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Work-related perceptions and quality of life among breast cancer survivors

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Keywords

work; quality of life; breast cancer; survivorship; oncology

Introduction

An estimated 3.4 million breast cancer survivors are currently living in the United States, with more than one million of them working age [1]. Earlier diagnoses and improved treatment regimens have allowed breast cancer survivors to remain in or return to the workforce following diagnosis[2]. It is hypothesized that employment following cancer may be beneficial due to social support found in the work environment as well as the impact employment has on offsetting financial and insurance concerns [3].

Several studies among breast cancer survivors have suggested that being employed is related to quality of life (QoL) [4,5]. Timperi and colleagues [3] found a significant positive association between number of hours worked per week and better physical and social well-being 6 months following diagnosis. Similarly, Mahar and colleagues [4] demonstrated that women who were working continuously following cancer (no break in employment) reported lower levels of anxiety, depression, somatization, general distress, and higher levels of QoL compared to women who were not working [4].

Although these studies suggest that employment following diagnosis is related to better QoL [3,4], neither study examined how women's perceptions of their work environment might be related to QoL. One's work environment may enhance QoL (e.g., through social supports and financial benefits) or may be a source of stress. To our knowledge, the impact of work perceptions on QoL for cancer survivors has not been previously studied. The present analyses examine whether work-related perceptions are independently associated with QoL, controlling for socio-demographic and cancer-related factors, among employed breast cancer survivors 18-26 months post-diagnosis.

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Conflict of interest. None declared.

Methods

Participants and Procedure(s)

This analysis is part of a larger prospective observational study among women newly diagnosed with stage I-III breast cancer [5]. Recruitment occurred from April 2003 to February 2006 at Memorial Sloan Kettering Cancer Center and the University of Texas – Southwestern Center for Breast Care. Inclusion criteria included: being at least 18 years of age, within 8 months of diagnosis at study enrollment, stage I-III breast cancer diagnosis, and the ability to read and understand English. Women completed self-administered questionnaires at baseline (within 8 months of diagnosis) and at 12 and 18 months after their baseline assessment. Thus, the 18-month follow-up occurred between 18 and 26 months post-diagnosis. All Institutional Review Boards approved the protocol for protection of human subjects prior to study initiation.

Measures

Primary outcome—Our primary outcome is QOL at the 18 month follow-up, as measured by the Functional Assessment of Cancer Therapy-Breast (FACT-B) [6]. The FACT-B is a 44-item self-report measure referring to the previous 7 days and encompassing domains of emotional well-being (EWB), physical well-being (PWB), functional well-being (FWB), and social well-being (SWB) from the FACT-General, as well as the breast cancer subscale (BCS). A total FACT-B score is the sum of the 5 domains. Validity, reliability and internal consistency of this instrument are high ($\alpha = 0.90$) [6]. Responses for each item can range from 0 (not at all) to 4 (very much).

Independent variables—Independent variables in the analysis included work-related perceptions (measured at the 18 month follow-up), socioeconomic factors, and cancer-related characteristics.

Work-related perceptions. Women who reported working since their diagnosis were presented with a series of statements about their job and asked to rate how true each statement was for them, on a scale from 1 (not at all) to 5 (very much). These statements pertained to receiving support from people in their workplace, being able to keep up with work responsibilities, and worrying about financial problems due to current or future lost income.

Socio-demographics included age at diagnosis (continuous variable), education level, partner status (married/partnered vs. not), and ability to pay for basic necessities such as housing and food (no difficulty versus some/much difficulty).

Cancer-related variables included cancer stage (I, II, or III) and chemotherapy (no chemotherapy versus any chemotherapy). They were obtained through chart reviews performed following completion of adjuvant treatment.

Statistical analysis

The analytic sample consisted of women who reported being employed prior to diagnosis and were employed at the 18-month follow-up visit. Descriptive statistics were calculated

(frequencies with percentages and means with standard deviations) for each independent variable (work-related perceptions), covariates, and outcome variables (FACT-B total score and domains).

