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I, Jennifer Loyden,
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Approved by:

James J. [Signature]
Ph.D. B. N.M.
Charles Horowitz

Mother-Child Relationships and Depression in Children:
Impact of Maternal Breast Cancer

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Jennifer J. Loyden

B.A., Bucknell University, 1999

Committee: Kathryn Vannatta, Ph.D. (co-chair)
Robert Noll, Ph.D. (co-chair)
Christine Hovanitz, Ph.D.

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ABSTRACT

The purpose of this study was to examine the associations between maternal breast cancer, children's emotional well being, and maternal behavior. Thirty-three women treated for breast cancer and their children participated. The comparison group included families of 34 classmates who were the same gender, race, and age as children in the breast cancer group. Children's emotional well being was assessed using reports of depressive symptomatology, self-worth, and internalizing behaviors. The mother-child relationship was measured using both child and maternal reports of maternal behavior. No significant group differences were found in depression, self-worth, internalizing behaviors, or maternal behavior. Warmth and acceptance evident in maternal behavior was significantly correlated with depressive symptomatology and internalizing behaviors in children. In conclusion, maternal warmth and supportiveness is associated with children's emotional well being; however, maternal breast cancer does not appear to be related to either of these domains or to the strength of their associations.

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Introduction

Breast cancer is the most commonly diagnosed form of cancer and the second leading cause of death among women in the United States. The American Cancer Society (2003) estimated that over 200,000 women will be diagnosed with breast cancer and about 40,000 will die from the disease in 2003. Approximately 30% of women with breast cancer are diagnosed during their child rearing years (Hoke, 2001). With multiple treatment options available such as radiation, chemotherapy, surgery, and hormonal therapy (Gammon et al., 1996), the 5-year survival rate post diagnosis is 87% (American Cancer Society, 2003). Unfortunately, all of the treatments have the potential to be physically and emotionally disruptive to patients and their families.

Due to the challenges created by breast cancer and the increasingly high rates of success with treatment, it is important to examine the psychological impact of this life threatening illness. It is likely that women who are receiving treatment for this disease experience considerable emotional distress (Compas et al., 1994). Furthermore, the diagnosis of breast cancer may cause anxiety for the patient, her family and friends. Many women with breast cancer believe that their illness has a severe negative impact on their families (Hoke, 2001) and express concern regarding the reactions of their children (Elmberger, Bolund, & Lützen, 2000).

Kazak (1989) has proposed a model for conceptualizing the impact of chronic illness on family systems. She suggests that the psychological distress of individuals is associated with the relationships and structure of the family. The family system is conceptualized as interrelated parts and changes occurring in one part of the system affect all other parts of the system (Hoffman, 1981). This structure has the potential to be

disrupted when an unexpected stressor occurs. Thus, when mothers are diagnosed with breast cancer, changes are likely to occur for other family members, possibly due to the physical and emotional effects of the illness. For example, roles in the family may change when a mother has cancer, creating new and increased responsibilities for other family members (Compas et al., 1994; Lewis, Woods, Hough, & Bensley, 1989).

Despite the potential for breast cancer to impact many family members, the majority of research on the psychological impact of breast cancer has focused on the patient and her spouse or partner. Few researchers have examined the impact of this disease on minor children still living at home (Faulkner & Davey, 2002; Hilton & Elfert, 1996; Lewis, 1996). Some studies have suggested that having a parent with a life-threatening disease, such as cancer, has a significant adverse impact on the emotional well being of children in the home (Compas et al., 1994; Hoke, 2001; Siegel et al., 1992; Zahlis & Lewis, 1998). Mothers with breast cancer have reported changes in their children's behavior, such as crying more often, withdrawing, and requiring more physical closeness (Zahlis & Lewis, 1998). Additionally, mothers have reported their children have poor self-worth, diminished social acceptance, depressed mood, attachment problems, and anxiety about the mother's potential death (Elmberger et al., 2000; Lewis, Zahlis, Shands, Sinsheimer, & Hammond, 1996; Zahlis & Lewis, 1998). Children have also reported similar problems, endorsing poor self-esteem and global self-worth (Lewis, 1996). Although most studies have found breast cancer to have a negative impact on children, one study found that adolescents with mothers who have breast cancer functioned better academically and socially than children whose mothers do not have breast cancer (Hoke, 2001).

While some work has suggested that children are psychologically affected by their mother's diagnosis and treatment, it is unclear why the emotional well being of children may be affected. One possibility is that changes occur in the quality of the parenting relationship that contribute to or mediate increases in the depressive symptoms experienced by children. Some women with breast cancer have reported feeling that their parenting was of a diminished quality (Lewis et al., 1996) and that they were unable to perform their maternal responsibilities as well as they once could (Elmberger et al., 2000). Other mothers have reported that they were less accessible and incapable of meeting the needs of their children due to illness and treatment effects such as feeling sick, excessive fatigue, or being preoccupied with their own emotions (Zahlis & Lewis, 1998).

