



Do depressed newly diagnosed cancer patients differentially benefit from nurse navigation? ☆



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ABSTRACT

Objective: To examine whether the effects of a nurse navigator intervention for cancer vary with baseline depressive symptoms.

Method: Participants were enrolled in a randomized controlled trial of a nurse navigation intervention for patients newly diagnosed with lung, breast or colorectal cancer ($N=251$). This exploratory analysis used linear regression models to estimate the effect of a nurse navigator intervention on patient experience of care. Models estimated differential effects by including interactions between randomization group and baseline depressive symptoms. Baseline scores on the 9-item Patient Health Questionnaire (PHQ) were categorized into 3 groups: no depression (PHQ=0–4, $N=138$), mild symptoms of depression (PHQ=5–9, $N=76$) and moderate to severe symptoms (PHQ=10 or greater, $N=34$). Patient experience outcomes were measured by subscales of the Patient Assessment of Chronic Illness Care (PACIC) and subscales from an adaptation of the Picker Institute's patient experience survey at 4-month follow-up.

Results: With the exception of the PACIC subscale of delivery system/practice design, interaction terms between randomization group and PHQ-9 scores were not statistically significant.

Conclusions: The intervention was broadly useful; we found that it was equally beneficial for both depressed patients and patients who were not significantly depressed in the first 4 months postdiagnosis. However, because of the small sample size, we cannot conclude with certainty that patients with depressive symptoms did not differentially benefit from the intervention.

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1. Background

People with medical illnesses are at higher risk for depression. Depression is a burdensome and destructive condition in and of itself. In the context of newly diagnosed cancer, significant depressive symptoms may impair patients' ability to cope with the illness and to follow treatment and self-management regimens that may affect cancer outcomes. In general medical populations, the prevalence of major depression is approximately 5–10% [1–3]. Studies using conservative definitions of major depressive disorder show that the rates range from 8% to 17% among patients with cancer [4,5]. On the other hand, elevated depressive symptoms have been reported to be as high as 32% among breast and colon cancer patients and 43% among lung cancer patients [6]. Health system interventions that reduce burden related to the coordination of care and provide psychosocial support may be

particularly helpful in improving the care experience of cancer patients with depression.

We designed and evaluated a nurse navigation intervention for patients recently diagnosed with lung, breast or colorectal cancer [7]. The intervention was designed to address specific aspects of care: delays and poor coordination in the early phases of cancer care, lack of information and decision-making help regarding treatment options and lack of emotional and social support for patients. We did not find an effect of the intervention on quality of life, but we did find positive impact of the intervention on quality of patient-centered care as measured by the Patient Assessment of Chronic Illness Care (PACIC) [8] and measures of the quality of patient care, most notably in the perception of psychosocial care [9].

In trials of collaborative care interventions for depressed patients in primary care, major depression versus minor depression (i.e., greater depressive symptomatology versus less) is a positive predictor of treatment response [10–12]. There is also some evidence that more highly distressed cancer patients benefit more from psychosocial treatments patients than nondistressed patients (Ref. [13] and McCorkle et al., 2009). It is not known whether the same holds for healthcare system

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interventions such as nurse navigation that are not specifically targeted at patients with comorbid major depression.

In this exploratory analysis, we examine whether the effects of the nurse navigator intervention varied by baseline depression symptoms. If the intervention was particularly effective for those with greater depressive symptomatology, in environments with limited resources, this would have implications for targeting navigation interventions toward those patients with more distress.

2. Methods

Details of recruitment and methods for the randomized controlled trial are reported elsewhere and are outlined here in brief [7,9]. Participants were recruited from Group Health medical clinics in the greater Seattle area. Group Health is a nonprofit healthcare organization that provides coverage and comprehensive care to over 600,000 Washington state residents. The two-group cluster randomized trial (with randomization of primary care physicians and their patient panels) was part of the National Cancer Institute-funded Cancer Communication Research Center affiliated with the Cancer Research Network, a consortium of research centers based in integrated care delivery systems [14]. Adult patients ($n=251$) with newly diagnosed breast, colon or lung cancer were enrolled in the trial generally within 2 weeks of diagnosis. Intervention patients ($n=131$) had weekly contacts with a nurse navigator for 16 weeks. The nurses used the Distress Thermometers [15] to identify problems and monitor progress. For those patients reporting moderate to high levels of distress, the nurses assessed the sources of distress and, using motivational and encouraging counseling, collaboratively developed plans to address problems. Patients who had high distress scores on the Distress Thermometers and were suspected to have been depressed were referred to their providers or to the Behavioral Health Service for assessment and treatment of major depressive episode. Nurses were not aware of PHQ-9 scores that were collected as part of the baseline research assessment. Participants randomized to enhanced usual care received tailored patient education materials but no navigator.

