Treatment Summaries and Follow-Up Care Instructions for Cancer Survivors: Improving Survivor Self-Efficacy and Health Care Utilization

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ABSTRACT

Background. Treatment summaries and follow-up care plan information should be provided to cancer survivors. This study examines the association of receiving summaries and care plans with cancer survivor self-efficacy for chronic illness management, and whether self-efficacy was associated with health care utilization.

Methods. Four hundred forty-one cancer survivors (≥2 years from diagnosis and had completed treatment) ≥65 years old from 12 cancer centers across 5 states completed telephone surveys. Survivors responded to three questions about receiving a written treatment summary, written follow-up plan, and an explanation of follow-up care plans. Respondents completed the Stanford Chronic Illness Management Self-Efficacy Scale and reported emergency room visits and hospitalizations in the past year. Three multiple linear regression models estimated the association of written treatment summary, written follow-up care plan, and verbal explanation of follow-up plan with total self-efficacy score. Log-binomial models estimated the association of self-efficacy scores with emergency room visits and hospitalizations (yes/no).

Results. Among survivors, 40% and 35% received a written treatment summary and follow-up care plan, respectively. Seventy-nine percent received an explanation of follow-up care plans. Receiving a verbal explanation of follow-up care instructions was significantly associated with higher self-efficacy scores (β = 0.72, p = .009). Higher self-efficacy was significantly associated with lower prevalence ratios of emergency room visits (prevalence ratio, 0.92; 95% confidence interval, 0.88–0.97) and hospitalizations (prevalence ratio, 0.94; 95% confidence interval, 0.89–0.99).

Conclusion. Explanation of the follow-up care plan, beyond the written component, enhances survivor self-efficacy for managing cancer as a chronic condition—an important mediator for improving health care utilization outcomes. The Oncologist 2016;21:817–824

Implications for Practice: Older cancer survivors (≥65 years) are especially vulnerable to poor outcomes in survivorship because of the complexity of follow-up care and other chronic conditions. Delivering written treatment summaries, written follow-up care plans, and verbal explanations of follow-up care plans all independently increased the self-efficacy for chronic illness management among older survivors. In particular, delivering this information in the verbal format was significantly associated with higher self-efficacy and, subsequently, a lower likelihood of emergency room visits. Understanding the mechanism through which summaries and follow-up care plans may positively influence survivor health is critical to increasing the delivery of the information.

INTRODUCTION

Older cancer survivors are particularly vulnerable to adverse sequelae in the postcancer period, given the combined effects of aging and the consequences of cancer and its treatment [1]. This combination results in an increased risk of morbidity and downstream late effects (e.g., functional decline, management of multiple conditions) [2–4]. The physical, mental, emotional, and financial toll associated with the immediate or delayed consequences of cancer and treatment can be substantial for survivors, their families, and the health care system [5].

Given these consequences, it is not surprising that survivors have reported anxiety about leaving the cancer care system upon completion of treatment [6]. Receiving treatment summaries and survivorship care plans (SCPs) may be one strategy to reduce the anxiety by increasing survivors’ ability...
to self-manage while also providing information to primary care physicians (PCPs) responsible for follow-up care [7, 8]. Although there is a lack of agreement on the exact contents of SCPs, the overall goals are to provide summaries of patients’ diagnoses and treatments, inform patients of potential late effects and recommendations for ongoing care (both self-maintenance and care delivered by the health care provider), and identify resources for survivors that may be helpful for the multiple issues arising in survivorship [7, 9]. In studies of other chronic diseases, such as diabetes or arthritis, the receipt of treatment information and care planning increases patients’ self-efficacy to manage their own condition and side effects, resulting in decreased health care utilization (e.g., hospitalizations and emergency room [ER] visits) [10]. Patients with higher self-efficacy for chronic illness management have confidence in their ability to manage symptoms, treatment, and physical consequences of their condition, as well as their ability to make behavioral, cognitive, or emotional changes needed to maintain quality of life and overall health [11].