A few researchers have attempted to identify the extent to which relationships between mothers and their children change following a diagnosis of cancer and why such changes occur (Lewis, Hammond, & Woods, 1993; Wellisch, 1985). It has been suggested that mothers with cancer may misinterpret or feel helpless dealing with the reactions of their children (Heiney et al., 1997; Zahlis & Lewis, 1998), and this may lead to increased tension in their relationships with them. Furthermore, symptoms and treatment related to cancer may make it difficult for mothers to maintain the same parenting quality and relationships with their children, creating disruption of roles within the family (Lichtman et al., 1984). Although some work suggests that mothers with breast cancer have problems in their relationships with their children, other studies suggest a positive influence. In some cases, mothers report feeling that they have become

closer to their children following the diagnosis (Elmberger et al., 2000; Hilton & Elfert, 1996).

Some research has suggested that maternal breast cancer may have a differential impact on daughters and sons. Daughters may feel especially anxious or depressed when mothers have breast cancer and these emotions potentially stem from their concerns about their increased vulnerability to breast cancer (Compas et al., 1994). Compas et al. (1994) suggests that daughters rather than sons experience added demands for emotional and instrumental support from mothers with cancer. Older children are more cognitively aware of the impact of cancer on their family, and adolescent girls in particular accept caretaking responsibilities which may have long-term effects on their attempts to gain independence from the family (Compas et al., 1994; Hilton & Elfert, 1996). Thus, older children, specifically daughters, may be more likely to experience role changes and increased caretaking demands when mothers are diagnosed with breast cancer. However, it should be noted that not all research indicates that daughters of women with cancer are at more risk than sons (Howes, Hoke, Winterbottom, & Delafield, 1994).

Much of the extant literature is characterized by methodological limitations that reduce confidence in the conclusions drawn from this work. First, few studies use appropriate comparison groups. Most work has relied upon comparisons to instrument norms (Compas et al., 1994), despite the potential limitations in this strategy posed by cohort (Achenbach & Howell, 1993) and regional differences (Sandburg, Meyer-Bahlburg, & Yager, 1991) in “normal” responses. In addition, study designs that do not include appropriate comparison samples make it difficult to test models of moderation or mediation (Holmbeck, 1997).

Second, previous work has often tested associations between key variables assessed from a single perspective or reporting source. Using multiple informants can avoid findings that are solely due to shared source variance and provide different perspectives on a particular phenomenon (Holmbeck, Li, Schurman, Friedman, & Coakley, 2002). Achenbach et al. (1990) stress the importance of acquiring multiple sources of data in order to achieve a comprehensive assessment of a child's overall functioning.

The current investigation examined the emotional well being of school-aged children with mothers who have been treated for breast cancer and comparison peers whose mothers do not have a serious medical condition. Multiple indicators of emotional well being were explored including depression, global self-worth, and internalizing behaviors. It was hypothesized that children whose mothers have breast cancer would report higher levels of depressive symptomatology, describe poorer self-worth, and exhibit higher levels of internalizing behaviors than children of parents without a chronic illness. Furthermore, we expected that this effect would be stronger for daughters and older children. The second aim was to examine the quality of maternal behavior in families of mothers treated for breast cancer and comparison families as well as the associations between maternal behavior and children's emotional well being. It was hypothesized that there would be less warmth and acceptance in maternal behavior in the breast cancer group than in the comparison group. Finally, it was hypothesized that the association between breast cancer and poorer emotional well being in children would be mediated by group differences in the quality of maternal behavior.

Method

Participants

Women diagnosed with stage I to III breast cancer and with at least one child (aged 8-17) living at home were recruited from two medical oncology practices in the Midwest. If more than one eligible child lived in the home, only one was selected at random for inclusion using the select cases function in the Statistical Package for the Social Sciences (SPSS). Women with breast cancer were first asked to participate in an initial phase of the project that examined peer relationships in their child's classroom. Classroom based data collection required parental consent and was successfully completed with 43 children of 53 women who were identified as eligible for the study. Two families did not give consent to contact the school and eight schools refused to participate in data collection. After classroom data collection was complete, mothers of the children in the breast cancer sample were recruited to participate in a second questionnaire study at their home. Two were no longer eligible to participate, as one mother had died and another family had moved away. Eight families declined participation, resulting in a sample of 33 mothers treated for breast cancer and 33 children (52% female). The racial composition of the breast cancer sample was 91% Caucasian, 6% African American, and 3% Native American.

