

Distress, anxiety, depression, and emotional well-being in African-American men with prostate cancer

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Abstract

Objective: African-American men have an incidence rate of prostate cancer 60% higher than Caucasian men. Over one-quarter of men with prostate cancer experience significant distress, yet psychosocial research has rarely focused on African-American men. This study presents novel data on emotional well-being, distress, anxiety, and depression in African-American men with prostate cancer.

Methods: This archival research combined two databases ($N = 385$ and $N = 367$) comprised of 55 African-American men with prostate cancer. Quality of life was assessed with the Functional Assessment of Cancer Therapy, distress was measured with the Distress Thermometer, and anxiety and depression were measured with the Hospital Anxiety and Depression Scale. African-American and Caucasian men were matched on age, education, and stage of disease, and compared on emotional well-being, distress, anxiety, and depression.

Results: The mean age of the 55 African-American was 63 years old. In non-matched comparison, African-American men had elevated levels of distress, anxiety, and depression similar to Caucasian men. African-American men reported high levels of clinically significant distress ($> 31\%$) and anxiety ($> 23\%$). However, after matching the African-American and Caucasian men, African-American men reported higher mean scores on emotional well-being ($p < 0.05$) and a lower percentage of African-American men displayed clinically significant depressive symptoms ($p < 0.05$) compared with Caucasian men.

Conclusions: After matching the sample, African-American men seem to display a sense of resilience, demonstrating greater emotional well-being and a lower incidence of clinically significant depressive symptoms, compared with Caucasian men. This is consistent with cross-cultural research outside of prostate cancer. Continued research is needed to further elucidate the concept of resiliency in African-American men with prostate cancer.

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Introduction

Prostate cancer is the most common site of cancer in men in the United States, with over 180,000 men projected to be diagnosed in 2009 [1], and ranks as the second leading cause of death in men in the United States [1]. Not surprisingly, a significant number of men with prostate cancer experience anxiety and distress at some point when dealing with this illness. In a study of 121 mostly advanced stage prostate cancer patients, 32.6% of men scored at or above the anxiety cut-off score of the Hospital Anxiety and Depression Scale (HADS) [2], and 15.2% scored at or above the cut-off score for depression on the HADS [3]. Zabora *et al.* (2001) found, similarly, in a study of psychological distress by cancer site, that 30.5% of 167 prostate cancer patients had significant psychological distress based on a self-report rating scale, the Brief Symptom

Inventory (BSI) [4,5], consistent with the estimates that 25–30% of all cancer patients meet diagnosis criteria for a major depressive disorder or an anxiety disorder. [6–9]. Some causes of the anxiety found amongst these men with prostate cancer include worries about side effects of their medical treatment, metastasis of their disease, disability, death, and ‘PSA Anxiety’ [10], the anxiety associated with Prostate Specific Antigen (PSA) testing.

African-American men are particularly vulnerable towards prostate cancer with an incidence rate that is 60% higher than Caucasian men [11]. African-American men have a greater likelihood of being diagnosed with advanced cancer [12] and 2.3 times greater likelihood of dying from the disease as compared with Caucasian men [11]. African-American men are also more likely to be diagnosed at a younger age [13]. These factors are compounded by the reality that African-American

men are less likely to have appropriate knowledge of the risks of prostate cancer [14–18] or to have a digital rectal exam [19, 20].

These realities for African-American men may impact how they cope with their disease. To illustrate, Abrams *et al.* (1990) suggest that age may be the most important factor that determines a person's psychological response to a diagnosis of cancer, and younger men with school age children may react very differently than a relatively older man with adult age children [21]. Similarly, the stage of diagnosis can also have a distinct impact on how a person reacts to a cancer diagnosis or treatment [22], and if African-American men are diagnosed with later stage disease they may be experiencing more distress as a result. Despite these statistics however, psychosocial research undertaken in men with prostate cancer generally lacks appropriate sampling of African-American men, and research that focuses specifically on distress, anxiety, and depression in African-American men with prostate cancer is quite limited [21].

