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African-Centered Coping, Resilience, and Psychological Distress in Black Prostate Cancer Patients

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Abstract

Objective: Blacks have the highest incidence and mortality rates for prostate cancer (PCa) in the U.S. Black prostate cancer patients (PCaP) also report high psychological distress. Identifying culturally specific coping strategies that lower distress among Black PCaP could help improve psychological interventions for this group. African-centered coping (strategies unique to the structure of Black personality and the African-centered worldview) have been identified. We hypothesized that these coping strategies and resilience would be associated with lower psychological distress (anxiety and depression) in Black PCaP.

Methods: Black PCaP (N=95) completed a survey assessing African-centered coping strategies, resilience, anxiety, and depression. Multiple regression was employed to examine African-centered coping strategies and resilience as predictors of psychological distress.

Results: Participants were aged M=67±9 years and 52% had late-stage PCa. Twenty percent met criteria for clinically significant anxiety, and 17% for depression. African-centered coping strategies were not associated with lower anxiety or depression, while resilience was associated with decreased anxiety (r=−0.45, p<0.001) and depression (r=−0.54, p<0.001). Mediation analyses did not support an indirect association among African-centered coping strategies, resilience, and anxiety and depression.

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Conflicts of Interest

The authors have no conflicts of interest.

Conclusions: Contrary to hypotheses, African-centered coping strategies were not associated with psychological distress. However, as predicted, greater resilience was associated with lower anxiety and depression. These findings support the relevancy of resilience in Blacks' psychological adjustment to PCa. It might be worthwhile to explore African-centered coping strategies that help Black PCaP cope with distress.

Keywords

Prostatic Neoplasms; Cancer; Psychological Distress; Anxiety; Depression; Psychological Resilience; Psychological Adaptation; Coping Skills; African Americans; Psycho-Oncology

BACKGROUND

There is a distinct need to focus on psychosocial research with Black prostate cancer (PCa) patients (PCaP)[1]. Blacks are disproportionately impacted by PCa, with a 70% higher incidence rate than Whites and are twice as likely to die from Pca compared to Whites[1]. Blacks also present with more advanced disease stage[2–4].

Pca diagnosis and treatment are often accompanied by psychological distress- a syndrome comprised of anxiety (excessive worry and fear) and depression (sadness and loss of interest in pleasurable activities)[5]. Psychological distress in PCaP is likely generated by worries about treatment side effects (e.g., urinary incontinence, erectile dysfunction, loss of libido), metastasis, and death[5]. In a previous sample of PCaP, Roth et al. (1998) reported that 32.6% met clinically significant criteria for anxiety and 15.2% for depression on the Hospital Anxiety and Depression Scale.

Despite racial disparities in the presentation, diagnosis, treatment, and survival of PCa, little systematic psychosocial research has been undertaken with Black PCaP [6–13]. The extant research reports mixed findings regarding the psychosocial well-being of Black PCaP[6–13]. One study by Nelson et al. (2010) found that Black PCaP report clinically significant distress (>31%) and anxiety (23%) following PCa[14]. Nelson et al. (2010) also found that Black PCaP may cope more effectively than White PCaP [14]. This suggests that Black PCaP may have unique coping strategies which may be important to integrate into psychotherapy interventions for Black PCaP. More work is needed to establish the connection between psychological distress and the cultural coping strategies used by Black PCaP.

African-centered coping strategies are specific ways of coping that are unique to the core structure of Black personality (spirituality, harmony, balance, collectivism, and ritualism) and are consistent with the African-centered worldview[15]. Qualitative work by Utsey et al. (2000) identified African-centered coping strategies through the development of the Africultural Coping Structure Inventory[15]. The African-centered coping strategies measured by this inventory include: enjoying the present and using humor (Cognitive & Emotional Debriefing), using spirituality (Spiritual-Centered Coping), relying on social support and extended family members (Collective Coping), and using rituals (Ritual-Centered Coping)[15]. This qualitative work addresses an important need to use culturally appropriate measures for Blacks in the U.S. However, more work is needed to confirm this

measure in quantitative research and to examine how African-centered coping strategies contribute to the psychological well-being of Black PCaP[16–22].

