints (Carr & Syzmanski, 2011; Kamysheva, Skouteris, Wertheim, Paxton, & Milgrom, 2008; Noll & Fredrickson, 1998), psychological impairments (Badger et al., 2007; Harrison & Fredrickson, 2003; Muehlenkamp & Saris-Baglana, 2002; Shapiro et al., 2001), and social problems (Carter et al., 1993; Figueiredo et al., 2004; Roberts et al., 1994). Given that similar problems have been observed in women with breast cancer, the following experiment examined the associative link between

sexualized advertisements, objectification, and well-being in female breast cancer survivors.

Study 3

There is some evidence to suggest that women with breast cancer report lower health in response to appearance concerns. For example, in a pilot study among breast cancer survivors, Cox et al. (2016) found that women who were more appearance conscious experienced less vigor, reported more fatigue, and adopted a more fatalistic mindset about their cancer diagnosis. Psychologically, these women also reported greater search for life's meaning, experienced more negative affect, and reported lower emotional well-being (e.g., depression, fatigue, satisfaction with life). These results suggest that objectified body consciousness from being exposed to sexualized breast cancer campaigns can lead to detriments in breast cancer survivors' well-being. To examine this and following procedures from the previous experiments, in Study 3 women with breast cancer were randomly assigned to complete a survey with no header, an "I Love Boobies" header, or a "Think Pink" header. Next, participants completed the four objectification questionnaires (e.g., SOQ Physical, SOQ Competency, Body Shame, & BIS) from the first experiment. Finally, everyone completed several measures of psychological (e.g., Satisfaction with Life; Deiner et al., 1985; Meaning in Life; Steger et al., 2006), emotional (e.g., Profile of Mood States; POMS; McNair, Lorr, & Droppleman, 1971), and physical (e.g., Brief Fatigue Inventory; Mendoza et al., 1999) well-being that have been used extensively in research with breast cancer populations (Bower et al., 2000; Cotton, Levine, Fitzpatrick, Dold, & Targ, 1999; Koopman, Hermanson, Diamond, Angell, & Spiegel, 1998).

Something that was unique to the third experiment was the inclusion of the Weight and Body-related Shame and Guilt Scale (WBSG; Conrath et al., 2007) to assess for individual differences in appearance monitoring. Although there are several reasons for why the objectification effects did not emerge in the second experiment (e.g., cancer stage, treatment type), one potential variable is the extent to which breast cancer women focus on their physical appearance. For example, although breast cancer survivors have been shown to report greater anxieties about their femininity and beauty (Al-Ghazal et al., 1999; Freitas, 1998; Petronis et al., 2003), several media campaigns have been making a push for females to love and accept the consequences of breast cancer treatment (e.g., The Scar Project; <http://www.thescarproject.org/>). For this reason, all analyses in the third study were made while controlling for individual differences on the WBSG scale.

Study 3 examined the following hypotheses. First, replicating the results of Study 1, it was hypothesized that women with breast cancer would experience greater objectification after completing a survey with an “I Love Boobies” header in comparison to the “Think Pink” and no header conditions. Second, following previous objectification work (Gervais, Vesico, & Allen, 2011; Mercurio & Landry, 2008; Quinn et al., 2006; Szymanski, Moffitt, & Carr, 2011), it was believed that viewing the sexualized breast cancer slogan would result in poorer emotional, physical, and psychological health compared to the other control conditions. Finally, to the extent that objectification mediates the relationship between sexualized advertisements and well-being, a mediational model examined whether lower health scores are associated with heightened objectified body consciousness after viewing the “I Love Boobies” header. No such

effects were believed to emerge for the two control conditions (i.e., “Think Pink,” no header).

Method

Participants

One-hundred and eighteen women who had been diagnosed with breast cancer were recruited using Amazon’s mTurk. A total of 40 women had taken the survey multiple times, were dishonest, or reported not paying attention to the survey questions, resulting in a final sample of 78 (“I Love Boobies” $n = 27$; “Think Pink” $n = 24$; no slogan $n = 27$) women with breast cancer. There was no significant difference between conditions on the number of participants who were dropped from the study, $F(2,115) = .070$, $p = .737$, partial $\eta^2 = .005$. In exchange for their participation, all participants received monetary compensation (\$1.00). Demographic information for the sample is reported in Table 8.

Table 8

Study 3 Final Sample Demographic Information

Characteristic	<i>M</i>	<i>SD</i>
Age (years)	34.95	10.14
Education (years)	14.47	6.27
	<i>N</i>	%
Race/ethnicity		
White/Caucasian	62	79.5
Black/African American	8	10.3
Hispanic	2	2.6
Other	6	7.7
Marital Status		
Single (never married)	31	39.7
Married/Cohab > 7 years	41	52.6

Divorced	3	3.8
Widowed	2	2.6
Other	1	1.3
Socioeconomic Status ¹		
Very Poor	1	1.3
Poor	4	5.1
Somewhat Poor	22	28.2
Middle Class	40	51.3
Somewhat Wealthy	2	2.6
Wealthy	1	1.3

Note. *M* = Mean, *SD* = Standard Deviation, *N* = Number of Participants ¹
Indicates missing data because of lack of participant response.

Materials and procedure. After providing informed and HIPAA consent, all women completed the study online on a computer. Upon the completion, participants were thoroughly debriefed. The content and order of the questionnaire packet is described below.

Appearance anxiety. To assess anxiety associated with women's appearance, women completed the six-item WBSG scale (Conradt et al., 2007). The WBSG was chosen because it has been found to be a reliable measure of appearance concerns across a variety of populations (e.g., cross cultural, clinical, non-clinical; Castonguay, Brunet, Ferguson, & Sabiston, 2012; Conradt et al., 2008; Sabiston et al., 2010). When completing the WBSG, women were asked to indicate their responses on a five-point scale (1 = *never*; 5 = *always*). Example items included, "I avoid exerting myself physically in front of others since I feel embarrassed," "The appearance of my body is embarrassing for me in front of others," "When I am in a situation where others can see my body (e.g., pool, changing room), I feel ashamed." A composite score was calculated by taking the average of all items ($\alpha = .90$), with a higher score indicating greater appearance anxiety.

Breast cancer slogan. Participants received the same survey header manipulation described in Study 1.

Objectification. Following the first experiment, participants completed four measures of objectification: the physical ($\alpha = .79$) and competency ($\alpha = .72$) subscale of the SOQ (Fredrickson et al., 1998), the one-item body shame subscale of the OBCS (McKinley & Hyde, 1996) and the abbreviated three-item version of the BIS ($\alpha = .72$; Hopwood et al., 2001).

Emotional and psychological well-being. Psychological well-being was measured with the brief Profile of Mood States (POMS; McNair, Lorr, & Droppleman, 1971). The brief POMS is one of the most widely used measures of emotional and psychological well-being in clinical populations (Beedie, Terry, & Lane, 2000; Berger & Motl, 2000; Nyenhuis, Yamaoto, Luchetta, Terrien, & Parmentier, 1999), including women with breast cancer (Blesch et al., 1990; Classen, Koopan, Angell, & Spiegel, 1996; Dilorenzo, Bovbjerg, Montgomery, Valdimarsdottir, & Jacobsen, 1999). The POMS focuses on participants' general health by asking individuals to rate 37 different adjectives on a five-point scale (1 = *not at all*; 5 = *extremely*). Example items include, "unhappy," "lively," and "hopeless." Following previous research (Brezden, Phillips, Abdoell, Bunston, & Tannock, 2000; Koopman, Hermanson, Diamond, Angell, & Spiegel, 1998; Stanton et al., 2000), scores were calculated to assess for depression ($\alpha = .79$), vigor/activity level ($\alpha = .79$), confusion/bewilderment ($\alpha = .87$) tension/anxiety ($\alpha = .73$), anger/hostility ($\alpha = .82$), and fatigue ($\alpha = .85$). Scores on the POMS were calculated by summing items together for each subscale.

Physical health. To assess physical health, participants completed the Brief Fatigue Inventory (BFI; Mendoza et al., 1999). The BFI asks participants to rate how the fatigue following their cancer diagnosis has interfered with “general activity,” “work,” and “walking ability” using a 10-point scale (1 = *does not interfere*; 10 = *completely interferes*). This measure has been used extensively in breast cancer populations (Baucom et al., 2009; Kim et al., 2008; So et al., 2009) to assess how breast cancer impacts physical functioning. A composite BFI score was calculated by taking the average of all 10-items ($\alpha = .93$) with a higher score indicating lower physical health.

General well-being. Finally, participants were given the Meaning in Life (Steger, Frazier, Oishi, & Kaler, 2006) and Satisfaction with Life (Diener, Emmons, Larsen, & Griffins, 1985) questionnaires to assess the present meaning, search for meaning, and overall life satisfaction. Not only have these measures been used in the objectification literature (Biswas-Diener, Kashdan, & King, 2009; Choma, Shove, Busseri, Sadava, & Hosker, 2009; Impett, Daubenmier, & Hirschmann, 2006), but also among breast cancer populations (Bauer-WU & Farran, 2005; Campbell, Mutrie, White, McGuire, & Kearney, 2005; Tate, Riley, Perna, & Roller, 1997). Example items from the Meaning in Life questionnaire included, “My life has a clear sense of purpose,” and “I am searching for meaning in life;” whereas, example items from the Satisfaction with Life scale were, “In most ways my life is close to ideal,” and “I am satisfied with my life.” Participants answered each item on a five-point scale (1 = *strongly disagree*; 5 = *strongly agree*). Items for meaning presence, searching for meaning, and satisfaction with life were averaged separately to create three composite scores (presence $\alpha = .80$; searching $\alpha = .81$; satisfaction with life $\alpha = .89$).