A comparison sample was obtained by recruiting the family of one classmate for each participating target family. For each child with a mother treated for breast cancer, we attempted to recruit the family of his or her classmate who was the same race, gender, and closest in birth date from the classroom data collection. This effort resulted in 73% first choice comparison children, 21% second choice comparison children, and 6% third

choice comparison children. Families where either the mother or father had a severe chronic or life-threatening illness were ineligible. This strategy has been used in other studies to identify demographically similar comparison families (Noll et al., 1996; Noll et al., 2000; Reiter-Purtill, Gerhardt, Vannatta, Passo, & Noll, 2003). The final comparison group consisted of 34 mothers and their 34 children (56% female); 94% of the sample was Caucasian and 6% African American. The unequal group size was due to a family in the breast cancer cohort declining participation after the comparison family had already participated.

Procedure

The ongoing data collection for this work began in 2000 after receiving approval from the local Institutional Review Board; it was completed in the fall, 2003. Following an introductory letter from their medical oncologist, women with breast cancer were contacted by phone to inform them about the research program, confirm eligibility criteria, and ascertain interest in participating in a study about children's friendships. If the women agreed to participate, their child's school was contacted. After completion of the school based study, each woman in the breast cancer sample was re-contacted to ascertain willingness to participate in the second phase of the study, which involved home visits with the child and his or her parents. Comparison families were recruited on a case-by-case basis for each participating family in the breast cancer sample. Two trained staff members visited each family, target and comparison, in their homes. After obtaining informed consent from each parent and consent/assent from each child, respondents completed a variety of questionnaires and received \$100 for their participation.

Child Measures

Children's Depression Inventory (CDI; Kovacs, 1992). The CDI is a 27-item self-report inventory used to measure levels of depressive symptomatology over a two-week period in children ages 7-17. The scores for each item range from 0 to 2, with higher scores being more severe than lower scores. A sum of the scores is calculated to determine depressive symptomatology. Adequate reliability has been found through coefficient α , item-total score product-moment correlations, and test-retest coefficients (Smucker, Craighead, Craighead, & Green, 1986). In addition, this measure has demonstrated predictive, discriminant, and concurrent validity (Carey, 1997; Charman, 1994; Ialongo, Edelsohn & Kellam, 2001).

Children's Report of Parent Behavior Inventory-Revised (CRPBI-R; Schaefer, 1965). The CRPBI-R is a 30-item revised version (Forehand & Nousiainen, 1993) of the CRPBI. This version of the instrument assesses parenting behavior from the child's perspective. There are three dimensions: (a) warmth/acceptance versus rejection, assessing emotional closeness to the parent, (b) lenient versus firm control, which relates to the parents' discipline, and (c) psychological control versus independence/autonomy. Children describe their relationships with their parent by indicating whether behaviors are "like," "somewhat like," or "not like" each parent. Internal consistency has been demonstrated for children's reports on the three dimensions (Schwarz et al., 1985). This instrument was found to be highly reliable in one-week and five-week retests when administered to young children (Margolies & Weintraub, 1977) and has demonstrated good internal consistency for all raters, including mothers, fathers, and children (Schwarz, Barton-Henry, & Pruzinsky, 1985). Convergent validity of child and mother

reports has been found, which suggests that multiple sources will yield a more robust indicator of parenting behavior (Schwarz et al., 1985).

Self-Perception Profile for Children (SPPC; Harter, 1985). This is a 36-item self-report instrument developed to evaluate children's perceptions of their self worth and esteem. Children's self competencies are measured in six areas: scholastic competence, social acceptance, athletic competence, physical appearance, behavioral conduct, and global self-worth. The scores for each item range from 1 to 4, where a score of "1" denotes low perceived competence and a score of "4" indicates high perceived competence. The global self-worth dimension reflects the global perception of an individual's value as a person rather than the perception of specific competencies or attributes measured by the other five subscales. This subscale demonstrates test-retest reliability, suggesting that global self-worth remains highly stable over time (Granleese & Joseph, 1994). In addition, the subscales of this instrument demonstrate construct and criterion-related validity as well as adequate reliability (Cole, Martin, & Powers, 1997; Merrell, Cedeno, & Johnson, 1993).

Parent Measures

Demographic Background Questionnaire (Noll et al., 1996). This instrument assesses general background information about families regarding individual characteristics such as, mother's age, education, income, occupation, and number of children. In addition, an indicator of socioeconomic status (SES) is determined by using Revised Duncan scores of the occupational prestige of parent reported employment (TSEI2; Nakao & Treas, 1992). The average SES was computed using the mother's SES

in single-parent homes and the higher SES between mothers and fathers in two-parent homes (Walker, Greenwood, Hart, & Carta, 1994; Haug, 1973).

Child Behavior Checklist (CBCL) (CBCL; Achenbach, 1991). The CBCL is a 120-item instrument that uses parent reports to assess children's emotional and behavioral problems. There are three behavior scales that emerge: Internalizing, Externalizing, and Mixed scales (e.g. other problem behaviors such as immaturity or hyperactivity). The internalizing scale has consistently shown good reliability and validity (Achenbach, 1991; Cohen et al., 1985). Test-retest reliability and content validity have been demonstrated for the entire instrument (Achenbach & Edelbrock, 1983) and confirmatory factor analysis has been done in support of the measure's construct validity (Dedrick & Greenbaum, 1997).

