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Religious/Spiritual Coping in Older African American Women

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Abstract

The purpose of this study was to identify religious/spiritual coping behaviors of African American women with hypertension (HTN) and explore how religious/spiritual coping influences adherence to high blood pressure (HBP) therapy in older African American women. A mixed-method research design guided this study. Twenty African American women with primary HTN were enrolled in this study using a mixed methods concurrent triangulation design. Data collection included physiologic, descriptive, and sociodemographic data. Adherence was measured using the Hill-Bone Compliance to High Blood Pressure Therapy scale (Kim, Hill, Bone, & Levine, 2000), and religious/spiritual coping was evaluated with the Brief Religious/Spiritual Coping scale. Qualitative data were obtained by audiotaped interviews using a semi-structured interview guide. Descriptive, physiologic data and data from questionnaires were analyzed. Five themes emerged. (a) Feelings of dizziness, lightheadedness, and feeling sick; (b) Belief in God or a Supreme Being, (c) Prayer as the primary coping mechanism, (d) Adherence conceptualized as obedience to God's will, and (e) Need for healthcare providers to pray and provide more health information. This study provided insight into the influence of religious/spiritual coping behaviors on adherence to HTN treatment in older African American women with HTN in a rural medically underserved area. Nurses and other healthcare providers are in a key position to influence positive health outcomes in rural settings with limited resources using culturally appropriate strategies.

Keywords

Religious/Spiritual Coping, Adherence/Compliance, Hypertension, Mixed Method, African American Women

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Religious/Spiritual Coping in Older African American Women

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The purpose of this study was to identify religious/spiritual coping behaviors of African American women with hypertension (HTN) and explore how religious/spiritual coping influences adherence to high blood pressure (HBP) therapy in older African American women. A mixed-method research design guided this study. Twenty African American women with primary HTN were enrolled in this study using a mixed methods concurrent triangulation design. Data collection included physiologic, descriptive, and sociodemographic data. Adherence was measured using the Hill-Bone Compliance to High Blood Pressure Therapy scale (Kim, Hill, Bone, & Levine, 2000), and religious/spiritual coping was evaluated with the Brief Religious/Spiritual Coping scale. Qualitative data were obtained by audiotaped interviews using a semi-structured interview guide. Descriptive, physiologic data and data from questionnaires were analyzed. Five themes emerged. (a) Feelings of dizziness, lightheadedness, and feeling sick; (b) Belief in God or a Supreme Being, (c) Prayer as the primary coping mechanism, (d) Adherence conceptualized as obedience to God's will, and (e) Need for healthcare providers to pray and provide more health information. This study provided insight into the influence of religious/spiritual coping behaviors on adherence to HTN treatment in older African American women with HTN in a rural medically underserved area. Nurses and other healthcare providers are in a key position to influence positive health outcomes in rural settings with limited resources using culturally appropriate strategies. Keywords: Religious/Spiritual Coping, Adherence/Compliance, Hypertension, Mixed Method, African American Women

An estimated 80 million Americans 20 years of age and older have been diagnosed with hypertension (HTN). Hypertension is conceptually defined as an arterial blood pressure that exceeds 140/90 mm Hg. African American women have the highest prevalence rate of HTN (46.1%), followed by African American men (44.9%; Mozaffarian et al., 2016). Also, African Americans tend to develop HTN earlier in life than Non-Hispanic Whites, and they are at greater risk for stroke, heart disease, and kidney failure leading to higher rates of disability and death (Mozaffarian et al., 2016).

Although the disproportionate burden of HTN and associated diseases contributes to considerable health disparities for African Americans, the sequelae of HTN are largely preventable with lifestyle modifications and antihypertensive medications (Ferdinand & Welch, 2007). Adherence to lifestyle modifications and antihypertensive medication is essential for blood pressure control and prevention of organ damage. However, African American have not readily participated in risk reduction behaviors to manage and prevent HTN and the reasons for not participating are not fully understood.

Literature Review

In a Cochrane review, Schroeder, Fahey, and Ebrahim (2004) identified motivational strategies as a promising intervention for improving adherence to the HTN treatment regimen. As a type of motivation, spiritual inspiration or religious conversion (Center for Substance Abuse Treatment, 1999), has been a major influence in achievement of positive health outcomes.

