Health Behaviors in Family Members of Patients Completing Cancer Treatment

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Purpose/Objectives: To describe the impact of the cancer experience on the health behaviors of survivors' family members and to determine factors associated with family members' intentions for health behavior change.

Design: Descriptive, cross-sectional, correlational.

Setting: A National Cancer Institute–designated comprehensive cancer center in the midwestern United States.

Sample: 39 family members and 50 patients with diagnoses of breast, colorectal, head and neck, lung, or prostate cancer who were completing definitive cancer treatment.

Methods: Patients and family members were approached in the clinic at three weeks or fewer before the completion of their course of treatment. Family members completed surveys and a structured interview in person or via telephone.

Main Research Variables: Intention, perceived benefit, and confidence about eating a healthful diet, physical activity, and smoking cessation; emotional distress; and family cohesion, conflict, and expressiveness.

Findings: Family members had high ratings for intention, perceived benefit, and confidence related to the behaviors of eating a healthful diet and performing 30 minutes of daily moderate-intensity physical activity. They also had high ratings for the extent to which the cancer experience had raised awareness of their cancer risk and made them consider undergoing screening tests for cancer; ratings were lower for making changes in their health behaviors.

Conclusions: Family members expressed strong intentions to engage in health-promoting behaviors related to physical activity and nutrition at the post-treatment transition.

Implications for Nursing: Oncology nurses are in a key position to engage family members and patients in behavior change. Nurses should assess family members at the completion of treatment for distress and provide interventions to influence the trajectory of distress in survivorship.

Key Words: family members; health behaviors; survivorship

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The cancer experience has been described as a teachable moment, during which oncology health professionals have a window of opportunity to facilitate behavior change and the adoption or maintenance of healthful lifestyles in survivors (Demark-Wahnefried, Aziz, Rowland, & Pinto, 2005; Ganz, 2005; McBride & Ostroff, 2003). After a cancer diagnosis, many survivors contemplate and express interest in making healthful behavior changes in relation to smoking cessation, nutrition, and exercise (Demark-Wahnefried et al., 2005; Pinto & Trunzo, 2005). A healthful lifestyle may help to mitigate the late effects of cancer treatment, prevent development of new chronic conditions, and reduce the negative impact of existing chronic conditions on quality of life. However, population-based surveys indicate that the health behaviors of survivors are not always positive and are in need of improvement (Bellizzi, Rowland, Jeffery, & McNeel, 2005; Hawkins et al., 2010; Mayer et al., 2007; Tseng, Lin, Moody-Thomas, Martin, & Chen, 2012).

Several studies have focused on addressing nutrition, exercise, and smoking cessation with survivors (Karam-Hage, Cinciripini, & Gritz, 2014; Pekmezi & Demark-Wahnefried, 2011), but few have examined how the experience of cancer diagnosis and treatment affects the health behaviors of family caregivers. Understanding the degree to which an experience of cancer can trigger family caregivers to make health behavior changes has implications for the health of the survivor and for the health of family caregivers. Family members are likely to have a key positive influence on the health-promoting behaviors of survivors. Family influence on weight loss behaviors (Samuel-Hodge et al., 2010), smoking cessation (McBride & Ostroff, 2003; Phua, 2013), and engagement in physical activity (Gilliam et al., 2013; Khan, Stephens, Franks, Rook, & Salem, 2013) has been documented. In addition, positive behavior change in one spouse may influence similar behavior change in the other spouse (Falba & Sindelar, 2008; Lewis et al., 2006). Limited research has been conducted concerning the role that family members play in survivors' health behaviors. In a study of the health maintenance practices of family members of long-term

survivors, family members not only engaged in a high number of healthful activities, but also advocated for health maintenance activities in the survivors (Bowman, Rose, & Deimling, 2005).