The primary psychosocial research conducted in African-American men with prostate cancer has focused on general quality of life measures. This initial research suggests that African-American men score lower on quality of life measures as compared with Caucasians. In a study comprised of 958 Caucasian and 161 African-American men newly diagnosed with prostate cancer, which controlled for age, education, and income level, Lubeck *et al.* (2001) found that African-American men had lower quality of life ratings on almost all health specific and general dimensions on the SF-36 at baseline and follow-up assessments [23]. In addition, while quality of life of both African-American and Caucasian men improved a year after follow-up, African-American men's worry about their disease improved at a slower rate than Caucasians. Also, Caucasian men reported better self-esteem, emotional, and mental health than African-American patients at both the 3 and 12-month follow-up. Jenkins *et al.* (2004) examined the quality of life and impact of cancer on sexuality in a sample of men from the Cleveland Clinic database [24]. From a sample of 1,112 Caucasian men and 118 African-American men who averaged 4.5 years past localized treatment [24], African-American men reported slightly lower scores on mental health (two points), were less likely to report an impact on erections or sexual satisfaction, and were more likely to report a loss of libido.

Together these studies imply that quality of life is lower in African-American men with prostate cancer; however, these studies do not address incidences of distress, depression, or anxiety specifically. This is not necessarily surprising as there is often general lack of clarity in the literature about what is meant by quality of life constructs such as 'emotional well-being' or general psychological

constructs such as 'distress'. Distress is generally considered to be a combination of feelings such as worry, anxiety, fear, and depression. The most common assessment of distress in cancer patients is an efficient one-question screen (i.e. The Distress Thermometer) that is used to determine if further evaluation should be considered [25]. Emotional well-being is commonly assessed within quality of life measures, and like distress, also combines the constructs of anxiety and depression [26]. Emotional well-being scales are usually longer (around 4 or 5 questions) and are considered more psychometrically sound as compared with the one-question distress measures. Although these concepts and scales are useful for identifying general distress, they lack the ability to make the distinction between anxiety and depression. We believe this distinction is important in order to assist clinicians to better understand and treat psychological difficulties in this population.

The current study, therefore, aims to elucidate the incidence of these markers of psychological distress, anxiety, and depression as well as emotional well-being within African-American men with prostate cancer, and in so doing to contribute to the dearth of scientific literature in this area. To do this, we used archival data including measures of depression, anxiety, and emotional well-being from 752 men with prostate cancer generally divided equally between early and late-stage disease. We hypothesized based on the studies listed above where African-American men with prostate cancer reported poorer quality of life, that African-American men would report higher levels of distress, anxiety, and depression, and lower levels of emotional well-being compared with Caucasian men.

Methods

Participants

The study utilized two separate samples, both investigating quality of life, distress, anxiety, and depression in men with early and late-stage prostate cancer. The first database consisted of data from 385 men from doctors' offices throughout the US. The average age for the participants was 71 year old (± 9 years). The majority were Caucasian (86%), and 10% were African-American. Roughly half had early stage disease (55%) and the remainder has late-stage disease. The average time since diagnosis was 4.4 years (± 4). A large percentage (42%) had a college or advanced degree. The majority were married or in a committed relationship (83%). The second database was based on 367 men from the prostate clinics at our institution. The average age from this sample was 66 years old (± 9 years). The majority of participants were Caucasian (89%), while 6% were African-American. Almost half

(45%) had early stage disease, and the remainder had late-stage disease. The average time since diagnosis was 5.2 year (± 4.5). A majority (73%) had earned a college degree or higher. The majority (84%) were married or in a committed relationship.

When combining both databases a total of 752 subjects comprised the total sample. When accounting for 29 subjects who had missing data on all the variables utilized in this analysis, a total number of 723 were available for analysis. We were specifically interested in two subgroups for analysis in this paper; the 55 (8%) African-American men available in the data pool, and the 631 (87%) Caucasian men as a comparison group. When combining the Caucasian and African-American men, there were 686 subjects used for this analysis. The remaining 35 (5%) subjects were identified as Hispanic (non-African-American), Asian, or 'other' ethnic background. We did not include Hispanics (non-African-American), Asian, or 'other' ethnic identities in the comparison group with the Caucasian men because these groups are unique cultures that may have their own ethnically specific ways of dealing and coping with stressful situations.

To control for specific variables, we matched an equal sample of Caucasian men to the African-American men. We selected to match the samples on age, education (college graduate vs not college graduate), and stage of disease (early vs late). One African-American subject did not have this demographic data recorded, and as a result we matched 54 Caucasian men to 54 African-American men. As experimental control is fundamentally distinct from statistical control, we elected to match subjects on these variables as opposed to controlling for them statistically [27]. We recognize that it is always important to understand that the larger sample may vary systematically on the variables that we used to match, however, this helps to understand the differences between the matched Caucasian sample and the non-matched Caucasian sample. Age and stage of disease were chosen because data suggests that African-American men are diagnosed at a younger age with later stage disease, and these variables may have an impact on the amount of distress men experience as a result of prostate cancer (please see introduction). Socio-economic status (SES) is also an important variable where there may be differences between African-American men and Caucasian men, and these differences may impact distress [28]. However, as we did not have socio-economic data, education was selected as a proxy for SES. Although not ideal, education is considered a relatively good proxy for SES [27].

