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Vulnerable Characteristics and Interest in Wellness Programs among Head and Neck Cancer Caregivers

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Abstract

Purpose—Head and neck cancer (HNC) caregivers have poorer psychological health compared to patients and the general population, but have not yet been targeted for wellness programs to reduce adverse psychosocial or physical health outcomes. To inform development of such programs, we identified potential vulnerabilities to poor outcomes and examined wellness program preferences among HNC caregivers. We also examined whether interest in wellness programs varied by potential vulnerabilities among HNC caregivers.

Methods—Surveys were administered to caregivers (N = 33) of HNC patients undergoing major surgery. Sociodemographic factors, caregiving characteristics, psychosocial functioning, and health behavior data were collected. Fisher's exact tests and t-tests were used to examine characteristics associated with interest in the different types of wellness programs.

Results—Many caregivers reported a heavy caregiving load (88% live with patient; 73% provide daily care), a smoking history (42%), and compromised psychosocial functioning (45% with depressive symptoms; 33% with anxiety above population norms). Most caregivers were interested in wellness programs focused on diet/exercise (71.9%), cancer education (66.7%), stress

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Compliance with Ethical Standards: Ethical approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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reduction (63.6%), and finances, caregiving, and well-being (57.6%). Caregivers endorsed highest interest in programs offered during the patient's medical treatment (63.6%) and mail was the preferred program format (50.0%). Those with more depressive symptoms reported more interest in programs focused on cancer education ($p = .03$), stress reduction ($p = .05$), and educational classes on finances, caregiving and well-being ($p = .01$).

Conclusions—Wellness programs offering a menu of options should be developed for HNC caregivers.

Keywords

caregivers; head and neck cancer; cancer; wellness programs; mental health; oncology

Background

Head and neck cancer (HNC) is estimated to account for 59,000 new cancer diagnoses and 12,000 deaths in the United States in 2015 [1]. The disease includes cancers of the upper aerodigestive tract including the larynx, pharynx, nasopharynx, and oral cavity [1]. Treatment is often complex requiring multiple modalities and can have a profound impact on quality of life (QOL), extending for many years post-treatment [2]. HNC patients may have significant disfigurement and experience difficulty eating, drinking, and communicating [2]. In addition, when compared to other cancer patients, HNC patients report greater care needs [3].

In the US, there are approximately 3.5 million informal cancer caregivers, typically family members or friends providing un-paid care [4]. Although there are positive benefits of caregiving [5], caregivers experience worse QOL and psychological functioning compared to non-caregivers or normative samples [6–7]. Further, health problems among caregivers are prevalent [7], with chronic caregiving stress contributing to cardiovascular disease [8] and impaired immune function [9]. Another study found that when comparing 392 caregivers of elderly spouses and 427 matched non-caregivers, spousal caregivers who experienced strain had a 63% higher mortality risk than non-caregivers [10].

Sociodemographic (e.g., age, socioeconomic status), caregiving (e.g., relationship to patient, intensity), psychosocial (e.g., stress, depression), and behavioral factors may heighten risk for negative health and psychosocial outcomes in cancer caregivers. Multiple studies have observed that lower SES (lower income, less education) [11–12], younger age [13], spending more time on caregiving tasks [11], and being a spousal caregiver [14] are associated with greater burden and health problems among cancer caregivers. Caregivers reporting more stress are more likely to develop sleep and psychological disturbance, immune dysfunction, and heart disease [14–15]. Other studies have noted health compromising behaviors among cancer caregivers including inadequate physical activity [16], tobacco use [17], and excessive alcohol consumption [16], which are established contributors to poor health outcomes in the general population [18–20]. However, little is known regarding the prevalence of these vulnerable characteristics among HNC caregivers.

Research is limited but growing on the experiences of HNC caregivers and their potential need for wellness and psychoeducational programs. Among caregivers of HNC patients, moderate caregiving burden and poorer psychological health in comparison to patients and the general population have been reported [3, 21]. HNC caregivers have reported unmet informational needs related to the disease and treatment, patient side effects, psychosocial consequences for the family, and survivorship [22–25]. HNC caregivers have also reported a need for psychological support, self-help groups, assistance with coping strategies, patient care, legal/financial support, and healthcare service assistance [22, 23, 25]. In another study, the majority of spouses of laryngectomized cancer patients reported a desire to learn relaxation methods but little interest in professional counseling services [26]. Factors associated with caregivers' unmet supportive care needs have included the caregivers' lack of family support, being female, living with and being married to the patient, and having a secondary education [22, 23]. However, studies have not assessed caregivers' preferences for program type or timing. Furthermore, more research is needed to understand factors associated with interest in wellness programs to help direct recruitment, planning, and delivery of programs to better match caregivers' needs.

