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Working with cancer: Health and disability disparities among employed cancer survivors in the U.S.

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ABSTRACT

Introduction: Approximately 40% of Americans annually diagnosed with cancer are working-age adults. Using a nationally representative database, we characterized differences in health status and occupation of working cancer survivors and persons without cancer.

Methods: Cross-sectional data pooled from the 1997–2009 US National Health Interview Survey for adults with self-reported physician-diagnosed cancer (n = 22,952) and those without (n = 358,495), were analyzed. Multivariable logistic regression was used to compare the health and disability status of employed cancer survivors across occupational sectors relative to workers without a cancer history and unemployed cancer survivors.

Results: Relative to workers with no cancer history, cancer survivors were more likely (OR; 95%CI) to be white-collar workers and less likely to be service workers. Working cancer survivors were significantly less likely than unemployed survivors, but more likely than workers with no cancer history, to report poor–fair health (0.25; 0.24–0.26) and (2.06; 1.96–2.17) respectively, and ≥2 functional limitations (0.37; 0.35–0.38) and (1.72; 1.64–1.80) respectively. Among employed cancer survivors, blue-collar workers reported worse health outcomes, yet they reported fewer workdays missed than white-collar workers.

Conclusion: Blue-collar cancer survivors are working with high levels of poor health and disability. These findings support the need for workplace accommodations for cancer survivors in all occupational sectors, especially blue-collar workers.

Introduction

More than 11 million people in the United States (U.S.) are cancer survivors. Of the more than one million Americans newly diagnosed with cancer each year, about 40% are working-age adults (Horner et al., 2009). Significant advances in cancer treatment have translated into improved survival and quality of life (Hubbard, 2010) and up to 85% of persons diagnosed continue working during treatment or return to work shortly after treatment (Hoffman, 2005; Short et al., 2005). This percentage varies by cancer type and stage of diagnosis.

Employed cancer survivors tend to be as productive and to have a comparable number of absentee days as employees without a cancer history (NCI, 2009). Nevertheless, due to differences in work load, stress and accommodation (Brown et al., 2006), certain job sectors may facilitate a higher rate of return of cancer patients than others. With earlier diagnoses among younger working-aged persons, job-related accommodations could have far reaching social and economic effects. Information on the occupational distribution and sociodemographic composition of the cancer survivors who continue to work after diagnosis is integral to understanding the potential health needs and burdens on this subpopulation.

Although some studies have investigated the functional limitations of adult survivors (Dellapasqua et al., 2006; Sehl et al., 2009), few have focused on the cancer survivors who continue and/or return to work (Frazier et al., 2009). Studies aimed at identifying which groups of cancer survivors return to work and if there is a significant disparity between these groups are needed to develop workplace-support programs. With most existing literature focusing on return to work among specific types of cancer, this study satisfies a gap in cancer literature by investigating health disparities among all survivors who continue to work post diagnosis.

Methods

We analyzed pooled cross-sectional data from the 1997–2009 U.S. National Health Interview Survey (NHIS). The study sample included persons ≥18 years (n = 381,447). In this study, "cancer survivors" were individuals who reported being diagnosed with cancer. Employment status was determined by whether or not respondents were working during

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Table 1
A comparison of employment and socio-demographic characteristics of persons in the United States with and without a cancer diagnosis. National Health Interview Survey, 1997–2009[b].