Procedure

The eligibility requirements for both studies included English fluency, diagnosis of prostate

cancer, age greater than 18 years, and monitoring of prostate serum antigen (PSA) levels. Patients were recruited consecutively as they came to their appointments with their prostate cancer physician. One goal of recruitment was to recruit an equal number of men with early and late-stage disease. Patients who met the eligibility criteria were asked to complete a series of seven self-report questionnaires as they waited for their doctor's visit. The questionnaires were completed before they received the results of their PSA test for that specific visit. Data from the following questionnaires were analyzed in this study: The Distress Thermometer [3], the HADS [29], the Functional Assessment of Cancer Therapy (FACT-G) [30,31], and a demographics questionnaire that included treatment course and co-morbidities.

Measures

The Distress Thermometer is a 1-item visual analog scale (picture of thermometer), which asks patients to rate their distress on a 0–10 scale. This scale has demonstrated good convergent and discriminant validity in studies with cancer patients as compared with longer measures used to screen for distress [32,33]. Research suggests that a cut-off of 4 or greater warrants referral for mental health assessments [32].

Depression and anxiety were measured by the HADS [2]. This is a 14-item self-report questionnaire, which has been well tested in cancer populations. Responses are scored on a 4-point scale, and the measure is considered particularly useful for patients with chronic diseases because of the absence of somatic items that often confound the determination of psychiatric problems among the medically ill. As its name implies, the HADS has a depression and anxiety subscale, each consisting of 7 items. The HADS has demonstrated strong test-retest reliability in both elderly patients and patients with AIDS [34,35]. A number of cut-off scores for the HADS have been defined which indicate significant depression or the need for referral in cancer patients [36]. As none of these studies have specifically validated the cut-off scores in men with prostate cancer or African-American men with prostate cancer, we elected to use a more stringent cut-off for the total HADS score of ≥ 16 , and ≥ 8 for the two subscale scores, consistent with research that found a cut-off of 8 to be optimal for lung cancer patients [2,37–39]. The analysis used HADS scores as both a continuous variable and a dichotomous variable, as we felt the continuous variable would tap levels of depressive symptoms and we were interested in a cut-off score that would be more appropriate at defining significant depression. As such, we opted to use the higher cut-off scores for this study.

Emotional well-being was measured with the emotional well-being subscale of the FACT-G

[30,31]. The FACT-G is a quality of life questionnaire which includes a 27-item 'core' quality of life measure grouped into four subscales: physical well-being, social/family well-being, emotional well-being, and functional well-being. The FACT-G items are rated on a 5-item Likert scale, from 0, 'not at all' to 4, 'very much'. The internal consistency of the subscales of the FACT-G range from acceptable to excellent, from 0.65 to 0.82. The total FACT-G demonstrates excellent internal consistency with an alpha coefficient of 0.89. The test-retest reliability of the FACT-G is also excellent within a 7-day period, with correlations ranging from 0.82 to 0.92 [30].

Statistical analysis

Descriptive statistics were reported for both the African-American sample and the Caucasian sample. Results for both matched and non-matched Caucasian samples were included for analysis in order to show that without proper variable control, results can potentially be misleading. Independent measures *t*-tests were used when examining the differences on continuous variables between the groups in the non-matched sample. Matched samples *t*-tests were used when examining the difference in continuous variables between the groups in the matched sample. The percentage of each group reporting significant distress, depression and anxiety were reported (please see above for the specific cut-off scores used). The difference in percentages between groups was tested using Chi-Square. As this is archival data, we calculated the effect sizes for mean comparisons needed to have an 80% chance of finding significance with a two-tailed test alpha level 0.05. For the non-matched sample, differences would generally need to reach a Cohen's *d* of 0.40, and for the matched sample differences would need to reach a Cohen's *d* of 0.55.