The experience of cancer occurs within the context of the family (Northouse, 2005), and some evidence supports the notion that the teachable moment for health promotion may extend to family members. A review of health behavior studies in cancer caregivers found conflicting results, with positive and negative changes in health behaviors (Ross, Sundaramurthi, & Bevans, 2013). Family members of survivors have demonstrated improved health behaviors: engagement in cancer screening services (Son et al., 2011), increased physical activity and sun protective behaviors (Humpel, Magee, & Jones, 2007), and improved nutrition and exercise to reduce breast cancer risk (Lemon, Zapka, & Clemow, 2004). However, a large cross-sectional study of more than 44,000 sisters of women with breast cancer found that their health behaviors were no better than those of the general population (Spector, Deroo, & Sandler, 2011). In addition, the stress and demands of caregiving may place family members at risk for negative changes in health behaviors, such as physical inactivity (Beesley, Price, & Webb, 2011; Mazanec, Daly, Douglas, & Lipson, 2011) and weight gain (Beesley et al., 2011).

The opportunity to affect the health behaviors of family members of individuals with cancer may be limited during the cancer trajectory. The transition at the end of primary cancer treatment has been identified as perhaps the most opportune time for oncology health professionals to incorporate health and wellness information into instructions regarding follow-up care for patients (Bellizzi et al., 2005; Ganz, 2005). One survey of 978 survivors with early-stage breast cancer or prostate cancer found a heightened interest in health-promotion interventions within six months of diagnosis (Demark-Wahnefried, Peterson, McBride, Lipkus, & Clipp, 2000). In another study of 7,384 survivors, risky health behaviors such as smoking and not being physically active were most prevalent during the first year after diagnosis (Bellizzi et al., 2005). These findings underscore the importance of early intervention and suggest that healthcare providers are missing opportunities to intervene. If providers can determine that family caregivers are also receptive to health information, then interventions for healthful behavior changes that capitalize on the receptivity of the survivor and family can be incorporated into routine care at the transition to post-treatment survivorship.

Data show that unhealthful behaviors are prominent in survivors. However, research suggests that the cancer experience may be a teachable moment and that the transition to post-treatment survivorship is an opportunity to spark health behavior change in survivors. Although family members likely are a critical influence on the health behaviors of survivors, little is known about how the experience of cancer affects the health behaviors of survivors' family members. The primary purposes of this pilot study were (a) to describe the impact of the cancer experience on the health behaviors of survivors' family members and (b) to determine factors associated with family members' intentions for health behavior change. Secondary aims included assessing the feasibility of conducting interviews with family members at the post-cancer treatment transition, testing the adequacy of a health behaviors assessment tool, and describing patients' goals for their health at the completion of treatment.

Two theories guided the development of this study and helped to determine factors that influence the intention for health behavior change in survivors' family members. The theory of planned behavior posits that an individual's intention to perform a specific behavior is a key construct for evaluation because it directly determines actual performance of the behavior (Fishbein & Ajzen, 2010). Intention is also an early point in the trajectory of behavior change that may be targeted for an intervention. Several factors may influence intention. Assessment of whether a behavior will be beneficial in reducing a health risk is an outcome expectancy that shapes an individual's attitude toward the behavior and, consequently, influences his or her intention of performing that behavior (Fishbein & Ajzen, 2010). Perceived self-efficacy, or the confidence that one is capable of performing a behavior or group of related behaviors to produce a specific outcome, plays an important role in the formation of behavioral intentions. According to the theory of planned behavior, moods and emotions are considered background factors that may affect one's beliefs, attitudes, and perceived self-efficacy (Fishbein & Ajzen, 2010). Emotional distress, which is a common problem among survivors (Zabora, BrintzenhofeSzoc, Curbow, Hooker, & Piantadosi, 2001) and family members of patients and survivors (Pitceathly & Maguire, 2003), may influence intention (Mullens, McCaul, Erickson, & Sandgren, 2004). Although emotional distress has been associated with positive and negative behavior change in survivors (Park & Gaffey, 2007), distress in family members has not been well studied as a factor influencing their health behavior change.

Family systems theory views families holistically, as adaptive, organized systems with order and structure, but also emphasizes individual family members as interrelated elements that are interdependent and capable of influencing one another (Cox & Paley, 1997). A family systems perspective suggests that family relationships

may be an influential factor in the adoption of healthful behaviors during the cancer experience. Characteristics of family relationships, such as how committed family members are to helping one another (cohesion), how directly they express their emotions (expressiveness), and how much anger is expressed openly (conflict), were explored in this study for their relationship to family members' intention for behavior change.