Results and Discussion

Objectification. Four separate analysis of covariance tests (ANCOVA) were conducted to examine the effect of condition (“I Love Boobies,” “Think Pink,” vs. no header) on objectification scores (i.e., SOQ Physical, SOQ Competency, Body Shame, BIS) while controlling for appearance anxiety. Although there were no significant differences between the header conditions on both subscales of the SOQ and the Body Shame item, there was a marginally significant effect of condition on the BIS ($p = .08$; see Tables 9 and 10 for inferential statistics, means, standard deviations, and pairwise comparisons using the LSD correction). Specifically, those who took the survey with the “I Love Boobies” watermark reported higher body image focus than those who viewed the “Think Pink” or no header. There was no difference between the two neutral conditions.

Table 9

Summary of Inferential Statistics for Study 3 Results

Measure	<i>F</i>	df	<i>p</i>	Partial η^2
Objectification				
SOQ Physical	1.68	(2, 74)	.19	.04
SOQ Competency	.35	(2,74)	.70	.01
Body Shame	2.23	(2,74)	.12	.06
BIS	1.01	(2,74)	.08	.07
Emotional & Physical WB				
POMS Depression	2.17	(2,74)	.12	.06
POMS Vigor	5.99	(2,74)	.004	.14
POMS Confusion	3.75	(2,74)	.03	.09
POMS Tension	2.82	(2,74)	.07	.07
POMS Anger	1.52	(2,74)	.23	.04
POMS Fatigue	3.34	(2,74)	.04	.08
Physical Health				
BFI	1.03	(2,74)	.36	.03

General WB				
SWLS	1.32	(2,74)	.27	.03
MIL Presence	.01	(2,74)	.99	≤ .001
MIL Search	1.87	(2,74)	.16	.05

Note. SOQ = Self-objectification Questionnaire, BIS = Body Image Scale, WB = Well-being, POMS = Profile of Mood States, BFI = Brief Fatigue Inventory, SWLS = Satisfaction with Life Scale, MIL = Meaning in Life

Table 10

Study 3 Means, Standard Deviations, and Pairwise Comparisons for each Measure

Measure	Condition	<i>M</i>	<i>SD</i>
Objectification			
SOQ Physical	“I Love Boobies”	6.09	1.12
	“Think Pink”	6.03	1.42
	No Slogan	5.51	1.47
SOQ Competency	“I Love Boobies”	6.66	1.18
	“Think Pink”	6.35	1.05
	No Slogan	6.34	1.49
Body Shame	“I Love Boobies”	3.81	2.08
	“Think Pink”	3.83	1.88
	No Slogan	3.26	1.63
BIS	“I Love Boobies”	2.46 ^{ab}	.69
	“Think Pink”	2.30 ^a	.89
	No Slogan	2.36 ^b	.81
Emotional & Physical WB			
POMS Depression	“I Love Boobies”	22.41	6.63
	“Think Pink”	18.67	8.21
	No Slogan	19.52	7.87
POMS Vigor	“I Love Boobies”	9.37 ^{ab}	3.95
	“Think Pink”	12.17 ^{ac}	4.33
	No Slogan	10.00 ^{bc}	3.68
POMS Confusion	“I Love Boobies”	13.70 ^{ab}	5.67
	“Think Pink”	11.08 ^a	6.63
	No Slogan	11.93 ^b	5.76

POMS Tension	“I Love Boobies”	16.56 ^{ab}	4.98
	“Think Pink”	13.96 ^a	5.63
	No Slogan	14.48 ^b	6.38
POMS Anger	“I Love Boobies”	18.56	7.02
	“Think Pink”	17.25	7.84
	No Slogan	17.04	7.28
POMS Fatigue	“I Love Boobies”	13.52 ^a	5.99
	“Think Pink”	10.71 ^a	5.56
	No Slogan	12.04	6.32
Physical Health			
BFI	“I Love Boobies”	53.70	22.40
	“Think Pink”	52.00	19.88
	No Slogan	60.04	18.54
General WB			
SWLS	“I Love Boobies”	2.91	.89
	“Think Pink”	3.01	1.23
	No Slogan	3.08	1.11
MIL Presence	“I Love Boobies”	3.31	.81
	“Think Pink”	3.21	.79
	No Slogan	3.22	.98
MIL Search	“I Love Boobies”	3.17	.84
	“Think Pink”	3.56	.61
	No Slogan	3.46	.78

Note. M = Mean, SD = Standard Deviation, SOQ = Self-objectification Questionnaire, BIS = Body Image Scale, WB = Well-being, POMS = Profile of Mood States, BFI = Brief Fatigue Inventory, SWLS = Satisfaction with Life Scale, MIL = Meaning in Life. ^{abc} Means with the same superscripts are significantly different from one another at or below $p = .05$.

Well-being. Separate one-way analysis of covariance (ANCOVA) tests were performed on the well-being measures as a function of condition while controlling for appearance anxiety.

Emotional and psychological well-being. Although there was no significant difference between conditions on depression and anger, there was a marginally

significant effect of condition on tension ($p = .07$) and significant main effects on confusion, fatigue, and vigor. Specifically, women who were exposed to the “I Love Boobies” header had higher tension and confusion scores and lower vigor scores compared to both neutral conditions. Although women who were exposed to the “I Love Boobies” header also had higher fatigue scores in comparison to the neutral no header condition, the breast cancer conditions did not differ from one another.

Physical health. There was no significant effect of condition on BFI scores. This finding held with or without appearance anxiety entered as a covariate in the model.

General well-being. Similarly, the ANCOVA results (and ANOVA results without appearance anxiety) of condition on satisfaction with life, meaning presence, or searching for meaning were not significant.

Mediational analysis. Preacher and Hayes (2004) bootstrapping procedure was used to determine whether BIS scores mediated the relationship between survey header and vigor, confusion, tension and fatigue scores while controlling for appearance anxiety. Separate mediational models were run where the outcome variables were regressed onto header condition (dummy coded; “I Love Boobies” coded as 0), with body focus (centered) and appearance anxiety entered as the mediator and covariate, respectively. Five thousand bootstrap resamples were performed for each analysis and the 95% confidence interval for the indirect effects was non-significant (vigor [-.24, .02], confusion [-.04, .36], tension [-.03, .37], & fatigue [-.03, .27]). Taken together, these results suggest that the relationship between sexualized breast cancer advertisements and greater feelings of confusion, tension, fatigue, and lower vigor are not accounted for by an increase in objectification.

One aim of Study 3 was to replicate the findings of the first experiment on objectification scores. Although marginally significant, the same pattern of results emerged. Specifically, breast cancer survivors who were exposed to a sexualized breast cancer campaign reported greater appearance anxiety in comparison to both neutral conditions. Given that the two neutral conditions were not significantly different from each other, Study 3 provides further support that increased objectification is specific to a sexualized breast cancer campaign and not breast cancer campaigns in general. Unlike Study 1, however, the current results only emerged when controlling for pre-existing levels of appearance anxiety. This finding suggests that future studies should examine the role that individual difference variables play in objectification effects – either as a variable to control for or as a potential moderating variable. For example, women with breast cancer who express greater concerns about their appearance may respond especially negatively to sexualized advertising campaigns with greater objectified body consciousness.

Additionally, the current study explored whether exposure to a sexualized breast cancer campaign would further decrease well-being in breast cancer survivors in comparison to neutral campaigns. Although the results found no significant effect of breast advertisements on general (i.e., life satisfaction, meaning in life) and physical (i.e., fatigue) indicators of health, there were significant effects on tension, confusion, fatigue, and vigor. Specifically, while controlling for concerns about appearance, women with breast cancer experienced more tension, confusion, and less vigor after viewing the “I Love Boobies” slogan compared to the control conditions. Also, women reported more fatigue in comparison to the no header condition, but there was no significant difference

between the “I Love Boobies” and “Think Pink” conditions. This finding suggests that exposure to breast cancer primes may actually decrease energy/vitality in women diagnosed with the disease. Not only are some of these results congruent with previous objectification research to suggest that body focus is related to lower well-being (Garner et al., 1980; Harper & Tiggemann, 2008; Mercurio & Landry, 2008; Szymanski, Moffitt, & Carr, 2011), but the current results extend these findings to provide initial support establishing this relationship in women with breast cancer.