Despite the need for wellness programs among HNC caregivers, research in this area remains a challenge. The only published intervention study to date [27] evaluated the feasibility of a one day 6-hour workshop to facilitate coping among HNC patients and multiple family members. Although participants reported being highly satisfied with the intervention, only 19% of families who were approached agreed to participate, despite extensive efforts to recruit and address participation barriers upfront. To increase reach and impact, it is important to determine what types of wellness programs would be desirable and accessible to this population. In this study, we describe sociodemographic, caregiving, psychosocial, and behavioral characteristics that may place HNC caregivers at higher risk for poor health outcomes based on previous research in cancer caregivers or the general population. We also examined interest in different types of wellness programs and preferences for timing and method of program delivery. Lastly, we examined whether interest in different wellness programs varied by these potential vulnerabilities among HNC caregivers.

Methods

Participants

Using a rolling recruitment strategy, we sought participation from caregivers of patients who were recruited for a parent study [28] from two cancer centers. Patients who were 18 years of age with new or persistent/recurrent stage I–IV squamous cell carcinoma of the upper aerodigestive tract, and scheduled for a major HNC surgery were asked to nominate a family member or friend who was providing consistent help to them during their cancer treatment and recovery. Caregivers were approached in-person or contacted by mail or telephone for recruitment. Caregivers were eligible if they were a minimum of 18 years of age and providing unpaid care for a patient in the study. Caregivers were excluded if they could not read or understand English or were cognitively impaired and unable to complete interviews. Informed consent was obtained from all caregivers.

Procedure

Caregivers completed surveys prior to or following patient surgery at the clinic, by telephone, or by mail. Data included demographic factors to describe our participants along with a set of additional sociodemographic, caregiving, psychosocial, and behavioral characteristics that may place HNC caregivers at higher risk for poor health outcomes, or potential vulnerabilities, based on prior research with cancer caregivers. We also assessed interest in and preferences for wellness programs (copy of questionnaire available upon request from corresponding author). Patient clinical data [tumor site, stage of disease, diagnosis type (new or persistent/recurrent diagnosis)] were abstracted from medical chart review. This study was approved by the local Institutional Review Board at each site

Measures

Caregiver Factors Related to Vulnerability for Poor Physical and Mental Health Outcomes

Sociodemographic Factors: Caregivers reported their gender, age, race, ethnicity, relationship status, education level, and employment status.

Caregiving Characteristics: Caregiving questions included relationship to the patient, presently living with the patient (yes/no), days per week of care provided, daily hours of care provided, and providing child care (yes/no).

Health Behaviors: Items from the Cancer Care Outcomes Research and Surveillance (CanCORS) caregivers study were used to assess physical activity (3 days/week) and alcohol consumption (current drinking, frequency of binge drinking) [29]. We also assessed diet (cups of daily fruit and vegetable intake) using a validated fruit and vegetable screener [30] and smoking status using questions from the Tobacco Use Supplement to the Current Population Survey to classify smoking status as (current, former, or never smoker) [31]. Caregivers also indicated their hours of sleep in a 24-hour period (7 hours/night).

Psychosocial Functioning: Depression was assessed using the 10-item short form of the Center for Epidemiologic Studies Depression Scale (CES-D) [32]. Scores range from 0-30, with higher scores representing greater depressive symptoms and a cut off score of ten or higher indicating the presence of significant depressive symptoms. The Emotional Distress – Anxiety – 7 item Short Form 7a [33] was used to measure caregiver anxiety during the past 7 days; raw scores were converted to t-scores with higher scores indicative of more anxiety. Caregiver burden was evaluated using a 4-item screening version of the Zarit Burden Inventory (ZBI), which has been found to be comparable to the full ZBI measure [34]. Scores range from 0 – 16; higher scores correspond to more burden. The ZBI is a widely used measure in caregiving research and has demonstrated excellent internal consistency [35, 36].

