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Need for Health Behavior Interventions for Young Adult Cancer Survivors

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Abstract

Objectives—To assess the relationship between modifiable health risks (eg, unhealthy diet) and interest in interventions in a sample of young adult cancer survivors (YACS).

Methods—Sixty YACS, aged 18 to 40, completed surveys.

Results—Few met recommendations for diet, exercise, or weight (ie, body mass index, BMI). Participants expressed interest in several health behavior programs, and there was a significant relationship between BMI and interest in weight loss.

Conclusions—Findings suggest that YACS are interested in and may benefit from healthy lifestyle interventions.

Keywords

young adult; cancer; health behaviors

Introduction

Young adults (age 18 to 40) who have been treated for cancer constitute a particularly vulnerable segment of the cancer survivor population. Although tailored medical and support services are available for pediatric cancer patients, these services are typically not available for patients who have reached young adulthood or are diagnosed with cancer during young adulthood.¹ Young adults are in need of such services because they face serious long-term health and mental health risks after cancer treatment.²⁻⁷ For example, the chemotherapy and radiation regimens used to treat young adults with cancer sometimes increase risk for cardiovascular disease (CVD).²⁻⁴ These cancer survivors are also more vulnerable to another malignancy than is the general population.^{5,7,8} Likewise, those who were treated for cancer during childhood are at a much greater (ie, 19-fold) risk for a second cancer.⁹ Levels of psychological distress and use of mental health services are also increased among young adult cancer survivors (YACS).^{10,11} Thus young adults with a cancer history may face a number of medical and psychosocial issues that warrant attention.

Many YACS compound these medical and psychosocial risks by engaging in health-risk behaviors. For example, research using national data has found that young adults with a cancer history (aged 18 to 39 or 40) are more likely to smoke than are similarly aged peers.^{12,13}

Although these data do not indicate differences between YACS and age-matched peers in level of physical activity or dietary behaviors, in some cases, this is due to high levels of risk behaviors in both groups (eg, 71% of survivors and 74% of noncancer controls consume a high-fat diet).¹² Further, YACS are more likely than older cancer survivors to smoke, consume alcohol at a risky level, and consume a high-fat diet.¹² These unhealthy behaviors can increase their already elevated risk for CVD and cancer.¹⁴⁻¹⁷ By contrast, cancer survivors who engage in healthy behaviors, such as exercise, may have a more favorable psychological adjustment to their cancer diagnosis in addition to the physical benefits.^{18,19}

Given their health risks, YACS may benefit from interventions that address their modifiable risk factors (eg, promoting physical activity or a healthy diet). Unfortunately, the behavioral interventions developed for cancer survivors thus far have not benefited young adults; most have targeted survivors of breast, prostate, and other cancers typically diagnosed in older adulthood.²⁰⁻²¹ Therefore, the goal of this research was to lay the foundation for developing a targeted intervention for YACS by (1) gathering preliminary data on the prevalence of distress and 5 modifiable health risks (ie, sedentary lifestyle, unhealthy diet, overweight/obesity, smoking, and risky drinking) among YACS, (2) identifying the level of interest in behavioral intervention programs among YACS, and (3) investigating whether there is a relationship between modifiable health risks and interest in the corresponding behavioral interventions. As such, this research extends the current, limited literature on YACS that has focused primarily on cancer treatment sequelae or psychosocial concerns among YACS, with only a few studies examining age differences in the use of health services or health behaviors among the cancer survivor population as a whole.^{6-11-13-22,23}

METHODS

All research was approved by the Lifespan Institutional Review Board. Staff at local chapters of the American Cancer Society and Leukemia and Lymphoma Society mailed surveys (prepared by research staff at The Miriam Hospital) to a total of 432 members who had identified themselves as cancer survivors between the ages of 18 and 40. Because there is little consistency among researchers regarding what constitutes a young adult cancer survivor, we chose a lower limit (ie, 18) consistent with the age at which adulthood is initiated from a legal standpoint (eg, for voting) and an upper limit (ie, 40) consistent with that used by the LIVESTRONG Young Adult Alliance, a coalition of organizations devoted to improving survival and quality of life among YACS. Survivors were offered a \$10 gift card for completing the survey.