Although the effects of Study 3 are encouraging, this experiment was unable to replicate the results of previous objectification work on physical (i.e., BFI scores) and general well-being (i.e., satisfaction & meaning in life) in breast cancer populations. There are several explanations as to why these effects were not found. First, it is possible that there was little movement on well-being scores given that breast cancer populations are already low to begin with. For example, previous research has demonstrated that women with breast cancer report lower psychological and physical health compared to non-cancerous control individuals (Ganz et al., 2002; Schreier & Williams, 2004). Future studies would benefit from implementing a within-subjects design to collect multiple measures of objectification and well-being before and after an experimental prime is introduced. Second, it is possible that Study 3 did not have enough power to identify significant effects. Specifically, although a power analysis was conducted and enough participants were recruited, it was not anticipated to exclude so many persons because of dishonesty (i.e., taking the experiment multiple times, not paying attention, etc.). After dropping those unforeseen “problem” individuals, the sample may not have been large

enough to observe the impact that sexualized slogans on women's self-reported health and general well-being.

The final aim of Study 3 was to examine the role that objectification plays in the relationship between exposure to sexualized breast cancer campaigns and well-being. Overall, no significant mediation results were found. As previously mentioned, one potential problem may have been the final sample size of participants and lack of power. Another possibility is that individual differences may have masked any observed differences between persons. For example, if women base their self-esteem on their appearance (i.e., extrinsic self-esteem; Williams, Schimel, Hayes, & Martens, 2010) objectification may play a larger role in the relationship between sexualized campaigns and well-being because these women may be more prone to body consciousness. Further, individuals who are more optimistically orientated may respond to breast cancer advertisements, regardless of content, with heightened well-being. Future research should take into consideration potential moderating and mediating variables that might influence the obtained effects (or rather, lack of effects).

General Discussion

Approximately one in eight (12%) American women will be diagnosed with invasive breast cancer in their lifetime making it the second most commonly diagnosed cancer and second leading cause of death (American Cancer Society, 2016). Although considerable strides have been made in breast cancer treatment, with a 5-year survival rate of 77.4% across stages (American Cancer Society, 2016), there are several detriments associated with the diagnosis and treatment for the disease. For instance, many breast cancer survivors report lower self-esteem and experience greater appearance

concerns in response to treatment (Fang et al., 2014; Helms, O’Hear, & Corso, 2008); they exhibit poorer cognitive functioning (Ahles et al., 2002; Bender et al., 2006; Collins et al., 2009; Quesnel, Savard, & Ivers, 2009; Tager et al., 2010; Wefel et al., 2004); and they experience reduced emotional, psychological, and physical well-being (Al-Ghazal et al., 2000; Badger et al., 2007; Derogatis et al., 1979; Fardouly et al., 2015). The purpose of the present work was to examine whether inducing a state of objectification through a sexualized breast cancer slogan could be used, in part, to explain these negative health effects. Specifically, the current work was designed to test four broad aims.

One goal of the present work was to examine whether sexualized breast cancer slogans increase objectification in women with breast cancer. In support, two studies (Studies 1 & 3) demonstrated that in comparison to a neutral slogan or no slogan, survivors who were exposed to a sexualized slogan reported increased objectification. These findings have important implications for breast cancer populations. Specifically, as Fredrickson and Roberts (1997) suggest, objectified body consciousness is detrimental to women as it shifts individuals’ self-focus to their physical appearance, leading to greater feelings of shame and anxiety. Objectification also diminishes self-actualization and flow (i.e., indices of psychological growth; Cox, Ullrich-French, Cole, & D’Hondt-Taylor, 2016; Hanley & Abell, 2002; Tiggemann & Slater, 2001) and reduces women’s awareness of internal bodily states (e.g., hunger, sexual arousal; Moradi & Huang, 2008; Steer & Tiggemann, 2008; Tiggemann & Kuring, 2004). Given that women with breast cancer are already vulnerable to appearance anxieties (Carver et al., 1998; Fobair et al., 2006; Shapiro & Recht, 2001; Sheppard & Ely, 2008), exposure to sexualized media campaigns may exacerbate these effects. Specifically, to the extent that women avoid

their biological needs when objectification is salient, female breast cancer survivors may not acknowledge the side effects of treatment (e.g., pain, nausea, fatigue) in an attempt to avoid the physicality of their bodies.

Unfortunately, there were problems in replicating the results of the sexualized prime on objectification scores across studies. Whereas Study 2 found no significant effect of the “I Love Boobies” manipulation on competency, shame, and anxiety scores, Study 3 demonstrated a marginal effect of condition on body anxiety scores while controlling for appearance concerns. Although these objectification measures have been used extensively in college-age females (Grabe, Ward, 2008; Groesz, Levine, & Muren, 2002; Harper & Tiggemann, 2008; Miner-Rubino, Twenge, & Fredrickson, 2002; Tiggemann, & Lynch, 2001), they may have not been the most appropriate assessments for breast cancer populations. It is possible that using self-report measures in a population that is already anxious about their appearance may have masked the impact of the subtle header manipulation. An implicit measure (i.e., lexical decision task; Kroll & Potter, 1984) may be a better option for future research. In fact, a lexical decision task assessing women’s reaction times to body-related words has been shown to be a reliable and valid measure in response to a similar sexualized breast cancer manipulation (Van Enkevort et al., 2016).

The second goal of this work was to examine whether sexualized breast cancer slogans influence the cognitive performance of women with breast cancer, and to compare these effects across women with and without the disease. Replicating prior work, the results revealed a main effect of participant type with women with breast cancer performing more poorly on verbal fluency, executive functioning, and memory

tasks (immediate and delayed) compared to the control participants (see e.g., Jim et al., 2012 for a review). This is an important finding given the online nature of the second experiment. Further, although there was only a marginal 2-way interaction between condition and participant type on verbal fluency, examination of group differences on delayed memory revealed a similar pattern of results. Specifically, women with breast cancer who were exposed to the sexualized campaign experienced lower verbal fluency, executive functioning, and poorer delayed memory compared to those who were exposed to the neutral conditions. These results have important implications for breast cancer populations. Gapinski and colleagues (2003), for example, have found that women experience lower self-efficacy (i.e., feeling confident in overcoming personal barriers/physical limitations) and competency in response to the cognitive decline experienced by objectification manipulations. With respect to breast cancer survivors, they might perceive themselves as being less capable of handling their disease and/or treatment which could contribute to diminished health and cognitive functioning. Interventions could thus be directed toward increasing feelings of self-efficacy to help combat the potential consequences of sexualized breast cancer media, as well as, the effects of cancer treatment on women over time.

A third goal of the present work was to examine whether the effects of objectification on cognitive performance were exaggerated in women with breast cancer. That is, given that breast cancer survivors experience heightened appearance concerns more than age-matched controls (Al-Ghazal et al., 2007; Helms et al., 2006; Sheppard & Ely, 2008), it was expected that women with breast cancer would react more strongly to a sexualized slogan compared to women who had not been diagnosed. Unfortunately, the

findings from Study 2 did not replicate previous work demonstrating this effect in healthy women (Van Enkevort et al., 2016) and extend such findings to women with breast cancer. One potential limitation may have been the age range of participants. Women who are younger tend to experience objectification more often than those who are older (McKinley, 2011; Tiggemann & Lynch, 2001). Although the average age across studies was relatively young (i.e., mean age from 34-38 years), future research should restrict participants' age range, control for age, or assess whether age serves as a moderating variable. This is important given that the risk of being diagnosed with breast cancer increases significantly after age 40 (Howlander et al., 2015). Further, given that women in a short-term relationship are more sensitive to sexualized media compared to those who are married or in a long-term relationship (e.g., Sanchez & Broccoli, 2008; Tom, Chen, Liao, & Shao, 2005; Zurbriggen, Ramsey, & Jaworski, 2011), the current work could not take into account women's relationship status given issues with power.

A final goal of this work was to examine the impact of sexualized breast cancer campaigns on the well-being of women with breast cancer. Results revealed that, while controlling for appearance concerns, breast cancer survivors reported less vigor and higher confusion, tension, and fatigue after viewing the sexualized slogan. Although it was hypothesized that similar results would emerge for other physical and general measures of well-being, the findings revealed no such differences. One possibility is that the manipulation was too subtle for differences on these measures to be observed. Additionally, there may have been problems with the sample given that women were recruited regardless of their treatment phase. Breast cancer patients, for instance, report greater feelings of pain following breast surgery (Geels, Eisenhauer, Bezjak, Zee, & Day,

2000) and higher levels of fatigue following chemotherapy treatment (Bower, 2005; Reyes-Gibby, Aday, Anderson, Mendoza, & Cleeland, 2006). Indices of well-being should be assessed across the entire span of cancer treatment to assess for stability and change in health scores as a function of fluctuations in appearance monitoring. Age of the patient also plays an important role as women who are younger than 45 are shown to be at greater risk for developing psychological problems that persist over time (Arndt et al., 2004; Costanzo, Ryff, & Singer, 2009). Given that a cancer diagnosis is a threat for a number of reasons (e.g., sickness, death, the ability to have children, career development), it might be important for interventions to focus on the development of social support systems in an attempt to buffer the effects of breast cancer and media campaigns on women's health.

