

Childhood Cancer Survivors' Perceived Barriers to Improving Exercise and Dietary Behaviors

Whitney D. Arroyave, MPH, Elizabeth C. Clipp, RN, PhD,
Paige E. Miller, MS, Lee W. Jones, PhD, Dianne S. Ward, ED, MS,
Melanie J. Bonner, PhD, Philip M. Rosoff, MD,
Denise Clutter Snyder, MS, RD, LDN, and Wendy Demark-Wahnefried, PhD, RD

Purpose/Objectives: To determine childhood cancer survivors' barriers to increasing exercise and consuming less fat and more fruits and vegetables, whole grains, and calcium-rich foods.

Design: Mailed survey.

Setting: Cases from a comprehensive cancer center.

Sample: Convenience sample of 144 childhood cancer survivors aged 13–35 years identified through previous research. Surveys were returned by 118 participants (82% response rate).

Methods: Descriptive statistics with chi-square tests were performed between subgroups defined by age (< 18 years and ≥ 18 years) and diagnosis (leukemia, lymphoma, and central nervous system cancers).

Main Research Variables: Barriers to exercise, consuming less fat, and eating more fruits and vegetables, whole grains, and calcium-rich foods.

Findings: Proportionately more childhood cancer survivors reported barriers to exercise and following a low-fat diet than to consuming more fruits and vegetables, whole grains, and calcium-rich foods. Primary barriers to exercise included being too tired (57%), being too busy (53%), and not belonging to a gym (48%), whereas barriers for restricting high-fat foods were commercials that make high-fat foods look so appealing (58%) and having friends who eat a lot of high-fat foods (50%). Difficulty associated with ordering healthy foods when dining out also was a leading barrier to following a low-fat diet (50%), as well as eating more whole grains (31%), fruits and vegetables (30%), and calcium-rich foods (15%).

Conclusions: Childhood cancer survivors report several barriers to exercise and consuming a low-fat diet with more fruits and vegetables, whole grains, and calcium-rich foods.

Implications for Nursing: This study's findings may be helpful to nurses, health educators, and allied health professionals in developing effective interventions that promote healthful lifestyle change among childhood cancer survivors.

Key Points . . .

- ▶ Childhood cancer survivors are at increased risk of developing secondary cancers and other diseases, such as cardiovascular disease, osteoporosis, and diabetes.
- ▶ Barriers to healthy eating and exercise in childhood cancer survivors have not been addressed previously in research, but they are essential in developing effective interventions to improve survivors' overall health and well-being.
- ▶ Common barriers to exercise among survivors younger than age 18 include poor weather, worries about injury, and inexperience with exercise, whereas barriers to healthy eating include disliking the taste, availability when dining out, and not knowing how to choose lower-fat options.
- ▶ Larger proportions of childhood cancer survivors report barriers to exercise and consuming a low-fat diet than to increasing their intake of fruits, vegetables, whole grains, and calcium-rich foods compared to the general population.

Whitney D. Arroyave, MPH, is a research analyst in the School of Nursing at Duke University in Durham, NC. Elizabeth C. Clipp, RN, PhD, is a professor in the School of Nursing at Duke University, at Duke Comprehensive Cancer Center, and in the Department of Medicine at Duke University Medical Center (DUMC), all in Durham; at the time that this article was prepared, Clipp was a nurse scientist in the Geriatric Research Education and Clinical Center at the VA Medical Center in Durham. Paige E. Miller, MS, is a doctoral candidate in the Department of Nutritional Sciences at Pennsylvania State University in University Park; Lee W. Jones, PhD, is an assistant professor at Duke Comprehensive Cancer Center, in the Department of Surgery at DUMC, and in the Duke Brain Tumor Center at DUMC; Dianne S. Ward, ED, MS, is a professor and the division director of intervention and policy in the Department of Nutrition in the School of Public Health at the University of North Carolina in Chapel Hill; Melanie J. Bonner, PhD, is an assistant professor at the Duke Comprehensive Cancer Center, in the Department of Surgery at DUMC, and in the Duke Brain Tumor Center at DUMC; Philip M. Rosoff, MD, is an associate professor at Duke Comprehensive Cancer Center and in the Departments of Medicine and Pediatrics at DUMC; Denise Clutter Snyder, MS, RD, LDN, is a clinical trials manager in the School of Nursing at Duke University; and Wendy Demark-Wahnefried, PhD, RD, is a professor in behavioral science at the University of Texas M.D. Anderson Cancer Center in Houston. This research was supported by a grant from the National Institutes of Health (P20 NR007795). (Submitted September 2006. Accepted for publication May 12, 2007.)

Digital Object Identifier: 10.1188/08.ONF.121-130

Survival rates from all types of cancers have increased in recent years (American Cancer Society, 2007). The cure rate for childhood cancers is especially pronounced and has increased from approximately 30% to about 80% since the 1960s. Despite an improved initial prognosis, data provide evidence that childhood cancer survivors are at significantly greater risk of developing secondary cancers and other diseases, such as cardiovascular disease, osteoporosis, and diabetes (Bottomley & Kassner, 2003; Dow, 2003; Greving & Santacroce, 2005; Landier et al., 2004; Nelson & Meeske, 2005). Comorbid conditions are believed to result from cancer treatment, genetic predisposition, or common lifestyle factors (Aziz, 2002; Demark-Wahnefried, Aziz, Rowland, & Pinto, 2005). Diet and exercise interventions can reduce the likelihood of comorbid illness and prevent functional decline in childhood cancer survivors (Demark-Wahnefried, Aziz, et al.;