Children's Report of Parent Behavior Inventory-Revised (CRPBI-R); Schaefer, 1965; Forehand & Nousianinen, 1993). This version of the measure is equivalent to the child report of parenting behavior with minor changes in wording for mothers to complete. Mothers report their own behavior toward their children. This instrument yields the same three dimensions as previously mentioned and demonstrates adequate internal consistency and convergent validity for all raters (Schwarz et al., 1985).

Data Analysis

Parametric and nonparametric statistical tests were utilized to examine differences between the breast cancer and comparison groups on demographic variables, using two-tailed tests, and on outcome variables including depressive symptomatology (CDI total scores), global self-worth (SPCC subscale), internalizing behaviors (raw scores of CBCL), and the warmth and acceptance CRPBI scores (child and maternal report) using

one-tailed tests. ANOVA were employed to test whether group differences in emotional well being varied as a function of gender or age (e.g., based on a median split at 12 years of age). In addition, Pearson correlations, based on one-tailed tests, were conducted to examine the association of child and mother reports of maternal warmth and acceptance with the CDI, global self-worth, and CBCL internalizing behavior scores.

Finally, hierarchical regression was planned to test the mediational model regarding the effects of maternal behavior on emotional well being. Analyses were conducted to test each of the three conditions necessary to demonstrate mediation (Holmbeck, 1997). Demonstration of mediation would require that the hypothesized mediator (i.e., maternal warmth/acceptance) is significantly associated with a given dependent variable (e.g., each indicator of emotional well being). Mediation would also require that the predictor (i.e., breast cancer versus comparison groups) be significantly associated with both the expected mediator (i.e., maternal warmth/acceptance) and the dependent variable, emotional well being of children. Finally, the association between the predictor (i.e., group status) and the dependent variable (i.e., emotional well being) must be significantly reduced after the variance related to the mediator (i.e., maternal warmth/acceptance) is considered.

A power analysis was conducted using GPOWER (Faul & Erdfelder, 1992). The analysis indicated that for one-tailed independent sample *t*-tests with a sample size of $N = 67$, at a significance level of .05, a “medium” effect size ($r = .5$) could be detected with 65% power. For one-tailed independent sample *t*-tests (comparing correlations), a “medium” effect size ($r = .3$) could be detected with 82% power with a sample size of $N = 67$ at a significance level of .05. For *F* tests (ANOVA), a “medium” effect size ($r = .25$)

could be detected with a sample size of $N = 67$, at a significance level of .05, with 52% power.

Results

The breast cancer and comparison groups were compared on demographic variables using nondirectional, independent t -tests (Table 1). The two groups were not different on a number of demographic variables including child age, the average number of children living in the home, and maternal education. In addition, family income ($U = 501.00$, ns) and maternal marital status ($\chi^2 = 0.87$, ns) were not significantly different between the breast cancer and comparison samples. In the breast cancer group, 88% of mothers described themselves as married, 9% as divorced, 3% as single. The breakdown in the comparison group was similar; 82% reported being married, 12% divorced, and 6% single.

Differences were detected between the breast cancer and comparison samples in maternal age and family SES (Table 1). Mothers in the breast cancer group were significantly older than mothers in the comparison group and families in the breast cancer group had higher occupational prestige than families in the comparison group. Households consisted of single-parent and two-parent families in which either one or both parents worked in professional occupations. The average SES in the breast cancer group suggested that parents held occupations in sales or managerial positions and/or as registered nurses. In the comparison group, the average SES indicated that parents held occupations in teaching, administrative, or managerial occupations and/or as skilled blue-collar workers.

The first hypothesis stated that children in the breast cancer group would evidence poorer emotional well being than children in the comparison group. Information regarding children's emotional well being was obtained from child self-reports of depressive symptomatology and global self-worth as well as mothers' reports of internalizing behaviors. Independent *t*-tests showed no significant group differences on information from either source (Table 2). Given the significant demographic differences between the two groups, analysis of covariance (ANCOVA) was conducted using maternal age and family SES as covariates. The group differences remained nonsignificant ($F_{dep} = 0.06, ns$; $F_{gsw} = 0.05, ns$; $F_{int} = 0.85, ns$). Planned exploratory analyses were conducted using ANOVA to determine whether group differences in emotional well being varied as a function of gender and age. Two 2 (group) x 2 (gender or age) ANOVAs were conducted for each indicator of emotional well being, and all analyses revealed nonsignificant results.