Surveys contained measures of a number of health behaviors and distress. Physical activity was measured using a self-administered version of the International Physical Activity Questionnaire- Short Form (IPAQ-S) 24; this 7-item measure has been validated with samples in the United States and has psychometric properties that are at least as strong as other self-report physical activity measures.²⁴ The IPAQ was used to obtain estimates of energy expenditure. The 15-item National Cancer Institute Quick Food Scan²⁵ was used to obtain an estimate of calories consumed from fat. This validated measure is correlated with other, more extensive, self-report diet measures.²⁶ In order to determine whether participants were meeting Centers for Disease Control (CDC) recommendations for fruit and vegetable consumption, they were asked to report the number of cups of fruit and vegetables they typically consumed each day. Examples were provided for what constitutes one cup of fruit and one cup of vegetables. As CDC guidelines vary by age, gender, and activity level, these data were combined with data provided on other parts of the survey (eg, activity level from the IPAQ) to categorize each participant as meeting vs not meeting the appropriate fruit and vegetable recommendations. Participants were asked to identify their smoking and drinking status. Those who consumed alcohol were asked to report the number of drinks consumed per day, in order

to calculate the percentage of survivors engaging in risky drinking (ie, for males, consuming 15 or more drinks/week and for females, consuming 8 or more drinks/week).^{27,28} Emotional distress was measured using a validated 6-item measure originally developed for the National Health Interview Survey.²⁹ This measure has been shown to have excellent internal consistency and good discriminant validity²⁹ and has been used in other research with cancer survivors.^{11,30} A cutoff score of 13 is used to identify individuals at mental health risk.²⁹ A brief measure assessing demographic information was included in the survey.

Participants were also asked to indicate their level of interest in a variety of health and psychosocial programs. These included moderate exercise, vigorous exercise, healthy eating, weight loss, smoking cessation, drinking cessation, stress management, and emotional support. For each type of program, participants selected a response from “no interest” to “extremely interested” or a response indicating that the program was not relevant (eg, “I don’t smoke” in response smoking cessation program item).

Twenty-four surveys were returned as undeliverable indicating that no more than 408 surveys reached their intended recipients. Sixty surveys were completed and returned for a response rate of 15% (assuming the remaining 408 surveys reached their intended targets). As surveys were addressed by volunteers at the 2 cancer societies, researchers did not have access to recipient contact information and therefore could not prompt or recontact those who did not return their surveys. This contributed to a lower response rate than found in prior mailed survey studies with cancer survivors.³¹⁻³³

RESULTS

Demographic data are presented in Table 1. Most participants (82%) had been diagnosed with cancer during young adulthood, with a minority (18%) diagnosed before the age of 18. Participants ranged in age from 20 to 39 and were diagnosed an average of nearly 5 years prior ($M = 4.9$, $SD = 4.5$). Survivors of several forms of cancer were represented in the sample, but breast cancer (27%) and Hodgkin’s disease (17%) were most prevalent.

The survey data provide a preliminary look at the health behavior profile of YACS. Only 37% of participants were meeting CDC recommendations for fruit consumption and 25% for vegetable consumption. Of the participants providing sufficient data on the dietary fat screener, 54% (23/43) were meeting the recommendation to consume less than 30% of calories from fat. Only 10% of participants were performing moderate-intensity physical activity at a level consistent with recommendations (ie, 5 days/week for at least 30 minutes/day),¹⁴ and 32% reported performing vigorous-intensity physical activity at recommended levels (ie, 3 days/week for at least 20 minutes/day). Based on self-reported height and weight, 35% had a body mass index (BMI) in the overweight (20%) or obese (15%) range. (Three participants had a BMI in the underweight range, ie, less than 18.5, but all 3 were very close to normal weight range.) In addition, 13% were currently smoking. A minority of participants reported risky drinking (3%) or emotional distress (5%). Survey data indicate fairly widespread interest in behavioral intervention programs including stress management programs, healthy eating programs, exercise programs, weight loss programs, and programs that provide emotional support (see Table 2).