Given the positive effects treatment information and follow-up plans have on other conditions, SCPs, treatment summaries, and other follow-up care information may positively influence cancer survivor self-efficacy to better manage their cancer as a chronic condition. However, summaries and follow-up care plans are not commonly available in the United States. Logistical issues and resource constraints are contributing factors, as is the lack of empirical evidence demonstrating a change in patient outcomes [12, 13]. The present study aims to contribute evidence on the association of postcancer treatment summaries and follow-up information with survivors’ self-efficacy for chronic illness management. Specifically, we examined how receiving treatment summaries and follow-up care information, both written and verbal, may be associated with self-efficacy and the relationship with health care utilization. Additionally, we conducted exploratory mediation and moderation analyses to generate future hypotheses on the mechanism through which these different components are related to self-efficacy and health care use.

**METHODS**

**Study Population**

From June 2013 to July 2015, individuals aged 65 years and older with a cancer diagnosis after January 1, 2008, were identified from within the University of Alabama at Birmingham Health System Cancer Community Network (CCN). The CCN includes 12 different hospitals across Alabama, Georgia, Tennessee, Mississippi, and Florida. Registry data were used to ascertain contact information on potentially eligible participants to complete a telephone survey. The survey included questions on the receipt of treatment summaries and follow-up care plans, chronic illness management self-efficacy, and health care utilization, as well as questions on demographics, social support, quality of life, symptoms, and financial issues. Figure 1 outlines the sample selection process. Overall, of the eligible patients contacted (n = 3,192), 1,460 completed the survey (46% completion rate). For this analysis, we included those who completed treatment (n = 990) and were ≥2 years from diagnosis (n = 441). The institutional review boards at the University of Alabama at Birmingham and each CCN site approved the study.

**Treatment Summary and Follow-Up Care Plan**

The study’s three primary explanatory variables included the following items: “Did any doctor, nurse, or other health professional (1) ever give you a written summary of all the cancer treatments that you received? (2) ever give you a written summary of the plan for follow-up care? and (3) explain the plan for follow-up care?” (yes/no response option).

**Self-Efficacy**

The Stanford Chronic Illness Self-Efficacy scale is a six-item scale measuring a person’s confidence in their ability to manage health conditions [14]. Question stems referred specifically to conditions or symptoms caused by cancer or treatment. The first question asked, “How confident are you that you can keep [blank] caused by your cancer/treatment from interfering with things you want to do?” Respondents answered this question on a scale of “fatigue,” “physical discomfort/pain,” “emotional distress,” and “symptoms/health problems.” The second question asked, “How confident are you that you can do the [blank] needed to manage your health condition so as to reduce your need to see a doctor?” Respondents answered this question on a “different tasks/activities” and “things other than just taking medication.” Response options were on a scale from 1 to 10, where 1 = “not confident” and 10 = “totally confident.” Responses were summed to create an overall self-efficacy score.

**Health Care Use**

Survivors were asked if they had (a) been seen in an ER in the past year and (b) whether they had been hospitalized (spent at least one night in the hospital) in the past year.

**Covariates**

Demographic information obtained included age at time of survey, race, sex, education, annual household income, and marital status. Clinical information derived from hospital data included cancer type, time from diagnosis, and cancer stage. Because of high rates of missing data, the stage variable was categorized as 0/1, II–IV, and missing/unknown for analyses. Comorbidity was extracted from Medicare claims, and scoring was based on Surveillance, Epidemiology, and End Results, Medicare’s calculation of comorbidity weights [15]. A categorical variable was created from 0, 1, or 2 + on the index scale. Of the 441 survivors, 122 had at least one contact with a cancer navigation program.

**Primary Analysis**

Frequencies, means, and SDs were calculated for categorical and continuous variables, respectively. In addition to examining the frequency of each of the three information items (written treatment summary, written follow-up care plan, explanation of follow-up care plan), we evaluated whether survivors received none or all three pieces of information.