The second hypothesis stated that there would be less warmth and acceptance evident in maternal behavior in the breast cancer group than in the comparison group. Scale scores reflecting the warmth and acceptance evident in maternal behavior were derived from mother and child reports on the CRPBI. Independent *t*-tests showed no significant group differences in child and mother reports of maternal warmth/acceptance on the CRPBI ($t_c = 0.86, ns$; $t_m = -0.75, ns$). ANCOVA was conducted to reexamine the group differences using maternal age and family SES as covariates. Adjusted mean scores for the warmth/acceptance scale were derived for children ($M_{bc} = 27.12$; $M_{comp} = 25.75$) and mothers ($M_{bc} = 27.86$; $M_{comp} = 28.12$) in each group. There were still no significant differences between breast cancer and comparison groups regarding child and

maternal reports of warmth and acceptance demonstrated in maternal behavior ($F_c = 2.12$, ns ; $F_m = 0.29$, ns).

It was hypothesized that child and mother reports of warmth and acceptance evident in maternal behavior would be associated with children's emotional well being. Pearson correlations for the entire sample were computed between maternal warmth/acceptance scores reported by children and mothers on the CRPBI and the total score from the CDI, the global self-worth score on the SPPC, and the internalizing subscale on the CBCL. Child reports of warmth and acceptance in maternal behavior were not significantly correlated with any of the indices of emotional well being (i.e., depressive symptomatology, global self-worth, and internalizing behaviors). The association between maternal report of warmth and acceptance and child report of global self worth was also nonsignificant. Significant correlations were, however, found between maternal report of warmth and acceptance and child report of depressive symptomatology ($r(66) = -.23$, $p < .05$) and between maternal report of warmth and acceptance and maternal report of children's internalizing behaviors ($r(66) = -.30$, $p < .01$). Table 3 displays the separate correlations for the breast cancer and comparison groups and the magnitude of both correlations was not significantly different between the groups ($z_{dep} = -0.19$, ns) and ($z_{int} = -0.04$, ns).

Finally, it was hypothesized that the association between breast cancer in mothers and poorer emotional well being in children would be mediated by group differences in the quality of maternal behavior. Warmth and acceptance in maternal behavior reported by mothers was associated with depressive symptomatology and internalizing behaviors but not with global self-worth. However, group differences for the hypothesized

mediator (i.e. warmth and acceptance of maternal behavior) and the dependent variables (i.e. indicators of emotional well being) were nonsignificant; therefore mediation was not demonstrated.

Discussion

This study examined the associations between maternal breast cancer, children's emotional well being, and the quality of maternal behavior. It was expected that children of mothers with breast cancer would exhibit greater difficulties in emotional well being than children of parents without a severe chronic illness. In addition, it was hypothesized that lower levels of warmth and acceptance would be evident in maternal behavior reported by mothers and children in the breast cancer group relative to the comparison group. It was expected that this difference would mediate group differences in children's emotional well being. Methodological improvements included incorporating a comparison group of classmates of children in the breast cancer sample and obtaining data from multiple sources.

Contrary to our hypotheses, children in the breast cancer group did not report more depressive symptomatology or lower self-worth than comparison peers. In addition, mothers with breast cancer did not report more internalizing behaviors for their participating children. There was no indication that these findings varied by child age or gender. These findings are not congruent with most of the existing work regarding the emotional toll a parental chronic illness can have on children (Elmberger et al., 2000; Lewis et al., 1996; Zahlis & Lewis, 1998) and do not support our hypotheses.

Previous research suggests that a life-threatening maternal illness may be taxing on children, affecting their emotional adjustment. For example, it has been reported that

children of cancer patients appear to be depressed, upset, and withdrawn (Elmberger et al., 2000; Hilton & Elfert, 1996; Zhalis & Lewis, 1998) and have poor self-worth (Lewis et al., 1996). Many of these studies have relied on qualitative methods (Elmberger et al., 2000; Hilton & Elfert, 1996; Zhalis & Lewis, 1998). The qualitative instruments employed in these studies were primarily maternal interviews, which emphasized mothers' concerns about child adjustment in the context of their dealing with breast cancer rather than more objective reports of child behavior. For example, mothers recruited from medical oncology practices or from breast cancer support groups were queried about their children's experience with the diagnosis and treatment of breast cancer, particularly the problems and changes that had occurred since the time of diagnosis (Elmberger et al., 2000; Lichtman et al., 1985; Zhalis & Lewis, 1998). Mothers participating in these studies were initially asked to describe their reactions to the diagnosis of breast cancer (Elmberger et al., 2000), the details of the illness and treatment, the potential cause and prognosis of the disease, and the life changes they made after the diagnosis (Lichtman et al., 1985). These initial questions focused the mothers on the breast cancer experience and then they were asked to make judgments about their children's emotional adjustment.