In order to determine whether modifiable health risks were related to interest in the corresponding behavioral intervention, 6 linear regressions were performed. These regressions assessed the relationship among (1) percentage of calories consumed from fat and interest in healthy eating programs, (2) moderate-intensity energy expenditure and interest in moderate-intensity activity programs, (3) vigorous-intensity energy expenditure and interest in vigorous-intensity activity programs, (4) BMI and interest in weight loss programs, (5) distress and

interest in emotional support programs, and (6) distress and interest in stress management programs. We did not examine interest in alcohol or smoking cessation programs as so few of our participants engaged in risky drinking or smoked. Regression analyses indicated a significant positive relationship between BMI and interest in weight loss programs (Beta = .47, $R^2 = .22$, $P = .001$) and a trend towards a significant relationship between distress and interest in stress management programs (Beta = .26, $R^2 = .07$, $P = .06$). No other significant associations were found. When a Bonferroni correction for the number of analyses was performed, the relationship between BMI and interest in weight loss programs remained significant.

DISCUSSION

An estimated 70,000 young adults are diagnosed with cancer in the United States each year, 34 adding to the ranks of the thousands of young adult cancer survivors who were diagnosed during childhood. Although these YACS often have the potential to live many years following the completion of treatment, their medical and psychosocial needs are frequently overlooked.¹ The findings from this survey suggest that young adult cancer survivors may be engaging in health-risk behaviors with the potential to increase their already elevated medical risks. Many of survivors participating in our survey were not adhering to dietary or physical activity recommendations. Regarding the latter, the average amount of moderate-intensity activity reported by participants (ie, 48 minutes/week) fell well below the recommended 150 minutes per week.¹⁴ Perhaps as a consequence of their high-fat diet and sedentary lifestyle, over one third of participants were overweight or obese. In addition, 13% of participants continued to smoke after their cancer diagnosis.

Whether the YACS in our sample are engaging in more health-risk behaviors than are adults without cancer, locally and nationally, may depend on the behavior in question. A total of 63% of our sample was not meeting recommendations for either moderate- or vigorous-intensity physical activity; this rate of sedentary behavior slightly exceeds the rate of sedentary behavior found among adults in Rhode Island (49%)³⁵ and young adults aged 18 to 24 nationally (43%).³⁶ The percentages of participants in our sample who were not meeting recommendations for fruit consumption (63%) and vegetable consumption (75%) are similar to the percentage of Rhode Island adults (73%) not meeting fruit and vegetable recommendations.³⁵ Thirty-five percent of our participants were classified as overweight or obese; this rate falls below national (66%) and state (57%) averages for adults of all ages³⁵ and is slightly lower than the rate of overweight/obesity in a national study of young adults aged 18 to 24 (40%).³⁶ Additionally, national samples of young adults who are not cancer survivors report higher rates of smoking (29% vs 13%) and psychological distress (12% vs 5%) than did our sample.³⁶ Thus, in some cases the YACS in our sample have a less problematic risk profile than those of adults or young adults locally and nationally (eg, with respect to BMI, smoking) and in other cases more problematic. Nonetheless, it is important to note that YACS are at greater risk for many medical issues (such as cardiovascular disease) than are most young adults, underscoring the need to address any modifiable risks factors in this population.

Findings should be interpreted cautiously, however, given several study limitations; most notably, the response rate for the survey (ie, 15%) introduces the potential for selection bias. It is possible that some surveys did not reach their intended target, as young adults are often highly mobile.³⁷ Although this would suggest that the actual response rate exceeds 15%, it introduces the possibility of biased findings if the more mobile YACS (who did not receive the survey) differ from responders in a nonrandom way. For example, more mobile YACS may tend to be healthier. Likewise, the low response rate may indicate a threat to the external validity of data if those who responded were particularly interested in health-related topics and behaviors, particularly in need of health behavior intervention, or exceptionally motivated (as

those who did not respond to the initial mailing were not prompted). If individuals already engaging in healthy behaviors were particularly drawn to the study, given its focus on health behaviors, the actual health risks in this population may be greater than data indicate. By contrast, if individuals in greater need of behavioral intervention were more likely to be drawn to the survey, the actual rates of risk behaviors may be lower than indicated. It is also possible that distressed individuals were less motivated to complete the survey, in which case rates of distress in the YACS population may be higher than indicated by our data and more similar to findings in prior investigations (ie, 25 – 32% rates of depression and anxiety among cancer survivors based on another self-report measure and structured clinical interviews).^{10,38}