Three multiple linear regression models estimated the association between each of the primary independent variables (three information items) and the dependent variable, total self-efficacy score. Covariates for each model included age, sex, race.
Mediation analysis was used to examine how receiving treatment summaries or follow-up care plan information may influence health care utilization (ER or hospitalization). Mediation analyses allows us to estimate the direct associations, or relationship, between two variables \(X \rightarrow Y\), as well as the indirect effect through another variable \(X \rightarrow M \rightarrow Y\). In our model, the indirect effect is the association of one of the explanatory variables \(X\) with health care utilization \(Y\) through self-efficacy \(M\). For example, we hypothesize that receiving a verbal explanation of follow-up care plans may be directly associated with decreased ER visits. It may also be indirectly associated with decreased ER visits through its association with higher self-efficacy scores (Fig. 2A). Following approaches outlined by Hayes [18], MacKinnon et al. [19], and Preacher and Hayes [20], we used the PROCESS macro for mediation and moderation analyses. Self-efficacy \((M)\) is estimated from the variable for receiving follow-up care plans \((X)\) to health care utilization while controlling for covariates (Fig. 2A). Indirect effects are estimated as the product of the coefficients linking \(X\) to \(M\) and \(X\) to \(Y\) [19, 20].

Second, we modeled the receipt of treatment summaries/follow-up care information as a moderator of the relationship between self-efficacy and health care utilization (Fig. 2B). This model hypothesizes that a level of self-efficacy is present, and that receiving a treatment summary/follow-up care information may plausibly increase, or moderate, the level of self-efficacy, resulting in a decreased risk of ER visits or hospitalizations.

**Post Hoc Analysis**

We conducted a post hoc analysis of the regression models in which we stratified by comorbidity score \((0\ \text{versus} \geq 1)\). This allowed an examination of the impact of the receipt of treatment summaries, written follow-up care plans, and explanation of follow-up care plans on both self-efficacy and health care utilization among those with and without additional comorbidities to manage.

**Results**

**Population**

The mean age at survey of our sample was 74.7 years, and 60% of respondents were female (Table 1). More than half of the sample reported a $\geq$50,000 annual income, and 49% had a high school degree or less. The most frequent cancer type was prostate, followed by breast. The average time from diagnosis was 4.6 years, and ~36% were diagnosed at stage 0 or I. This was significantly more than the proportion of the overall sample diagnosed at stage 0/1 (36% vs. 29%, \(p < .001\)). The analytic sample had more prostate, colorectal, and ovarian cancer survivors \((p < .001)\) and fewer females \((p = .004)\) than the overall sample.

The mean self-efficacy score was 8.1 (SD 2.2). Approximately 40% of survivors reported receiving a written treatment summary, and 35% received a written summary of the follow-up care plan (33% received both). However, 79% of the sample reported receiving a verbal explanation of the follow-up care plan. One quarter of survivors received all three. One-third reported an ER visit, 29% reported a hospitalization, and 20% reported both.

**Self-Efficacy**

Table 2 shows the results of the three linear regression models. Model 2 with verbal explanation of follow-up care plans was the only one of the three primary variables that was significantly associated with higher self-efficacy scores in the adjusted model \((\beta = 0.72, \text{SD} = 0.27, p = .009)\). Female sex, minority race/ethnicity, and comorbidity score of at least 1 were associated with significantly lower self-efficacy scores in all three models.

**ER and Hospitalization**

Higher self-efficacy scores were associated with significantly lower risk of ER and hospitalizations in the past year.
The exploratory analyses included verbal explanation as the primary independent variable \((X)\), the indirect effects on ER visits and hospitalizations were significant through self-efficacy \((\beta = -0.09 \text{ [95\% CI } -0.23 \text{ to } -0.02\text{]}) and \(\beta = -0.08 \text{ [95\% CI } -0.21 \text{ to } -0.01\text{]})\), respectively. In the mediation analyses using treatment summary and written follow-up care plan as mediators (results not presented), both were significantly directly associated with self-efficacy, but the indirect and direct effects from treatment summary or written follow-up care plan to ER visits and hospitalization were not significant.