Caregiver Interest and Preferences for Wellness Programs—Caregivers answered questions to assess interest level (not interested, somewhat interested, very interested) in wellness programs focused on stress reduction, diet and exercise, educational classes about HNC and treatment, and educational classes about finances, caregiving

responsibilities, and personal well-being. Survey questions also assessed how likely caregivers would be to participate in wellness programs at different time periods (shortly after diagnosis, during treatment appointments, after recovery) and by different modes of delivery (phone, mail, in person at home or the clinic, by computer or internet). Lastly, caregivers were asked how likely (unlikely, somewhat unlikely, likely, extremely likely) they would be to participate in smoking cessation programs at diagnosis, before cancer treatment, during treatment, and after treatment. As a follow up to these questions, we also asked caregivers if they had daily access to a computer with internet at home.

Data Analysis

Descriptive statistics (means and standard deviations for continuous variable and frequencies for categorical variables) were used to summarize sociodemographic factors, caregiving characteristics, psychosocial functioning, health behaviors, interest in wellness programs, and preferred time and method of program delivery. We also computed the prevalence of smokers likely (extremely likely/likely versus somewhat likely/unlikely) to participate in a smoking cessation program by time point (at diagnosis, before cancer treatment, during treatment, after treatment). Frequencies were also used to summarize the percentage of caregivers with meaningful depressive symptoms on the CESD-10 (> 10) and anxiety levels above population norms (> 60).

We used Fisher's exact tests to examine the relationship between categorical caregiver characteristics (gender, race/ethnicity, relationship to patient, married/partnered, currently employed, high school or less education, providing care every day, hours of care, child care, physical activity, current alcohol use, frequency of binge drinking, current smoking, sleep) and the proportion of caregivers who reported being very/somewhat interested versus not interested in each of the programs of interest (stress reduction, diet and exercise, educational classes about HNC, and educational classes about finances, caregiving responsibilities, and personal well-being). T-tests were used to examine relationships between interest (very/somewhat interested versus not interested) in each program and continuous caregiver characteristics (age, fruit and vegetable intake, CESD-10, ZBI, PROMIS Anxiety). All analyses were conducted in SAS (v. 9.4, Cary, NC) with a two-sided alpha level of 0.05 used to indicate statistical significance.

Results

Sample Characteristics

We obtained permission to contact caregivers from 43 patients who participated in our ongoing parent study [28]; the main reason for declining to nominate a caregiver included non-response or inability to reach patients. Thirty-three caregiver questionnaires were returned (77% completion rate). The majority of caregivers were female (81.8%), non-Hispanic white (84.9%), and the mean age was 60 years ($SD = 11.2$) (Table 1). As shown in Table 1, the majority of caregivers were married/partnered (87.9%). The majority of caregivers completed the survey after the patient's surgery (< 6 months = 30.3%; ≥ 6 months = 54.6%) and 15.2% completed surveys on the day of surgery or just prior to the patient's surgery. Approximately half (51.5%) of caregivers were caring for a patient who had stage

IV disease. Over half of the patients being cared for were diagnosed with a persistent/recurrent disease (60.6%).

Caregiver Factors Related to Vulnerability for Poor Physical and Mental Health Outcomes

Approximately half of caregivers had a high school education or less. Most caregivers were caring for a spouse or romantic partner (72.7%), living with the patient (87.9%), and providing daily care (72.7%). Hours of daily care ranged, with slightly less than half (46.9%) providing 1-4 hours per day. Current smoking was only reported by 18.2%; however, 42.4% indicated they were former smokers (Table 2). Current alcohol use was reported by 42.4% and the majority of caregivers (78.8%) reported never engaging in binge drinking. Many caregivers reported less than seven hours of sleep per night (42.4%) and less than three days of moderate physical activity per week (33.3%). The average daily intake of fruits and vegetables (2.7 cups, $SD = 1.7$ cups) was lower than recommended, but comparable to the average intake of US adults (mean intake of 2.7 cups for females and 2.9 cups for males) [37]. Caregivers reported high levels of depressive symptoms (45%) and above average levels of anxiety (33%) (see Table 2).

Interest in Wellness Programs

Most caregivers were interested in programs focused on diet/exercise (71.9%), cancer education (66.7%), stress reduction (63.6%), and educational classes on finances, caregiving, and well-being (57.6%). Caregivers were likely (i.e., extremely or very likely) to participate in programs offered during the patient's medical treatment (63.6%). Approximately half were likely to participate in programs after the patient's diagnosis (51.5%) or after the patient had fully recovered (51.5%). Mail was the preferred method of program delivery (50% extremely or very likely to participate), followed by computer/internet (35.5%), at the clinic (30%), at home (29%), or by phone (12.9%). About one-quarter (24.2%) did not have access to a computer connected to the internet in their home. Among caregivers currently smoking ($n = 6$), caregivers reported being likely or extremely likely to participate in a smoking cessation intervention during (66.7%) or after (66.7%) the patient's cancer treatment; half of the sample reported interest at the time of diagnosis with little interest before cancer treatment (16.7%).

