Predictors of Depression Among Older African American Cancer Patients

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Abstract

Background—Depression is becoming an increasing concern in cancer patients because of its impact on quality of life. Although risk factors of having depression have been examined in the literature, there has been no research examining these factors in older African American cancer patients.

Objective—This study explores the demographic and illness-related risk factors in older African American cancer patients.

Methods—Two hundred eighty-three patients were recruited from outpatient oncology clinics. These older African American patients completed a questionnaire that included the Geriatric Depression Scale as well as sociodemographic characteristics and medical information. χ^2 Tests, trend tests, and logistic regression were used to identify the demographic and illness-related factors that predict depression in the sample.

Results—The overall prevalence of depression in the sample was 27.2%. Younger age (<65 years), employment status, proximity to family, and multiple symptoms due to cancer or treatment were independent predictors of depression.

Conclusion—This study represents the first attempt to describe the risk factors of depression within older African American cancer patients. Findings indicate a high prevalence of depression in African American cancer patients which can be attributed to identifiable risk factors.

Implications for Practice—An understanding of the risk factors associated with depression can be used to identify those cancer patients at risk for depression and initiate early interventions to improve psychological outcomes and lessen the potential burden of cancer on these patients.

Keywords

African Americans; Cancer; Depression

Depression affects approximately 15% to 25% of all cancer patients.[1,2] However, because of methodological issues and the difficulties in distinguishing symptoms of depression from cancer, the actual prevalence of depression in cancer patients may be much greater.[3] Although the causal relationship between cancer and depression is not clear, an association has been frequently cited.[4] Depressive symptoms have been found in cancer patients experiencing treatment adverse effects such as pain, sleep disturbances, and fatigue.[5] Moreover, these

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adverse effects of cancer combined with depression lead to an overall reduction in health-related quality of life.[6] Depression in cancer patients is associated not only with poorer quality of life and physical functioning but also with poorer survival rates.[4,6–9]

When cancer patients experience depressive symptoms at the time of diagnosis, there is an increased likelihood of poor health outcomes. Depressive symptoms can also negatively impact the pathology of the cancer and treatment compliance, leading to ineffective treatment and higher risk of mortality.[3] The research endeavors on cancer patients have recently shifted focus to the psychological distress experienced by these individuals because it has become increasingly apparent that a diagnosis of cancer also leads to depression and other mental illnesses.[10] Moreover, the possibility exists for cancer patients to develop psychological distress such as anxiety and depression well beyond the completion of treatment.[9,11]

We used the psychosocial theory of late-life depression as the theoretical framework for this study to examine the impact of social and economic factors on depression.[12] According to this model, 6 levels of physical, psychological, social, and environmental factors serve as the precursors for late-life depression.[12] These levels are (1) demographics (age, sex), (2) early life events/achievements (eg, education), (3) later life events/achievements (eg, income, marital status), (4) social integration (eg, community participation), (5) risk and protective factors (eg, social support), and (6) provoking agents and coping efforts (eg, life stress and coping).[12] Based on this model, we conceptualize demographic and life achievement characteristics as age, sex, education, marital status, employment status, income, insurance status, and living alone. Life stress was characterized as illness-related characteristics such as type of cancer, time since diagnosis, diagnosis stage, tumor stage, and presence of symptoms. These risk factors provide an overall view for depression in older African American cancer patients.

Studies have found several correlates of depression in cancer patients. Demographic characteristics such as age, sex, marital status, proximity to family, education, and employment status were associated with depression.[13] Among cancer patients, it has been repeatedly shown that younger adults and females experience more depression.[14–20] Unmarried cancer patients and patients who live alone have a greater risk of depression, which is likely the result of limited social support.[15,16,21] Education levels also make a difference as studies have shown that cancer patients with a college degree are less likely to be depressed, and losing one's job after a cancer diagnosis leads to a greater risk of depression.[15,22]

Illness-related characteristics such as preexisting comorbidities, cancer stage, and effects of cancer treatment were also correlated with depression.[13] A high number of comorbidities can predispose the cancer patients to depression.[13,15,19] The stage at which cancer is diagnosed also impacts psychological distress in cancer patients. A diagnosis at an advanced stage of cancer with multiple symptoms due to the cancer or associated treatment also predisposes patients to depression.[14,23] As shown in these studies, there are many factors that can increase the risk of depression in cancer patients.