Symptoms of depression at baseline (shortly after cancer diagnosis but prior to starting the intervention) were assessed using the 9-item Patient Health Questionnaire (PHQ), a self-report measure based on the American Psychiatric Association Diagnostic and Statistical Manual, Version IV [Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)] criteria for major depression. The PHQ-9 assesses the nine major depressive symptoms with each item scored with a 0–3 Likert scale to provide both a dichotomous diagnosis of major depression and a severity score ranging from 0 to 27. Scores of 0–4 are considered to indicate no to minimal depression, 5–9 indicates mild depression severity (minor depression) and 10 or above indicates moderate or greater depression severity and likely major depression [16,17]. Participants who scored positive on the item assessing suicidal ideation were referred immediately to a clinical psychologist for clinical risk assessment. Three study participants did not complete the PHQ at baseline and were excluded from this analysis.

Care experience outcomes were measured at a 4-month follow-up telephone interview. The primary outcomes were based on three subscales of the PACIC [8] and were also asked at baseline. The PACIC evaluates the extent to which care involves and activates patients, is well organized and is consistent with the patient's situation and values. Mentions of "chronic illness" in the original scale were replaced with "cancer" in all of the items on the patient activation, delivery system/practice design and problem-solving subscales. In the randomized trial, the PACIC summary score and all three subscale scores were higher among nurse navigator patients than usual care patients at 4 months [9]. Secondary patient-reported outcomes were based on selected subscales of the Picker Institute's patient experience measure adapted for cancer patients [18]. Items were scored as indicating a problem in care if patients gave anything but the most optimal response. In the

trial, nurse navigator patients were significantly less likely to report problems in coordination of care, psychosocial care and health information than usual care patients [9].

Both baseline and follow-up telephone interviews were conducted by trained staff who were masked as to patients' randomization group. Study procedures and materials were approved by the Group Health Institutional Review Board.

We described participant characteristics by randomization and depression groups and tested for significant differences in participant characteristics across baseline depression groups using chi-square tests or the Fisher's Exact test (when expected cell sizes were less than 5). We used linear regression models to describe the relationship between randomization group and baseline PHQ-9 score on patient experience measures (PACIC and Picker) at 4 months. We estimated the effect of randomization group by baseline PHQ-9 score on outcomes by creating an interaction term between randomization group and baseline PHQ-9 categories in our models. Models also adjusted for age and education, which differed between randomization groups. To account for nested clustering of patients within primary care providers, and longitudinal measurements within patients, we used generalized estimating equations with an independence working correlation structure and a robust covariance adjustment [19–21]. Because we had relatively few patients per provider, we also adjusted for small cluster sizes [22].

3. Results

Most participants had little to no depression at baseline. Overall, 138 (55%) had no symptoms of depression (PHQ=0–4), 76 (31%) had mild symptoms of depression (PHQ=5–9) and 34 (14%) had moderate to severe symptoms (PHQ-9=10 or greater). In general, there were few differences in participant characteristics, including randomization group, across depression severity groups; the exceptions were differences in age, cancer site and comorbidity (Table 1). Participants with moderate to severe depression symptoms were younger, more likely to have colon cancer and had more medical comorbidities.

Table 2 shows the adjusted 4-month outcome scores stratified by baseline PHQ-9 scores and randomization group. Among those who had PHQ-9 scores of 5 or more, nurse navigation patients had generally higher PACIC scores than those in usual care. The percentage of patients reporting problems in care increased with the severity of depressive symptoms. However, with the exception of the PACIC subscale of delivery system/practice design (example item: "I was shown how what I did to take care of myself influenced my condition"), interaction terms between randomization group and PHQ-9 scores were not statistically significant.

4. Discussion

Among a sample of patients recently diagnosed with breast, colon or lung cancer who were enrolled in a trial of nurse navigation, we found that almost a third had mild symptoms of depression and 14% had at least moderate symptoms of depression at early diagnosis. A recent multinational metaanalysis of interview-based studies reported a prevalence of DSM-defined minor depression of 19% and DSM-defined major depression of 15% among cancer patients in oncological, hematological and palliative care settings [4]. The PHQ-9 self-report measure, though widely used in healthcare settings, does not provide a gold-standard DSM diagnosis of depression. Nevertheless, the 14% prevalence of moderate to severe depressive symptoms in our sample was only slightly lower than the prevalence of major depression reported in the metaanalysis. We found that 29% of patients with colorectal cancer in our sample had moderate to severe depressive symptoms, while only 12% of patients with breast cancer had depressive symptoms in that range. Epidemiological studies in cancer show depression to be more common in women with breast cancer than in

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