Factors Associated with Wellness Program Interest

Caregivers who were interested in stress reduction programs reported more depressive symptoms ($p = .05$) than those not interested. Similarly, caregivers interested in cancer education classes reported more depressive symptoms ($p = .03$) and anxiety ($p = .04$) and screened higher for burden ($p = .04$) than those not interested (Table 3). In addition, these caregivers were younger in age ($p = .05$) than uninterested caregivers. Moreover, caregivers who were interested in educational classes on finances, caregiving, and well-being reported more depressive symptoms ($p = .01$) and anxiety ($p < .01$) and were younger ($p = .03$) than caregivers not interested. Interest in diet and exercise programs was not associated with any of the characteristics evaluated (Table 3). Caregiver sociodemographic factors (gender, race/ethnicity, employment status, being married/partnered, and having a high school education or less), caregiving characteristics (care every day, living with patient, hours of care, child

care), and health behaviors (physical activity, current smoking, current alcohol use, binge drinking, fruit and vegetable intake, and sleep) were not significantly associated with interest in any program.

Conclusions

In this study, we described sociodemographic, caregiving, psychosocial, and behavioral characteristics in HNC caregivers, examined interest in wellness programs, and examined whether interest in programs varied by potential vulnerabilities, or characteristics that may place HNC caregivers at higher risk for poor health outcomes. We identified the prevalence of some potentially vulnerable characteristics in our sample of HNC caregivers that have previously been associated with a higher risk for poor health outcomes in cancer caregivers or the general population. For example, our participants were predominately female and caring for a spouse, both of which have been associated with poorer psychological and physical health among caregivers [38–39]. In addition, approximately half of caregivers had a high school diploma or less and while it is not entirely clear whether education plays a role in caregiver health outcomes, research does suggest that caregivers with higher education have better psychosocial outcomes [12]. Caregivers in this study also reported a high caregiving load, with the majority living with the patient and providing daily care. Research has demonstrated that caregivers who have a higher caregiving load, such as those who provide more care per week, are more vulnerable to emotional stress and a negative impact on health [40]. Many of the caregivers in this study also reported significant depressive symptoms and anxiety above population norms. Further, many of the caregivers reported current alcohol consumption and a smoking history, and these health behaviors may benefit from monitoring as HNC patients commonly struggle with these challenges as well [28].

Overall, caregivers were interested in a variety of wellness programs. Although interest in a diet and exercise program was endorsed most frequently and had the broadest appeal, more than half of caregivers expressed interest in the other three types of programs as well. Similarly, among smoking caregivers, many were interested in participating in smoking cessation programs at various times. Over half of caregivers were interested in receiving wellness programs at each time point (after diagnosis, during the patient's treatment, and after the patient's recovery), although participation during treatment was most commonly preferred. Preferences for mode of program delivery varied greatly, with mail delivery being the most preferred mode.

Caregivers' interest in a variety of programs and at various time points is not surprising, given increasing evidence citing adverse psychosocial and health consequences among cancer caregivers across the cancer trajectory [6–7]. Caregivers' interest in programs offered by mail may be related to their preference to also receive programs during the patient's treatment period. They may perceive programs delivered by mail as including tangible and mobile materials that can be utilized at a place and time convenient for the caregivers. This type of easily accessible program may be critical if offered during the patient's treatment period, a time in which caregivers are typically accompanying patients to a myriad of medical appointments.

Surprisingly, many of the potential vulnerabilities (e.g., being female, providing daily care, smoking history) were not associated with caregivers' interest in wellness programs; however, we found that younger caregivers were more interested in educational classes about head and neck cancer as well as classes on finances, caregiving, and well-being. Caregivers with increased depressive symptoms had higher interest in all types of wellness programs with the exception of diet and exercise classes and those with more anxiety were more interested in cancer education classes and classes on finances, caregiving, and well-being. Caregivers who screened higher for burden were more interested in cancer education classes. However, no caregiving characteristics or health behaviors were associated with caregivers' interest, suggesting that all caregivers are interested in these programs regardless of caregiving or health behavior vulnerabilities.