There is evidence suggesting that resilience might be linked to coping and lower psychological distress in the cancer population and in Blacks[14, 28]. Resilience has been operationalized in two ways: 1) lower psychological symptoms in response to a stressful event, [23–25] and 2) having the capacity to sustain healthy levels of physical and psychological function despite exposure to a traumatic event[26– 29]. In a previous sample of cancer survivors and their romantic partners, engaging in coping that emphasizes cognitively reframing a stressful event, and having higher resilience to stressful events were related to lower psychological distress[14]. Specifically, resilience served as a mediator in the relationship between coping and psychological distress among the cancer survivors and their partners[14]. The sample was primarily White[14]. However, previous work with a sample of N=363 Black Hurricane Katrina survivors shows that 57.9% report high resilience which was associated with lower psychological distress[28]. More work is needed to confirm these results in diverse samples of Blacks using more robust measures of resilience and psychological distress. Understanding how culturally relevant coping strategies and resilience support healthy psychological adaptation to cancer in Black PCaP is important.

Because Blacks in the U.S. have been targets of oppression [29], the coping strategies that Blacks have developed to be resilient and maintain psychological well-being are tied to their cultural experiences as a race[29]. Understanding Blacks' unique coping and resilience patterns in the context of PCa could aide the development of effective and culturally relevant psychosocial interventions for the large number of Black PCaP in our population. Given that Black PCaP report symptoms of psychological distress and may have unique cultural ways of coping, we designed a study that uniquely focuses on Black PCaP. This study aims to explore the association among African-centered coping strategies, resilience, and psychological distress (anxiety and depression) in Black PCaP, and whether these associations are medicated by resilience. We hypothesized that African-centered coping strategies and resilience would be associated with lower psychological distress (lower anxiety and depressive symptoms) in Black PCaP. Furthermore, we hypothesized that resilience would mediate the relationship between African-centered coping strategies and psychological distress (anxiety and depression).

METHODS

Participants

Participants were Black PCaP who were seen at three medical/cancer centers in the Northeastern United States: Memorial Sloan Kettering Cancer Center (MSKCC), State University of New York - Downstate Medical Center (Downstate), and Kings County Hospital Center (KCHC).

Recruitment

Recruitment took place from March 2011 to April 2015. Downstate and KCHC were used as recruitment sites because they serve many Black patients in NYC. Eligibility

criteria included: a PCa diagnosis, received prostate specific antigen tests at standard clinic appointments, at least 18 years of age, English-speaking, and self-identified as Black or Black and Hispanic. Exclusion criteria for survivors included major psychopathology or cognitive impairment. Early-stage (localized, locally advanced, non-metastatic disease) and late-stage patients (micro metastatic or metastatic disease) with the following treatment types were considered: prostatectomy, external beam and brachy therapy (radiation and seed), orchiectomy, hormones, and chemotherapy. Participation was open to patients who were receiving treatment and patients who completed treatment.

Procedures

Study approval was obtained from the Institutional Review Boards of all participating sites (IRB#07–145). On the day of or before their standard clinic visit, participants were asked to complete an informed consent and questionnaire (before receiving their specific antigen test results). Participants also had the option to return the questionnaire in a pre-stamped envelope before their next appointment.

Instruments

Demographic Questionnaire: Basic sociodemographic information was obtained for all patients using a modified Cancer and Leukemia Group B Background Information Form[30]. Sociodemographic variables assessed included: age, education, income, employment, marital status, cancer stage, and treatment type.

Hospital Anxiety and Depression Scale (HADS): The HADS assess general psychological distress through two subscales: 1) Anxiety, and 2) Depression[31]. A total cut-off score of >16 indicates psychological distress. A cut-off score of ≥8 on each subscale indicates symptoms of depression or anxiety.

Memorial Anxiety Scale-Prostate Cancer (MAX-PC): The MAX-PC measures anxiety specifically related to PCa with three subscales: 1) General Prostate Cancer Anxiety, 2) Prostate Specific Antigen Anxiety, and 3) Fear of Recurrence. A total score of ≥27 is used to indicate clinically significant anxiety. The MAX-PC demonstrated good concurrent and discriminate validity in previous samples of PCaP and in Black PCaP [32–34].