In the moderation analyses, verbal explanation of the follow-up care plan significantly moderated the relationship between self-efficacy and ER visits (conditional effect of \(X\) on \(Y\) at \(M = 1\), \(\beta = -0.12\), \(p = .024\)), but not hospitalization \((\beta = -0.10\), \(p = .080\)\) (Fig. 3B). Survivors with low self-efficacy \((\leq 1.50 \text{ below the mean self-efficacy score})\) and who received the verbal explanation had a 0.37 probability of reporting an ER visit compared with a 0.40 probability of those with low self-efficacy who did not receive the explanation. Treatment summaries and written follow-up plans did not significantly moderate the relationship between self-efficacy and ER visits or hospitalizations (results not presented).

**Post Hoc Results**

In the stratified analyses, among those with a comorbidity score \(\geq 1\), written treatment summary, written follow-up care plan, and explanation of care plan were more strongly associated with higher self-efficacy in the linear regression models. Among the group with no comorbidity, the relationships between treatment summary, written follow-up care plan, and verbal explanation were nonsignificant.

**DISCUSSION**

Less than 40% of older cancer survivors in our sample reported receiving a written treatment summary or a written follow-up care plan. Whereas a national survey reports that 38% and 58% of survivors reported written treatment and follow-up information, respectively, comparisons may not be equivalent given the regional nature of our data (i.e., southeast) [21]. In contrast, ~79% of survivors in our study received a verbal explanation of the follow-up care plan. Receiving the verbal explanation of the follow-up care plan was associated with higher self-efficacy scores and with decreased likelihood of ER visits and hospitalizations. Furthermore, the exploratory mediation analyses supported the possibility of a positive relationship between receiving the verbal explanation of the follow-up care plan and decreased health care utilization through the relationship with higher self-efficacy. These trends, however, were not observed for written treatment summaries or written follow-up care plans.

Despite the relatively low frequency of the written components, both of those components, along with the verbal explanation, were associated with increased self-efficacy, adding evidence to the limited body of literature on treatment summaries and care plans. Of the few studies conducted, results from a randomized trial of SCP versus usual care delivery in the Netherlands found that although cancer survivors in the SCP arm reported receiving more information about treatment and doing things to help themselves recover compared with the usual care arm, they also reported more concern about their illness and more cancer-related visits with their PCP [22]. Because the study did not assess survivor self-efficacy or confidence in the ability to manage cancer, it is unclear whether the increased concern and PCP contact was proactive management of symptoms and problems or whether these were concerns and doctor visits resulting from the lack of self-management or lack of confidence to self-manage. Another study using the Web-based LIVESTRONG Care Plan [23] assessed whether the care plan prompted survivors to change the way they participate in their health care (61% said yes) and whether it helped them communicate with health care providers (80% said yes) [24]. The study also reported on survivor-reported changes in behaviors, most notably improvements in diet and exercise. Although these are not direct assessments of self-efficacy, the LIVESTRONG study findings suggest that the information provided to the survivors assisted them in their health care. In contrast with our study, however, the information associated with these changes was in a written format (Web-based delivery). The population under study was substantially younger than our study sample, with a mean age of 52 versus 75 years, possibly indicating that older survivors may require face-to-face or verbal delivery of this information to have an impact. Furthermore, the population was more highly educated and contained fewer minorities compared with our sample.
In addition to managing cancer as a chronic condition, most of our older survivors had a comorbidity score of at least 1 (65%), and many had a score of 2 or more (34%). This additional morbidity was, unsurprisingly, highly negatively associated with self-efficacy and positively associated with health care utilization. The post hoc results suggest that this high-risk group may stand to benefit most from treatment summaries and follow-up care plan information (both verbal and written). This is consistent with findings from studies on self-management of other chronic conditions.