The association between work-related perceptions and QoL was modeled using multivariate linear regression, with the FACT-B total score as the primary outcome variable. Analyses adjusted for socio-demographic variables (age at diagnosis, marital status, education, ability to pay for basics) and cancer-related variables (chemotherapy yes/no, cancer stage). We also ran regression models with each of the FACT-B domains as outcome variables. All analyses were conducted using SAS 9.3.

Results

Participant characteristics

Of a total of 653 participants in the study (overall response rate of 88%) [5], 258 women met the work-related criteria for this analysis. Characteristics of our analytic sample are shown in Table 1.

Quality of life

After controlling for the above-mentioned socio-demographic and cancer-related variables, reporting greater ability to keep up with work responsibilities was associated with higher FACT-B scores, while having more financial worries was associated with lower FACT-B scores on all domains (all p values $<.01$) (Table 2). The perception of a supportive work environment was significantly positively associated with SWB, but negatively significantly associated with PWB.

Discussion

Women who perceived greater ability to keep up with work responsibilities and who reported lower worries about financial problems due to current or future lost income reported higher QoL on all domains. Perception of a supportive work environment was also an independent predictor of SWB and PWB at the 18-month follow-up, though with different directions of association. Women who reported greater support in the workplace reported higher SWB but lower PWB. This latter finding is counterintuitive and may suggest that women with lower PWB need and receive greater support from their work environment.

Although positive characteristics of the workplace (e.g., flexibility in schedule, positive relationship with employer) have been associated with return-to-work for cancer survivors [7], previous research has not examined how work-related perceptions are related to QoL for women employed following their cancer diagnosis. In our analysis, women who reported feeling able to keep up with work responsibilities had higher levels of all QoL domains. Many cancer survivors likely want to maintain employment or return to their workplace for a variety of reasons including resuming normalcy, maintaining career satisfaction, and tapping into social support networks attributed to co-workers [8]. Our results suggest that efforts related to helping employed cancer survivors keep up with work responsibilities might improve their QoL.

We also found that worry about financial problems due to current or future lost income was highly related to lower QoL. This finding suggests the importance of helping cancer survivors maintain employment, particularly if they need to do so for financial reasons.

A limitation of these cross-sectional analyses is the inability to discern direction of temporality of the associations we found. We do not know whether keeping up with work responsibilities improves QoL or better QoL helps one keep up with responsibilities. Our finding that more supportive work environment was associated with lower physical wellbeing suggests we cannot rule out the possibility of QoL influencing work-related perceptions.

Our findings are likely limited in generalizability because of the predominantly white, highly educated, early-stage nature of our study sample. In addition, our study does not provide data on work-related perceptions for women who left the workforce and had not returned by our last follow-up. Finally, the follow-up data were collected between 2005-2008 and some aspects of the workplace environment for women with breast cancer may have changed since then.

The importance of work-related perceptions for those undergoing treatment for serious illnesses, such as cancer, is often overlooked within the clinical environment. Our results suggest that work-related perceptions are an important area for inquiry and counsel. Future analyses examining work characteristics (e.g., the ability to take off from work, job-related stress levels, physical work demands, work-related discrimination, social networks within the work environment) may further elucidate the specific contributions of the workplace to QoL for cancer survivors. Additionally, there is a need for larger, more heterogeneous samples followed longitudinally to help clarify temporal relationships between work-related perceptions and QoL. Given the growing number of cancer patients who are entering long-term survivorship [9], the impact of work on various aspects of QoL is an area of much-needed research and policy attention.

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Key points

- Previous research among breast cancer survivors has suggested that being employed is related to higher levels of quality of life yet the association between work-related perceptions and quality of life has not been investigated.
- Among a sample of 258 breast cancer survivors who were 18-26 months post-diagnosis, women who reported greater ability to keep up with work responsibilities had higher QoL scores; having more financial worries was associated with lower QoL scores on all domains.
- Our results suggest that efforts to help employed cancer survivors keep up with work responsibilities might improve their QoL, but it is also possible that improvements in QoL could help survivors keep up with work responsibilities.

