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Healthcare experience among older cancer survivors: Analysis of the SEER-CAHPS dataset☆

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ABSTRACT

Objective: Little is known about factors affecting medical care experiences of cancer survivors. This study examined experience of care among cancer survivors and assessed associations of survivors' characteristics with their experience.

Materials and Methods: We used a newly-developed, unique data resource, SEER-CAHPS (NCI's Surveillance Epidemiology and End Results [SEER] data linked to Medicare Consumer Assessment of Healthcare Providers and Systems [CAHPS] survey responses), to examine experiences of care among breast, colorectal, lung, and prostate cancer survivors age >66 years who completed CAHPS >1 year after cancer diagnosis and survived ≥1 year after survey completion. Experience of care was assessed by survivor-provided scores for overall care, health plan, physicians, customer service, doctor communication, and aspects of care. Multivariable logistic regression models assessed associations of survivors' sociodemographic and clinical characteristics with care experience.

Results: Among 19,455 cancer survivors with SEER-CAHPS data, higher self-reported general-health status was significantly associated with better care experiences for breast, colorectal, and prostate cancer survivors. In contrast, better mental-health status was associated with better care experience for lung cancer survivors. College-educated and Asian survivors were less likely to indicate high scores for care experiences. Few differences in survivors' experiences were observed by sex or years since diagnosis.

Conclusions: The SEER-CAHPS data resources allows assessment of factors influencing experience of cancer among U.S. cancer survivors. Higher self-reported health status was associated with better experiences of care; other survivors' characteristics also predicted care experience. Interventions to improve cancer survivors' health status, such as increased access to supportive care services, may improve experience of care.

1. Introduction

As of January 2016, there were approximately 15.5 million cancer survivors in the United States; this will grow to 20 million by 2026 [1]. Approximately three-quarters of cancer survivors are age 60 or older, and almost one-half are age 70 or older [1]. Cancer survivors have unique post-treatment needs, including surveillance for tumor recurrence and development of other cancers; treatment of chronic/late-occurring effects due to cancer or cancer treatment; and increased needs for preventive care and health promotion [2]. Cancer survivors also frequently experience needs for a range of psychosocial services [3]. Symptoms experienced among cancer survivors and their effects vary based on cancer treatment, stage at diagnosis, sociodemographic characteristics, and health status [4].

There is limited data on factors affecting the experience of care among cancer survivors, particularly older survivors [5]. The experience of survivorship care may differ substantially in older versus younger survivors. Older survivors may demonstrate better psychosocial adaptation to cancer than do younger survivors [6]. However, older cancer survivors may also experience more rapid decline in functional status compared with younger survivors or with age-matched individuals in the general population [7], and older age may be a risk factor for cancer

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treatment-related complications [8]. In addition, older survivors are more likely to have multiple chronic conditions, which may affect outcomes including quality of life and survival [9]. Almost 40% of older survivors have at least one on-going symptom due to cancer or cancer treatment [10]; older survivors with multiple chronic conditions are less resistant to decreases in physical functioning and are less likely to recover lost functional ability [11]. Overall, older survivors have unique needs, and their survivorship care should be tailored to these needs to enhance the experience of care [12].

SEER-CAHPS is a recently developed data resource linking patient-reported information from the Medicare Consumer Assessment of Healthcare Providers and Systems (M-CAHPS®) Survey with clinical information from NCI's Surveillance, Epidemiology, and End Results (SEER) Program [13,14]. This unique resource is the first dataset permitting examination of sociodemographic and clinical characteristics and experiences of care among large U.S. populations of individuals diagnosed with cancer, including cancer survivors. The objective of this study is to examine the experience of care for older cancer survivors—including experience with physicians, health plans, and other aspects of medical care—and assess associations of survivor characteristics with these experiences.

2. Materials and Methods

SEER-CAHPS contains information from Medicare beneficiaries who responded to the CAHPS survey and were diagnosed with their first recorded primary cancer while residing in SEER regions [13,14]. We used data from Medicare beneficiaries diagnosed with non-metastatic (stage I-III) breast, colorectal, lung, or prostate cancer in SEER regions who completed the CAHPS survey from 2000 to 2011. Males with breast cancer were excluded ($N = 49$). We included individuals who: (1) responded to an M-CAHPS survey at least once, at least one-year after cancer diagnosis (diagnosis dates 1988–2009); (2) survived for at least one-year after responding to the survey; and (3) were age 66 or older at survey completion ($N = 19{,}455$). Details regarding sample selection, administration, and response rates for the M-CAHPS are presented elsewhere [15–17].

