



Published in final edited form as:

J Psychosoc Oncol. 2020 ; 38(1): 63–72. doi:10.1080/07347332.2019.1634176.

Distress among African American and White Adults with Cancer in Louisiana

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Abstract

Purpose/Objectives: Screening for distress is a key priority in cancer care, and African American patients may experience increased distress compared to White patients. However, this question has not yet been addressed in Louisiana. The purpose of the present study was to examine the relationship between African American race and distress at a cancer center in Louisiana.

Design/Methods: This was a retrospective study of 1,544 patients who were treated at an academic cancer center in 2015. Extracted data included patient self-reports of distress using the single-item Distress Thermometer (DT) and demographic and clinical characteristics.

Hypotheses were tested using logistic regression.

Findings: Distress was present in 19.7% of the sample. In univariate analyses, African American patients were more likely than White patients to experience distress ($OR=1.38$, $p=.013$). However, race was no longer associated with distress in a multivariate analysis that adjusted for the covariates of age, gender, cancer site, presence of metastases, and number of distress screenings ($OR=1.07$, $p=.670$). Distress was more common in patients who were younger ($OR=2.26$, $p<.001$), diagnosed with lung/bronchus cancer ($OR=5.28$, $p<.001$), or screened more often ($OR=5.20$, $p<.001$). Distress was less common among patients with female breast cancer ($OR=0.39$, $p=.015$).

Conclusions/Implications: This study suggests that African American individuals with cancer in Louisiana are at increased risk for distress, but that this can be attributed to African American patients being younger, more likely to have lung cancer, and screened more frequently. Implications include careful consideration of patient race, age, and cancer site during distress management in cancer care.

Keywords

Quantitative; anxiety/depression; minorities; quality of life; palliative care

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Introduction

Approximately 20–50% of individuals treated with cancer experience clinically significant psychological distress,^{1–6} and understanding risk factors could improve distress management in cancer care. The National Comprehensive Cancer Network (NCCN) defines distress as the experience of troublesome feelings of a physical, psychological, social, or spiritual nature that may range in intensity from normal difficulties adjusting to one's illness to severe and clinically significant symptoms.⁷ Previous research has identified patient characteristics that may be associated with clinically significant distress, such as a diagnosis of lung or gastrointestinal cancer, a later stage cancer diagnosis, higher symptom burden, female gender, and younger age.^{2,3,8–10} Symptoms of distress tend to be associated with important clinical outcomes in cancer such as health-related quality of life, treatment adherence, and survival.^{11,12} Therefore, examining predictors of distress may inform care designed to reduce the emotional burden of cancer.

However, less is known about the influence of race on the likelihood of experiencing distress after a cancer diagnosis, particularly among Americans living in Louisiana. Compared to White adults, African American adults with cancer are more likely to have later-stage diagnoses and diagnoses that carry a more serious prognosis (e.g., lung cancer, gastrointestinal cancer); these outcomes may contribute to the decreased survival rates observed in this population.¹³ Furthermore, these disease characteristics are particularly prevalent in Louisiana¹³ and, as previously described, are also associated with increased rates of distress. In addition, African American adults with cancer may be more likely to experience mistrust, discrimination, and stigma when receiving healthcare, most notably in southern states such as Louisiana.^{14,15} Research has shown that these negative healthcare experiences can lead to decrements in patient-physician communication, satisfaction with medical care, and mental health outcomes.^{16–19} Accordingly, it may be especially relevant to examine racial disparities in distress in Louisiana.

However, existing research of racial disparities in cancer-related distress is limited to studies that were conducted outside of Louisiana, and methodological issues in these studies impede the ability to identify clear patterns in findings. Some studies have found that African Americans were more likely than White patients to experience distress,^{20–23} whereas others found that African Americans were less likely to have distress,^{24–27} or that there was no significant association between race and distress.^{10,27–30} However, many of these studies were restricted to only one specific cancer site and thus did not include a diverse sample of diagnoses,^{22,24,25,27,29,31} or focused only on long-term survivors who were no longer receiving cancer treatment.^{21,27} Additionally, only 5–25% of participants in these studies were African American, so inconsistent findings may have been attributed to sampling bias or a lack of power. Moreover, studies that included disproportionately low numbers of African American patients are less generalizable to individuals in Louisiana, which includes a larger proportion of African American patients compared to most other states.