Center for Epidemiologic Studies Depression Scale (CES-D): The CES-D assess the frequency of depressive symptoms in the past week (e.g. “I felt that everything I did was an effort”)[35]. A score of ≥35 was used to indicate symptoms of depression.

Africultural Coping Structure Inventory (ACSI): This 30-item scale measures African-centered coping strategies in African-Americans using four subscales: 1) Cognitive/Emotional Debriefing (“Sought out people I thought would make me laugh”), 2) Spiritual-Centered Coping (“Read a passage from a daily meditation book”), 3) Collective Coping (“Got a group of family and friends together to help with the problem”), and 4) Ritual-Centered Coping (“Burned incense for strength or guidance in dealing with the problem”) [15]. Item responses are rated on a four-point scale where higher scores indicate more frequent use of African-centered coping strategies. These subscales demonstrated internal

consistency (α's between α=.71 to α=.81) in a previous sample of African-Americans in the general population[15]. The current sample produced: Cognitive/Emotional Debriefing Subscale (α=.88), Spiritual-Centered Coping Subscale (α=.91), Collective Coping Subscale (α=.85), and Ritual-Centered Coping subscale (α=.77).

Brief Resilience Scale (BRS): The six-item BRS assesses ability to recover from stressful situations (e.g., "I usually come through difficult times with little trouble")[26]. In a previous sample of PCaP, this scale produced good internal consistency (α= .85)[36].

Data Analysis

Although our recruitment goal was N=100, N=95 was determined adequate to detect medium effect sizes of .15 with high power (α=.80) in multivariable analyses using α= .05 in a post hoc power analysis. SAS version 9.4 was used to calculate descriptive statistics on the demographic and disease characteristics, ACSI subscales, BRS scores, and indicators of psychological distress (the Anxiety and Depression subscales of the HADS, CES-D, and MAX-PC). The association of sociodemographic variables to each ACSI subscale was tested with analysis of variance for the nominal variables (e.g., employment, marital status) and with Pearson's *r* correlations for the continuous variables (e.g., age, income). Next, the unadjusted bivariate associations among the major study variables (coping, resilience, psychological distress) were examined with Pearson's *r* correlations. The four indicators of psychological distress were regressed on the four ACSI subscales after adjustment for age, income (<$40,000 annually vs. ≥$40,000 annually), marital status (married vs. not married), and disease stage (early-stage vs. late-stage). Finally, structural equation modeling (SEM) was used to test the mediation hypothesis. For each ACSI subscale, a separate SEM model was estimated for each outcome, with the BRS serving as the mediator. Direct and indirect effects were estimated using M-Plus version 7.4.

RESULTS

Participant Characteristics

A total of 124 patients were approached for participation. The descriptive statistics for the patient sociodemographic characteristics and ACSI subscale scores for the N=95 patients included in these analyses are displayed in Table 1. Of the N=95 participants, nearly half (43%) were aged 60–69 years and over half (52%) were diagnosed with late-stage PCa. Two-thirds (64%) were married or living with a partner and nearly half (48%) were retired. Income was varied, with approximately equal proportions reporting very low income of $10,000 (21%), low income of $10,000 to $40,000 (21%), and middle income of $40,000 to $75,000 (24%). Education was also varied. A quarter of participants (25%) attained less than high school equivalency, and a similar proportion (20%) reported attaining a graduate degree.

African-Centered Coping

Regarding the use of African-centered coping, endorsement for each subscale was as follows: Cognitive/Emotional Debriefing (*M*=12.40, SD=8.5, on a scale of 0–33), followed by Spiritual-Centered (*M*=11.38, SD=7.7, on a scale of 0–24), Collective (*M*=9.84, SD=6.1,

on a scale of 0–24), and Ritual-Centered (M=0.86, SD=1.9, on a scale of 0–9). Income was significantly associated with all ACSI subscales (all p<.02). Education was associated with Cognitive/Emotional Debriefing (p=.001) and Ritual-Centered Coping (p=.03).