Responses to four M-CAHPS global ratings were included in this study: overall care, health plan, primary physician, and specialist physician. Each measure was rated on a 0–10 scale, with zero representing the lowest rating. M-CAHPS responses also included patient reports on five composite, multi-item measures: *customer service, doctor communication, getting care quickly, getting needed care, and getting needed prescription drugs*. Each composite measure was scored 0–100. Appendix Table 1 presents descriptive statistics for each CAHPS measure.

Similar to previous CAHPS analysis [18], because global ratings were very negatively skewed, with most responses at the extreme upper end of scales, we classified global ratings (scored 0–10) as indicating “high” experiences of care if responses were 9 or 10. The multi-item composite scores (scored 0–100) exhibited ceiling effects and few respondents provided scores between 90 and 100; we classified survivors' reports on composite measures to indicate “high” care experiences for responses of 100. Previous studies have also dichotomized CAHPS ratings or reports, defining the upper scores as “high” [19–21]. Use of the term “high” to classify upper-end scores does not imply that M-CAHPS participants judged their experience of care as high compared with other experiences of care. Details regarding these measures are presented elsewhere [22,23]. Additional information on M-CAHPS is at https://cahps.ahrq.gov/surveys-guidance/hp/about/Medicares-CAHPS-HP-Survey.html.

We examined associations of survivor characteristics with high scores for experience of care using multivariable logistic regression analyses, with separate models for each of the four global and five composite measures. Dependent variables were specified as high/not high for each measure. Sociodemographic independent variables (with reference categories listed first) were: sex (female/male, for colorectal and lung cancer survivors only); race/ethnicity (Non-Hispanic White, Non-Hispanic Black, Non-Hispanic Asian, Hispanic, or other); education (less than high school, high school, some college, or college graduate); Medicare plan type (managed-care vs. fee-for-service); and age at completion of CAHPS survey (66–74, 75–79, 80–84, or 85+).

Survivors' health status was controlled for using self-reported general health status (GHS) and mental health status (MHS) on a 5-point scale (poor, fair, good, very good, or excellent). In regression analyses, excellent and very good health status were combined due to infrequent excellent ratings for GHS. Previous studies of factors associated with CAHPS ratings generally use self-rated health status (GHS and MHS) to control for patient comorbidities. Studies using other survey instruments to capture information from cancer survivors on self-rated quality of care have also found that health status is a more relevant measure than comorbidities for this population [24].

In addition, we controlled for years since cancer diagnosis (1–2, more than 2 to 5, more than 5 years from cancer diagnosis to completion of CAHPS survey); stage at cancer diagnosis (1 vs. 2 vs. 3); geographic location (state of residence at diagnosis); number of primary cancers at diagnosis (single vs. multiple); and survey year (2000–2011). Regression analysis results for years since cancer diagnosis and stage at diagnosis are presented in Appendix Tables 2 and 3. All analyses were performed on unweighted data using SAS 9.4 (SAS Institute, Cary NC). Statistical significance was assessed at $p < 0.05$. As this study focused on hypothesis generation (i.e., identifying factors associated with experience of care among older cancer survivors), statistical significance was not corrected for multiple comparisons [25]. This study was classified as exempt by the RTI Institutional Review Board.

3. Results

3.1. Characteristics of Study Population

Table 1 presents characteristics of the study population by cancer type. Colorectal cancer survivors were the oldest group; prostate cancer survivors were the youngest and included the highest proportions of college graduates and Black and Hispanic individuals. Medicare fee-for-service (vs. managed care) status was similar across all groups.

The distribution of general health status (GHS) and mental health status (MHS) category among the study population are also presented in Table 1. For all cancer types, the proportion of survivors reporting excellent/very good GHS was less than the proportion reporting excellent/very good MHS. This was particularly evident for lung cancer survivors; 21.5% of this groups reported excellent/very good GHS while 58.5% indicated excellent/very good MHS. Pearson correlations coefficients between GHS and MHS by cancer type were: breast, 0.45; colorectal, 0.49; lung, 0.44; and prostate, 0.49 (data not shown).

Table 1 also presents the proportion of individuals in each survivor group indicating high scores for each CAHPS measure. Few large differences were observed across cancer types for a specific measure. The measure with the lowest proportion of high scores was Customer Service (51.9%), while the measures with the greatest proportion indicating high scores were Getting Needed Prescription Drugs (77.2%), Specialist Physician (73.3%), and Primary Physician (72.9%).

3.2. Association of GHS With High Scores for Experience of Care

Fig. 1 presents results from multivariable regression analyses examining associations of very good/excellent GHS with high scores for survivor's experience. The top graph (Fig. 1a) presents associations for global ratings; the bottom graph (Fig. 1b) presents associations for composite measures. Among all four survivor groups, those with very good/excellent general health status were significantly more likely to provide high ratings for all four global measures, except for specialist physician ratings among lung cancer survivors (Fig. 1a). Breast, colorectal, and prostate cancer survivors with very good/excellent general health status

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