Socio-demographics	Persons with cancer diagnosis (n = 22,952)		Persons without cancer (n = 358,495)	
	Employed (n = 7424)	Unemployed (n = 15,528)	Employed (n = 218,237)	Unemployed (n = 140,258)
Age	n [%]	n [%]	n [%]	n [%]
18–39	1549 [20.9]	828 [5.3]	108,834 [49.9]	41,906 [29.9]
40–64	4720 [63.6]	3926 [25.3]	102,150 [46.8]	45,764 [32.6]
≥65	1155 [15.5]	10,774 [69.4]	7253 [3.3]	52,588 [37.5]
Gender				
Male	2494 [33.6]	5722 [36.8]	109,352 [50.1]	48,714 [34.7]
Female	4930 [66.4]	9806 [63.2]	108,885 [49.9]	91,544 [65.3]
Race				
White	6542 [88.1]	13,571 [87.4]	171,908 [78.7]	107,983[77.0]
Black	627 [8.5]	1535 [9.9]	31,575 [14.5]	23,233 [16.6]
Other	255 [3.4]	422 [2.7]	14,754 [6.8]	9042 [6.4]
Ethnicity				
Non-Hispanic	6879 [92.7]	14,454 [93.1]	179,121 [82.1]	115,245 [82.2]
Hispanic	545 [7.3]	1074 [6.9]	39,116 [17.9]	25,013 [17.8]
Education				
<12 years	4620 [62.5]	6157 [40.0]	128,475 [59.2]	54,697 [39.7]
12 years	2063 [27.9]	4856 [31.6]	59,402 [27.4]	42,013 [30.5]
>12 years	714 [9.6]	4373 [28.4]	29,019 [13.4]	41,119 [29.8]
Health insurance				
Uninsured	795 [10.7]	708 [4.6]	39,680 [21.8]	23,010 [16.5]
Insured	6623 [89.3]	14,797 [95.4]	178,018 [78.2]	116,599 [83.5]
Occupation				
White collar	5007 [67.9]	[a]	126,064 [58.5]	[a]
Blue collar	1160 [15.7]	[a]	34,907 [16.2]	[a]
Farm	102 [1.4]	[a]	4153 [1.9]	[a]
Service	1107 [15.0]	[a]	50,435 [23.4]	[a]
Health status				
Good–excellent	6327 [85.4]	9413 [60.8]	205,899 [94.0]	107,057 [76.4]
Poor–fair	1084 [14.6]	6081 [39.2]	12,253 [6.0]	33,013 [23.6]
≥2 Functional limitations				
Yes	2084 [28.1]	9555 [61.5]	7101 [3.3]	35,337 [25.2]
No	5340 [71.9]	5973 [38.5]	211,136 [96.7]	104,921 [74.8]
≥2 Chronic conditions [c]				
Yes	435 [5.9]	2365 [15.2]	4861 [2.2]	13,603 [9.7]
No	6989 [94.1]	13,163 [84.8]	213,376 [97.8]	126,655 [90.3]
Number of days in bed/year				
1 week or less	6374 [88.3]	11,537 [76.6]	204,807 [95.4]	116,791 [85.3]
>1 week	939 [11.7]	3355 [23.4]	9912 [4.6]	20,151 [14.7]

[a] Data not applicable.
[b] Column percentage illustrated.
[c] All chronic conditions excluding cancer.

the week prior to the NHIS interview. Employed participants were stratified by occupational sector (Krieger et al., 2005).

Participants' self-reported health status was dichotomized to "poor–fair" and "good–excellent" health. Chronic conditions (other than cancer) and functional limitations were dichotomously re-coded into presence or absence of ≥2 chronic conditions and ≥2 functional limitations, respectively. Finally, we assessed whether or not respondents spent >7 days in bed due to illness or injury in the last 12 months.

We examined socio-demographic characteristics including age (18–39, 40–64, and ≥65 years), gender, race (White, Black, or other), ethnicity (Hispanic or non-Hispanic), education (<12, 12, and >12 years), as well as employment and insurance status at time of interview. Data management and analyses were conducted using SAS version 9.2 which allows the analysis of weighted, complex survey data. We used SAS SURVEYLOGISTIC to perform a multivariable logistic regression with contrasts between occupational sectors and employment status of persons with and without cancer for each health indicator. Analyses were adjusted for cancer type and socio-demographic variables.

Results

Table 1 describes the socio demographics of the study sample. There were 22,952 persons who reported a cancer diagnosis. Among adult cancer survivors, workers were significantly less likely to report poor health and multiple disabilities when compared to the unemployed.

Table 2 illustrates that irrespective of occupational sector, cancer survivor workers were significantly less likely than unemployed survivors, but more likely than workers without cancer, to report "poor–fair" health. Among cancer survivors, blue-collar workers were significantly more likely than white-collar workers (Odd Ratio = 1.98; 95% Confidence Interval = 1.53–2.56), and farm-workers less likely than blue-collar workers (0.21; 0.09–0.52) to report poor–fair health. Service workers were less likely than blue-collar (0.60; 0.43–0.83) but more likely than farm-workers (2.82; 1.16–6.86) to report a "poor–fair" health status.

Among employed survivors, blue-collar workers were significantly more likely (1.28; 1.04–1.59) to report having ≥2 functional limitations compared to white-collar workers. Working cancer survivors were less likely than unemployed cancer survivors, but more likely than employed persons without cancer, to report having ≥2 chronic conditions. Finally, among working cancer survivors, blue-collar workers were twice as likely (2.03; 1.35–3.05) as white-collar workers to report having ≥2 chronic conditions.

Discussion

These nationally representative data reflect differences in the health of working cancer survivors according to occupational sector. As one may expect, the major differences are found between white- and blue-collar workers. The former were more likely to report low prevalence of functional limitations as well as good-to-excellent