Our findings augment the literature that has reported on various needs among HNC caregivers. Other studies have reported that HNC caregivers have unmet informational and supportive care needs [22–25]. Similarly, the HNC caregivers in our study reported interest in stress reduction programs, cancer education, and classes on finances, caregiving, and personal well-being. However, in addition to these services, our findings also indicate a strong interest in diet and exercise programs, which has not been assessed in previous studies. Interest in diet and exercise programs was not related to potential vulnerabilities, suggesting these types of programs appeal to all caregivers. Our findings also augment previous studies by providing caregivers' preferences for timing and mode of program delivery.

Limitations/Strengths

This study is limited by a small sample of HNC caregivers of patients receiving major surgery. Therefore, these results cannot be generalized to all HNC caregivers and should be interpreted with care. Future larger studies should be conducted to replicate these findings and should include caregivers of patients receiving more diverse treatments. We did not consider adjuvant treatment received after patient enrollment and thus cannot make conclusions concerning potential associations between treatment type and caregivers' interests in wellness programs. Further, given the paucity of information on HNC caregiver interest in wellness programs, future qualitative inquiries may yield valuable additional insights. Another limitation in the present study was the timing of the caregiver assessment. Some caregivers (15.2%) were caring for patients who had yet to undergo surgery, which may have impacted their ability to answer questions about preferences for timing of wellness programs, particularly related to the post-recovery period. However, this pilot study provides a valuable first step to understanding HNC caregivers' interest in a variety of wellness programs heretofore not described in the research literature.

Implications

These findings suggest that HNC caregivers have characteristics that place them at risk for poor long-term mental and physical health outcomes. However, many of these health compromising vulnerabilities may be modified through wellness programs. These findings also suggest that wellness programs for HNC caregivers should include a menu of program options, which might be most utilized if delivered during the patient's treatment period and

by mail or in written formats. Although interest in programs was relatively high among our caregiver sample, caregivers with worse mental health reported a greater interest in programs, suggesting that wellness programs may be an acceptable way to address psychosocial challenges. Regular distress screening for HNC caregivers may aid in appropriately identifying those who may have the greatest need for wellness programs.

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Table 1
Sociodemographic and Caregiving Characteristics (n = 33)

Caregiver sociodemographic characteristics		
Sex, n (%)		
Female	27 (81.8%)	
Age (years), Mean (SD)	60 (11.2)	
Race/Ethnicity, n (%)		
Non-Hispanic White	28 (84.9%)	
Non-Hispanic Black	4 (12.1%)	
Asian	1 (3.0%)	
Relationship Status, n (%)		
Married/Partnered	29 (87.9%)	
Education, n (%)		
< High School or GED	17 (51.5%)	
Employment Status, n (%)		
Employed	13 (39.4%)	
Daily Access to Home Computer/Internet, n (%)		
Yes	25 (75.8%)	
Caregiving characteristics		
Relationship to Patient, n (%)		
Spouse/Partner	24 (72.7%)	
Parent	4 (12.1%)	
Son/Daughter	1 (3.0%)	
Other	4 (12.1%)	
Lives with Patient, n (%)		
Yes	29 (87.9%)	
Provides Daily Care, n (%)		
Yes	24 (72.7%)	
Hours of Daily Care, n (%)		
< 1	9 (28.1%)	
1-4	15 (46.9%)	
5+	8 (25.0%)	
Provides Child Care, n (%)		
Yes	5 (15.2%)	

Table 2
Health Behaviors and Psychosocial Functioning of Head and Neck Cancer Caregivers (n = 33)

Health Behaviors	
Currently drinks alcohol, n (%)	
Yes	14 (42.4%)
Binge drinking, n (%)	
Never	26 (78.8%)
Less than monthly	4 (12.2%)
Monthly	2 (6.1%)
Daily/almost daily	1 (3.0%)
Smoking status, n (%)	
Never	13 (39.4%)
Former	14 (42.4%)
Current	6 (18.2%)
Sleep (hours per night), n (%)	
7 or more	19 (57.6%)
Less than 7	14 (42.4%)
Moderate physical activity (days per week), n (%)	
3 or more	22 (66.7%)
Less than 3	11 (33.3%)
Daily fruit & vegetable intake (cups), Mean (SD)	2.7 (1.7)
Psychosocial Functioning	
Depressive Symptoms, Mean (SD)	9.7 (7.7)
Anxiety, Mean (SD)	54.1(10.2)
Caregiver Burden Screen, Mean (SD)	5.4 (3.9)

Depression was measured with the Center for Epidemiological Studies Depression 10-item Scale (CESD-10), range = 0-30; Anxiety was measured with the PROMIS Emotional Distress – Anxiety – 7 item Short Form 7a, raw score converted to t-score; Caregiver burden was measured with the Zarit Burden Interview Screen, range = 0-16.