Table 1

Participant Characteristics (N =258)

| Variable | Mean (SD) | N(%) |
|--|---------------|------------|
| Age | 49.87 (9.62) | |
| Stage | | |
| I | | 129 (50.0) |
| II | | 106 (41.1) |
| III | | 23 (8.9) |
| Chemotherapy status | | |
| Treated with chemotherapy | | 190 (73.6) |
| No chemotherapy | | 68 (26.4) |
| Partner status | | |
| Not married/partnered | | 53 (20.5) |
| Married/partnered | | 205 (79.5) |
| Income | | |
| <\$50,000 | | 35 (17.1) |
| \$50,000 | | 170 (82.9) |
| Race | | |
| Non-white | | 13 (5.0) |
| White/Caucasian | | 245 (95.0) |
| Education | | |
| College graduate | | 128 (49.6) |
| >College grad | | 130 (50.4) |
| Difficulty paying for basics | | |
| No difficulty paying for basics | | 217 (84.1) |
| Very/somewhat difficult to pay for basics | | 41 (15.9) |
| FACT B scores <i>at 18 month follow-up</i> | | |
| FACT B overall | 110.11 (18.0) | |
| SWB | 21.28 (5.34) | |
| EWB | 16.68 (2.98) | |
| FWB | 21.12 (4.98) | |
| PWB | 24.37 (3.89) | |
| BCS | 26.81 (5.53) | |
| Workplace perceptions ^a | | |
| Supportive work environment | 3.92 (1.21) | |
| Ability to keep up | 4.51 (0.81) | |
| Financial worries | 2.10 (1.22) | |

^aItems included: (1) I receive support from people associated with my work regarding my breast cancer (supportive work environment), (2) I am able to keep up with my work responsibilities (ability to keep up), (3) I worry about financial problems because of current or future lost income (financial worries)

Table 2

Results from adjusted multivariate regressions of FACT-B scores on workplace characteristics

| Variable | FACT B Total | SWB | EWB | FWB | PWB | BCS |
|------------------------------|---|---|---|---|---|---|
| | Estimate SE P value | Estimate SE P value | Estimate SE P value | Estimate SE P value | Estimate SE P value | Estimate SE P value |
| Age at diagnosis | 0.07 0.11 0.52 | 0.06 0.04 0.10 | 0.01 0.02 0.54 | 0.03 0.03 0.26 | -0.01 0.02 0.57 | -0.02 0.04 0.53 |
| Cancer stage | 0.31 1.74 0.86 | -0.11 0.56 0.84 | 0.39 0.31 0.21 | 0.34 0.49 0.49 | -0.40 0.39 0.30 | 0.15 0.58 0.80 |
| Difficulty paying for basics | -7.01 2.83 0.01^a | -1.30 0.90 0.15 | -1.27 0.50 0.01^a | -1.46 0.79 0.07 | -1.73 0.63 0.01^a | -1.39 0.93 0.14 |
| Married/partnered | 0.32 2.51 0.90 | 0.21 0.80 0.79 | -0.04 0.44 0.92 | 0.49 0.70 0.49 | -0.03 0.56 0.96 | -0.30 0.83 0.72 |
| Chemotherapy | -1.72 2.64 0.52 | -0.1 0.84 0.99 | -0.17 0.47 0.71 | -0.01 0.74 0.99 | 0.20 0.59 0.73 | -1.80 0.87 0.04^a |
| Education level | 0.93 1.03 0.37 | 0.15 0.33 0.65 | -0.13 0.18 0.49 | 0.37 0.29 0.20 | 0.15 0.23 0.52 | 0.30 0.34 0.38 |
| Perceptions of workplace | | | | | | |
| Supportive work environment | -0.37 0.85 0.66 | 0.70 0.27 0.01^a | -0.02 0.15 0.87 | -0.19 0.24 0.43 | -0.41 0.19 0.03^a | -0.41 0.28 0.14 |
| Ability to keep up | 6.70 1.26 <0.001^a | 1.26 0.40 0.002^a | 0.93 0.22 <0.001^a | 1.95 0.36 <0.001^a | 1.25 0.28 <0.001^a | 1.10 0.42 0.009^a |
| Financial worries | -5.33 0.83 <0.001^a | -0.89 0.27 0.001^a | -0.59 0.15 <0.001^a | -1.35 0.23 <0.001^a | -1.09 0.18 <0.001^a | -1.43 0.27 <0.001^a |

^aIndicates significance at the 0.05 level