Initially focusing on the experience of a negative event poses another problem in qualitative studies. This format creates the potential for a focusing illusion to occur, whereby attending to one aspect of life over-weights other areas in the experience of well being (Schkade & Kahneman, 1998). Focusing individuals on a taxing event and then questioning their overall functioning may lead to an overestimation of the magnitude of the experience and the duration of the feelings generated by the event (Brickman, Coates,

& Janoff-Bluman, 1978; Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998). Studies have demonstrated that the correlations between objective life events and individual reports of emotional functioning are low (Schkade & Kahneman, 1998). Specifically, if mothers first attend to the impact of maternal breast cancer, they may report more adverse findings in their children's emotional experience. The focusing illusion potentially explains why data from these qualitative studies suggest that mothers report that their illness negatively affects the quality of life of their children.

In addition to qualitative approaches, many of the previous studies selected less than optimal comparison groups (i.e., normative samples or comparison samples with a chronic illness [Compas et al., 1994; Lichtman, et al., 1984]). To examine the impact of breast cancer, the present study made extensive efforts to include a demographically matched comparison sample by recruiting members of the comparison group from amongst classmates. This procedure has previously yielded comparison groups that mirror the demographic characteristics of target samples in a wide range of populations (Noll et al., 1996; Noll et al., 2000; Reiter-Purtill et al., 2003).

Consistent with the findings of the present study, Hoke (2001) found that children of mothers with breast cancer did not report more depressive symptomatology using the CDI than children whose mothers did not have cancer. In addition to child reports, mothers with breast cancer also did not report more behavioral problems using the CBCL than mothers in the comparison sample and reported fewer problems than the normative sample. The breast cancer sample used in Hoke's study was similar to the one used in the present investigation on numerous demographic variables, including sample size, child and maternal age, racial composition, and marital status. It may be that the equivalent

findings of Hoke's study and the current study are due in part to the use of demographically similar samples, objective measures of child well being, and a comparison group without cancer. Results from Hoke's (2001) work and the present study fail to support a link between maternal breast cancer and a child's emotional well being.

In contrast to our hypothesis, maternal warmth and acceptance was not different between the breast cancer and comparison groups. Findings in the literature regarding maternal behavior of women with breast cancer are not consistent. Inconsistent findings may be due in part to differences in methodology, particularly in terms of how maternal behavior is conceptualized and assessed. Once again, the majority of existing studies have employed qualitative measures (e.g., maternal interviews) rather than standardized measures to describe this domain. Such measures may underscore mothers' perceptions of changes in child behavior toward the mothers after the diagnosis of breast cancer (Elmberger et al., 2000; Lichtman et al., 1984; Zhalis & Lewis, 1998).

Another problem with this research has been the varying emphasis placed on descriptions of maternal behavior toward children, children's behavior toward mothers, and the dyadic qualities of the mother-child relationships. Research focusing on maternal and/or paternal perceptions of children's behavior yielded more negative findings (e.g., adjustment and attachment issues), which in turn may have affected the mother-child relationship (Elberger et al., 2000; Hilton & Elfert, 1996; Lichtman et al., 1984; Zhalis & Lewis, 1998). Several studies have investigated potential changes in maternal behavior toward children in addition to children's reactions to the diagnosis. The findings of these studies have varied, reporting maternal behavior that had remained unchanged,

deteriorated, or improved. Mothers have reported that they treated their children differently, felt guilty about being unable to effectively parent their children (Elberger et al., 2000; Lichtman et al., 1984; Zhalis & Lewis, 1998), and in one study, formed closer bonds with their children after treatment was completed (Elberger et al., 2000).

Consistent with the focusing illusion, when parents are initially asked about the effects of breast cancer and then about the adequacy of their parenting and their relationships with their children, they may focus on the negative and assume breast cancer adversely affects their parenting and the reactions of their children.

The present study focused solely on perceptions of maternal behavior in the mother-child relationship, using both child and maternal reports, employed quantitative methods, and did not focus on the diagnosis of breast cancer prior to administering questionnaires. One or all of these factors may account for the different findings in the current study. It may be impossible to determine the impact maternal breast cancer has on relationships with minor children without taking into account the way these relationships are measured. Perhaps it is beneficial to employ a variety of methods to measure behavioral interactions between mothers and children including qualitative and quantitative measures as well as direct observations of their behaviors. It may be that certain aspects of parent-child interaction are not being assessed by current methods. It is important, however, to be aware of the methodological differences and to cautiously interpret inconsistent results.

In summary, the present study suggests that children whose mothers have been treated for breast cancer are not experiencing emotional difficulties and that the quality of maternal behavior, in terms of its warmth and acceptance toward children, is similar to

that of the comparison group. These results were unexpected given previous findings and stereotypes suggesting adverse affects associated with maternal breast cancer in terms of mother and family functioning. Kazak's (1989) theory suggests that changes occurring to one family member impact the rest of the family; however, it appears that the emotional functioning of children in the present study was not adversely affected by their mothers' illness. It is possible that families adapted to the stressor of breast cancer by adjusting their roles or that the physical or psychological changes that mothers endured from the illness did not yield negative outcomes in their children. It is also very feasible that other aspects of functioning for individuals in the family or the family system that were not measured by the present study are altered.