Studies that have determined the risk factors of depression in patients with various demographic and illness-related characteristics are generally limited to white samples. In a review of the literature, only 2 studies explicitly examined race as a predictor of depression. These studies concluded that African Americans have greater risk of depression within the cancer population.[19,24] The sheer lack of information on this under-served population is likely a contributing factor to the existing disparities in mental healthcare and comorbidities related to cancer. Because the information available on depression is tenuous among African American cancer patients, it is important to identify common characteristics that may predispose these individuals to experience depression. Our study will describe the demographic and illness-

related characteristics of older African American cancer patients with depressive symptoms. By assessing the characteristics of those individuals, better informed interventions aimed at improving their quality of life can be developed for cancer patients who are at risk for depression.

Methods

Participants

The findings reported in this article were derived from 283 older African American cancer survivors recruited from outpatient oncology clinics in the southeastern United States. The participants in this study were part of a larger National Institutes of Health–funded study, Helping Older African American Cancer Survivors Cope Study (J.B.H., principal investigator). The parent study was designed to evaluate a new measure of preferred coping strategies for older African American cancer survivors.[25] Participants completed a series of demographic medical information, coping and quality-of-life measures, and the Geriatric Depression Scale–Short Form (GDS-SF15) in a 1-time interview that lasted 45 minutes to an hour. Questionnaires were administered in a face-to-face interview format by research staff, either in a private consultation room while the patient was waiting for a health-related appointment or, if participants preferred, in their home. Institutional review board approval for this study was obtained from the University of North Carolina at Chapel Hill and Emory University. Participants were eligible if they had a diagnosis of cancer, self-reported to be African American, were without severe cognitive impairment, and were 50 to 89 years of age. Written informed consent for interviews was obtained after participants were screened for severe cognitive impairment with the Short-Form Mini-Mental State Examination.[26] All participants were found to be alert and oriented to time, person, and place.

Instruments

The factors likely to affect depression and examined in this report are categorized as demographic and illness-related factors. Demographic factors consist of characteristics of the person that may directly affect depression and include subject's age, sex, yearly income, education, marital status, proximity to family (living alone), employment status, and health insurance status. Illness-related factors are those variables that characterize the life stress situation such as length of time since diagnosis, existing comorbidities, and phase of illness. [13,14,19,21] For phase of illness, information on stage of cancer and treatment will be used to determine illness phase. There are 4 phases of illness: phase 1—newly diagnosed persons, phase 2—persons in first remission, phase 3—persons following the development of a second primary lesion without metastasis, and phase 4—persons with metastatic disease.[27] Phase of illness has been used in research with cancer patients because it has been a strong predictor of survival.[27] Length of time since diagnosis was calculated based on the date of diagnosis and the date of the interview.

The GDS-SF15 is a 15-item scale designed to screen for depression with elderly, medically ill populations.[28] The scale consists of 15 yes/no questions, and a score greater than 5 indicates the possibility of depression. A score of 5 or higher has 60% sensitivity and 89% specificity for a depression diagnosis.[29] In a sample of geriatric outpatients, internal consistency reliability was .86, and construct validity was supported through correlations with demographic and personality variables.[30] In this study, internal consistency (Cronbach α) reliability was .79.

