Published in final edited form as:

Oncol Nurs Forum. 2015 January ; 42(1): 54–62. doi:10.1188/15.ONF.54-62.

Health Behaviors in Family Members of Patients Completing Cancer Treatment

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Abstract

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 study.

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, colon, head and neck, lung, or prostate cancer who were completing definitive cancer treatment.

Methods—Patients and family members were approached in the clinic at 3 weeks or less 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 for eating a healthy diet, physical activity, and smoking cessation; emotional distress; and family cohesiveness, conflict, and expressiveness.

Findings—Family members had, on average, high ratings for intention, perceived benefit, and confidence related to behaviors of eating a healthy diet and doing 30 minutes of daily moderate physical activity. They also had high ratings for the extent to which the cancer experience raised their awareness of their own cancer risk and made them think about having screening tests; ratings were lower for making changes in their health behaviors. Distress scores of family members were

high at the completion of cancer treatment. Greater intention for physical activity and nutrition was associated with greater perceived benefit and confidence. Higher scores for family expressiveness was associated with intention for nutrition. Greater intention for smoking cessation was associated only with confidence.

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

Implications for Nursing—Oncology nurses are in a key position to engage family members, as well as 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.

Keywords

Family members; health behaviors; survivorship

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 adoption or maintenance of healthy 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 healthy behavior changes in relation to smoking cessation, nutrition, and exercise (Demark-Wahnefried et al., 2005; Pinto & Trunzo, 2005). A healthy lifestyle is essential during survivorship to mitigate late effects of cancer treatment, prevent development of new chronic conditions, and reduce the negative impact of existing chronic conditions on quality of life in cancer survivors. However, population-based surveys indicate that the health behaviors of cancer 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).

While several studies have focused on addressing nutrition, exercise, and smoking cessation with cancer survivors (Karam-Hage, Cinciripini, & Gritz, 2014; Pekmezi & Demark-Wahnefried, 2011), few have examined how the experience of cancer diagnosis and treatment impacts 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 both for the health of the survivor and for the health of family caregivers. First, family members are likely to be a key positive influence on the health-promoting behaviors of survivors. Family influence on weight loss behaviors (Samuel-Hodge et al., 2010), smoking cessation (Phua, 2013; McBride & Ostroff, 2003), and engagement in physical activity (Gilliam et al., 2013; Khan, Stephens, Franks, Rook, & Salem, 2013) has been documented. Furthermore, positive behavior change in one spouse may influence similar behavior change in the other spouse (Falba & Sindelar, 2008; M. A. Lewis et al., 2006). There is limited research about the role of family members in cancer survivors’ health behaviors. In a study of the health maintenance practices of family members of long-term cancer survivors, family members not only engaged in a high number of healthy activities,

but also advocated for health maintenance activities in the survivors (Bowman, Rose, & Deimling, 2005).

Second, the experience of cancer occurs within the context of the family (Northouse, 2005) and there is some evidence to support the notion that the “teachable moment” for health promotion may extend to family members. A recent review of health behavior studies in cancer caregivers found conflicting results, with both positive and negative changes in health behaviors (Ross, Sundaramurthi, & Bevens, 2013). Family members of cancer 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). Yet, 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 the general population (Spector, Deroo, & Sandler, 2011). Furthermore, 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, Australian Ovarian Cancer Study Group, & Australian Ovarian Cancer Study-Quality of Life Study Investigators, 2011; Mazanec, Daly, Douglas, & Lipson, 2011) and weight gain (Beesley et al., 2011).

The opportunity to impact the health behaviors of family members of individuals with cancer may be time-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/wellness information with instructions regarding follow-up care for patients (Bellizzi et al., 2005; Ganz, 2005). One survey of 978 survivors with early-stage breast and prostate cancer found a heightened interest in health promotion interventions within 6 months of diagnosis (Demark-Wahnefried, Peterson, McBride, Lipkus, & Clipp, 2000). Yet, in another study of 7,384 cancer survivors, risky health behaviors such as smoking and lack of physical activity were most prevalent during the first year after diagnosis (Bellizzi et al., 2005). These findings underscore the importance of early intervention and suggest that we are missing opportunities to intervene. If we can determine that family caregivers are also receptive to health information at the transition, then interventions that capitalize on the receptivity of both the survivor and family for healthy behavior changes can be incorporated into routine care at the transition to post-treatment survivorship.