Methods

Design, Sample, and Setting

A cross-sectional, descriptive, correlational design was used to describe relationships between family member intention for behavioral change and perceived benefits, self-efficacy, emotional distress, and family functioning. The study was approved by the University Hospitals Case Medical Center Institutional Review Board. From June to December 2010, a convenience sample of adult patients and their family caregivers was obtained from the oncology clinics at the University Hospitals Seidman Cancer Center, which is part of the National Cancer Institute–designated Case Comprehensive Cancer Center at Case Western Reserve University in Cleveland, Ohio. Patients with a diagnosis of stage 0, I, II, or III breast, colorectal, head and neck, lung, or prostate cancer who were nearing the completion of their primary cancer treatment and who were receiving treatment as outpatients were included. Stages IVa and IVb were allowed for patients with head and neck cancer because they indicate advanced local and regional disease, rather than distant metastatic disease (stage IVc). Otherwise, patients with stage IV disease were excluded. For inclusion, family members had to be aged 18 years or older, the spouse or adult child of the patient, living with the patient, and cognitively intact, as evidenced by orientation to person, place, and time.

Potential participants were identified from review of the weekly treatment schedules in collaboration with the clinic nurse. Patients were approached in the clinic at three weeks or fewer before completion of their definitive course of cancer treatment. Once consent was obtained, patients were asked to identify an adult family member who lived with them, was a close support, and had been involved with them during treatment; the family member did not need to be designated as a caregiver. The family member was then invited to participate in the study, and consent was obtained.

Measures

Family member health behavior: A 17-item, investigator-constructed survey was used for self-report of health behaviors, intention for behavior change, perceived benefit of behavior, self-efficacy in performing behavior, and impact of cancer experience on awareness. The health-promoting behaviors of eating a healthful diet, doing moderate-intensity physical activity, and quitting smoking were the foci of the survey.

Family members were asked to describe the frequency of health behaviors related to diet, physical activity, and smoking cessation prior to the cancer diagnosis and within the past month. Participants were asked, "Prior to your family member's diagnosis of cancer, how many days per week, on average, did you do 30 minutes of moderate[-intensity physical] activity ([e.g.,] walking briskly, [performing] yard work, jogging, gardening, swimming, biking, golf[ing])?" Potential responses were "never," "one day per week," "two to three days per week," and "more than three [days] per week." This question was then repeated with the time frame of "in the past month." Family members were also asked, "Prior to your family member's diagnosis of cancer, how often did you eat a [healthful] diet that included a variety of recommended foods, such as whole grains, fruits, vegetables, protein, and dairy?" Response categories were "usually," "rarely," and "never," and the question was repeated for the "in the past month" time frame. In addition, participating family members were asked, "Do you smoke cigarettes?" Response categories for cigarette use were "never smoked," "I used to smoke but quit," "I smoke some days," and, "I smoke every day." This question was not used with a specific time frame because of the response choices.

Intention for behavior change regarding diet, exercise, and smoking cessation was assessed using a seven-point Likert-type scale that ranged from 1 (definitely do not intend) to 7 (definitely do intend). Items addressing exercise and diet, respectively, were, "I plan to do 30 minutes of moderate[-intensity physical] activity (e.g., walking briskly, [performing] yard work, jogging, gardening, swimming, biking, golf[ing]) each day during the next month," and "During the next month, I will try to eat a [healthful] diet each day that includes a variety of recommended foods, such as whole grains, fruits, vegetables, protein, and dairy." Family members who were currently smoking rated their intention to quit smoking during the next month. In addition, family members rated the perceived benefit of each behavior (i.e., eating a healthful diet, exercising, and quitting smoking) on a similar scale that ranged from 1 (not at all beneficial) to 7 (extremely beneficial). Family members also rated their perceived self-efficacy using another scale that ranged from 1 (not at all confident) to 7 (totally confident). Lastly, family members rated the extent to which the cancer experience had raised their awareness of their cancer risk, made them think about undergoing screening tests, and changed what they do to take care of their