Overall, the present work has important implications for research on objectification. Although prior studies have used sexualized breast cancer campaigns to elicit objectification (Van Enkevort et al., 2016), the current research was the first to utilize this type of manipulation in breast cancer populations. Although the findings were mixed, the present studies found some evidence to support that sexualized breast cancer advertisements can produce detrimental effects in women, including increased body focus and lower cognitive and psychological well-being. These effects parallel concerns expressed by women fighting against the disease. For example, one survivor who was diagnosed at age 38 with an aggressive form of breast cancer expressed the following, "Saving my breasts was the last thing on my mind ... the new breed of ads are especially cruel because they strip women of many features associated with femininity and beauty" (Szabo, 2012). Not only is chemotherapy associated with hair loss, diarrhea, and

vomiting, but women who receive long-term hormonal treatment may be plunged into instant menopause and/or experience vaginal dryness leading to painful sexual intercourse. As Szabo continues, “Cancer doesn’t make you feel terribly sexy. Pain is not terribly sexy ... There’s a cruelty to this, when you’re in danger of losing the very sexuality that they’re selling.” Given the large amount of literature on the cognitive, emotional, psychological, and physical consequences of objectification, it comes as no surprise that women with breast cancer have especially strong and negative reactions to sexualized media campaigns (Sulik 2012a; Sulik 2012b).

Understanding the impact of sexualized media is especially important for women with breast cancer. If females are aware of the objectifying potential of media campaigns, they can take pro-active steps to decrease the impact of such primes. For example, engaging in physical activity that allows women to become more aware of their bodies (e.g., yoga, tai chi, meditation) has been shown to decrease the impact being in a state of objectification (Daubenmier, 2005; Gavin & McBrearty, 2006; Prichard & Tiggemann, 2008). In addition, making caregivers aware of the fragile body image and impact psychosocial factors have on survivors’ well-being could improve the cancer-caregiver relationship. For example, caregivers could take actions to validate their partner by giving praise to their partners’ physical abilities and competencies (e.g., self-esteem boosts) and thereby reducing the consequences of objectification (Burke & Stets, 1999; Marigold, Holmes, & Ross, 2007; Van Baarsen, 2002). Finally, for practitioners and nurses, information from the current studies could be used to inspire interventions that are centered-around decreasing appearance concerns in women. Designing an intervention focused on self-compassion, which is associated with decreased body concerns in women

(Albertson, Neff, & Dill-Shackleford, 2015), might alleviate some of the cognitive difficulties women with breast cancer experience and increase their well-being.

Of course, the current work is not without limitations. First, participants for all three studies were collected online using Amazon's mTurk. By collecting participant data online, it was unclear whether participants were honest. Specifically, participants could lie about being diagnosed with breast cancer, their gender, or their age, which could influence the results and cloud other effects that might be occurring in that population. For example, given objectification work demonstrates that women are more likely to experience objectification compared to men (e.g., Fredrickson et al., 1998; Quinn et al., 2006), if participants taking the survey were actually male, all study results could be adversely affected. Even though measures were taken to ensure the data was carefully cleaned and the surveys and screenings were designed to limit this possibility, there was not as much control over these confounding variables as if the research would have been conducted in-person or participants were recruited through specialized databases (e.g., Army of Woman, Young Survivors Coalition) to confirm women's status as a breast cancer survivor. One goal of future research is to replicate the current findings with patients recruited from actual oncology clinics and hospitals.

Of particular importance, the current sample of women with breast cancer were varied in terms of their stage of diagnosis (e.g., Stage 0 – localized tumor; Stage 4 – metastasized throughout the body), stage of treatment (e.g., initial diagnosis vs. chemotherapy & radiation treatment), and in the type of treatment (e.g., surgery, adjuvant hormonal therapies) that they received. This is a problem because research shows that women diagnosed with a higher stage of breast cancer, who have had surgical treatment,

may have greater appearance concerns compared to women who were diagnosed at an early stage and who did not have to lose breast tissue (Ganz et al., 1992; Harcourt et al., 2003; Ogden & Lindridge, 2008; Schover et al., 1995). This difference in appearance concerns could influence the impact of how sexualized breast cancer campaigns affect their body focus, cognitive performance, and well-being. Additionally, some of the participants in the present work reported having undergone or were currently undergoing chemotherapy or hormone therapy. Previous work has demonstrated both the immediate and long-term influence such treatments have on the decline in survivors' cognitive performance and well-being (e.g., Ahles & Saykin, 2002; Ahles & Saykin, 2007; Schagen et al., 2006). Thus, those women may have had more severe affects following a sexualized breast cancer campaign compared to those who have not undergone such treatments. Ideally, future research should recruit women with breast cancer who have been diagnosed, but not yet treated to rule out these alternative possibilities.

One final limitation of the current research is the lack of potential individual difference variables assessed in participants. Currently there is a movement within the breast cancer community to take pride in women's post-treatment bodies (Colleary, 2016; Madsen, 2015). There are some women who view their scars and hair loss as symbols of strength, and women are encouraged to "embrace" their scars. For example, *The Scar Project* (www.thescarproject.org) is a campaign movement that inspires breast cancer survivors to pose with their mastectomy scars proudly displayed. Women who positively view their body changes, regardless of societal standards, may be more resistant to the negative impact of sexualized breast cancer campaigns. Other individual difference variables include resiliency and religiosity. People who score high on resilience adapt

better and are able to handle change in comparison to those who are not resilient (Fine, 1991; Peres, Moreira-Almeida, Nasello, & Koenig, 2007). It is possible that women who are more resilient may be more accepting of their breast cancer and the impact that the treatment has on their bodies, decreasing the impact such campaigns have on their anxiety, shame, or focus on their appearance. Conversely, people who score high on religiosity report higher health (e.g., Musick, Traphagan, Koenig, & Larson, 2000) and exhibit better psychological well-being (e.g., see Hackney & Sanders, 2003 for a review) compared to those who score low on religiosity. It is possible, that women who score high on religiosity would report greater well-being regardless of the type of slogan they are exposed to.

Despite these limitations, the present research builds upon previous work to examine the quality of life of women with breast cancer and the potential impact of sexualized media campaigns. Although the findings were mixed, they have relevant and extensive implications for women with breast cancer. For example, a breast cancer survivor buying a “Save Second Base” t-shirt to support breast cancer research could experience a decline in their ability to remember or generate information. Attending breast cancer awareness functions where such slogans are present could lead women to feel more depressed and more fatigued. The current findings suggest that although sexualized campaigns have successfully increased the awareness and effectively raised money for breast cancer (e.g., King, 2004; Sulik 2012), they have profound consequences on women’s health by increasing their focus on and anxiety about their physical appearance. Overall, when dealing with such a vulnerable population, caution should be

exercised when promoting breast cancer awareness. That is, when it comes to supporting breast cancer survivors, maybe sex does not sell.

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APPENDIX A

Example Informed Consent

**Texas Christian University
Fort Worth, Texas**

CONSENT TO PARTICIPATE IN RESEARCH

Title of Research: The Impact of Sexualized Breast Cancer Campaigns on Women with Breast Cancer

Study Investigators: Erin VanEnkevort (graduate student), Cathy R. Cox (faculty advisor)

What is the purpose of the research?

This study is interested in understanding how sexualized breast cancer campaigns influence the functioning and health of women with breast cancer.

How many people will participate in this study?

There will be approximately 120 participants in this study.

What is my involvement for participating in this study?

Your participation will involve filling out a variety of questionnaire and evaluation forms. Further, you will be asked to meet with an experimenter to complete some memory tasks/memory games.

Do I have to take part in this research?

Participating in this research is completely voluntary. If you decide to participate you will be asked to sign an Informed Consent Form (the end of this document), however you are still free to change your mind and leave the study at any time without giving a reason. If you chose not to participate or to leave the study, your future medical treatment and normal standard of care will not be affected in any way.

How long am I expected to be in this study, and how much of my time is required?

You will meet an experimenter for one 60-90 minute session.

What are the risks of participating in this study?

Your participation in this research may expose you to potentially higher amounts of awareness about different personality characteristics that you may or may not possess and how these characteristics relate to different judgments, but is otherwise no more risky than your everyday activity. During the study you may also be asked questions about emotionally evocative topics. You are free to not answer any particular question if you choose, and to stop participating at any time during the experiment without any penalty or loss of money to which you are entitled. The experimenter will inform you if any new information surfaces that may affect your willingness to participate.

What are the benefits for participating in this study?

There is no guarantee that you will benefit from taking part in this study. However information collected as part of your participation may benefit patients with breast cancer in the future.

Will I be compensated for taking part in the study?

Not applicable (N/A)

How will my confidentiality be protected?

All information collected about you as a result of your participation in the study will be kept strictly confidential. Your personal and medical information will be kept in a secured file and be treated in the strictest confidence. You may ask to see your personal information at any time and correct any errors if necessary. Once you have agreed to participate in this study you will be allocated a unique study number which will be used on all your study documentation. This number will be linked to your personal information; however you will only be identified by this unique number.

Is my participation voluntary? Yes

Can I stop taking part in this research? Yes

What are the procedures for withdrawal?

You are free to stop this study at any time without giving a reason and without affecting your future care or medical treatment. Any information already provided will continue to be used in the study, however no further information will be collected or tests performed.