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Sociodemographic Factors, Psychosocial Characteristic, and Interest in Wellness Programs among Head and Neck Cancer Caregivers

Table 3

Caregiver Characteristics	Stress Reduction		Diet & Exercise		Educational Classes about HNC		Educational Classes about finances, etc.	
	Very/Somewhat Interested (N=21)	Not Interested (N=12)	Very/Somewhat Interested (N=23)	Not Interested (N=9)	Very/Somewhat Interested (N=22)	Not Interested (N=11)	Very/Somewhat Interested (N=19)	Not Interested (N=14)
Age, Mean (SD)	58 (11.7)	63.3 (9.8)	59.0 (11.3)	61.9 (11.8)	57.3 (10.9)	65.3 (10.1)	56.5 (11.1)	64.7 (9.7)
	$p = .20$		$p = .53$		$p = .05$		$p = .03$	
Gender, %								
Male	19.0%	16.7%	17.4%	22.2%	18.2%	18.2%	21.1%	14.3%
Female	81.0%	83.3%	82.6%	77.8%	81.8%	81.8%	78.9%	85.7%
	$p = 1.0$		$p = 1.0$		$p = 1.0$		$p = 1.0$	
Race/Ethnicity, %								
Non-Hispanic White	85.7%	83.3%	82.6%	100.0%	86.4%	81.8%	78.9%	92.9%
Other	14.3%	16.7%	17.4%	0%	13.6%	18.2%	21.1%	7.1%
	$p = 1.0$		$p = .30$		$p = 1.0$		$p = .37$	
Relationship Status, %								
Married/Partnered	85.7%	91.7%	82.6%	100.0%	86.4%	90.9%	78.9%	100.0%
Single	14.3%	8.3%	17.4%	0%	13.6%	9.1%	21.1%	0%
	$p = 1.0$		$p = .30$		$p = 1.0$		$p = .12$	
Education, %								
< High School	52.4%	50.0%	43.5%	66.7%	54.5%	45.5%	52.6%	50.0%
> High School	47.6%	50.0%	56.5%	33.3%	45.5%	54.5%	47.4%	50.0%
	$p = 1.0$		$p = .43$		$p = .72$		$p = 1.0$	
Employment, %								
Employed	42.9%	33.3%	43.5%	33.3%	45.5%	27.3%	47.4%	28.6%
Not Employed	57.1%	66.7%	56.5%	66.7%	54.5%	72.7%	52.6%	71.4%
	$p = .72$		$p = .70$		$p = .46$		$p = .31$	
Depressive Symptoms, Mean (SD)	11.7 (8.5)	6.3 (4.8)	9.5 (8.2)	10.0 (7.3)	11.7 (8.2)	5.6 (4.7)	12.5 (8.3)	5.9 (4.9)

Caregiver Characteristics	Stress Reduction		Diet & Exercise		Educational Classes about HNC		Educational Classes about finances, etc.	
	Very/ Somewhat Interested (N=21)	Not Interested (N=12)	Very/ Somewhat Interested (N=23)	Not Interested (N=9)	Very/ Somewhat Interested (N=22)	Not Interested (N=11)	Very/ Somewhat Interested (N=19)	Not Interested (N=14)
Anxiety, Mean (SD)	56.3 (10)	50.1 (9.8)	55.0 (10.4)	50.7 (9.7)	56.7 (9.8)	48.9 (9.2)	58.2 (9.1)	48.5 (9.1)
Caregiver Burden, Mean (SD)								
	6.1 (4.3)	4.1 (2.7)	5.8 (4.1)	4.7 (3.4)	6.2 (4.3)	3.7 (2.3)	6.4 (4.5)	4.0 (2.5)
	$p = .16$		$p = .48$		$p = .04$		$p = .06$	

Depression was measured with the Center for Epidemiological Studies Depression 10-item Scale (CESD-10), range = 0-30; Anxiety was measured with the PROMIS Emotional Distress – Anxiety – 7 item Short Form 7a, raw scores converted to t-scores; Caregiver burden was measured with the Zarit Burden Interview Screen, range = 0-16. Fisher's exact tests (for categorical variables) and T-tests (for continuous variables) were used to examine the relationship between potential vulnerabilities and the proportion who were very/somewhat interested versus not interested in each wellness program. Caregiving and health behavior characteristics were not associated with interest.