

Physical, Mental, and General Health Outcomes Among Childhood Cancer Survivors From the Behavioral Risk Factor Surveillance System Survey

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OBJECTIVES: To examine the physical, mental, and general health among young adult childhood cancer survivors (CCS).

SAMPLE & SETTING: This secondary analysis study used data from the Behavioral Risk Factor Surveillance System. The analytic sample included 697 young adult CCS (537 women; 160 men).

METHODS & VARIABLES: Chi-square tests of independence were done to compare the rates across cancer survivorship groups on categorical variables. Logistic regression was performed to determine correlates with physical, mental, and general health.

RESULTS: Female CCS had a significantly ($p < 0.0001$) greater number of "no days" in which they reported good physical, mental, and general health compared to male CCS. Female CCS were more likely to experience 30 days of poor physical health compared to male CCS (odds ratio [OR] = 1.8, $p < 0.05$) when controlling for education, race, and age. Depressed female CCS had higher odds of being in poor physical, mental, and general health (OR = 2.9, 7.6, and 2.6, respectively).

IMPLICATIONS FOR NURSING: Findings support the need for continued screening, following published practice guidelines, among young adult female CCS for emotional distress with the use of well-established distress and psychosocial assessment measures.

KEYWORDS childhood cancer survivors; female childhood cancer survivors; depression; quality of life
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In 2020, there were approximately 429,000 adult childhood cancer survivors (CCS) in the United States, which equates to 1 in 530 adults, ages 20–39 years (CureSearch for Children's Cancer, 2020). As of January 1, 2021, it was estimated that there were 47,760 older adolescent and young adult CCS aged 15–19 years living in the United States (American Cancer Society, 2022). Phillips et al. (2015) reported that nearly 84% of CCS have survived five or more years post-diagnosis, and the estimated prevalence of CCS reflects a rapidly expanding clinical population. Despite these survival rates, Phillips et al. (2015) also identified that approximately 70% of CCS have a mild or moderate chronic condition, and 32% were estimated to have a severe, disabling, or life-threatening condition. These morbidity prevalence estimates have a profound impact on survivors' ability to manage their survivorship care needs, and negatively affect their health-related quality of life (HRQOL) (Hayek et al., 2020; Lie et al., 2017; Vuotto et al., 2017; Wilson et al., 2020). Among survivors aged 20–49 years, an estimated 16% have compromised physical HRQOL, and 18% have compromised mental HRQOL (Phillips et al., 2015). Recent evidence continues to support poor HRQOL among CCS. In a sample of 227 Swedish adult survivors of childhood leukemia, survivors scored significantly lower on the HRQOL for general health ($p = 0.004$) and emotional health ($p = 0.014$) compared to their siblings and to Swedish norms (Aili et al., 2021).

Female CCS have been identified as most at risk for poor physical and psychosocial outcomes and a diminished HRQOL. Older adolescent and young adult female CCS experience higher levels of psychological distress and depression when compared to male CCS and healthy siblings (Armstrong, et al., 2007; Philips