Anxiety

Table 2 displays the results of the unadjusted and adjusted associations between the major study variables. Twenty percent of participants reported clinically significant levels of anxiety on the HADS-Anxiety subscale and 18% on the MAX-PC. Unexpectantly, univariate correlations indicated positive correlations between the African-centered coping strategies and the measures of anxiety. HADS-Anxiety scores were positively correlated with Ritual-Centered Coping (r=0.26, p=0.01). MAX-PC scores were also positively correlated with three of the ACSI subscales: Cognitive/Emotional Debriefing (r=0.21, p<0.05), Collective Coping (r= 0.23, p=0.03), and Ritual-Centered Coping (r=0.23, p=0.03). After adjustment for patient and disease characteristics (low income [$40k or less], marital status, late-stage diagnosis, age) neither of the two anxiety measures remained significantly associated with the ACSI subscales. The pattern of results observed for individual MAX-PC subscales (General Prostate Cancer Anxiety, Specific Antigen Anxiety, and Fear of Recurrence) remained in similarity to MAX-PC total scores.

Depression

Seventeen percent of participants met clinically meaningful criteria for depression on both the HADS-Depression subscale and the CES-D. Neither measure of depression was associated with ACSI subscales, either marginally or after adjustment for patient sociodemographic characteristics.

Resilience

BRS scores were significantly associated with Ritual-Centered Coping (r=−0.24, p=0.02), but not other subscales of the ACSI. However, this association was not sustained after adjustment for patient sociodemographic characteristics. The BRS scores were significantly correlated with anxiety (HADS-Anxiety, r=−0.43, p<0.01; MAX-PC, r=−0.43, p<0.01) and depression (HADS-Depression, r=−0.53, p<0.01; CES-Depression, r=−0.36, p<0.01).

Resilience as a Mediator Between African-Centered Coping and Psychological Distress

Despite the weak direct relationship observed between the African-centered coping strategies and the psychological distress variables, we conducted mediation analyses to examine the indirect effect of African-centered coping strategies on psychological distress variables through resilience. The results of the mediation analyses revealed that only the Ritual-Centered Coping strategy had an indirect effect on the distress outcomes (anxiety and depression) through resilience (indirect effect p-values: HADS-Anxiety p=0.04, HADS-Depression p=0.03, CES-D p=0.04, MAX-PC p=0.04). These indirect effects showed that higher use of Ritual-Centered Coping was associated with higher psychological distress.

DISCUSSION

This is one of few studies specially asking questions about African-centered coping, resilience, and psychological distress in Black PCaP. We hoped to identify African-centered coping strategies that reduce anxiety and depression in Black PCaP. The Black PCaP in this sample utilized African-centered coping strategies to a similar extent as a previous sample of Blacks in the general population [15]. In fact, the Black PCaP in the present sample endorsed Spiritual-Centered Coping (*M*=11.34, SD=7.7) more frequently than the previous sample of Blacks (*M*=9.5, SD=1.19) [15].

Despite the endorsement of African-centered coping strategies in the present sample, and contrary to our hypothesis, African-centered coping strategies were not related to lower psychological distress after adjusting for sociodemographic characteristics (age, low income, marital status, stage). Additionally, African-centered coping strategies were not associated with resilience. However, as hypothesized, resilience was associated with lower anxiety and depression.

The ACSI seems to assess culturally relevant coping strategies and our previous work suggests that culturally relevant coping strategies may be related to better psychological outcomes among Black P**C**aP [5] We hoped to identify these coping strategies, using the ACSI, to develop targeted evidence-based psychotherapy interventions for Black PCaP.

The ACSI was developed from an African-centered worldview based on influence from Black/African personality using rigorous and reliable qualitative methods. The measure assesses four types of coping (Cognitive/Emotional Debriefing, Spiritual-Centered, Collective, and Ritual-Centered) which are congruent with the coping strategies the literature suggests. However, the sample utilized in constructing the measure was Black college students while the current sample is comprised of older adults in New York City (NYC) who are cancer patients [29, 30]. Older adults in NYC are distinct because NYC is a major metropolitan city with unique community aspects unmatched by other regions. Questions most relevant to coping for younger Black adults may not translate to assessing coping in Black cancer patients in NYC. We selected the CES-D, MAX-PC, and HADS to measure psychological distress because they have been used with other Black samples, demonstrated adequate reliability and validity, and have been used widely in the cancer population.