Table 1. Sample Characteristics

Characteristic	Family Members (N = 39) n	Patients (N = 50) n
Gender		
Female	18	34
Male	21	16
Race or ethnicity		
Caucasian	31	34
African American	8	16
Marital status[a]		
Married	28	40
Single	10	10
Work status		
Employed	19	27
Unemployed	20	23
Annual household income ($)		
20,000 or less	4	8
21,000–49,999	13	15
50,000 or greater	22	27
Education		
High school or less	19	26
College or more	20	24
Type of cancer		
Breast	–	28
Head and neck	–	7
Prostate	–	7
Colorectal	–	4
Lung	–	4
Cancer stage[b]		
0 or I	–	12
II	–	21
III	–	11
IV	–	4

[a] One family member had missing data for marital status.
[b] Two patients had missing data for cancer stage.

health; they again used a scale that ranged from 1 (not at all) to 7 (a great deal).

After completing the survey, each family member participated in an interview that lasted about 20 minutes and featured a series of open-ended questions designed to gain insight into past and current health behaviors, barriers to behavior change, and preferences for the format of health-promotion information. Open-ended questions included, "Have you thought about your own health during your family member's illness and treatment?", "Have you taken any steps [toward] improving your health, and what triggered these steps?", and, "Would you be open to having a nurse talk with you about your health?"

Family relationships: Family relationships were measured using the relationship dimensions subscale of the Family Environment Scale (FES) (Moos & Moos, 2009), which is composed of 27 items (three subscales) that measure cohesion, expressiveness, and conflict. Family members designated whether each item was true or false regarding their families. A raw score for each subscale was calculated by summing the number of responses in the direction outlined in the scoring manual. The possible range for each subscale is 0–9, with a higher score indicating a greater amount of that dimension. Test-retest reliability and construct validity of the FES have been established (Moos & Moos, 2009). In the current study, the internal consistency was evaluated by means of Cronbach's alpha. Values for the subscales of cohesion, expressiveness, and conflict were 0.5, 0.37, and 0.74, respectively. A wide range of alphas have been reported with the FES, and its authors attribute low subscale internal consistencies to the dichotomous nature of the data, short subscale length, and intentional use of diverse items (Moos, 1990).

Emotional distress: Emotional distress in family members and patients was measured by the Distress Thermometer (National Comprehensive Cancer Network, 2013). Participants rated their level of distress during the past week on a single scale from 0 (no distress) to 10 (extreme distress). The validity of the thermometer as a clinical screening tool for distress in patients (Jacobsen et al., 2005; Mitchell, 2007) and in family members of patients with cancer (Zwahlen, Hagenbuch, Carley, Recklitis, & Buchi, 2008) has been supported.

Other measures: Although the primary focus of the study was on the family member, a brief 15-minute interview was conducted with each patient to determine future health goals and intentions for health behavior change at the post-treatment transition. Using a question formulated by Lauver, Connolly-Nelson, and Vang (2007), patients were asked, "In thinking about your health at this time, what would you like to be able to do in the future that you are not able to do now? In other words, what goals do you have for your future that may be related to your health?"

Demographic information, such as age, race, gender, marital status, employment status, education, income, and living arrangement, was collected from the participating family members and patients. Information regarding each patient's cancer type, stage of cancer, months since diagnosis, type of treatments received to date, and concurrent treatments was collected from his or her medical record. Patients and family members were asked to rate their current health as excellent, very good, good, fair, or poor.

Data Analyses

Data were analyzed using SPSS®, version 19.0. Descriptive statistics were used to describe family members' health behaviors, intention, perceived benefit, self-efficacy, emotional distress, and family relationships. Because of the ordinal scales used, bivariate correlations were assessed using Spearman's

correlation coefficient to determine the associations between family members' intentions to adopt or maintain health behaviors and their perceived benefit, emotional distress, family relationships, and patients' distress. Group differences were assessed using independent sample t tests, chi-square tests, and the Mann-Whitney test. All tests of significance were two-tailed, with alpha set at 0.05. Responses to open-ended questions were categorized for reporting of frequencies.