The present study examined whether there were racial disparities in distress in a large sample of patients with heterogeneous cancer diagnoses in Louisiana. Although this investigation was confined to patients in a single state, it may set the stage for future clinical

studies involving other populations that have faced similar discrimination. Based on prior research,^{3,13,15,19} we hypothesized that African American patients would be at increased risk for experiencing distress compared to White patients.

Methods

Participants and Procedures

This was a retrospective analysis of 1,544 adults treated for cancer at the Tulane Cancer Center in 2015. The Tulane Medical Center is a catchment area for residents within approximately 150 miles of New Orleans. Data were extracted from the Electronic Medical Record by the Tulane Cancer Center's informatics core. Only individuals who self-identified as African American ($n=754$) or White ($n=790$) were included in the present analyses. We excluded children ($n=3$) as well as patients of other racial groups ($n=32$) or who were missing data for race ($n=37$) due to a lack of statistical power to draw inferences about those demographics.

Patients completed the single-item Distress Thermometer at initial visits and, time permitting, at additional critical visits, such as radiation visits, initial and final chemotherapy visits, any visit where the decision to transition off curative treatment had been made, and survivorship visits. The Distress Thermometer asks patients to "please circle the number (0–10) that best describes how much distress you've been experiencing in the past week, including today."³² Our primary outcome variable was whether patients screened positive for distress during the year, commonly referred to as the one-year prevalence. We used a cut score of 4, which is valid in screening for distress in cancer.³³ From the Electronic Medical Record, we also extracted covariate data on demographics and the patient's medical history, including race, gender, age, primary cancer diagnosis, presence/absence of metastases, and number of distress screenings received.

Analysis

Analyses were performed in SPSS 25.0. Descriptive statistics were examined for all variables. Odds ratios in binary logistic regression were used to examine predictors of distress. First, we examined univariate associations, meaning each variable's association with distress without other variables in the model. Then, we examined multivariate associations by including all predictors in the model simultaneously. In addition to race (African American vs. White), the predictors we examined included gender, age (≥ 65 vs. <65), cancer type (8 dummy-coded variables representing one of the following cancer sites vs. all other cancer sites: prostate, breast, hematological, genitourinary (non-prostate), gastrointestinal, lung/bronchus, head/neck, other), presence/absence of metastases, and number of distress screenings. Statistical significance was determined using a two-tailed α -level of .05.

Results

Participants were 1,544 adults with heterogeneous cancer diagnoses, including 48.8% who were African American and 51.2% who were White (see Table 1 for sample characteristics).

They ranged in age from 23 to 95 ($M=63.26$, $SD=12.14$). Prostate (27.1%), breast (24.6%), and hematologic (24.2%) cancers accounted for most of the diagnoses; 13.0% of patients had metastatic disease. Overall, 19.7% experienced distress. In univariate analyses, distress was more common among African American (22.3%) than White (17.2%) patients ($OR=1.38$, 95% CI: 1.07–1.77, $p=.013$; see Table 2). In our sample, African American patients were also more likely than White patients to be female ($OR=3.51$, $p<.001$), younger ($OR=1.64$, $p<.001$), and have lung/bronchus cancer ($OR=2.27$, $p<.001$), GI cancer ($OR=1.57$, $p=.023$) or breast cancer ($OR=3.87$, $p<.001$). African American patients were less likely to have prostate cancer ($OR=0.37$, $p<.001$), hematological cancer ($OR=0.74$, $p=.010$), or metastases ($OR=0.64$, $p=.004$). Most participants (74.7%) received only one distress screening over the year ($M=1.44$), with African American participants ($M=1.55$) receiving more screenings compared to White participants ($M=1.34$), $t(1455.62) = -4.74$, $p<.001$.