Additionally, these coping strategies may have manifested differently in our sample than the Black college sample (age *M*=29) used to pilot the ACSI [15]. Half our sample did not attend college (51%), nearly half were retired (49%), and 84% were over age 60. Additionally, over half (64%) our sample was married and/or cohabitating, while a quarter (24%) the college sample was married or in a committed relationship[15]. Given the importance of social support in coping among Black PCaP[5], the ACSI could be missing certain aspects of coping used in this population. Future research should explore coping most relevant to a diverse population of older Black men, and how these coping strategies are related to psychological distress.

Regarding the relationship between African-centered coping strategies and resilience, coping was not related to resilience in our adjusted models. Resilience has served as a mediator in the relationship between coping and psychological distress in the cancer population[14]. Because a previous study found that coping in cancer patients and their romantic partners was related to resilience and psychological distress, and Nelson et al. (2005) found that coping was related to social support in Black PCaP, it might be important for future research to consider social-environmental variables when measuring coping in Black PCaP. There are various types of social support (instrumental, emotional, functional) provided by key individuals in one's social network (spouses, family, friends). For example, in a previous study, experiencing social constraints on emotional expression from family and friends was related to greater fear of recurrence in Black breast cancer survivors[39]. Future researchers should consider how these social-environmental variables impact coping and psychological distress.

Consistent with our hypotheses, higher resilience was correlated with lower psychological distress. This adds to the growing body of cross-sectional work demonstrating an inverse relationship between resilience and psychological distress in cancer patients and Blacks[14,28]. This should be confirmed in longitudinal studies.

Another key finding is that socioeconomic status (e.g., income), can conflate the null association of ACSI factors to outcomes. Because socioeconomic status is inversely correlated with mental health issues [37], future research should consider the importance of including socioeconomic status when examining psychological distress in diverse populations.

Conclusions

African-centered coping strategies were not associated with psychological distress in this study. The ACSI was designed from an African-centered worldview using African/Black personality to measure coping specifically within Blacks. This is the first investigation in which the ACSI has been used in a sample of Black PCaP. We hoped these coping strategies would have been related to lower psychological distress to warrant their integration in psychotherapy programs for Black PCaP, however there is a lack of evidence supporting their impact on psychological distress in this population. Future studies should identify helpful coping strategies for lowering psychological distress in Black PCaP.

Study Limitations

Despite this study's contributions, it has limitations. While recruitment was open to Black PCaP from various ethnic groups (African-American, Hispanic/Latino, Haitian) participation was only open to English-speaking Black PCaP. Future studies might consider examining these relationships among non-English speaking Black PCaP. We did not collect data on time since diagnosis and treatment- important factors that could impact the applicability of findings to local populations. Future researchers should collect this information. Also, this urban sample of NYC adults could decrease the generalizability of findings. Fixed-choice style questionnaires were also heavily utilized in this study which forces participants to answer questions even when the question is poorly understood. Future

studies should attempt to assess these constructs using a variety of methods. Additionally, we did not measure sexual orientation and gender. It would be worthwhile to examine the use of Spiritual-Centered Coping among Black PCaP who identify as sexual and/or gender minorities (e.g., gay, bisexual, same-gender loving, transgender, queer, questioning, genderqueer, and others who eschew sexual/gender labeling). Unique social struggles including discrimination from religious organizations could make Spiritual-Centered Coping more complex for Black PCaP within this population.

Clinical Implications

These results provide support for the importance of resilience in Black PCaP. Resilience is a social-cognitive skill that can be strengthened through structured training and support. Resilience training programs and interventions use a combination of cognitive-behavioral therapy and mindfulness-based techniques to strengthen emotional, cognitive, physical, and spiritual responses to stressful events [38]. Bolstering resilience at diagnosis and before, during, and after treatment could potentially aide healthy psychological adaptation to the distress that typically accompanies PCa among Black patients. More work is needed to develop culturally appropriate resilience training accounting for the unique resilience patterns of Blacks.