Table 1. Sample characteristics

| Characteristic                              | Total | Study sample | p value<sup>a</sup> |
|---------------------------------------------|-------|--------------|---------------------|
| n                                           | 1,460 | 441          |                     |
| Age, yr, mean (SD), range                   | 74.2±5.8, 65–99 | 74.7±5.4, 66–94  | .107                |
| Female sex                                  | 875 (59.9) | 232 (52.6)  | .004                |
| Minority race/ethnicity                     | 265 (18.2) | 91 (20.6)   | .865                |
| Education                                   |  |              |                     |
| Less than high school                       | 172 (11.8) | 55 (12.5)   | .300                |
| High school graduate                        | 380 (26.0) | 114 (25.9)  |                     |
| Some college                                | 469 (32.1) | 148 (33.6)  |                     |
| College degree or more                      | 438 (30.0) | 124 (28.1)  |                     |
| Income/yr                                   |  |              |                     |
| <$25,000                                    | 400 (27.4) | 118 (26.8)  | .116                |
| $25,000–$50,000                             | 398 (27.3) | 156 (28.6)  |                     |
| $50,000–$75,000                             | 202 (13.8) | 66 (15.0)   |                     |
| >$75,000                                    | 254 (17.4) | 78 (17.7)   |                     |
| Missing data                                | 206 (14.1) | 53 (12.0)   |                     |
| Married/in a relationship                   | 918 (62.9) | 276 (62.6)  | .455                |
| Cancer type                                 |  |              |                     |
| Breast                                      | 347 (23.8) | 72 (16.3)   | <.001               |
| Prostate                                    | 189 (12.9) | 78 (17.7)   |                     |
| Lung                                        | 169 (11.6) | 52 (11.8)   |                     |
| Colon/rectal                                | 101 (2.1)  | 40 (9.0)    |                     |
| Ovarian                                     | 77 (5.3)   | 44 (7.7)    |                     |
| Other<sup>b</sup>                           | 577 (39.5) | 155 (35.1)  |                     |
| Time since diagnosis, yr, mean (SD), range  | 3.0±3.4, 0–32 | 4.6±3.7, 2–27  | <.001               |
| Stage at diagnosis                          |  |              |                     |
| 0/I                                         | 428 (29.3) | 160 (36.3)  | <.001               |
| II/III                                      | 234 (16.0) | 102 (23.1)  |                     |
| IV                                          | 102 (7.0)  | 29 (6.6)    |                     |
| Missing or unknown                          | 696 (47.7) | 150 (34.0)  |                     |
| Comorbidities                               |  |              |                     |
| 0                                           | 495 (33.9) | 156 (35.4)  | .160                |
| 1                                           | 420 (15.1) | 124 (28.1)  |                     |
| 2+                                          | 514 (35.1) | 151 (34.2)  |                     |
| Missing data                                | 31 (2.1)   | 10 (2.3)    |                     |
| Chronic Illness Management Self-Efficacy Score, mean (SD), range<sup>c</sup> | 8.1±2.2, 1–10 | 8.0±2.3, 1–10 | .206                |
| Received written treatment summary          | 416 (28.9) | 175 (39.7)  | <.001               |
| Received written follow-up plan             | 359 (24.6) | 155 (35.2)  | <.001               |
| Received verbal explanation of follow-up plan | 789 (54.0) | 347 (78.7)  | <.001               |
| Reported emergency room visit in past year  | 473 (32.4) | 139 (31.5)  | .639                |
| Reported hospitalization in past year       | 547 (37.5) | 129 (29.3)  | .001                |
| Reported both emergency room visit and hospitalization | 338 (23.2) | 89 (20.2)   | .044                |

Data are presented as n (%) unless noted otherwise.

<sup>a</sup>Represents statistical comparison (t tests for continuous variables and between the 441 survivor group and the full sample of 1,460).

<sup>b</sup>Brain, ovarian, lung, or pancreas.