Findings from the present study also suggest that maternal perceptions of their warmth and acceptance toward children are associated with maternal and child report of children's emotional well being. These findings are consistent with the theory that children continue to function quite well when they have a positive relationship with a competent adult (Masten, Best, & Garmezy, 1990). Regardless of the stressor, if mothers maintain warm and accepting parenting behavior, children may have the ability to avoid emotional difficulties. Emotional well being of children may be more closely linked to the warmth and acceptance of maternal behavior than to the occurrence of stressors in the family. Greater impact of maternal cancer on children's emotional well being might have been observed if the quality of maternal behavior had been dramatically compromised by this stressor.

It is important to include multiple informants when assessing complex behavioral constructs such as emotional well being and parental behavior (Achenbach, 1990; Hoke,

2001), and this is demonstrated by varying reports from mothers and children in the present study. A significant, yet rather unimpressive, correlation was found between mother and child reports of maternal behavior on the CRPBI ($r = .27$) for the entire sample. In addition, only maternal, and not child, reports of maternal behavior were associated with emotional difficulties in children. When mothers' reported more warmth and acceptance in maternal behavior, children reported fewer depressive symptoms and mothers reported fewer internalizing behaviors. Furthermore, we found evidence that the correspondence of mother and child reports of emotional well being were very inconsistent. When mothers in the comparison group reported more internalizing behaviors in their children, children actually endorsed fewer depressive symptoms. This was not true for the breast cancer group. Mothers in the breast cancer group who reported more internalizing behaviors in their children indeed had children who endorsed more depressive symptomatology. Lewis et al. (1985) found differences in maternal and child reports of depression and internalizing symptoms in children. It may not be unusual to find discrepancies in maternal and child reports when assessing children's behaviors when a parent has cancer (Nelson & While, 2002). The explanation as to why maternal and child reports differ within and between groups remains unclear.

There are several limitations to the present study. First, the sample was relatively homogeneous, including mostly Caucasian and middle to upper class individuals, which limits generalizations to other ethnic and socioeconomic groups. Second, the sample size was small; this may have been especially limiting in certain analyses. Power was low for detecting differences between age and gender groups and a larger sample size would be optimal if small, yet statistically significant differences do exist. However, the small

effect sizes in the main effects reveal that it is unlikely that a larger sample would detect group differences between the breast cancer and comparison groups. In addition to the small sample size, only 62% of the individuals eligible for recruitment participated. This has the potential to skew the results; it is possible that individuals who were more physically and psychologically stable chose to participate. Third, the selected comparison sample was significantly different on several demographic variables (e.g., maternal age and family SES) from the current breast cancer sample. This did not however appear to affect the group differences or similarities obtained. Fourth, it is possible that this sample was unusual in that it appeared to be healthier than the normative sample, particularly on indices of emotional well being, which highlights the importance of a comparison sample. Children in both groups reported less depressive symptoms than the normative sample for the CDI (i.e., they scored in the low average to average range) and reported slightly higher global self-worth scores on the Harter (i.e., they scored in the average to above average range). Mothers in both groups reported slightly lower internalizing scores for their children on the CBCL (i.e., scores were in the low average to average range). Finally, it is possible that children experience difficulties in areas that were not examined by this study and that different dimensions of mother-child relationships are impacted. Narrative reports from children and mothers may assess different aspects of the experience that are greatly impacted by maternal cancer. Using both quantitative and qualitative measures with the inclusion of observations of mother-child interactions would be beneficial in assessing multiple dimensions of the mother-child relationship.

A final major limitation in this study was the lack of information regarding the severity of the illness and time since diagnosis. It is possible that either could have helped account for variance in the functioning of mothers and children in the breast cancer sample. However, it has been demonstrated in some quantitative studies that the length of time since diagnosis does not impact family adjustment in mothers with breast cancer (Lewis et al., 1993) and that illness severity, type of treatment, and time since diagnosis (i.e., mothers diagnosed for approximately 6 months with a range of 3-12 months) are not associated with the well being of their children (Hoke, 2001). On the other hand, research has shown that mothers varying widely in disease severity, type of treatment, and time since diagnosis (ranging from 23-56 and 1-60 months post diagnosis) reported that their children experienced more emotional difficulties at the time of initial diagnosis and treatment (Zhalis & Lewis, 1998) or when the prognosis was poor and the surgery was more severe (Lichtman et al., 1985). Although these factors may be important, the methodological limitations in using qualitative assessments that lack comparison groups and objective measures of children's emotional well being reduce confidence in the conclusions of these studies.