However, as shown in Table 2, the association between race and distress dissipated in a multivariate analysis that adjusted for covariates ($OR=1.07$, 95% CI: 0.77–1.50, $p=.670$). In this multivariate analysis, younger patients were more likely than older patients to experience distress ($OR=2.26$, 95% CI: 1.62–3.17, $p<.001$). As well, patients with lung/bronchus cancer were more likely to be distressed ($OR=5.28$, 95% CI: 2.49–11.17, $p<.001$), whereas patients with female breast cancer were less likely to be distressed ($OR=0.39$, 95% CI: 0.18–0.83, $p=.015$). Analyses accounted for the fact that patients who completed a greater number of screenings had an increased likelihood of a positive screen ($OR=5.20$, 95% CI: 4.15–6.53, $p<.001$). Overall, findings showed that race was associated with an increased likelihood of distress; however, this was accounted for by other demographic and clinical characteristics.

Discussion

This study found that approximately 1 in 5 adults receiving treatment at a cancer center in Louisiana experienced distress, with a higher prevalence among African American (22.3%) than White (17.2%) individuals. However, this finding of increased likelihood of distress in African Americans disappeared in a multivariate analysis that accounted for key demographic and clinical characteristics. Thus, it may have been driven by the fact that African Americans at our cancer center were more likely to be diagnosed at a younger age, with lung/bronchus cancer, and screened at a higher frequency. Previous research has speculated that these relationships may be due in part to racial differences in cancer pathogenesis or to cultural differences in the amount of exposure to carcinogens, such as tobacco.^{34,35} Building on prior research, this study found that racial disparities in distress exist, and simultaneously suggests a nuanced perspective in which clinicians must attend not only to the impact of race but also other diagnostic and demographic factors underlying race-related differences in distress.

Consistent with a large body of research, cancer type and age were the most robust predictors of distress. Specifically, this study found that individuals with lung cancer were five times more likely than individuals with other diagnoses to be distressed. This is a well-documented finding that may be due to the aggressiveness and poor prognosis associated with lung cancer, or to smoking-related stigma experienced by these individuals.^{13,26,36}

Additionally, individuals who were under the age of 65 were more than twice as likely as those over 65 to be distressed, a finding that is also supported by prior research.^{3,26,36} Compared to older individuals, younger individuals may experience increased disruption in social or occupational roles when they receive a cancer diagnosis, may have less effective coping strategies, or may have fewer support resources at cancer centers. Individuals who received more distress screenings were also more likely to have a positive distress screen. One potential explanation for this is that individuals who initially presented with high distress scores may have been more likely to be screened again in an effort to monitor their symptoms.

This study had both strengths and limitations. To our knowledge, this was the first study conducted in Louisiana that examined racial disparities in distress among individuals with cancer. Furthermore, the large sample size and sizable proportion of African American participants allowed us to have a more representative sample than prior studies and allowed greater power to test the hypothesized association.^{10,20–31} Multivariate logistic regression analyses allowed us to examine the predictors of distress while controlling for potential confounders. However, the study was retrospective and relied on information documented in electronic medical records. Data were not available on socio-economic status (e.g., education, income, health insurance), marital status, prior cancer experience, mental health diagnosis, time since diagnosis, or cancer stage. Future research should include prospective designs and should examine whether these additional sociodemographic and clinical factors are associated with distress in cancer. Additionally, our cancer center did not track changes in patients' distress scores over time, and future quality improvement studies may wish to examine whether there are racial disparities in distress in response to treatment.

This research has the potential to improve clinical practice in oncology care. Current distress management guidelines recommend routinely screening for distress at initial visits and at appropriate intervals thereafter.⁷ Given our findings, clinicians should be cognizant that African American adults may be at an elevated risk of distress due to demographic and clinical factors characterizing this population (e.g., younger age and more lung cancer diagnoses), and healthcare centers should ensure that available support services are culturally responsive.^{21–23,25} It may also be important to consider the needs of all lung cancer and younger patients, regardless of race,^{3,13,26,36} as well as attend to characteristics that we did not assess, such as income, insurance status, or disease stage. These individuals may benefit from increased frequency of distress screening to monitor their distress symptoms. Patients who screen positive for distress at any point in their illness should be offered further mental health evaluation or referral to palliative care services.³⁷

In summary, this study found that African American patients were at increased risk for distress compared to White patients at an academic cancer center in Louisiana. However, this finding was explained by differences across racial groups in the age at diagnosis, likelihood of presenting with lung cancer, and frequency of distress screening. Results have implications for how distress is managed in oncology care.