Data Analysis

All analyses were performed in SAS, release 9.2. Analyses of the data included univariate statistics to calculate the prevalence of depression among the total sample and demographic factors. To assess the association of demographic and illness-related variables with possible

depression, the Pearson χ^2 test and the Cochran-Armitage test were used. The Cochran-Armitage test was used to measure the underlying trend among variables with more than 2 ordered groups. This test has been frequently used to measure linear trend in clinical studies in which there are different levels of exposure for a binary outcome. Then, to assess the magnitude of the association of variables, logistic regression analyses were performed. Crude and adjusted odds ratios and 95% confidence intervals were obtained. The confidence intervals indicate significant findings when 1.00 is not in the range.

Results

Study Population

A total of 283 African American cancer patients completed the GDS-SF15 scale. The demographic characteristics of the participants are shown in Table 1. The ages of the participants in this study ranged from 50 to 87 years (mean, 63.5 [SD, 7.9] years). Participants were diverse with women (n = 169, 59.7%) and men (n = 114, 40.3%). There were 162 high school graduates (57.2%), and 121 of those that did not complete high school (42.8%). The insured (n = 201, 71.0%) and the uninsured (n = 82, 29.0%) were also included in this study. Nearly half of the women and men in this study (45.6%) lost or quit their jobs because of health concerns or were retired (34.3%) at the time of the study interview. More than half of the participants (59.7%) made less than $10,000 yearly, whereas 12.2% made more than $20,000. Breast cancer (29.7%) was the most common cancer in the study sample, followed by lung cancer (21.6%) and colon cancer (12.4%). Cancer was diagnosed in most participants (77.2%) within the last 3 years.

Prevalence of Depressive Symptoms

The mean score for the GDS-SF15 was 3.23 (SD, 2.82). Using the recommended cutoff score of 5 or higher as indicative of depression, these data showed that of 283 participants, 77 (27.2%) were possibly depressed. The prevalence of GDS-SF15 scores of less than 5 was slightly higher for women (27.8%) than for men (26.3%).

Demographic and Illness-Related Characteristics of African American Cancer Patients

We compared the distribution of demographic and illness-related factors between subgroups within the sample of those African American cancer patients who were potentially depressed and not depressed using χ^2 and trend tests (Table 1). A power analysis showed that the sample size gives adequate power for comparison of the possibly depressed to the "not depressed" participants. Specifically, it yields 85% power to detect an effect size of 0.4 when comparing the groups with respect to a factor with 2 levels.

Among the demographic characteristics, there was a significant relationship between age and depression in that younger participants (<65 years) were more likely to be depressed than were older participants (P <.0001). Lack of employment was also associated with depression (P <. 01). Participants who stated that they quit their jobs because of their poor health were more likely to have high GDS-SF15 scores. People who did not have insurance and/or lived alone were also more likely to be depressed (P = .02). Among illness-related characteristics, having symptoms in relation to the cancer disease or the treatment was the only factor that had an association with depression (P <.0001). Time since diagnosis of cancer, type of cancer, tumor stage, and stage of cancer at diagnosis did not have a significant effect on depression among those participants who scored within the range of being potentially depressed on the GDS-SF15.

Risk Factors of Having Depressive Symptoms

To better understand the magnitude of the associations between the demographic and illness-related factors and depressive symptoms, we computed odds ratios for all variables significantly (P <.05) related to depression (Table 2). In addition to computing crude odds ratios for the variables, we fit a multivariate logistic regression model for depression containing all factors significantly related to depression. The logistic regression model allows the estimation of adjusted odds ratios, which summarize each variable's relationship with depression controlling for all other variables.

Even when controlling for age, employment status, insurance status, living alone, and presence of symptoms (Table 2), participants in their 50s had nearly 3 times the odds of possible depression as those who were 65 years or older. Participants who lived alone had 2.2 times the odds of possible depression as those who did not. The presence of symptoms increased the odds of possible depression by a factor of 2.7. Employment was still a factor after adjusting for other variables, as those who lost their jobs because of health had odds of possible depression that was 3.3 times that of participants who were employed. Controlling for all the other factors in Table 2, the association between insurance status and depression was no longer significant.