Will I be given a copy of the consent document to keep?

Yes, upon request you will be given a copy of the document.

Who should I contact if I have questions regarding the study?

Erin Van Enkevort, Department of Psychology, (817) 257-4231 (e.vanenkevort@tcu.edu)
Dr. Cathy R. Cox, Department of Psychology, (817) 257-6418 (c.cox@tcu.edu)

Who should I contact if I have concerns regarding my rights as a study participant?

This study has been reviewed by an independent group of people called a Research Ethics Committee to protect your interests. You can contact the following people if you have concerns about your rights as a study participant:

Dr. Sarah E. Hill, Department of Psychology, Human Subjects Committee, (817) 257-6414

Dr. Dan Sourthard, Chair, TCU Institutional Review Board, (817) 257-6869

Dr. Timothy Barth, Associate Dean of Research, TCU Institutional Review Board Chair, (817) 257-6427

Your signature below indicates that you have been read the information provided above, you have received answers to all of your questions and have been told who to call if you have any more questions, you have freely decided to participate in this research, and you understand that you are not giving up any of your legal rights.

Participant Name (please print): _____

Participant's Signature: _____ **Date:** _____

Investigator's Signature: _____ **Date:** _____

HIPAA Form

TEXAS CHRISTIAN UNIVERSITY
Institutional Review Board

HIPAA AUTHORIZATION FORM

**Authorization for the Use and Disclosure of Personal Health Information
Resulting from Participation in a Research Study**

Principal Investigator's Name: Erin Van Enkevort and Cathy R. Cox (Ph.D.)

DRB Project # DRB-1308-04-1308

Project Title: Understanding the Cognitive Performance of Women with Breast Cancer

You have agreed to participate in the study mentioned above. This authorization form gives more detailed information about how your health information will be protected.

1. Description of the information

My authorization applies to the information described below. Only this information may be used and/or disclosed in accordance with this authorization:

- Demographic information (e.g., name, contact information, date of birth)
- Medical information (e.g., diagnosis, treatment plan, and other related medical history)
- Answers to the questionnaires and measures that are part of this study

2. Who may use and/or disclose the information

I authorize the following persons (or class of persons) to make the authorized use and disclosure of my PHI:

- The principal investigators, Erin VanEnkevort and Cathy Cox, Ph.D.

3. Who may receive the information

I authorize the following persons (or class of persons) to receive my personal health information:

- Study Sponsor, TCU Institutional Review Board, Publications

4. Purpose of the use or disclosure

My PHI will be used and/or disclosed upon request for the following purposes:

Publications and presentation that will not identify me

Auditing

Administrative and billing reviews

Study outcomes including safety and efficacy

**If applicable add the following information as well:*

My treatment during the study

Submission to the government agencies that may monitor the study

**Describe any other disclosure*

5. Expiration date or event

This authorization expires upon:

- The following date: _____
- End of research study
- No expiration date
- Other: _____

6. Right to revoke authorization

I understand that I have a right to revoke this authorization at any time. My revocation must be in writing in a letter sent to the Principal Investigators at: Department of Psychology, Texas Christian University, 2800 S. University Dr. Fort Worth, TX 76129. I am aware that my revocation is not effective to the extent that the persons I have authorized to use and/or disclose my PHI have already acted in reliance upon this authorization.

7. Statement that re-disclosures are no longer protected by the HIPAA Privacy Rule

I understand that my personal health information will only be used as described in this authorization in relation to the research study. I am also aware that if I choose to share the information defined in this authorization to anyone not directly related to this research project, the law would no longer protect this information. In addition, I understand that if my personal health information is disclosed to someone who is not required to comply with privacy protections under the law, then such information may be re-disclosed and would no longer be protected.

8. Right to refuse to sign authorization and ability to condition treatment, payment, enrollment or eligibility for benefits for research related treatment

I understand that I have a right not to authorize the use and/or disclosure of my personal health information. In such a case I would choose not to sign this authorization document I understand I will not be able to participate in a research study if I do not do so.

9. Suspension of right to access personal health information

I agree that I will not have a right to access my personal health information obtained or created in the course of the research project until the end of the study.

10. If you have any questions or concerns about your rights as a study participant, you can contact:

Dr. Sarah E. Hill, Chair, Departmental Review Board, (817) 257-6424, (s.e.hill@tcu.edu)
 Dr. Sally Fortenberry, Chair, TCU Institutional Review Board, (817) 257-6752, (s.fortenberry@tcu.edu)
 Dr. Timothy Barth, Associate Dean of Research and Graduate Studies, (817) 257-6427, (t.barth@tcu.edu)

11. Individuals' signature and date

I certify that I have received a copy of the authorization.

 Signature of Research Participant

 Date

 Research Participant's Legally Authorized Representative

 Date

 Describe Representative Authority to Act for the Participant

Demographic Information

Date of Birth: _____ Age: _____ Zip Code: _____

Gender: Male Female

Race: 1 = Caucasian 2 = African American
 3 = Asian/Pacific Islander 4 = Native American
 5 = Hispanic origin 6 = Other, unclassified
 7 = Unknown

Marital Status: 1 = Single (never married) 2 = Married/Cohab > 7 years
 3 = Divorced 4 = Separated
 5 = Widowed 6 = Other
 7 = Unknown

Years of Education: _____

Most Advanced Degree Achieved: 1 = HS diploma 2 = Worked toward
 associates 3 = Associate's Degree 4 = worked toward
 bachelor's 5 = Bachelor's Degree 6 = Worked toward
 Master's 7 = Master's Degree 8 = Worked toward
 Doctoral 9 = Doctoral Degree

Based on your best estimate, what is your household's **current** socioeconomic status?

1 = Very poor 2 = Poor 3 = Somewhat poor
 4 = Middle Class 5 = Somewhat wealthy 6 = Wealthy
 7 = Very Wealthy

Based on your best estimate, what is your household's **current** annual income (in U.S. dollars)?

1 = less than \$15,000 2 = \$15,000-\$29,999 3 = \$30,000-\$44,999
 4 = \$45,000-\$59,999 5 = \$60,000-\$74,999 6 = \$75,000-\$89,999
 7 = \$90,000-\$104,999 8 = \$105,000-\$119,999 9 = \$120,000-
 \$134,999
 10 = \$135,000-\$149,999 11 = \$150,000 or more

Based on your best estimate, what was your household's socioeconomic status **during early childhood**?

1 = Very poor 2 = Poor 3 = Somewhat poor
 4 = Middle Class 5 = Somewhat wealthy 6 = Wealthy
 7 = Very Wealthy

Based on your best estimate, what was your household's annual income (in U.S. dollars) **during your early childhood?**

1 = less than \$15,000	2 = \$15,000-\$29,999	3 = \$30,000-\$44,999
4 = \$45,000-\$59,999	5 = \$60,000-\$74,999	6 = \$75,000-\$89,999
7 = \$90,000-\$104,999	8 = \$105,000-\$119,999	9 = \$120,000-\$134,999
10 = \$135,000-\$149,999	11 = \$150,000 or more	

CANCER INFORMATION:

Type of Cancer: 1 = Breast
 2 = Ovarian
 3 = Endometrial
 4 = Colon
 5 = Other _____

Date of Initial Diagnosis: _____

Stage at Diagnosis: 1 = Stage 0 2 = Stage I 3 = Stage II 4 = Stage 5 = Stage IV

Planned Treatment: _____

Date of Surgery: _____

MEDICAL INFORMATION:

Medical History (1 = No; 2 = Yes):

Cancer ____ Stroke ____ Severe Brain Injury ____ Other: _____

Current Medications: _____

Psych History (1 = No; 2 = Yes):

Depression: past ____ current ____ Anxiety: past ____ current ____

Hallucinations: past ____ current ____ Delusions: past ____

current ____

Premorbid Drug Use (1 = No; 2 = Yes; 9 = unknown):

Use of illicit/non-prescription drugs ____

If yes, how much/week _____ weeks during the past month _____

Premorbid alcohol use:

1. How many days per week or per month did you drink any alcoholic beverages, on average?
 ____ ____ Weeks/Month
2. A drink is 1 can or bottle of beer, 1 glass of wine, 1 can or bottle of wine cooler, 1 cocktail or 1 shot of liquor. On the days when you drank, how many drinks did you drink on average? ____ ____
3. Have you received any treatment for your alcohol use (1 = No; 2 = Yes) _____

Breast Cancer Slogan Prime

Please read each statement and circle the appropriate number according to the given scale.

	1 = Strongly disagree	2 = Slightly disagree	3 = Neutral	4 = Slightly agree	5 = Strongly agree
In most ways, my life is close to ideal.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The conditions of my life are excellent.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
So far, I have gotten the important things I want in life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Please read each statement and circle the appropriate number according to the given scale.