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Data Availability Statement

Data are not shared.

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Table 1.

Patient Characteristics and Means (SD) of ACSI Subscales (N=95)

		Cognitive/Emotional Debriefing	Spiritual	Collective	Ritual
Range		0–32	0–24	0–24	0–9
Mean(SD)		12.40(8.5)	11.38(7.7)	9.84(6.1)	0.86(1.9)
Age(years)	***n*(%)**	***M*(SD)**	***M*(SD)**	***M*(SD)**	***M*(SD)**
<60	15(16%)	13.29(7.9)	11.80(7.0)	10.47(4.6)	0.47(1.1)
60–69	41(43%)	12.31(7.8)	12.51(7.7)	9.57(5.8)	0.78(1.8)
70–79	23(24%)	12.10(9.5)	8.87(8.3)	10.27(7.5)	0.61(1.2)
≥80	15(16%)	11.87(10.1)	11.13(7.6)	9.33(6.8)	1.80(3.1)
Missing	1(1%)	18.00(−)	20.00(−)	9.00(−)	2.00(−)
Income					
<$10k	20(21%)	17.75(8.9)	14.25(7.1)	12.05(7.0)	1.75(2.7)
$10-$40k	20(21%)	10.96(7.3)	12.14(7.2)	9.61(6.0)	0.60(1.2)
$40-$75k	23(24%)	10.71(8.1)	10.65(7.4)	10.01(6.1)	0.57(1.4)
$75-$150k	14(15%)	6.32(5.4)	7.64(8.1)	5.80(4.3)	0.36(0.9)
>$150k	7(7%)	12.44(9.5)	6.57(8.5)	8.14(4.0)	0.14(0.4)
Missing	11(12%)	16.55(7.0)	14.09(7.6)	12.09(6.2)	1.45(2.7)
Marital Status					
Married/Cohabitate	61(64%)	12.23(8.2)	11.62(7.6)	9.92(5.9)	0.70(1.5)
Single	15(16%)	13.67(9.9)	10.01(7.9)	9.48(7.3)	1.13(2.3)
Divorced/ Separated	11(12%)	12.91(8.3)	12.45(8.8)	10.45(6.4)	0.36(1.2)
Widowed	8(8%)	10.68(9.2)	10.63(7.7)	9.04(6.1)	2.25(3.4)
Education					
≤9th grade	14(14%)	17.14(7.7)	11.21(6.1)	11.00(5.8)	1.36(2.5)
<HS	10(11%)	13.04(6.6)	14.60(7.4)	10.83(5.8)	1.90(3.0)
HS/GED	25(26%)	14.61(9.8)	13.27(7.6)	10.97(6.5)	0.76(1.8)
Some college	14(15%)	12.04(6.6)	13.71(7.8)	10.65(4.7)	1.07(1.7)
College grad**uate**	12(13%)	8.58(6.7)	8.08(8.4)	6.83(5.6)	0.50(1.2)
Graduate school	19(20%)	8.95(8.4)	8.26(7.4)	8.79(6.9)	0.21(0.5)
Missing	1(1%)	1.00(−)	-	-	-
Employment					
Employed Full-Time	23(24%)	10.77(7.3)	9.65(8.2)	8.32(5.0)	0.26(1.1)
Retired	46(48%)	13.74(9.4)	11.96(7.8)	10.81(6.7)	0.93(2.0)
Other	25(26%)	11.89(7.6)	12.35(7.1)	9.85(5.8)	1.32(2.1)
Missing	1(1%)	1.00(−)	-	-	-
Cancer Stage					
Early					
(localized, locally advanced, non-metastatic)	26(27%)	11.03(8.9)	11.31(8.9)	9.00(5.4)	0.58(1.4)
Late	49(52%)	11.24(7.8)	10.72(7.1)	9.54(6.4)	0.80(1.7)
(micro metastatic & metastatic) Missing	20(21%)	17.03(8.5)	13.09(7.9)	11.66(6.4)	1.40(2.7)
Treatment Type					
Prostatectomy	24(27%)	1.58(1.3)	1.25(1.2)	1.75(1.2)	1.21(1.2)
External Beam & Brachy Therapy	37(41%)	1.59(1.2)	1.05(1.2)	1.76(1.1)	1.30(1.2)
Hormones	43(48%)	1.81(1.2)	1.23(1.1)	1.81(1.1)	1.05(1.1)
Chemotherapy	10(11%)	2.30(1.1)	1.60(1.1)	2.00(0.9)	1.50(1.3)
None	36(40%)	1.47(1.2)	0.83(1.1)	1.44(1.1)	1.03(1.1)