In summary, data show that unhealthy behaviors are prominent in cancer survivors. The literature 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 it is likely that family members 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 to (1) describe the impact of the cancer experience on the health behaviors of survivors’ family members and (2) 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.

Theoretical Framework

This study was guided by two theories to identify 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 as it directly determines actual performance of the behavior (Fishbein & Ajzen, 2010). It is also an early point in the trajectory of behavior change that may be targeted for an intervention. Several factors may influence intention. An individual's assessment of whether a behavior will be beneficial in reducing a health risk is an outcome expectancy that shapes one's attitude towards the behavior and thus influences an individual's intention for performing the 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, moods and emotions are considered background factors that may impact one's beliefs, attitudes, and perceived self-efficacy (Fishbein & Ajzen, 2010). Emotional distress, which is a common problem in survivors with cancer (Zabora, BrintzenhofeSzoc, Curbow, Hooker, & Piantadosi, 2001) and family members of patients/survivors (Pitceathly & Maguire, 2003), may influence intention (Mullens, McCaul, Erickson, & Sandgren, 2004). Although emotional distress has been associated with both positive and negative behavior change in cancer 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 adoption of healthy behaviors during the cancer experience. Characteristics of family relationships, such as how committed family members are in 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

Study 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 a member of the National Cancer Institute-designated Comprehensive Cancer

Center of Case Western Reserve University. Patients with a diagnosis of stage 0, I, II, or III breast, colon, 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 IV A and B were allowed for patients with head and neck cancer because they indicate advanced, local/regional disease, rather than distant metastatic disease (Stage IV C). Otherwise, patients with stage IV disease were excluded. Inclusion criteria for family members were (a) adult, 18 years of age and older, (b) spouse or adult child of patient, (c) living with the patient, and (d) 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 3 weeks or less before the completion of their definitive course of cancer treatment. Once consent was obtained, the 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 behaviors—An investigator-constructed survey consisting of 17 items 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 healthy diet, doing moderate physical activity, and quitting smoking were the focus of the survey.

Family members were asked to describe frequency of health behaviors related to diet, physical activity, and smoking cessation prior to the cancer diagnosis and within the past month. For example, 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 activity (walking briskly, yard work, jogging, gardening, swimming, biking, golf, etc.)?” Potential responses were: *never*, *one day per week*, *2 to 3 days per week*, and *more than 3 times per week*. This item was then repeated with the time frame of “in the past month.” In a similar fashion, family members were asked, “Prior to your family member’s diagnosis of cancer, how often did you eat a healthy diet that included a variety of recommended foods such as whole grains, fruits, vegetables, protein, and dairy?” Response categories for cigarette use were: *never smoked*, *I used to smoke but quit*, *I smoke some days*, *I smoke every day*.

Intention for behavior change related to diet, exercise, and smoking cessation was assessed using a 7-point Likert-type items, ranging from 1 (*definitely do not intend*) to 7 (*definitely do intend*). For example, the single item that addressed exercise was: “I plan to do 30 minutes of moderate activity (walking briskly, yard work, jogging, gardening, swimming, biking, golf, etc.) each day during the next month.” Diet was assessed with the single item, “During the next month, I will try to eat a healthy 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. Family members rated their perceived benefit of each behavior (eating a healthy diet,

exercising and quitting smoking) on a 7-point Likert-type scale, ranging from 1 (*not at all beneficial*) to 7 (*extremely beneficial*). Self-efficacy (confidence) for eating a healthy diet, exercising and quitting smoking during the next month was rated on a 7-point Likert-type scale, ranging from 1 (*not at all confident*) to 7 (*totally confident*). Lastly, family members rated the extent to which the cancer experience raised their awareness of their cancer risk, made them think about having screening tests, and whether they changed what they do to take care of their health, on a 7-point scale, ranging from 1 (*not at all*) to 7 (*a great deal*).