Adherence is best defined as the extent to which a person's behavior (which includes) taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider (Sabate, 2003). For most (clinicians, health care practitioners, and researchers) a cutoff point of $\geq 80\%$ is accepted as adherent. Yet, medication adherence rates in patients with HTN are estimated to be between 50 and 70% (Domino, 2005; Sabate, 2003), and several studies (Krousel-Wood et al., 2010; Lewis, Ogedegbe, & Ogedegbe, 2012; Ndumele, Shaykevich, Williams, & Hicks, 2010) have reported that African Americans have lower adherence rates than Whites. Anti-hypertensive medication has proven efficacy when taken as prescribed (Chobanian et al., 2003). Hence, improving adherence to the HTN treatment regimen is to improve health outcomes in African Americans with hypertension.

Religious/Spiritual Coping

The seminal work of Lazarus (1966) and colleagues introduced coping as a means to adjust to stress. Coping theory emphasizes the active role individuals play in interpreting and responding to major life stressors (Lazarus & Folkman, 1984) however, general coping theorists and researchers neglected the religious dimension (Pargament, Feuille, & Burdzy, 2011). Pargament (1997) developed a theory of religious coping and as such defined religious coping as, "efforts to understand and deal with life stressors in ways related to the sacred" (Pargament et al., 2011, p. 52). What is sacred depends on the individual but represents the unique characteristic of spirituality and at its' core are concepts of God, the divine, and transcendent reality (Pargament & Mahoney, 2009).

A substantial body of literature has found strong connections between religion, spirituality, and physical health (Hill & Pargament, 2008; Koenig, 2012). Mattis (2000), for example, conducted a qualitative study with African American women that explored the meaning of spirituality and religiosity. The women in the study viewed spirituality as an intimate relationship with transcendent forces such as God and humans that inspired faith, trust, adherence, and they relied on these forces for all things pertaining to life. Women referred to religion as adherence to formal doctrines and practices associated with the worship of Deity, and some women noted that religion was an external act that prepared individuals for the internal experience of spirituality (Mattis, 2000).

The theoretical underpinning of cognitive religious/spiritual coping posits that religion and spirituality operate as separate orienting frameworks that determine how a situation will be appraised (Pargament, 1997). Religion and spirituality are important aspects of African American life, and empirical evidence is growing that identifies the role of spirituality as an important intervention in nursing care (Tate, 2011; Tuck, 2012). In particular, spirituality has been implicated in helping African Americans overcome barriers to adhering to prescribed treatments such as medications (Lewis & Ogedegbe, 2008). However, there has been little research on religious/spiritual (R/S) coping in African American women with HTN. Previous R/S studies focused on chronic illnesses such as HIV/AIDS (Dalmida, Holstad, Dilorio, & Laderman, 2009; Trevino et al., 2010), breast cancer (Gaston-Johansson, Haisfield-Wolfe, Reddick, Goldstein, & Lawal, 2013; Tate, 2011), and diabetes (Newlin, Melkus, Tappen,

Chyun, & Koenig, 2008; Samuel-Hodge, Watkins, Rowell, & Hooten, 2008). Only a few studies (Brown, 2000; Lewis, 2011; Steffen, Hinderliter, Blumenthal, & Sherwood, 2001) have explored the R/S coping phenomenon in African American women with HTN. Brown (2000) explored the role of religiosity in the management of hypertension in African Americans (women $n=14$) and found that participants used their religiosity as protective, control, and coping mechanisms in managing hypertension. Lewis (2011) explored how older African American women ($n=21$, Mean age 73.3 [range 57-86 years]) use spirituality to adhere to antihypertensive medications. This study also fills a gap in the literature on the perspectives of older African American women's beliefs about spirituality and medication adherence. Lewis' study found that participants' spirituality is perceived and used as a positive resource that helps the women adhere to antihypertensive medication regimen. In a study that investigated the relationship between religious coping, ethnicity, and ambulatory blood pressure in a younger sample (ages 25-44 years), of African American and Caucasian participants, Steffen, Hinderliter, Blumenthal, and Sherwood (2001) found religious coping was significantly related to lower blood pressure in African Americans but not their Caucasian counterparts. Religion may help buffer cardiovascular disease especially in light of the lower educational and socio-economic status of African American participants in this study (Steffen et al., 2001).