Discussion

In this report, the prevalence of depression using the GDS-SF15, a commonly used depression survey, was consistent with reports from some cancer patients but higher than that of others. The number (n = 77, 27.2%) of individuals with GDS-SF15 scores above the cutoff of 5, indicative of depression, also exceeded that in research with other cancer populations.[31–33] Other studies found prevalence rates in cancer patients ranging from 18% to 24%.[32–34] However, the participants in these studies were primarily older (>65 years) white sample with late-stage or advanced cancer. What is known about depression in African Americans comes from studies examining mental health issues among community-dwelling populations and populations with other chronic illnesses. Within the general African American population, there is a similar lack of literature examining depression using the GDS-SF15 survey. Studies have reported that, in general, African Americans tend to have a lower prevalence rate of depression than other racial groups in the United States.[35,36] However, depression is frequently misdiagnosed in African Americans, a result of the stigma attached to accessing mental health services within the African American community.[37] Therefore, although there is no appropriate comparison for this study, we conclude that depression is prevalent among older African American cancer patients.

Several demographic factors in African American cancer patients were found to be highly associated with a high depression score. In concurrence with other studies, we found that younger-aged (<65 years) cancer patients were more at risk of depression than were older patients.[14,16,18] Several explanations have been proposed for this age-related trend. A cancer diagnosis may have a more devastating effect on younger patients because they are less likely to expect the experience of chronic illness. There is also the possibility of thoughts of unfinished goals associated with the threat of an early death.[14] Cancer may also affect the daily lifestyles of younger patients because of job concerns and the devastation on their families.[14,16] Younger patients are known to have more cancer-related thoughts such as the cause of cancer and "Why me?"[38] These types of thoughts can lead to a poorer psychological adjustment for cancer patients and increase the anxiety and depression experienced by them. In addition, it is possible that differences in cancer pathologies that occur among adults of different ages may predispose younger cancer patients to a greater risk of depression than older cancer patients. For example, in a review of age differences in psychosocial effects of breast cancer, younger premenopausal women were found to have more aggressive cancers and a higher rate of recurrence than

postmenopausal women.[39,40] In addition, younger women received stronger treatments and reported a greater number of adverse effects to treatment.[39,40] Another explanation for the effect of age on depression is methodological: younger patients may have received their cancer diagnosis more recently than older patients and have had less time to adjust to the disease at the time of data collection.[41] Although methodological issues may contribute to the observed age trend in depression among cancer patients, there still exists a significant association, and efforts must be made to identify depression in younger cancer patients.

The economic and social impacts of not being able to hold a job can have serious psychological effects. Consistent with other studies, we found that African American cancer patients who lost their jobs because of their health had more than 3 times greater risk of depression than patients who were employed at the time of the study. Studies have found that job loss and the inability to work cause higher rates of emotional distress and depression in cancer patients. [41,42] Because of symptoms and adverse effects related to cancer disease and treatment such as pain and fatigue, many patients are unable to continue working because of absenteeism and the time needed for treatment.[42] Job loss can impact the daily routine, relationships with friends and family, and financial status.[43] Therefore, it is particularly distressing for patients who have been the breadwinner of the home because they have to cope with the disruption of their identity.[43]

An association was also observed between lack of health insurance and depression among these older African American cancer patients. Although lack of insurance was not significantly associated with depression after controlling for other variables such as employment status, lack of insurance plays an important role in the onset of depression in cancer patients. Lack of insurance typically closes doors for healthcare, mental or otherwise, and can cause exceptional burden on cancer patients who are receiving treatment. Anxiety over where to get healthcare and how to pay for it can result in depression for these patients.