After completing the survey, a structured series of open-ended questions were used during an approximately 20 minute interview with the family members to gain insight into past and current health behaviors, barriers to behavior change, and preferences for the format of health promotion information. For example, questions included: "Have you thought about your own health during your family member's illness and treatment?" "Have you taken any steps towards improving your health and what triggered these steps?" "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 (Moos & Moos, 2009), which is composed of 27 items (3 subscales) that measure cohesion, expressiveness, and conflict. Family members designated whether each item was true or false in respect to their families. A raw score for each subscale is calculated by summing the number of responses in the direction outlined in the scoring manual. The possible range for each subscale is 0 to 9, with a higher score indicating a greater amount of that dimension. Test-retest reliability and construct validity of the Family Environment Scale (FES) have been established (Moos & Moos, 2009). In this study, internal consistency (Cronbach's alpha) for the subscales were: cohesion .50, expressiveness .37, and conflict .74. 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 both family members and patients was measured by the distress thermometer (National Comprehensive Cancer Network, 2012). 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 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 elicit 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 variables were collected via self-report for purposes of describing the sample. Information regarding age, race, gender, marital status, employment status, education, income, and living arrangement were collected from the family member and patient. Cancer type, stage of cancer, months since diagnosis, type of treatments received to date, concurrent treatments, were collected from the patient's medical record. Both patients and family members were asked to rate his/her current health as excellent, very good, good, fair, or poor.

Data Analyses

Data were analyzed using IBM SPSS Statistics version 19. Descriptive statistics were used to describe family members' health behaviors, intentions, perceived benefits, self-efficacy, emotional distress, and family relationships. Due to the ordinal scales used, bivariate correlations were assessed using Spearman's correlation coefficient to determine the associations between family members' intentions to adopt/maintain health behaviors and 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 .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 for family members and 62.22 for patients. The typical family member was male, White, and married. All family members resided in the same household as the patient and most ($n = 30$, 76.9%) were in a spousal or partner relationship with the patient. The typical patient was female, White, and married. The mean time since diagnosis was 7.14 months ($SD = 3.92$, $Mdn = 6$) with a mean duration of treatment of 5.58 months ($SD = 3.70$, $Mdn = 5$). Most patients were completing a course of definitive therapy, with the combination of surgery, chemotherapy, and radiation therapy being the most common ($n = 16$, 32.0%). Sample demographic and medical characteristics are displayed in Table 1.

All of the patient interviews occurred in-person in the clinic; most ($n = 25$, 64.1%) interviews with family members occurred via telephone. Family members who completed telephone interviews were more likely to be male ($\chi^2(1, N = 38) = 5.61, p < .05$) and employed ($\chi^2(1, N = 38) = 6.51, p < .05$). There were no other statistically significant differences found for intention, perceived benefit, confidence, and all of the family environment subscales.

Descriptive Statistics

Thirty (76.9%) family members rated their health as good or excellent. Seven (18%) family members were currently smoking and 28 (71.8%) reported doing 30 minutes of moderate activity on three or fewer days per week. Family members rated their frequency of doing thirty minutes of moderate activity prior to diagnosis (*never*: $n = 2$, 5%; *1 day/week*: $n = 6$,

15%; 2–3 days/week: $n = 13$, 33%; more than 3 days/week: $n = 18$, 46%) and in the past month (never: $n = 2$, 5%; 1 day/week: $n = 10$, 26%; 2–3 days/week: $n = 16$, 41%; more than 3 days/week: $n = 11$, 28%). Similarly, family members rated their frequency of eating a healthy diet prior to diagnosis (usually: $n = 32$, 82%; rarely: 6, 15%; never: 1, 3%) and in the past month (usually: $n = 30$, 77%; rarely: 9, 23%; never: 0, 0%).

As shown in Table 2, family members had, on average, high ratings for the extent to which the cancer experience raised family members' awareness of their own cancer risk and made them think about having screening tests 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 healthy diet and doing 30 minutes of daily moderate physical activity. Family members who were currently smoking reported low ratings for intention and confidence in smoking cessation and high ratings for perceived benefit. Also shown in Table 2, family members had, on average, high scores for family cohesion, mid-range scores for expressiveness, and low scores for conflict. In other words, 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 was 4.59 ($SD = 3.06$, $Mdn = 5.00$) for family members and 3.28 ($SD = 2.85$, $Mdn = 2.00$) for patients. Family members were more likely to report a higher distress level at the completion of cancer treatment than were patients ($U = 724.50$, $z = -1.95$, $p = .05$). Distress scores of family members were not significantly related to perceived benefit or confidence for any health behavior.