<sup>c</sup>Answered only by those who completed treatment.
Table 2. Linear regression models: receiving treatment summaries and follow-up care plan instructions and self-efficacy

|                     | Model 1 |          | Model 2 |          | Model 3 |          |
|---------------------|---------|----------|---------|----------|---------|----------|
|                     | \(\beta\) (SD) | \(p\) value | \(\beta\) (SD) | \(p\) value | \(\beta\) (SD) | \(p\) value |
| Treatment summary   | 0.42 (0.22) | .064 | —      | —      | —      | —      |
| Explanation of follow-up plan | —   | —      | 0.72 (0.27) | .009 | —      | —      |
| Written follow-up plan | —   | —      | —      | —      | 0.08 (0.23) | .740 |
| Age, yr             | 0.02 (0.02) | .423 | 0.02 (0.02) | .334 | 0.01 (0.02) | .537 |
| Sex (reference: male) | —    | —      | —      | —      | —      | —      |
| Stage at diagnosis (reference: 0/1) | 0.52 (0.27) | .072 | 0.47 (0.28) | .102 | 0.50 (0.28) | .088 |
| Missing or unknown  | 0.36 (0.29) | .168 | 0.29 (0.27) | .261 | 0.32 (0.27) | .211 |
| Minority (reference: white) | —    | —      | —      | —      | 0.71 (0.29) | .013 |
| Married/partnered (reference: yes) | 0.02 (0.24) | .921 | 0.03 (0.24) | .897 | 0.01 (0.25) | .974 |
| Years since diagnosis | 0.03 (0.03) | .396 | 0.03 (0.03) | .403 | 0.03 (0.03) | .398 |
| \(\geq 1\) comorbidity score (reference: 0) | 0.63 (0.24) | .004 | 0.64 (0.24) | .004 | 0.64 (0.24) | .004 |

The dependent variable is self-efficacy (higher scores = more self-efficacy). Dashes indicate that the variable was not included in the model.

Table 3. Prevalence ratios for likelihood of reporting and ER visit or hospitalization

| Factor                      | Dependent variable: ER visit | Dependent variable: hospitalization |
|-----------------------------|------------------------------|------------------------------------|
|                             | Model 1 \(^a\) | Model 2 \(^b\) | Model 3 \(^c\) | Model 4 \(^b\) | Model 5 \(^b\) | Model 6 \(^c\) |
| \(n\)                       | 412             | 412             | 412             | 414             | 414             | 414             |
| Self-efficacy               | 0.92 (0.88–0.97) | 0.92 (0.88–0.97) | 0.92 (0.88–0.97) | 0.94 (0.89–0.99) | 0.94 (0.89–0.99) | 0.94 (0.89–0.98) |
| Treatment summary           | 1.12 (0.86–1.47) | —              | —              | 1.05 (0.79–1.41) | —              | —              |
| Explain follow-up plan      | —               | 0.95 (0.69–1.30) | —              | —              | 0.98 (0.70–1.39) | —              |
| Written follow-up plan      | —               | —               | 1.08 (0.82–1.42) | —              | —              | 1.15 (0.86–1.55) |
| Age, yr                     | 1.01 (0.99–1.04) | 1.01 (0.99–1.04) | 1.01 (0.99–1.04) | 1.00 (0.97–1.02) | 1.00 (0.97–1.02) | 1.00 (0.97–1.03) |
| Sex (reference: male)       | 0.65 (0.49–0.87) | 0.64 (0.48–0.85) | 0.64 (0.48–0.86) | 0.72 (0.53–0.97) | 0.72 (0.53–0.97) | 0.73 (0.54–0.99) |
| Minority (reference: white) | 1.21 (0.87–1.67) | 1.20 (0.87–1.67) | 1.19 (0.85–1.65) | 0.97 (0.67–1.41) | 0.97 (0.66–1.42) | 0.94 (0.65–1.38) |
| Married/partnered (reference: yes) | 1.00 (0.74–1.34) | 1.00 (0.74–1.35) | 0.99 (0.74–1.33) | 0.96 (0.70–1.32) | 0.96 (0.71–1.32) | 0.95 (0.71–1.32) |
| Stage at diagnosis (reference: 0/1) | 1.03 (0.73–1.46) | 1.05 (0.75–1.49) | 1.06 (0.75–1.49) | 0.88 (0.60–1.28) | 0.88 (0.61–1.29) | 0.89 (0.61–1.30) |
| Missing or unknown          | 1.10 (0.79–1.53) | 1.11 (0.80–1.54) | 1.11 (0.80–1.54) | 1.22 (0.87–1.71) | 1.23 (0.88–1.72) | 1.23 (0.88–1.72) |
| Years since diagnosis       | 0.98 (0.94–1.02) | 0.98 (0.94–1.02) | 0.98 (0.94–1.02) | 0.93 (0.88–0.97) | 0.93 (0.88–0.97) | 0.93 (0.88–0.97) |
| \(\geq 1\) comorbidity score (reference: 0) | 1.39 (1.01–1.91) | 1.40 (1.01–1.92) | 1.39 (1.01–1.91) | 2.07 (1.39–3.10) | 2.07 (1.38–3.10) | 2.06 (1.37–3.08) |