Living in proximity to family can be a protective factor from depression for cancer patients. Families including spouses are said to provide 85% of the social support received by cancer patients.[44] Although recent research has not yet explored the relationship between proximity to family and depression among cancer patients, we can infer from literature that unmarried patients and patients without large social networks are more likely to be depressed.[44–46] We found that 39% of our sample lived alone. Using living alone as an indicator for proximity to family, we found that those who lived alone had 2 times greater chance of having depressive symptoms than those patients who lived with someone. Not having someone at home to care and support the cancer patient can increase the worries and anxiety that the patient experiences. In elderly patients, it can also increase the burden of daily living. It is interesting to note, however, that no association was found between marital status and depression.

The only illness-related factor that was found to be significantly associated with depression was having symptoms from cancer. Many previous studies have also noted that having physical symptoms of cancer is strongly associated with depression in cancer patients.[6,12,18,47,48] However, these studies are also focused on a primarily well-educated, middle-class white sample, much unlike our sample of relatively low-income African American sample. Although we do not have data on the specific symptoms experienced by older African American cancer patients in this study, we found that merely the presence of any symptom led to a 2.62 greater odds of depression. The most prevalent symptoms that are associated with depression are fatigue, pain, and insomnia.[48] Experiencing symptoms brings the disease to the forefront of the patients' minds as it impacts behaviors, cognition, and relationships.[49]

This study has several limitations. One weak point in the study is the cross-sectional study design that limits the analysis to only 1 snapshot of depression in the patients. Because

depression is known to be variable over time, to assess the complexities associated with depression, longitudinal studies are greatly needed. Another limitation was that depression was measured by a self-report survey and not assessed by a trained professional. However, because depression is so often under-diagnosed particularly in the African American population, the survey was the best option available to get a preliminary assessment of depression in the patients. Moreover, many studies use a self-report survey because of the occurrence of mis-diagnosis of depression. Another limitation in this study is the lack of comparability with other studies examining depression among other demographically similar cancer patients. This study is the first to examine the risk factors of depression in older African American cancer patients and will serve as a reference point for future studies exploring this understudied population.

Conclusions

There is a need for further research examining depression in African American cancer patients. The current study shows that African American cancer patients who are younger-aged (<65 years), lost their jobs because of health concerns, live alone, and have at least 1 symptom related to cancer are at greater risk of depression. More research needs to be done to substantiate these findings and to better inform intervention studies aimed at improving the psychosocial functioning of African American cancer patients. Future studies designed to validate our findings in African Americans in different socioeconomic groups as well as from other geographic regions will help in identifying common factors that predispose African American cancer patients to depression. In addition, longitudinal studies examining the factors associated with developing depression during the cancer trajectory will be useful in identifying patients at risk at early stages and possibly prevent the comorbidities and burden associated with depression.

Acknowledgments

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Table 1

Demographic and Clinical Factors of 283 African American Cancer Survivors by Geriatric Depression Scale (GDS) Scores

	No. Cases (%)			
	Total Sample	GDS <5	GDS ≥5	
Characteristics	N = 283	n = 206	n = 77	P^a
Demographic factors				
Age, y				<.01[a]
50–59	108 (38.3)	65 (31.7)	43 (55.8)	
60–64	68 (24.1)	49 (23.9)	19 (24.7)	
≥65	106 (37.6)	91 (44.4)	15 (19.5)	
Sex				.78
Men	114 (40.3)	84 (40.8)	30 (39.0)	
Women	169 (59.7)	122 (59.2)	47 (61.0)	
Education				.57
High school graduate	162 (57.2)	120 (58.3)	42 (54.6)	
Not high school graduate	121 (42.8)	86 (41.7)	35 (45.5)	
Marital status				.47
Married	57 (20.1)	40 (19.4)	17 (22.1)	
Widowed	67 (23.7)	53 (25.7)	14 (18.2)	
Divorced	81 (28.6)	60 (29.1)	21 (27.3)	
Never married	78 (27.6)	53 (25.7)	25 (32.5)	
Employment status				<.01
Employed	23 (8.1)	19 (9.2)	4 (5.2)	
Retired	97 (34.3)	82 (39.8)	15 (19.5)	
Lost job due to health	129 (45.6)	81 (39.3)	48 (62.3)	
Not employed	34 (12.0)	24 (11.7)	10 (13.0)	
Yearly income				.93[a]
0–4,999	67 (24.5)	47 (23.6)	20 (27.0)	
5,000–9,999	96 (35.2)	73 (36.7)	23 (31.1)	
10,000–19,999	77 (28.2)	55 (27.6)	22 (29.7)	
>20,000	33 (12.1)	24 (12.1)	9 (12.2)	
Insurance status				.02
Have insurance	201 (71.0)	154 (74.8)	47 (61.0)	
No insurance	82 (29.0)	52 (25.2)	30 (39.0)	
Live alone				.02
Yes	93 (32.9)	76 (36.9)	17 (22.1)	
No	190 (67.1)	130 (63.1)	60 (77.9)	
Illness-related factors				
Time since cancer diagnosis, y				.87[a]
0–3	217 (77.2)	156 (76.5)	61 (79.2)	