Results

Participant characteristics

From the combined databases consisting of 686 subjects, there were 631 Caucasian men with a mean age of 69 (± 10) years. About half (51%) had late-stage disease. The average time since diagnosis was 4.9 years (± 4.4). Eighty-four percent were married or in a relationship and 60% had a college education or higher. The mean age of the 55 African-American men was 63 (± 10) years old and 53% had late-stage disease. The average time since diagnosis was 4.8 years (± 4.3). Seventy-nine percent were married or in a relationship and 41% had a college degree or higher.

When comparing African-American men and Caucasian men on demographic variables, there

was no significant difference in disease stage, time since diagnosis, or marital status. However, African-American men were younger (63 vs 69, $p < 0.01$), and a lower percentage had completed a college education or higher (41 vs 60%, $p < 0.01$) as compared with the Caucasian men.

Levels of distress, anxiety, depression, and emotional well-being in non-matched subjects

When comparing the African-American men to the Caucasian men, African-American men generally reported levels of distress, anxiety, depression, and emotional well-being similar to Caucasian men with prostate cancer. On the Distress Thermometer, there were no significant mean differences between African-American men and Caucasians (See Table 1). When assessing the number of men meeting the cut-off score of ≥ 4 , although a greater percentage of African-American met this cut-off compared with Caucasian men (32 vs 23%, $p = 0.12$, RR = 1.39, see Table 2), this difference did not meet statistical significance levels.

When analyzing the HADS scores, African-American men tended to report similar results compared with Caucasian men, with the exception of one result with those men meeting the cut-off on the HADS anxiety subscale. There were no mean differences between African-American men and Caucasian men in total HADS, HADS depression scores, or HADS anxiety scores (see Table 1). When analyzing the number of men scoring above the HADS cut-off scores, there was no significant difference in the number of African-American and Caucasian scoring ≥ 16 of the HADS total scores, or scoring ≥ 8 on the HADS depression subscale. However, on the HADS anxiety subscale, African-Americans reported a trend towards a significantly higher percent at the ≥ 8 cut-off, 24% as compared with 15% of Caucasian men ($p = 0.09$, RR = 1.6, see Table 2).

When comparing the mean levels on the Emotional Well-Being subscale of the FACT, there was no significant difference between African-American men and Caucasian men (See Table 1).

Table 1. Mean differences comparing the African-American sample to the non-matched Caucasian sample

Variables	African-Americans		Caucasians non-matched sample		<i>p</i>	<i>d</i>
	Mean	SD	Mean	SD		
Distress Thermometer	2.19	2.26	2.13	2.25	0.86	0.03
HADS Total	7.05	5.96	6.82	5.61	0.77	0.04
HADS Anxiety	4.26	3.77	3.90	3.37	0.45	0.11
HADS Depression	2.79	2.75	2.92	2.97	0.75	0.04
Emotional well-being	20.16	3.19	19.65	3.87	0.33	0.14

Levels of distress, anxiety, depression and emotional well-being in a matched sample

After matching the African-American and Caucasian men on age, education, and stage of disease (see above), African-American men continued to display similar levels of distress as compared with Caucasian men on the Distress Thermometer. There was no significant mean difference between African-American men and Caucasians nor were there significant differences between African-American men vs Caucasian men when assessing the percent of men meeting the cut-off score of ≥ 4 .

When analyzing the mean HADS total and subscale scores, differences did not meet statistically significance levels; however, African-American men consistently demonstrated lower scores with small effects sizes (i.e. Cohen's *d* approximately 0.2, see Table 3). The small effect sizes indicate that a larger sample would be needed to demonstrate statistical significance, and this archival data set was not powered correctly to detect these differences.

When assessing the percentage of men scoring at the cut-off of ≥ 16 for HADS total scores, although the actual percentage difference is large with lower percentage of African-American men scores below this cut-off compared with Caucasian men, there was no significant difference (9 vs. 19%, $p = 0.17$, $RR = 2.11$). There was also no significant difference between African-American men and Caucasian men on the percent of men scoring ≥ 8 on the

HADS anxiety subscale (24 vs. 26%, $p = 0.82$, $RR = 1.08$); however, a significantly lower percentage of African-American men met the cut-off of ≥ 8 on the HADS depression subscale compared with Caucasian men (4 vs. 15%, $p = 0.04$, $RR = 3.75$).

When comparing the mean scores of the Emotional Well-Being scale on the FACT, African-American men reported significantly higher emotional well-being compared with Caucasian men (20.28 ± 3.04 vs 18.14 ± 4.56 , $p < 0.01$, $d = 0.44$, see Table 4).