Results

Sample Characteristics

The final sample consisted of 39 family members and 50 patients. The enrollment rates for family members and patients were 78% and 75%, respectively. The mean age was 57.18 years for family members and 62.22 years for patients. The typical family member was male, Caucasian, and married. All family members resided in the same household as the patient, and most (n = 30) were in a spousal or partner relationship with the patient. The typical patient was female, Caucasian, and married. The mean time since diagnosis was 7.14 months (SD = 3.92, median = 6) with the mean duration of treatment being 5.58 months (SD = 3.7, median = 5). Most patients were completing a course of definitive therapy, with the combination of surgery, chemotherapy, and radiation therapy being the most common (n = 16). Sample demographic and medical characteristics are displayed in Table 1.

All patient interviews occurred in person in the clinic; most (n = 25) interviews with family members occurred via telephone. Family members who completed telephone interviews were more likely to be male (χ^2 [1, N = 39] = 5.61, $p < 0.05$) and employed (χ^2 [1, N = 39] = 6.51, $p < 0.05$). No other statistically significant differences were found for intention, perceived benefit, and confidence, or for all of the FES subscales.

Descriptive Statistics

Thirty family members rated their health as good or excellent. Seven family members were currently smoking, and 28 reported doing 30 minutes of moderate-intensity physical activity three or fewer days per week. Family members rated their frequency of doing 30 minutes of daily moderate-intensity physical activity prior to diagnosis (never, n = 2; one day per week, n = 6; two to three days per week, n = 13; more than three days per week, n = 18) and in the past month (never, n = 2; one day per week, n = 10; two to three days per week, n = 16; more than three days per week, n = 11). Similarly, family members rated their frequency of eating a healthful diet prior to diagnosis (usually, n = 32; rarely, n = 6; never, n = 1) and in the past month (usually, n = 30; rarely, n = 9; never, n = 0).

As shown in Table 2, family members had, on average, high ratings for the extent to which the cancer experience raised awareness of their cancer risk and made them think about undergoing screening for cancer. Ratings were lower for making changes in their health behaviors as a result of the cancer experience. Family members had, on average, high ratings for intention, perceived benefit, and confidence related to behaviors of eating a healthful diet and doing 30 minutes of daily moderate-intensity physical activity. Family members who were currently smoking reported low ratings for intention and confidence in smoking cessation but high ratings for perceived benefit. Family members had, on average, high scores for family cohesion, mid-range scores for expressiveness, and low scores for conflict. Family members most often reported positive family relationships with a high degree of commitment and support among family members, encouragement to express feelings openly, and little overt expression of anger and conflict among family members.

The mean distress score for family members was 4.59 (SD = 3.06, median = 5) and 3.28 for patients (SD = 2.85, median = 2) for patients. Family members were more likely than patients to report a higher distress level at

Table 2. Means, Standard Deviations, and Medians for Scores on Major Study Variables Among Family Members (N = 39)

Variable	$\bar{X}$	SD	Median	Possible Range
Extent to which cancer experience				
Changed healthcare behaviors	3.54	2.21	3	1–7
Led to consideration of screening tests	5.03	2.4	6	1–7
Raised awareness about cancer risk	5.33	2.12	6	1–7
Intention for				
Moderate-intensity physical activity	5.31	1.72	5	1–7
Healthful diet	6.08	0.93	6	1–7
Smoking cessation[a]	3.71	2.63	3	1–7
Perceived benefit of				
Moderate-intensity physical activity	6.51	0.94	7	1–7
Healthful diet	6.69	0.61	7	1–7
Smoking cessation[a]	5.57	2.15	6	1–7
Confidence in performing				
Moderate-intensity physical activity	5.74	1.46	6	1–7
Healthful diet	6.13	098	6	1–7
Smoking cessation[a]	3.43	92.37	3	1–7
Family relationships measured in				
Cohesion	7.66	1.36	8	0–9
Conflict	2.16	2.07	2	0–9
Expressiveness	5.13	1.66	5	0–9

[a] Seven family members were current smokers at the time of the study.