	No. Cases (%)			
	Total Sample	**GDS <5**	**GDS ≥5**	
Characteristics	**N = 283**	**n = 206**	**n = 77**	***P^a***
3–5	19 (6.8)	16 (7.8)	3 (3.9)	
>5	45 (16.0)	32 (15.7)	13 (16.9)	
Type of cancer				.78
Breast	84 (29.7)	66 (32.0)	18 (23.4)	
Lung	61 (21.6)	43 (20.9)	18 (23.4)	
Prostate	20 (7.1)	15 (7.3)	5 (6.5)	
Colon	35 (12.4)	24 (11.7)	11 (14.3)	
Head and neck	22 (7.8)	16 (7.8)	6 (7.8)	
Other	61 (21.6)	42 (20.4)	19 (24.7)	
Tumor stage^b				.65
0–2	84 (46.4)	58 (45.3)	26 (49.1)	
3–4	97 (53.6)	70 (54.7)	27 (50.9)	
Diagnosis state^b				.23
Newly diagnosed/1st remission	128 (73.1)	89 (70.6)	39 (79.6)	
2nd Primary lesion/metastases	47 (26.9)	37 (29.4)	10 (20.4)	
Symptoms due to cancer/treatment^b				<.0001
Symptomatic	97 (54.2)	58 (45.0)	39 (78.0)	
Asymptomatic	82 (45.8)	71 (55.0)	11 (22.0)	

[a]*P* values with asterisks based on Cochran-Armitage trend test; other *P* values from Pearson χ^2 test.

[b]Varied sample sizes because of missing responses: tumor stage, n = 181; diagnosis state, n = 175; symptoms, n = 179.

Table 2

Multivariate Logistic Regression Predicting Depression Among 283 Older African American Cancer Patients

Variables	n	Crude OR (95% CI)	Adjusted OR (95% CI)
Age, y			
50–59	108	4.06 (2.08–7.91)	2.96 (1.35–6.49)
60–64	68	2.38 (1.11–5.09)	1.71 (0.72–4.04)
≥65	106	1.00	1.00
Employment status			
Not employed	34	1.98 (0.54–7.31)	2.45 (0.62–9.72)
Retired	97	0.87 (0.26–2.92)	1.57 (0.44–5.67)
Lost job due to health	129	2.82 (0.90–8.76)	3.30 (1.00–10.84)
Employed	23	1.00	1.00
Insurance status			
No insurance	82	1.89 (1.09–3.30)	1.35 (0.72–2.54)
Have insurance	201	1.00	1.00
Live alone			
Yes	93	2.06 (1.12–3.79)	2.21 (1.14–4.27)
No	190	1.00	1.00
Symptoms due to cancer/treatment			
Symptomatic	97	2.62 (1.53–4.50)	2.69 (1.50–4.84)
Asymptomatic	82	1.00	1.00

Abbreviations: CI, confidence interval; OR, odds ratio.