Discussion

This study aimed to answer the question of whether there are differences in distress, anxiety, depression, and emotional well-being between cohorts of African-American and Caucasian men with prostate cancer. Based on results from limited research in this area, we hypothesized that African-American men would consistently report higher levels of distress. Interestingly, however, we found that African-American and Caucasian men reported distress at similar levels in an unmatched sample, with the exception that African-American men showed a trend towards higher anxiety. When comparing the African-Americans men to a Caucasian sample matched on age, education, and stage of disease, a lower percentage of African-American men reported clinically significant depressive symptoms (i.e. ≥ 8 on the HADS depression subscale) and greater mean scores on emotional well-being. There were no significant differences in mean scores on HADS total scores, or the depression and anxiety subscales on the matched-samples; however, African-American men consistently reported lower mean scores with a Cohen's effect size of approximately 0.2, indicating a small effect. Unfortunately, this archival study had power to only detect medium effects, and did not have sufficient power to detect these small effects as statistically significant. One value of archival data is to help guide future research, and indeed, the National Cancer Institute values preliminary findings from secondary analysis to justify potential research. Taking this into account, we do

Table 2. Comparisons of percent of patients who met cut-off scores

Variables	Cut-off	African-American	Caucasian non-matched sample	<i>p</i>
		%	%	
Distress Thermometer	≥ 4	33	23	0.12
HADS total	≥ 16	9	8	0.82
HADS Anxiety	≥ 8	24	15	0.09
HADS Depression	≥ 8	4	8	0.22

Table 3. Mean differences comparing the African-American sample to the non-matched and matched Caucasian samples

Variables	African-Americans		Caucasian matched sample		<i>p</i>	<i>d</i>
	Mean	SD	Mean	SD		
	Distress Thermometer	2.15	2.22	2.60		
HADS Total	7.12	5.94	8.89	6.25	0.12	0.21
HADS Anxiety	4.24	3.78	5.28	3.88	0.16	0.19
HADS Depression	2.84	2.74	3.61	3.25	0.16	0.18
Emotional well-being	20.28	3.04	18.14	4.56	<0.01	0.44

The means for African-American subjects changes slightly from Tables 1 and 3 because 1 African-American subject did not report demographic data and could not be matched.

Table 4. Comparisons of percent of patients who met cut-off scores

Variables	Cut-off	African-American	Caucasian matched sample	<i>p</i>
		%	%	
Distress Thermometer	≥ 4	33	25	0.39
HADS Total	≥ 16	9	19	0.17
HADS Anxiety	≥ 8	24	26	0.82
HADS Depression	≥ 8	4	15	0.04

not view these as 'null' findings, but instead view the consistency of these differences (and consistency with the literature discussed below) as markers for future research, and have provided the effects sizes to help guide appropriate sample size calculations for subsequent studies.

As there is a general dearth of literature of distress in African-American men with prostate cancer, it is difficult to place the results of this study in context with other studies of distress in this population. As a result, we will review relevant literature on African-Americans conducted outside of prostate cancer. Our results, while surprising, appear to be consistent with previous research in healthy samples which indicates that before controlling for important confounding variables when comparing African-Americans to other ethnicities, African-Americans appear to report greater distress. However, after controlling for important variables, as we did matching the samples on age, education, and stage of disease, African-Americans report reduced distress [28, 40–42]. For example, in Sachs-Ericsson's study, which compared results of Caucasian and African-American elders' responses on the CES-D, African-Americans first appeared to endorse more depressive symptoms than Caucasians, but this effect was mediated when socio-economic factors were controlled and whites actually endorsed more depressive symptoms. The authors cite studies that show that Caucasians have lower self-esteem than AA, a racial difference that increases with age [43,44]. They also cite studies of caregivers that found that African-Americans experience less distress and depressive symptoms [45,46] and that African-Americans have better interpersonal functioning, which protects them against depressive symptoms [47].

Studies that have found differences between African-Americans' and Caucasians' emotion regulation and affective style may also partly explain why African-Americans report less depression. The medical anthropological literature shows that certain cognitive and emotional descriptors of depression are absent in some groups [48]. Consedine *et al.* found that African-American and Caribbean women scored lower than other ethnic groups on a self-report measure of anger in a covariate analysis of a multi-ethnic group of women ($N = 1364$) [49,50]. Several other studies have also shown that African-Americans have lower emotional expression and lower levels of negative affect [51] that may explain why African-Americans would be less likely to endorse depressive symptoms. In addition, Steward *et al.* [52] found that African-Americans have a greater reliance on humor, which has been shown to be related positively to a number of factors associated with psychological health, such as optimism and self-esteem, and negatively with signs of psychological distress [53].