During the structured interviews, 34 (87.2%) family members indicated that they had thought about their own health during their family members' illness. Most often, family members thought about having screening tests ($n = 8$), a physical check-up ($n = 8$), eating a healthy diet ($n = 8$) and exercising ($n = 6$). Seventeen (43.6%) of family members reported taking steps towards improving their health, triggered most often by factors related to caregiving and patient needs. Twenty-four (66.7%) family members identified barriers to improving their health, with stress/emotional concerns being the most common barrier ($n = 7$, 29.2%). Most family members ($n = 26$, 66.7%) were receptive to having a nurse talk with them about their health. Format preferences for health information were: print materials, $n = 19$, 41.3%; in-person, $n = 15$, 32.6%; online materials, $n = 9$, 19.6%; telephone, $n = 2$, .04%; and seminar, $n = 1$, .02%.

All ($n = 49$, 100%) of the patients interviewed at the completion of treatment articulated health-related goals that they had for themselves. The goals were most often related to physical activity (exercise or reconditioning), $n = 34$, 69.4%; followed by nutrition, $n = 28$, 57.1%; social (family, friends, travel, leisure), $n = 26$, 53.1%; emotional (mind/body/spiritual), $n = 8$, 16.3%; and smoking cessation, $n = 1$, 2.0%. Patient self-ratings of health were: excellent: $n = 1$, 2.0%; very good: $n = 18$, 36.0%; good: $n = 20$, 40.0%; fair: $n = 9$, 18.0%; and poor: $n = 2$, 4.0%.

Bivariate correlates of intention are displayed in Table 3. Greater intention to perform moderate physical activity was associated with greater perceived benefit of doing moderate activity and greater confidence in performing moderate 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 healthy diet was associated with greater perceived benefit of a healthy diet, greater confidence in eating a healthy diet, and higher scores for family expressiveness. Intention for healthy 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 7 family members who reported smoking, greater intention for quitting smoking was only associated with greater confidence in quitting and higher distress.

Discussion

In this study, family members reported strong intentions for performing moderate activity and eating a healthy 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, the 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 both 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 due to the overall good health of the participants, as most family members rated their health as good or excellent, most did not smoke, and most reported eating a healthy diet. Or this lower rating may reflect that the family members did not know how to take steps to improve their health. The self-reported reduction in frequency of physical activity during cancer treatment and the finding that about three-quarters of family members were not meeting recommended guidelines of 150 minutes of moderate-intensity activity per week (U.S. Department of Health and Human Services, 2008) underscore the need for interventions to promote physical activity in this population. Our finding of low levels of physical activity is consistent with other studies of cancer family caregivers (Beesley et al., 2011; Mazanec, et al., 2011).

Patients in this study readily expressed their health-related goals at the completion of cancer treatment. Similar to findings by Lauver et al. (2007), who interviewed patients within 4 weeks and in 3 to 4 months after treatment, many of our participants cited multiple goals with the goal to increase physical activity being most common.

An important finding in this study was that the end of cancer treatment was a point of high distress for family members, which could have a toll on their own health. Although studies have shown that emotional distress in both patients (Carlson, Waller, Groff, Giese-Davis, & Bultz, 2011) and family caregivers (Choi et al., 2012) decreases over time after treatment, approximately 30% of patients (Carlson et al., 2011) and subgroups of family caregivers (Choi et al., 2012; Kim, Carver, Rocha-Lima, & Shaffer, 2011) 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 increased risk of death from cardiovascular disease (Russ et al., 2012).

Although stress and emotional concerns were reported by family members as the most frequent barriers to improving their health, distress scores were surprisingly not associated with intention for physical activity and eating a healthy diet or with the theoretical constructs of perceived benefit and self-efficacy. Our result is similar to the finding in a study of family caregivers of older adults 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 cancer survivors, not family members, determined that cancer-related distress influenced positive health changes. A possible explanation for our result is that the distress in family members was not of a sufficient threshold level to interact with the complex processes of behavior change, a phenomenon observed in a qualitative study of primary care patients (McKenzie & Harris, 2013).

Limitations

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

Conclusions and Implications for Nursing Practice and Research

The results from this pilot study have important preliminary implications for both practice and research. Despite reporting high levels of distress, family members were thinking about their own health, had strong intentions for engaging in healthy 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. It is important to provide patients and family members with strategies to reduce distress at the transition to post-treatment survivorship to 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. It is critical to develop and test pragmatic, evidence-based interventions that capitalize on the receptivity of both the family member and patient for wellness strategies at the post-treatment transition.