Table 3. Correlations Between Family Members' Intention and Independent Variables (N = 39)

Variable	Moderate-Intensity Physical Activity		Healthful Diet		Smoking Cessation[a]	
	r_s	p	r_s	p	r_s	p
Confidence	0.457	0.003	0.386	0.015	0.844	0.017
Family cohesion	0.148	0.377	0.081	0.63	–0.318	0.488
Family conflict	–0.196	0.237	0.143	0.392	0.283	0.538
Family expressiveness	0.275	0.09	0.389	0.014	0.168	0.718
Family member distress score	–0.224	0.17	–0.152	0.355	0.789	0.035
Family member self-rating of health	–0.286	0.077	–0.255	0.118	0.68	0.093
Patient distress score	–0.11	0.506	–0.102	0.535	–0.191	0.682
Perceived benefit	0.437	0.005	0.454	0.004	0.086	0.855

[a] Seven family members were current smokers at the time of the study.
r_s—Spearman's rho

the completion of cancer treatment (U = 724.5, z = –1.95, p = 0.05). Distress scores of family members were not significantly related to perceived benefit or confidence for any health behavior.

During the structured interviews, 34 family members indicated that they had thought about their own health during their family members' illness. Most often, family members thought about undergoing screening tests for cancer (n = 8) or a physical checkup (n = 8), eating a healthful diet (n = 8), and performing moderate-intensity physical activity (n = 6). Seventeen family members reported taking steps toward improving their health; these steps were most often triggered by factors related to caregiving and patient needs. Twenty-four family members identified barriers to improving their health, with stress or emotional concerns being the most common (n = 7). Most family members (n = 26) were receptive to having a nurse talk with them about their health. Most family members (n = 19) indicated they would prefer to receive health information by way of print materials. Others noted they would prefer to receive such information in person (n = 15), online (n = 9), over the phone (n = 2), and during a seminar (n = 1).

All (N = 49) patients interviewed at the completion of treatment articulated health-related goals that they had for themselves; one patient declined to be interviewed. Patients' goals most often involved physical activity (e.g., exercise, reconditioning) (n = 34), which was followed by nutrition (n = 28). Other identified goals were social (e.g., family, friends, travel, leisure) (n = 26) and emotional (e.g., mind, body, spirit) (n = 8) in nature. Also expressed was a desire for smoking cessation (n = 1). Patient self-ratings of health were excellent (n = 1), very good (n = 18), good (n = 20), fair (n = 9), and poor (n = 2).

Bivariate correlates of intention are shown in Table 3. Greater intention to perform moderate-intensity physical activity was associated with greater perceived benefit of doing moderate-intensity physical activity and greater confidence in performing moderate-intensity physical activity. Intention for physical activity was not associated with family characteristics, distress scores, self-rating of health, and any family member demographic variable. Greater intention for eating a healthful diet was associated with greater perceived benefit of a healthful diet, greater confidence in eating a healthful diet, and higher scores for family expressiveness. The intention for eating a healthful diet was not associated with family cohesion and conflict, distress scores, self-rating of health, and any family member demographic variable. In the sample of seven family members who reported currently smoking, greater intention for quitting smoking was associated only with greater confidence in quitting and higher distress.

Discussion

In the current study, family members reported strong intentions for performing moderate-intensity physical activity and for eating a healthful diet at the transition to post-treatment survivorship. Family members viewed these behaviors as beneficial and were confident in their ability to perform the behaviors. According to the theory of planned behavior, these results suggest that the family members, overall, were motivated to engage in health-promoting behaviors related to physical activity and nutrition. These findings were reinforced by the results of surveys and interviews, which indicated that the cancer experience triggered family members to think about their health and cancer risk.

However, family members reported actually making changes in their health behaviors as a result of the cancer experience to a much lesser degree. This may be related to the overall good health of the participants; most family members rated their health as good or excellent, most did not smoke, and most reported eating a healthful diet. This lower rating may also reflect

that family members did not know how to take steps to improve their health. The self-reported reduction in the frequency of physical activity during cancer treatment and the discovery that about three-quarters of family members were not meeting the recommended guidelines of 150 minutes of moderate-intensity physical activity per week (U.S. Department of Health and Human Services, 2008) underscore the need for interventions to promote physical activity in this population. The authors' finding of low levels of physical activity is consistent with other studies involving family caregivers of patients with cancer (Beesley et al., 2011; Mazanec et al., 2011).