Our interest for the current study comes from our passion to improve the lives of African Americans with hypertension. In our respective communities African Americans with hypertension are ubiquitous, and tend to suffer the disproportionate burden of heart failure, kidney disease and strokes. Unfortunately, we see the number of African American affected with hypertension continuously rising. We are both cardiovascular nurse researchers and nurse faculty in academia. We embrace a holistic approach in the treatment of hypertension which includes care of the physical body and mind, along with the spiritual aspects encompassing the whole person.

The principle investigators (DG and WA) have conducted research on adherence to hypertension treatment in African American women and our research trajectories also include trust in the healthcare provider, depression, and the religious/spiritual impact on chronic illness. We have found the medical literature to be replete of empirical evidence that fully address ethnopharmacology, diet, sodium intake, and the biologic, cultural, and psychosocial aspects in treating HTN in this population. In addition, there is a paucity of literature with regard to the influence of religious/spiritual constructs in the treatment of hypertension. The Pew Research Center have conducted surveys of the religious landscape of America and found African Americans (87%) are more religious on a variety of measures including religious affiliation, religious attendance, frequency of prayer, and religion's importance in life than the U. S. population as a whole (Sahgal & Smith, 2009). African American women score even higher on religious measures than African American men and have the highest rates of hypertension, morbidity, and mortality. It is incumbent upon us to explore religious/spiritual behaviors in reaching African American women with hypertension.

The purpose of this mixed methods study was to identify the R/S coping behaviors of African American women with primary HTN and explore how their R/S coping influenced adherence to hypertensive treatment regimen. The results of this study will guide future research and inform clinical practice. The goal is to develop spiritual care interventions for nurses and healthcare providers (physician, physician assistant, or nurse practitioner) that meet the criteria of being holistic (mind, body, and spirit) and improve clinical practice.

The following research questions were used to guide this study of African American women with HTN:

1. What are the commonly used R/S coping behaviors?

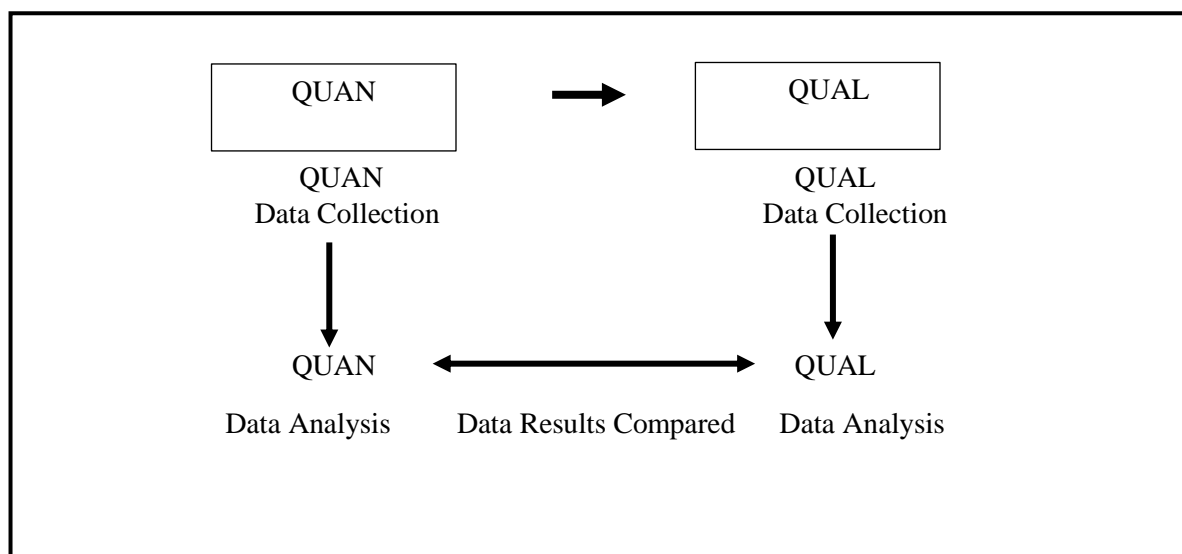
2. What influence does R/S coping have on medication adherence?
3. Is there a relationship between R/S coping behaviors, hypertension treatment regimen adherence, and blood pressure readings?