In conclusion, cancer is a family experience and the patient/caregiver dyad should be viewed as the unit of care in oncology nursing practice (F. M. Lewis, 2006; Northouse, 2005). There is an opportunity at the transition to employ a family-based strategy, versus a patient-focused one, 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.

Acknowledgments

This study was funded by NIH/NCI R25T CA 090355 – Prevention Research Educational Postdoctoral Training Program

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Knowledge Translation

- There is an opportunity at the post-treatment transition 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.
- There is a need to develop and test pragmatic, evidence-based interventions that capitalize on the receptivity of both the family member and patient for wellness strategies.
- Self-efficacy and perceived benefit may be appropriate targets for an intervention to bolster intention for behavior change.

Table 1

Sample Characteristics (N = 39 Family Members and 50 Patients)

	Family Member	Patient
Characteristic	n (%)	n (%)
Gender: Male	21 (53.8)	16 (32.0)
Race/Ethnicity		
Caucasian	31 (79.5)	34 (68.0)
African American	8 (20.5)	16 (32.0)
Marital Status: Married	28 (73.7)	40 (80.0)
Employment Status: Employed	19 (58.7)	27 (54.0)
Annual Household Income		
\$20,000 or less	4 (10.3)	8 (16.0)
\$21,000 - \$49,999	13 (33.3)	15 (30.0)
\$50,000 or greater	22 (56.4)	27 (54.0)
Education		
High school or less	19 (48.7)	26 (52.0)
College or more	20 (51.3)	24 (48.0)
Type of Cancer		
Breast		28 (56.0)
Prostate		7 (14.0)
Head/Neck		7 (14.0)
Colorectal		4 (8.0)
Lung		4 (8.0)
Cancer Stage		
0 or I		12 (25.0)
II		21 (43.8)
III		11 (22.9)
IV		4 (8.3)

Table 2

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

Variable	<i>M</i> (SD)	<i>Mdn</i>	Possible Range
Extent to which the cancer experience:			
Raised awareness about own cancer risk	5.33 (2.12)	6.00	1 – 7
Thought about screening tests	5.03 (2.40)	6.00	1 – 7
Changed health care behaviors	3.54 (2.21)	3.00	1 – 7
Intention for:			
Moderate activity	5.31 (1.72)	5.00	1 – 7
Healthy diet	6.08 (.93)	6.00	1 – 7
Smoking cessation ^a	3.71 (2.63)	3.00	1 – 7
Perceived benefit of:			
Moderate activity	6.51 (.94)	7.00	1 – 7
Healthy diet	6.69 (.61)	7.00	1 – 7
Smoking cessation ^a	5.57 (2.15)	6.00	1 – 7
Confidence in performing:			
Moderate activity	5.74 (1.46)	6.00	1 – 7
Healthy diet	6.13 (.98)	6.00	1 – 7
Smoking cessation ^a	3.43 (2.37)	3.00	1 – 7
FES Cohesion	7.66 (1.36)	8.00	0 – 9
FES Expressiveness	5.13 (1.66)	5.00	0 – 9
FES Conflict	2.16 (2.07)	2.00	0 – 9

^a n = 7 family members who were currently smoking.

Note. FES = Family Environment Scale.

Table 3
Correlations Between Intention for Health Behavior and Independent Variables (N = 39)

Variable	Family Member's Intention for...					
	Moderate Exercise		Healthy Diet		Smoking Cessation ^a	
	<i>r_s</i>	<i>P</i>	<i>r_s</i>	<i>P</i>	<i>r_s</i>	<i>P</i>
Perceived Benefit	.437	.005	.454	.004	.086	.855
Confidence	.457	.003	.386	.015	.844	.017
Family Cohesion	.148	.377	.081	.630	-.318	.488
Family Expressiveness	.275	.090	.389	.014	.168	.718
Family Conflict	-.196	.237	.143	.392	.283	.538
FM Distress Score	-.224	.170	-.152	.355	.789	.035
PT Distress Score	-.110	.506	-.102	.535	-.191	.682
FM Self-rating of Health	-.286	.077	-.255	.118	.680	.093

Note. *r_s* = Spearman's rho; FM = family member; PT = patient.

^a
n = 7