Although the possibility of selection bias exists, comparison of the medical and demographic characteristics of our sample with state and national data suggests that our sample is fairly representative. Data provided by the Rhode Island Cancer Control Registry on all 15- to 44-year-olds diagnosed with cancer in Rhode Island between 2000 and 2005 indicate that our sample is similar medically to other YACS in the state. For example, only 8% of the YACS in our sample reported a diagnosis of Stage IV cancer, and only 12% of the cases in the registry were identified as having distant metastases.³⁹ (Note: this suggests that our sample was not sicker than the population of YACS diagnosed in Rhode Island.) Further, the cancer diagnoses in our sample represent the forms of cancer with the highest incidence among 20- to 39-year-olds in the United States.⁴⁰ Likewise, the demographic profile of our sample is very comparable to the YACS in the Rhode Island cancer registry with respect to race (eg, 87% vs 89% white, 5% vs 5% African American), ethnicity (eg, 92% vs 90% non-Hispanic) and marital status (eg, 38% vs 38% single).³⁹ The sample is also representative of the Rhode Island population overall with respect to race and ethnicity.⁴¹ In terms of racial and ethnic composition, our sample is also generally comparable to those in prior research on young adult survivors of childhood cancer and national studies of adult cancer survivors^{11,12,42} though our sample did include a larger number of participants who were female or had more than a high school education. Thus, comparison of the medical and demographic characteristics of our sample with state and national data generally support the generalizability of our results.

These findings provide some evidence supporting the need for behavioral interventions targeting young adult cancer survivors. Adopting a healthier lifestyle may help to minimize the increased risk of CVD and secondary malignancy in this population. As noted, the health behavior interventions developed for cancer survivors to date have not benefited young adults. Results from this study indicate that behavioral interventions would be well received by this population. The young adult cancer survivors sampled appear to have some awareness of their individual health risks and motivation to address them. Additional research is needed to determine whether risk behaviors should be addressed singly or as multibehavior interventions.

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Table 1Demographic Data^a

	Mean	SD
Age	32.7	5.7
	N	P
Gender		
Male	10	16.7
Female	49	81.7
Marital Status		
Single	23	38.3
Married	27	45.0
Living with partner	6	10.0
Divorced	3	5.0
Education		
No high school/Some high school/high school diploma	6	10.0
Vocational/trade school	4	6.7
Some college/Associate's degree	23	38.3
Bachelor's degree	15	25.0
Graduate school degree	10	16.7
Ethnicity		
Hispanic/Latino	4	6.7
Non-Hispanic/Latino	55	91.7
Race		
White	52	86.7
Native American	1	1.7
Black/African American	3	5.0

Note.

^aA small amount of data was missing for the following variables: age (n = 1), gender (n = 1), marital status (n = 1), education (n = 2), ethnicity (n = 1), and race (n = 4).

Table 2

Percentages of Participants Interested in Programs for Young Adult Survivors

	No Interest	A Little or Some interest	Very or Extremely Interested	N/A (eg, already doing healthy behavior)
Moderate-intensity Exercise Program ^a	8.3	25.0	41.7	23.3
Vigorous-intensity Exercise Program	13.3	36.7	26.7	23.3
Healthy Eating Program	5.0	20.0	53.3	21.7
Weight Loss Program	20.0	23.3	36.7	20.0
Quit Smoking Program	28.3	5.0	11.7	55.0
Quit Drinking Program	33.3	5.0	1.7	60.0
Stress Management Program	8.3	35.0	48.3	8.3
Emotional Support Program	13.3	36.7	23.3	26.7

Note.

^aData were missing for one participant on the moderate-intensity exercise variable.