At the completion of cancer treatment, patients readily expressed their health-related goals. Similar to findings by Lauver et al. (2007), who interviewed patients within four weeks of treatment and again within three or four months after treatment, many of the current study's participants cited multiple goals, with the goal to increase the amount of physical activity they performed being the most common.

This study found that the end of cancer treatment was a point of high distress for family members, and that it could take a toll on their health. Although studies have shown that emotional distress in patients (Carlson, Waller, Groff, Giese-Davis, & Bultz, 2013) and family caregivers (Choi et al., 2012) decreases over time following treatment, about 30% of patients (Carlson et al., 2011) and subgroups of family caregivers (Choi et al., 2012; Kim, Carver, Rocha-Lima, & Shaffer, 2013) will continue to experience significant levels of distress at one year after diagnosis. A population-based study reported that even low levels of distress can have negative health effects and are associated with an increased risk of death from cardiovascular disease (Russ et al., 2012).

Stress and emotional concerns were reported by family members as the most frequent barriers to improving their health. However, distress scores were surprisingly not associated with intention for engaging in physical activity and eating a healthful diet or with the theoretical constructs of perceived benefit and self-efficacy. A study of family caregivers of older adults similarly found that emotional distress was not associated with a change in health-promoting behaviors (McDonald & Wykle, 2003). In contrast, Park and Gaffey (2007), who reviewed 30 studies of psychosocial factors and health behavior change in only survivors, determined that cancer-related distress influenced positive health changes. A possible explanation for the current study's findings is that the distress in family members was not of a sufficient amount to interact with the complex processes of behavior change, a phenomenon observed in a qualitative study of primary care patients (McKenzie & Harris, 2013).

Knowledge Translation

The post-treatment transition presents an opportunity to employ a family-based strategy, versus a patient-focused one, to promote physical and emotional health behaviors that can be practiced well into survivorship.

A need exists for the development and testing of pragmatic, evidence-based interventions that capitalize on the receptivity of the family member and patient regarding wellness strategies.

Self-efficacy and perceived benefit may be appropriate targets for an intervention to bolster intention for behavior change.

Limitations

This study contributes to the limited empirical literature exploring the impact of the cancer experience on family members' health behaviors. However, the use of a small convenience sample, with more than 50% of patients having breast cancer, limits the generalizability of results. The investigator-constructed survey of health behaviors was intended to provide a global picture of the impact of the cancer experience on family members' diet, physical activity, and smoking, but it was limited in scope. A survey of specific types of physical activity (i.e., occupational, household, and recreational) and parameters (i.e., frequency, duration, and intensity of activity), coupled with an objective measure of physical activity, would provide a more detailed description. The current study was also limited by its cross-sectional design that prevents examination of causal relationships.

Conclusions and Implications for Nursing

The results from this pilot study have important preliminary implications for practice and research. Despite reporting high levels of distress, family members were thinking about their own health, had strong intentions for engaging in healthful behaviors, and expressed a willingness to talk with a nurse about their health. The transition at the completion of cancer treatment may be the most optimal time during the illness trajectory for oncology nurses to engage family members, as well as patients, in behavior change.

Another implication for clinical practice is the need to assess family members for distress at the transition to post-treatment survivorship. The transition is a critical period when patients and family members have reduced contact with their oncology team and access to support services. Providing patients and family members with strategies to reduce distress at the transition

to post-treatment survivorship may influence the trajectory of distress in the year after treatment.

Additional research is needed to more fully understand the concept of cancer as a teachable moment for family members and how best to integrate communication strategies into clinical practice to optimize behavior change. Pragmatic, evidence-based interventions that capitalize on the receptivity of family members and patients toward wellness strategies at the post-treatment transition must be developed and tested.

Cancer is a family experience, and, as such, the patient-caregiver dyad should be viewed as the unit of care in oncology nursing practice (Lewis, 2006; Northouse, 2005). An opportunity exists at the transition to employ a family-based strategy, versus one that is patient focused, to prepare the caregiver-patient dyad for the challenges of post-treatment survivorship and to promote physical and emotional health behaviors that can be practiced well into survivorship.

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