African-Americans have also been shown to have more extended families and greater social support [54], which together may aid in preventing depressive symptoms. Specifically, African-Americans may have stronger ties to a religious community and participate more actively in religious activities [54] and several studies provide further evidence of the prominence of organized religion and spirituality within the African-American community. African-Americans report relationships with God that are very close and intimate, and are more likely to use spirituality as a coping mechanism for a difficult diagnosis [55]. Indeed, Musick *et al.* (1998) examined the effect of religious activity on depressive symptomology among Black and White community-dwelling elders with cancer and found that the effects of religious activity were stronger for Blacks than Whites, and that among Blacks, religious activity was related to lower levels of depressive symptomology [56].

Another way to frame this discussion is to focus on the concept of 'resilience'. Resilience is defined by some authors as the reporting of lower psychological symptoms [57], while other authors have attempted to define resilience as a distinct concept and have developed specific assessments to measure this as a distinct outcome variable. The research exploring resilience in African-Americans tends to be limited and focuses on the reduction of psychological symptoms. As such, this literature reported similar finding as discussed above, and has found that cultural, socio-familial, and psychological resources served to inhibit psychological distress in African-Americans exposed to stressful life events [57]. As one study suggests, this resilience may actually be present in African-Americans not in spite of racism, but because of it. In a 10-year qualitative investigation of older African-Americans' experiences with chronic illness, Becker and Newsom (2005) found that African-American consistently reported themes of independence, spirituality and survival, themes of resilience that the authors attribute to African-American's ongoing confrontation with racism [58].

While these explanations of lower levels of depression within the African-American community are encouraging, it is important to consider them within the context of mediating factors that may distort actual levels of depression within the African-American community. Research has shown that African-Americans are less likely to seek mental health care than Caucasians [59]. A study by Anglin *et al.* (2008) offers a possible explanation to this discrepancy; they found that African-Americans are more likely than Caucasians to believe that mental health problems improve on their own, without professional intervention [60]. Even more tellingly, Cruz *et al.* (2008) found that shame and denial were cited by African-Americans as their primary barriers to seeking care for depression [61]. Therefore, while

increased social support and religious participation may indeed inhibit depression, perhaps the stigma towards depression in the African-American community distorts the accuracy of self-report measures of depression within any African-American sample. Likewise, the studies cited earlier that have found differences in African-Americans' emotional and affective style acknowledge that it is unclear whether these differences are due to resiliency towards life challenges or to denial of them. Finally, it is important to note that while African-Americans scored lower on the depression subscale of the HADS, the fact that they scored similar to Caucasians on the anxiety subscale indicates that African-Americans are certainly not immune to distress; they simply may display it differently.

We believe that there are several important strengths of this study. Given the lack of data on distress, anxiety, depression, emotional well-being, or resilience in African-American men with prostate cancer, coupled with the distinct significance to focus on this population, we believe that is novel data and important to help us to begin to understand the experiences of African-American men with prostate cancer as well as generate hypotheses for future research. We also view the broad range of prostate cancer patients (e.g. mix of late and early stage, and varied treatment history) as a strength providing an overview of men's experience and laying the foundation that will drive future research. However, we recognize that this non-specificity may be viewed as a weakness of the study, and acknowledge the need for future studies that are more narrow in scope on the stage of disease or treatment history. We also concede that there are several other limitations to this study. Because the study was conducted through archival data, we were limited to a relatively small sample of African-American men and we do not have data on important variables such as measures of resilience or benefit-finding. We also do not have data on SES status, although we believe patients' educational background is a reliable proxy for this component of SES. In addition, the measures used in the study, the Distress Thermometer and HADS, have not been specifically validated in a sample of African-American with prostate cancer, as they are used here, and the study was conducted from a site with a low concentration of African-American men, who may therefore be exceptional and not representative of men from community health centers with a different demographic. Future research is needed to clarify the type and extent of distress in African-American men with prostate cancer; what factors are moderators of this distress; and if African-American are in fact more resilient when confronted with prostate cancer, why this is so.

In light of the nuances of African-American culture discussed above, it is possible that African-Americans have a qualitatively distinct perspective

of the cancer experience that fosters different coping mechanisms than those of other groups. Future studies including measures of benefit-finding as well as qualitative questions about the cancer experience would be one way to begin learning about these mechanisms.

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