	1 = Strongly disagree	2 = Slightly disagree	3 = Neutral	4 = Slightly agree	5 = Strongly agree
In most ways, my life is close to ideal.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The conditions of my life are excellent.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Self-Objectification Questionnaire

	1 = not at all important	2	3	4	5	6	7	8	9 = very important
physical coordination	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
weight	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
strength	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
sex appeal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
physical attractiveness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
energy level (e.g., stamina)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
firm/sculpted muscles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
physical fitness level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
measurements (e.g., chest, waist, hips)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Objectified Body Consciousness- Body Shame Subscale

7-point scale: *strongly agree to strongly disagree*

1. I feel like I must be a bad person when I don't look as good as I could.

Abbreviated Body Image Scale

Based on how you currently feel, please answer each of the following items on the scale provided.

1 = not at all
 2 = a little
 3 = quite a bit
 4 = very much

1. Self-conscious
2. Less physically attractive
3. Dissatisfied with my appearance

COWAT**Instructions to person:**

I am going to say a letter of the alphabet and I want you to say as quickly as you can all the words that you can think of which begin with that letter. You may say any words at all, except proper names such as the names of people or places. So you would not say Rochester or Robert. Also do not use the same word again with a different ending, such as eat and eating. For example, If I say "S," you could say son, shoe, or slow. Can you think of other words beginning with the letter "S?"

Wait for the participant to give a word. If successful, indicate that he or she is performing correctly and ask for another word beginning with "S." If he or she gives a second appropriate word, indicate that the participant is performing correctly and proceed to the test itself. If an inappropriate word is given on either occasion, correct him or her and repeat the instructions. Once successful, proceed to the test.

(Discontinue after person has volunteered two appropriate 'S' words)

That is fine. Now I am going to give you another letter and again you say all the words beginning with that letter that you can think of. Remember, no names of people or places, just ordinary words. Also, if you should draw a blank, I want you to keep trying until the time limit is up. You will have another minute for each one. The first letter is "C."

Time participant and record responses for 1 minute.

C-words:

- | | | | | |
|----------|-----------|-----------|-----------|-----------|
| 1. _____ | 6. _____ | 11. _____ | 16. _____ | 21. _____ |
| 2. _____ | 7. _____ | 12. _____ | 17. _____ | 22. _____ |
| 3. _____ | 8. _____ | 13. _____ | 18. _____ | 23. _____ |
| 4. _____ | 9. _____ | 14. _____ | 19. _____ | 24. _____ |
| 5. _____ | 10. _____ | 15. _____ | 20. _____ | 25. _____ |

All right, now, when I tell you to begin, say aloud as many words as you can think of starting with the letter "F." Begin now.

Time participant and record responses for 1 minute.

F-words:

- | | | | | |
|----------|----------|-----------|-----------|-----------|
| 1. _____ | 6. _____ | 11. _____ | 16. _____ | 21. _____ |
|----------|----------|-----------|-----------|-----------|

2. _____ 7. _____ 12. _____ 17. _____ 22. _____
 3. _____ 8. _____ 13. _____ 18. _____ 23. _____
 4. _____ 9. _____ 14. _____ 19. _____ 24. _____
 5. _____ 10. _____ 15. _____ 20. _____ 25. _____

All right, now, when I tell you to begin, say aloud as many words as you can think of starting with the letter "L." Begin now.

Time participant and record responses for 1 minute.

L-words:

1. _____ 6. _____ 11. _____ 16. _____ 21. _____
 2. _____ 7. _____ 12. _____ 17. _____ 22. _____
 3. _____ 8. _____ 13. _____ 18. _____ 23. _____
 4. _____ 9. _____ 14. _____ 19. _____ 24. _____
 5. _____ 10. _____ 15. _____ 20. _____ 25. _____

All right, now, when I tell you to begin, say aloud as many animal words as you can think of. Begin now.

Time participant and record responses for 1 minute.

Animal words:

1. _____ 6. _____ 11. _____ 16. _____ 21. _____
 2. _____ 7. _____ 12. _____ 17. _____ 22. _____
 3. _____ 8. _____ 13. _____ 18. _____ 23. _____
 4. _____ 9. _____ 14. _____ 19. _____ 24. _____
 5. _____ 10. _____ 15. _____ 20. _____ 25. _____

TOTAL: _____

WMS-III Logical Memory I**Instructions to person:**

I am going to read a short story to you. Listen carefully and try to remember it just the way I say it, as close to the same words as you can remember. When I am through, I want you to tell me everything I read to you. You should tell me all you can remember even if you are not sure. Ready?

Story A:

Anna Thompson of South Boston, employed as a cook in a school cafeteria, reported at the police station that she had been held up on State Street the night before and robbed of fifty-six dollars. She had four small children, the rent was due, and they had not eaten for two days. The police, touched by the woman's story, took up a collection for her.

Tell me everything you can remember about this story. Start at the beginning.

Record as the examinee recalls the story. After the examinee has repeated as much of the story as he or she can, proceed to the next story. This task goes fast. Place check marks next to the information they got correct. Write down information that is incorrect.

Story Unit (S)	Thematic (T)	Scoring Criteria:
		(S) Anna or variant of the name
		(S) Thompson is required
		(S) South (in any context)
		(S) Boston (in any context)
		(T) indication of a main character who is a female
		(S) indication that she held a job
		(S) cook or some form of the word is required
		(S) school is required
		(S) cafeteria is required
		(T) indication that main character is employed or is working
		(S) indication that a formal statement was made to someone in authority (in any context)
		(S) police (in any context)
		(S) station (in any context) or a word or phrase denoting a police station
		(S) indication that she had been held up (i.e., gunpoint or knife)
		(S) State Street (in any context)
		(S) indication that the hold-up occurred the previous night
		(S) indication that the robbery took place
		(S) indication that an amount of money greater than \$49 but less than \$60 was taken from her
		(T) indication that main character reported she was robbed
		(S) four is required together with an indication that the children were hers
		(S) children or a synonym is required
		(T) indication that main character had children
		(S) a phrase indicating that the rent was due
		(S) indication that her children or the family were without food
		(S) two days is required, or a phrase meaning about two days
		(T) indication that characters were in need or required assistance
		(S) a word or phrase signifying one or more members of the police department (in any context)
		(S) indication that her story evoked sympathy

		(T) indication that the police felt sympathy for the woman
		(S) a phrase indicating that money was collected
		(S) indication that the money collected was for her or her children
		(T) indication that the police directly responded to her need
Total:	Total:	

I am going to read another short story to you. Try to remember it just the way I read it. Ready?

Story B:

At 6:00 on Monday evening, Joe Garcia of San Francisco was watching television as he dressed to go out. A weather bulletin interrupted the program to warn that thunderstorms would move into the area within the next 2 to 3 hours and remain until the morning. The announcer said the storm could bring hail and up to 4 inches of rain and cause the temperatures to drop by 15 degrees. Joe decided to stay home. He took off his coat and sat down to watch old movies.

Tell me everything you can remember about this story. Start at the beginning.

Story Unit (S)	Thematic (T)	Scoring Criteria:
		(S) 6:00 is required
		(S) Monday is required
		(S) evening (in any context)
		(S) Joe or variant of the name
		(S) Garcia is required
		(S) San Francisco is required
		(T) indication of a main character who is male
		(S) indication that he was watching/listening to the television
		(S) indication that he was getting dressed
		(S) indication that he was going out
		(T) indication that the character was preparing to leave
		(S) indication that there was an announcement about the weather
		(S) indication of a break in the regularly schedule program
		(T) indication of a weather announcement
		(S) indication that there was a warning about the storm
		(S) indication that the storm was coming
		(T) indication of a storm moving into the area
		(S) a phrase meaning about 2 or 3 hours
		(S) indication that the storm would stay until morning
		(T) indication of storm duration
		(S) indication that someone was reporting about a storm
		(S) indication that hail was possible
		(S) 4 inches is required
		(S) rain is required
		(S) indication that the temperature would drop or decrease
		(S) a relative decrease of 15 degrees is required
		(T) indication of storm's activity
		(S) indication that he decided to stay home
		(T) indication that the character decided to stay in
		(S) indication that he took off outer clothing
		(S) indication that he was sitting down
		(S) indication of viewing movies is required
		(T) indication that the character decided to watch a movie or TV
Total:	Total:	

REY-AVLT Immediate Recall

I am going to read a list of words. Listen carefully, for when I stop, you are to say back as many as you can remember. It doesn't matter in what order you repeat them. Just try to remember as many as you can.

Read the word list clearly, at the rate of one word per second. Then have the client recall the words. Write down the responses in the order they are given. After the client indicates that he or she can recall no more words, say:

Now I'm going to read the same list again, and once again when I stop, I want you to tell me as many words as you can remember. **Do this all five times.**

Now I'm going to read a second list of words. This time, you are to say back as many words of this second list as you can remember. Again, the order in which you say the words does not matter. Just try to remember as many as you can.

After recall for this list is completed, Trial VI is administered. For this trial, the client is asked to again recall List A, but the list is not read again. The examiner must say:

Now tell me all the words you remember from the first list.

You must wait 30 minutes for Trial VII. When ready state:

Remember that list of words that we practiced over and over at the beginning of the study? Tell me how many of the words you remember from that first list.