ACKNOWLEDGEMENTS:

This research was supported by the Research Competitiveness Subprogram of the Louisiana Board of Regents (LA-BoR) and the National Institute of General Medical Sciences (U54GM104940).

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Table 1.

Sample Characteristics

Variable, N (%)	Total Sample (N=1,544)	African American (N = 754)	White (N=790)	p-value ^a
Gender, female	719 (46.6%)	468 (62.1%)	251 (31.8%)	<.001
Age, <65 years old	773 (50.1%)	425 (56.4%)	348 (44.1%)	<.001
Cancer diagnosis				
Prostate	419 (27.1%)	112 (14.9%)	307 (38.9%)	<.001
Breast (female only)	380 (24.6%)	277 (36.7%)	103 (13.0%)	<.001
Hematological	374 (24.2%)	161 (21.4%)	213 (27.0%)	.010
GU (non-prostate) ^b	147 (9.5%)	76 (10.1%)	71 (9.0%)	.465
GI	115 (7.4%)	68 (9.0%)	47 (5.9%)	.023
Lung/bronchus	89 (5.8%)	60 (8.0%)	29 (3.9%)	<.001
Head/neck	54 (3.5%)	22 (2.9%)	32 (4.1%)	.228
Other	58 (3.8%)	21 (2.8%)	37 (4.7%)	.052
Metastases present	201 (13.0%)	79 (10.5%)	122 (15.4%)	.004
Distress score 4	304 (19.7%)	168 (22.3%)	136 (17.2%)	.013

Note: N = 1,544. GU = genitourinary. GI = gastrointestinal. Distress was assessed using the NCCN 1-item Distress Thermometer²⁰

^aStatistical significance associated with the difference between the African American and White subgroups on each sample characteristic.

^bProstate cancer and other GU cancers were treated as separate diagnostic categories due to the sizeable sample of prostate cancer patients and less aggressive clinical course.

Table 2. Logistic Regression of Variables Predicting a Positive Screen on the Distress Thermometer

Variable	Univariate Associations ^a		Multivariate Associations ^b	
	OR (95% CI)	p	OR (95% CI)	p
Race, African American	1.38 (1.07–1.77)	.013	1.07 (0.77–1.50)	.670
Age, <65 years old	2.20 (1.69–2.86)	<.001	2.26 (1.62–3.17)	<.001
Gender, female	1.77 (1.37–2.28)	<.001	1.22 (0.77–1.94)	.393
Metastases present	2.15 (1.15–2.98)	<.001	1.05 (0.67–1.66)	.838
Cancer diagnosis				
Prostate	0.56 (0.41–0.77)	<.001	1.82 (0.86–5.28)	.116
Breast (female only)	1.68 (1.28–2.21)	<.001	0.39 (0.18–0.83)	.015
Hematological	0.57 (0.41–0.79)	.001	0.93 (0.46–1.88)	.845
GU (non-prostate)	0.82 (0.52–1.29)	.391	1.03 (0.49–2.17)	.940
GI	1.15 (0.72–1.82)	.566	0.92 (0.42–2.02)	.841
Lung/bronchus	2.44 (1.55–3.84)	<.001	5.28 (2.49–11.17)	<.001
Head/neck	2.71 (1.55–4.76)	.001	0.83 (0.33–2.09)	.694
Other	1.59 (0.88–2.86)	.126	1.05 (0.67–1.66)	.205
Number of Screenings	3.95 (3.35–4.67)	<.001	5.20 (4.15–6.53)	<.001

Note. N = 1,544. OR = Odds ratio. CI = Confidence interval.

^a Binary logistic regression models with each variable as the sole predictor in a model estimating its univariate association with a positive distress screen (DT = 4).

^b Multivariate binary logistic regression where every variable was entered simultaneously in a model estimating each predictor's multivariate association with a positive distress screen (DT = 4) while controlling for every other variable.