Although, substantial efforts were made in the present investigation to derive a matched comparison sample for the breast cancer group, unexpected demographic differences emerged between the two groups. Maternal age and family SES were significantly higher in the breast cancer group. The chance of being diagnosed with breast cancer increases with a woman's age (American Cancer Society, 2003) and women who delay childbearing are more likely to have school-aged children when and if they develop breast cancer. Cultural trends that involve women attaining higher levels of

education and career advancement are associated with the delay of marriage and childbirth to later ages (U.S. Department of Health and Human Services [DHHS], 1989). Advanced education responsible for delaying childbirth may contribute to a higher SES in the family. The relationship between increased maternal age and higher SES provides an explanation for the differences between the two groups in this study. To compensate for the difference between the two groups, maternal age and family SES were controlled for using ANCOVA and as a result, the two groups were not significantly different on the measured outcome variables.

Further research is needed to better understand the impact of maternal breast cancer on children and parent-child relationships. This would include larger and more diverse samples (e.g., including multi-sites, minorities, and low income families) as well as more comprehensive measures of the quality of maternal and paternal behavior. Future work is needed to understand the role of paternal behavior in the prediction of child emotional well being. There is evidence to support that a positive relationship with fathers can protect children from the effects of stress within the family (Grant et al., 2000). It has been found that children with mothers with breast cancer function better when they have more interactions with their fathers (Lewis et al., 1993). The possibility that this relationship has additive or compensatory benefits for children needs to be further explored and may account for the apparently positive outcomes of children in two parent homes.

The results from this study and other studies examining the effects of maternal breast cancer highlight the importance of using a more comprehensive approach (e.g., quantitative and qualitative methods), especially when measuring the quality of maternal

behavior, and including observations and perceptions of mother and child interaction and behavior from outside sources. Clinically, it is important to understand whether the diagnosis of maternal breast cancer has an adverse effect on most families and to better understand which families are at highest risk for problems. The existence of a focusing illusion may also serve as a cautionary note for clinical scientists. There is the possibility that by focusing on maternal breast cancer, this characteristic becomes overvalued relative to less salient ones. It is important for families to be aware of the tendency to focus on breast cancer in expectation of adverse outcomes and to pay attention to the genuine adjustment patterns in children and mothers.

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Table 1

Demographic Characteristics for Breast Cancer and Comparison Families

Characteristic	Breast Cancer (<i>n</i> = 33)	Comparison (<i>n</i> = 34)	<i>t</i> (65)	<i>d</i> ^a
Child Age (years)	12.17 ± 2.81	12.35 ± 2.66	-0.27	0.07
Mother age (years)	43.71 ± 5.53	40.03 ± 5.22	2.80**	0.68
Number of children ^b	2.30 ± 0.92	2.71 ± 0.94	-1.78	0.44
Socioeconomic status ^c	67.36±18.82	56.25±19.20	2.39*	0.59
Mother's Education ^d	14.76 ± 2.53	14.15 ± 2.34	1.03	0.26

Note. Plus-minus values are means ± standard deviations.

^aCohen's (1988) effect sizes are reported.

^bNumber of children living at home are reported.

^cBased on mother's SES in single-parent homes and the higher SES between mothers and fathers in two-parent homes. Higher scores represent greater occupational prestige.

^dEducation is equivalent to highest grade completed. 9 = completed 9th grade, 14 = completed 2nd year of college or equivalent training, 16 = achieved BA, etc.

* $p < .05$, two-tailed test.

** $p < .01$, two-tailed test.

Table 2

Emotional Well being of Children in the Breast Cancer and Comparison Groups

Scales	Breast Cancer (<i>n</i> = 33)	Comparison (<i>n</i> = 34)	<i>t</i> (65) ^a	<i>d</i> ^b
CDI Total Depression	5.48 ± 4.24	5.44 ± 5.48	.035	.01
SPPC Global self worth	3.34 ± 0.57	3.35 ± 0.53	-.067	.02
CBCL-Internalizing ^c	49.36±10.26	47.71±10.16	.704	.17

Note. Plus-minus values are means ± standard deviations.

^aAll values were nonsignificant.

^bCohen's (1988) effect sizes are reported.

^c*t*-tests, ANOVAs, and ANCOVAs conducted on raw scores. T scores are reported to facilitate comparisons with results from previous studies.

Table 3

Correlations of Emotional Well being of Children and Warmth/Acceptance Evident in Maternal Behavior for the Breast Cancer and Comparison Groups

Scores	1	2	3	4	5
1. CDI	---	-.30*	.65**	-.17	-.34*
2. SPPC Global Self-Worth	-.72**	---	.03	.05	-.12
3. CBCL-Internalizing	-.27	.34*	---	-.29	-.28
4. Child Warmth/Acceptance	.02	.03	.01	---	.13
5. MotherWarmth/Acceptance	-.16	-.01	-.32*	.39*	---

Note. All correlations above the diagonal are for Breast Cancer families and below are for Comparison families.

* $p < .05$, one-tailed test.

** $p < .01$, one-tailed test.