List A	I	II	III	IV	V	List B	VI	List A	VII
Drum						Desk		Drum	
Curtain						Ranger		Curtain	
Bell						Bird		Bell	
Coffee						Shoe		Coffee	
School						Stove		School	
Parent						Mountain		Parent	
Moon						Glasses		Moon	
Garden						Towel		Garden	
Hat						Cloud		Hat	
Farmer						Boat		Farmer	
Nose						Lamb		Nose	
Turkey						Gun		Turkey	
Color						Pencil		Color	
House						Church		House	
River						Fish		River	
# Recall									
Intrusion									
Persevers									

Total Intrusions: _____

Time: ____ / ____

Total Perseverations: _____

The following is completed along with Trial VII (30 minutes later):

I am going to read you a list of words. It will contain all of the words from the first list (List A), as well as many others. After I say a word, I want you to say yes, if it was on the list, and no if it was not.

Bell (A)	Home (SA)	Towel (B)	Boat (B)	Glasses (B)
Window (SA)	Fish (B)	Curtain (A)	Hot (PA)	Stocking (SB)
Hat (A)	Moon (A)	Flower (SA)	Parent (A)	Shoe (B)
Barn (SA)	Tree (PA)	Color (A)	Water (SA)	Teacher (SA)
Ranger (B)	Balloon (PA)	Desk (B)	Farmer (A)	Stove (B)
Nose (A)	Bird (B)	Gun (B)	Rose (SPA)	Nest (SPB)
Weather (SB)	Mountain (B)	Crayon (SA)	Cloud (B)	Children (SA)
School (A)	Coffee (A)	Church (B)	House (A)	Drum (A)
Hand (PA)	Mouse (PA)	Turkey (A)	Stranger (PB)	Toffee (PA)
Pencil (B)	River (A)	Fountain (PB)	Garden (A)	Lamb (B)

Recognition Totals:
(P) words: ____

List A: ____ (S) words: ____ List B: ____

WAIS-III Logical Memory

In the next task I am going to read you a list of numbers. I want you to repeat the numbers back to me in the order that I say them. For example, if I say "0" "2," you would repeat back to me "0" "2."

Forward Digit Span:

1 - 7		
6 - 3		
5 - 8 - 2		
6 - 9 - 2		
6 - 4 - 3 - 9		
7 - 2 - 8 - 6		
4 - 2 - 7 - 3 - 1		
7 - 5 - 8 - 3 - 6		
6 - 1 - 9 - 4 - 7 - 3		
3 - 9 - 2 - 4 - 8 - 7		
5 - 9 - 1 - 7 - 4 - 2 - 8		
4 - 1 - 7 - 9 - 3 - 8 - 6		
5 - 8 - 1 - 9 - 2 - 6 - 4 - 7		
3 - 8 - 2 - 9 - 5 - 1 - 7 - 4		
2 - 7 - 5 - 8 - 6 - 2 - 5 - 8 - 4		
7 - 1 - 3 - 9 - 4 - 2 - 5 - 6 - 8		

FW TOTAL: _____

Next, I am going to read you a list of numbers. I want you to repeat the numbers back to me in reverse order. For example, if I say "0" "2" you would repeat back to me "2" "0."

Backward Digit Span:

2 - 4		
5 - 7		
6 - 2 - 9		
4 - 1 - 5		
3 - 2 - 7 - 9		
4 - 9 - 6 - 8		
1 - 5 - 2 - 8 - 6		
6 - 1 - 8 - 4 - 3		
5 - 3 - 9 - 4 - 1 - 8		
7 - 2 - 4 - 8 - 5 - 6		
8 - 1 - 2 - 9 - 3 - 6 - 5		
4 - 7 - 3 - 9 - 1 - 2 - 8		
9 - 4 - 3 - 7 - 6 - 2 - 5 - 8		
7 - 2 - 8 - 1 - 9 - 6 - 5 - 3		

BW TOTAL: _____

Trail Making Test A**Instructions to participant:**

On the following task you will see circles that are numbered 1 through 25. You will be asked to draw lines connecting the numbers in ascending order. You should connect the circles as quickly as possible, without lifting the pen or pencil from the paper. For example:

- **Show the trail making task using trail making A Sample Sheet.**
- **Make sure to point out any errors immediately to allow the participant to correct it.**
- **Time the participant as he or she follows the “trail” made by the numbers on the test and record the time. If the participant is not completed after 5 minutes have elapsed it is unnecessary to continue the test.**

Trail Making Test B**Instructions to participant:**

Similar to the previous task, on the next sheet you will be asked to connect circles in ascending order without lifting your pen or pencil off the paper; however, on this task you will see both numbers (1-13) and letters (A – L). You should connect the circles as quickly as possible alternating between numbers and letters. For example:

- **Show the trail making task using trail making B Sample Sheet.**
- **Make sure to point out any errors immediately to allow the participant to correct it.**
- **Time the participant as he or she follows the “trail” made by the numbers on the test and record the time. If the participant is not completed after 5 minutes have elapsed it is unnecessary to continue the test.**

WMS-III Logical Memory II**Instruction to participant:**

Do you remember the stories I read to you a little while ago? I want you to tell me the stories again. Tell me everything that you can remember about the first story. Start at the beginning.

Record or score as the examinee recalls the story. If the examinee does not recall any story details, say:

The story was about a woman who was robbed.

Place a checkmark next to the information that was correctly recalled. Write down any information that was misremembered.

Story Unit (S)	Thematic (T)	Scoring Criteria: N	Reminder Given: Y or
		(S) Anna or variant of the name	
		(S) Thompson is required	
		(S) South (in any context)	
		(S) Boston (in any context)	
		(T) indication of a main character who is a female	
		(S) indication that she held a job	
		(S) cook or some form of the word is required	
		(S) school is required	
		(S) cafeteria is required	
		(T) indication that main character is employed or is working	
		(S) indication that a formal statement was made to someone in authority (in any context)	
		(S) police (in any context)	
		(S) station (in any context) or a word or phrase denoting a police station	
		(S) indication that she had been held up (i.e., gunpoint or knife)	
		(S) State Street (in any context)	
		(S) indication that the hold-up occurred the previous night	
		(S) indication that the robbery took place	
		(S) indication that an amount of money greater than \$49 but less than \$60 was taken from her	
		(T) indication that main character reported she was robbed	
		(S) four is required together with an indication that the children were hers	
		(S) children or a synonym is required	
		(T) indication that main character had children	
		(S) a phrase indicating that the rent was due	
		(S) indication that her children or the family were without food	
		(S) two days is required, or a phrase meaning about two days	
		(T) indication that characters were in need or required assistance	
		(S) a word or phrase signifying one or more members of the police department (in any context)	
		(S) indication that her story evoked sympathy	
		(T) indication that the police felt sympathy for the woman	
		(S) a phrase indicating that money was collected	
		(S) indication that the money collected was for her or her children	
		(T) indication that the police directly responded to her need	
Total:	Total:		

Now tell me everything that you can remember about the last story. Start at the beginning.

Record or score as the examinee recalls the story. If the examinee does not recall any story details, say:

The story was about a weather bulletin.

Place a checkmark next to the information that was correctly recalled. Write down any information that was misremembered.

Story Unit (S)	Thematic (T)	Scoring Criteria: or N	Reminder Given: Y
		(S) 6:00 is required	
		(S) Monday is required	
		(S) evening (in any context)	
		(S) Joe or variant of the name	
		(S) Garcia is required	
		(S) San Francisco is required	
		(T) indication of a main character who is male	
		(S) indication that he was watching/listening to the television	
		(S) indication that he was getting dressed	
		(S) indication that he was going out	
		(T) indication that the character was preparing to leave	
		(S) indication that there was an announcement about the weather	
		(S) indication of a break in the regularly schedule program	
		(T) indication of a weather announcement	
		(S) indication that there was a warning about the storm	
		(S) indication that the storm was coming	
		(T) indication of a storm moving into the area	
		(S) a phrase meaning about 2 or 3 hours	
		(S) indication that the storm would stay until morning	
		(T) indication of storm duration	
		(S) indication that someone was reporting about a storm	
		(S) indication that hail was possible	
		(S) 4 inches is required	
		(S) rain is required	
		(S) indication that the temperature would drop or decrease	
		(S) a relative decrease of 15 degrees is required	
		(T) indication of storm's activity	
		(S) indication that he decided to stay home	
		(T) indication that the character decided to stay in	
		(S) indication that he took off outer clothing	
		(S) indication that he was sitting down	
		(S) indication of viewing movies is required	
		(T) indication that the character decided to watch a movie or TV	
Total:	Total:		

When the examinee has recalled as much of Story C as he or she can, turn to Recognition for the Adult battery.