Note: Income was significantly associated with all ACSI subscales (all $p < .02$). Education was significantly associated with Cognitive/Emotional Debriefing ($p = .001$) and Ritual-Centered Coping ($p = .03$). No other characteristics were associated with ACSI subscales. The “other” category for employment includes unemployed, on disability, part-time employment. The “External Beam & Brachy Therapy” category for treatment type includes radiation and seed. No patients received orchiectomy. Some patients received multiple treatments.

Table 2.

Unadjusted and Adjusted Associations of ACSI Subscales to Anxiety and Depression Outcomes (N=95)

	Mean(SD)	Cognitive/Emotional Debriefing	Spiritual	Collective	Ritual
HADS Anxiety	4.20(4.2)	*r*=0.16 (*p*=0.112)	*r*=0.06 (*p*=0.567)	*r*=0.19 (*p*=0.060)	***r*=0.26 (*p*=0.011)**
		β=0.02 (*p*=0.676)	*β*=0.05 (*p*=0.381)	*β*=0.03 (*p*=0.710)	*β*=0.46 (*p*=0.185)
HADS Depression	3.80(3.8)	*r*=0.07 (*p*=0.519)	*r*=−0.03 (*p*=0.792)	*r*=0.04 (*p*=0.734)	*r*=0.20 (*p*=0.051)
		β=−0.04 (*p*=0.410)	*β*=−0.05 (*p*=0.370)	*β*=−0.10 (*p*=0.141)	*β*=0.28 (*p*=0.392)
HADS Total	8.00(7.5)	*r*=0.13 (*p*=0.222)	*r*=0.02 (*p*=0.853)	*r*=0.13 (*p*=0.221)	***r*=0.25 (*p*=0.015)**
		β=−0.02 (*p*=0.835)	*β*=0.00 (*p*=0.988)	*β*=−0.07 (*p*=0.560)	*β*=0.74 (*p*=0.219)
MAX-PC	15.07(11.5)	***r*=0.21 (*p*=0.045)**	*r*=0.16 (*p*=0.122)	***r*=0.23 (*p*=0.026)**	***r*=0.23 (*p*=0.026)**
		β=0.14 (*p*=0.364)	*β*=0.30 (*p*=0.072)	*β*=0.20 (*p*=0.345)	*β*=0.46 (*p*=0.643)
CES-D	26.89(10.3)	*r*=0.07 (*p*=0.531)	*r*=0.02 (*p*=0.878)	*r*=0.09 (*p*=0.399)	*r*=0.12 (*p*=0.250)
		β=−0.07 (*p*=0.627)	*β*=0.06 (*p*=0.676)	*β*=−0.14 (*p*=0.472)	*β*=0.21 (*p*=0.814)
BRS	3.95(0.8)	*r*=−0.05 (*p*=0.603)	*r*=0.04 (*p*=0.728)	*r*=−0.03 (*p*=0.796)	***r*=−0.24 (*p*=0.018)**
		β=0.01 (*p*=0.325)	*β*=0.01 (*p*=0.304)	*β*=0.01 (*p*=0.507)	*β*=−0.07 (*p*=0.397)

Note: Beta estimate is based on a model regressing each outcome (e.g., HADS Anxiety) on the ACSI factor and adjusted for income ($40k or less), late-stage cancer, marital status (Y/N), and age (years).