Data are presented as prevalence ratio (95% confidence interval). Dashes indicate that the variable was not included in the model.

\(^a\)Models 1 and 4 include the variables for receipt of a treatment summary, self-efficacy, and the remaining covariates.

\(^b\)Models 2 and 5 include the variables for receipt and explanation of a follow-up plan, self-efficacy, and remaining covariates.

\(^c\)Models 3 and 6 include the variables for receipt of a written follow-up plan, self-efficacy, and remaining covariates.

Abbreviation: ER, emergency room.

Limitations of this study include the reliance on self-report of receiving treatment summaries, follow-up care information, and health care utilization. However, patient perception is an important indicator of information received. Patient recollection of verbal information may be a surrogate for an unmeasured variable, such as quality of relationship with the oncology provider, which may influence self-efficacy. We also do not know the specific contents of the summaries or care plans received, and plans that were received were not standardized across
Importantly, the data are cross-sectional; therefore, our mediation and moderation analyses are strictly hypothesis generating, and no causal conclusions can be made. Furthermore, we do not have information on the reasons for the ER visits or hospitalizations, the lack of which limits inferences we can make on the relationship between self-efficacy and decreased ER visits. Along these same lines, ER visits may also be related to PCP experience (essentially, if the physician instructs the survivor to go to the ER to address a complicated health issue). This study was designed to identify a preliminary association between treatment summaries, follow-up care plans, self-efficacy, and health care use. Given those associations, additional study, preferably through randomized trial, is needed to strategically assess the delivery of treatment summaries and care plans and the downstream effects on health care use.

Our findings have several important contributions. First, treatment summary and follow-up care plan evaluation has been largely skewed toward qualitative studies involving interviews and focus groups of patients and physicians. This previous research provides rich information on patient and physician preferences and personal experiences, but lacks the external validity to broad groups of patients and the impact of care transition efforts. The few recent quantitative studies examining these issues have been either homogeneous populations [22] or much younger than the population presented in our study (mean age of 52 versus 75 years [24]). Thus, our study provides much-needed data on the population of older survivors who are traditionally understudied, yet comprise the majority of cancer patients. Second, examining the impact of treatment summaries and follow-up care plans on survivor self-efficacy gives a new perspective on how the components and delivery of treatment summaries and follow-up care plans may influence survivor behavior and health outcomes. We also provide a new pathway for future studies or practice implementation (i.e., delivering verbal explanation of follow-up care plans) by generating new hypotheses on how survivor self-efficacy may be a measurable target to decrease ER visits or hospitalizations long-term. Finally, we identify a high-risk group comprising survivors with at least one comorbid condition that stand to benefit most in self-efficacy for chronic illness management.

Although less than 40% of survivors received written components of treatment summaries or care plans, these two pieces are limited in their association with self-efficacy for chronic illness management in our study and, subsequently, on the relationship between self-efficacy and health care utilization. Future research directions include examining the components of the follow-up care plan that may help survivors, identifying strategies to integrate verbal explanations into care (e.g., which health care provider can deliver the explanation), and improving the written components to increase effectiveness for survivors’ self-efficacy.

**Figure 3.** Exploratory analysis results for the models with explanation of follow-up care plan. (A): Mediation. (B): Moderation.

**Abbreviation:** ER, emergency room.

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