Story A:

1. Was the woman's name Diana Thompson?	Y or N	
2. Was the story setting in South Boston?	Y or N	
3. Was the woman a cook?	Y or N	
4. Did she work in a restaurant?	Y or N	
5. Did she have four children?	Y or N	
6. Were the children teenagers?	Y or N	
7. Did the robbery take place on Sixth Street?	Y or N	
8. Did the woman report being robbed two nights before?	Y or N	
9. Did she report the robbery at the police station?	Y or N	
10. Was the woman robbed of 75 dollars?	Y or N	
11. Did the family go without food for four days?	Y or N	
12. Was the rent due?	Y or N	
13. Did the police catch the thief?	Y or N	
14. Did the police feel sorry for the woman?	Y or N	
15. Did the police take up a collection?	Y or N	

Story B:

16. Was the man's name Joe Garcia?	Y or N	
17. Was it Sunday evening?	Y or N	
18. Was it 6:00?	Y or N	
19. Was the story setting in Seattle?	Y or N	
20. Was Joe dressing to go out?	Y or N	
21. Was Joe watching television?	Y or N	
22. Was the program interrupted?	Y or N	
23. Was the storm expected to move into the area on Tuesday?	Y or N	
24. Was the storm expected to stay in the area through the night?	Y or N	
25. Was the temperature predicted to drop 30 degrees?	Y or N	
26. Did the announcer predict 10 inches of rain?	Y or N	
27. Did the announcer warn of possible flooding?	Y or N	
28. Did the announcer warn that it could hail?	Y or N	
29. Did Joe decide to stay home?	Y or N	
30. Did Joe sit down to watch a sports program?	Y or N	

REY-AVLT Delayed Recall

After an appropriate interval filled with other activities, administer the delayed recall trial for List A. You may say:

A short while ago I read a list of words to you several times, and you were trying to learn these words. Tell me the words from this list again.

You may clarify that this was the first list read to the client.

List A	30 minute recall
Drum	
Curtain	
Bell	
Coffee	
School	
Parent	
Moon	
Garden	
Hat	
Farmer	
Nose	
Turkey	
Color	
House	
River	

# Recall		
Intrusion		
Persevers		

Total Intrusions: _____
 Total Perseverations: _____

Time: ____ / _____

Weight and Body-related Shame and Guilt Scale

Please indicate, using the scale provided, how often you experience each of the following.

- 1 = never
- 2 = rarely
- 3 = sometimes
- 4 = often
- 5 = always

1. When I am in a situation where others can see my body (e.g., pool, changing room), I feel ashamed.
2. The appearance of my body is embarrassing for me in front of others.
3. When I think of the possibility that others can see my naked body, I would rather hide somewhere.
4. I am ashamed of myself when others get to know how much I really weigh.
5. I avoid exerting myself physically in front of others since I feel embarrassed.
6. Since the size of my clothes is embarrassing for me, I would rather avoid shopping for new clothes.

The Profile Of Mood States (POMS) Short Form

Please answer these with respect to how you have felt since your diagnosis.
Write in the number from the rating scale on the blank space that best fits your response.

0	1	2	3	4
Not at All	A Little	Moderately	Quite a Bit	Extremely

Since diagnosis, how much have you felt...

<input type="checkbox"/> unhappy?	<input type="checkbox"/> lively?
<input type="checkbox"/> furious?	<input type="checkbox"/> worthless?
<input type="checkbox"/> unable to concentrate?	<input type="checkbox"/> bitter?
<input type="checkbox"/> exhausted?	<input type="checkbox"/> weary?
<input type="checkbox"/> anxious?	<input type="checkbox"/> annoyed?
<input type="checkbox"/> grouchy?	<input type="checkbox"/> uneasy?

Since diagnosis, how much have you felt...

<input type="checkbox"/> uncertain?	<input type="checkbox"/> bewildered?
<input type="checkbox"/> confused?	<input type="checkbox"/> blue?
<input type="checkbox"/> full of pep?	<input type="checkbox"/> forgetful?
<input type="checkbox"/> sad?	<input type="checkbox"/> hopeless?
<input type="checkbox"/> angry?	<input type="checkbox"/> on edge?
<input type="checkbox"/> tense?	<input type="checkbox"/> bushed?
<input type="checkbox"/> miserable?	<input type="checkbox"/> active?

Since diagnosis, how much have you felt...

<input type="checkbox"/> nervous?	<input type="checkbox"/> fatigued?
<input type="checkbox"/> energetic?	<input type="checkbox"/> cheerful?
<input type="checkbox"/> discouraged?	<input type="checkbox"/> peeved?
<input type="checkbox"/> restless?	<input type="checkbox"/> vigorous?
<input type="checkbox"/> resentful?	<input type="checkbox"/> helpless?
<input type="checkbox"/> worn-out?	

Brief Fatigue Inventory

STUD ID# _____

HOSPITAL # _____

Date: ____/____/____	Time: _____
Name: _____	
Last	First
	Middle Initial

Throughout our lives, most of us have times when we feel very tired or fatigued. Have you felt unusually tired or fatigued in the last week? Yes ___ No ___

1. Please rate your fatigue (weariness, tiredness) by circling the one number that best describes your fatigue right NOW

0	1	2	3	4	5	6	7	8	9	10
No Fatigue										As bad as you can imagine

2. Please rate your fatigue (weariness, tiredness) by circling the one number that best describes your USUAL level of fatigue during the past 24 hours.

0	1	2	3	4	5	6	7	8	9	10
No Fatigue										As bad as you can imagine

3. Please rate your fatigue (weariness, tiredness) by circling the one number that best describes your WORST level of fatigue during the past 24 hours.

0	1	2	3	4	5	6	7	8	9	10
No Fatigue										As bad as you can imagine

4. Circle the one number that describes how, during the past 24 hours, fatigue has interfered with your:

A. General activity										
0	1	2	3	4	5	6	7	8	9	10
Does not interfere									Completely interferes	
B. Mood										
0	1	2	3	4	5	6	7	8	9	10
Does not interfere									Completely interferes	

C. Walking ability										
0	1	2	3	4	5	6	7	8	9	10
Does not interfere								Completely interferes		
D. Normal work (includes both work outside the home and daily chores)										
0	1	2	3	4	5	6	7	8	9	10
Does not interfere								Completely interferes		
E. Relations with other people										
0	1	2	3	4	5	6	7	8	9	10
Does not interfere								Completely interferes		
F. Enjoyment of life										
0	1	2	3	4	5	6	7	8	9	10
Does not interfere								Completely interferes		

Meaning and Satisfaction in Life

Please read each statement and circle the appropriate number according to the given scale.

- 1 = *Strongly disagree*
 2 = *slightly disagree*
 3 = *neutral*
 4 = *slightly agree*
 5 = *Strongly agree*

- 1___ In most ways, my life is close to ideal
 2___ The conditions of my life are excellent
 3___ I am satisfied with my life
 4___ So far, I have gotten the important things I want in life
 5___ If I could live my life over, I would change almost nothing
 6___ I understand life's meaning
 7___ I am looking for something that makes my life feel meaningful
 8___ I am always looking to find my life's purpose
 9___ My life has a clear sense of purpose
 10___ I have a good sense of what is meaningful
 11___ I have discovered a satisfying life purpose
 12___ I am always searching for something that makes my life feel significant
 13___ I am seeking a purpose or mission for my life
 14___ My life has no clear purpose
 15___ I am searching for meaning in life

In general, how satisfied are you with your overall quality of life?

1-----2-----3-----4-----5-----6-----7
Not at all *Neutral* *Very*
Satisfied *Satisfied*

VITA

Erin Ann Van Enkevort was born March 29, 1987, in Escanaba, Michigan. She is the daughter of John Alan and Robin Marie Van Enkevort. A 2005 graduate of Bark River-Harris High School, Harris, Michigan, she received a Bachelor of Science degree in 2009 from Northern Michigan University, Marquette, Michigan where she double majored in Management of Health and Fitness and Graduate Preparatory Psychology. In 2011 she enrolled in graduate study at Texas Christian University, where she received a Masters of Science degree in Experimental Psychology and a minor in Quantitative Psychology in 2014 and is pursuing her Doctor of Philosophy degree.

ABSTRACT

THE IMPACT OF SEXUALIZED BREAST CANCER CAMPAIGNS ON OBJECTIFICATION, COGNITIVE PERFORMANCE, AND WELL-BEING IN WOMEN WITH BREAST CANCER

by Erin Ann Van Enkevort, Ph.D., 2016
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Dissertation Advisor: Cathy R. Cox, Associate Professor of Psychology

Breast cancer survivors often experience cognitive impairments and lower quality of life as a result of their treatment. The current research used an objectification theory perspective to examine whether increased body focus leads to poorer cognitive functioning and lower well-being in women with breast cancer. In three studies, women were exposed to either a sexualized breast cancer slogan (e.g., “I Love Boobies”) or neutral slogans (e.g., “Think Pink” vs. no slogan) in order to manipulate feelings of objectification. Participants were then asked to complete measures of objectification (Studies 1-3), cognitive tasks (e.g., executive functioning, verbal fluency, memory; Study 2), and assessments of well-being (e.g., mood, satisfaction with life; Study 3). Results indicated that breast cancer survivors, who were exposed to sexualized breast cancer campaigns, reported increased body focus (i.e., objectification; Studies 1 & 3) compared to both neutral conditions. Further, in comparison to neutral campaigns, sexualized campaigns led to lower cognitive functioning (Study 2) and diminished well-being (Study 3) in women with breast cancer. Study 3’s findings, however, were found after controlling for women’s appearance anxiety. Taken together, these results suggest that

sexualized breast cancer campaigns have the potential to undermine breast cancer survivors' emotional, psychological, and cognitive health.