Method

Design

This mixed methods study used a research design consisting of a concurrent triangulation approach (see Figure 1). According to Creswell et al. (2009) mixed methods research involves both collecting and analyzing quantitative and qualitative data. With the “concurrent triangulation approach, both quantitative and qualitative data are collected concurrently and the two databases are compared to determine if there is convergence, differences, or some combination.” (Creswell, 2009, p. 213). We chose this design because it best fits our research questions and as Creswell states, it is selected when a researcher used two different methods in an attempt to confirm, cross-validate, or corroborate findings within a single study (p. 229). The constructs of religious/spiritual coping (positive and negative coping) was explored to determine if there was corroboration and/or convergence with adherence scores, and data from participant interviews about religion and spirituality.

Figure 1. Adapted Visual Model of Concurrent Triangulation Research Design



(Source: Adapted from Creswell, 2009)

The qualitative method used for this study consisted of an interpretative descriptive approach (Thorne, 2008). This method is non-traditional and can be applied to qualitative inquiry into human health and the illness experience for the purpose of developing nursing knowledge and informing clinical practice (Thorne, Kirkham, & Macdonald-Emes, 1997). Interpretive description draws on methodological principles that were developed for the theoretical purposes of various social science traditions (Glaser & Strauss, 1967; Lincoln & Guba, 1985; Miles & Huberman, 1994), applying them to the grounded and naturalistic conditions of the clinically derived disciplines (Sandelowski, 2000).

Recruitment methods included announcements in church bulletins, weekly church announcements, invitation to participate letters to predominantly African American churches,

and word-of-mouth. Recruitment and the setting for the study was a predominantly African American Baptist church in rural East Texas.

Sample

Through purposeful sampling techniques this sample included 20 African American females with diagnosed HTN. Eligible participants were women who self-identified as Black or African American, were 18 years or older; had a diagnosis of primary HTN by a healthcare provider (physician, physician assistant, or nurse practitioner); able to read and speak English; and were prescribed at least one or more high blood pressure medications. Women were ineligible if they were pregnant, had a history of stroke or myocardial infarction within the last year, had end-stage renal disease and/or dialysis, and women who were currently participating in another research study. The research questions in this study placed emphasis on the qualitative data with quantitative data used to complement and corroborate qualitative results. Purposeful sampling was chosen as the sampling strategy for African American women with HTN in this study because they are most likely to experience the phenomena under study (Creswell, 2009). Institutional Review Board approval was obtained for the study, and the study was explained to participants, all of whom provided informed consent.

Measurements

The quantitative component included the collection of physiologic and descriptive data that included height, weight, body mass index, age, medications, adherence score, R/S coping scale scores, and socio-demographic data. The qualitative component consisted of face-to-face interviews that were audiotaped using an adapted version of Lewis' (2011) semi-structured interview guide (see Table 1).

Table 1. Religious/Spirituality Interview Guide^a

<ol style="list-style-type: none"> 1. How does your high blood pressure make you feel? 2. How does taking your high blood pressure medicine make you feel? 3. How do you define your spirituality? In what way, if any, is your spirituality different from your religion? 4. In what ways do you use your spirituality to make decisions about your health? 5. Can you provide me with specific examples of how you use your spirituality to make decisions about your health? 6. In what ways do you use your spirituality to make decisions about taking your high blood pressure medications? 7. Can you provide me with specific examples of how you use your spirituality to make decisions about taking your high blood pressure medications? 8. What are some other factors that help you make decisions about taking your high blood pressure medications? 9. In what way can your health care provider (physician or nurse) help you use your spirituality to make decisions about taking your medication for your high blood pressure? 10. Is there anything else you would like to share in this interview that we haven't discussed previously?
<i>Note.</i> ^a Adapted from Lewis, 2011

Instruments

Instruments included the Hill-Bone Compliance to High Blood Pressure Therapy (Hill Bone CHBPT) scale (Kim, Hill, Bone, & Levine, 2000), the Brief Religious/Spiritual Coping

scale (Brief RCOPE; Fetzer Institute, 1999), and a socio-demographic survey. Blood pressures, height, and weight were collected and body mass index (BMI) was calculated using the Centers for Disease Control and Prevention guidelines (CDC, 2015).

The Hill Bone CHBPT scale is a 14-item 4-point Likert scale was designed to assess compliance to blood pressure treatment and addresses three important domains: sodium intake, keeping appointments, and medication adherence (Kim et al., 2000). For this study, the term compliance was interchanged with the term adherence. The instrument is scored by summing the three subscales for a total score. Scores for each item range from 1 to 4 (*1=none of the time, 2=some of the time, 3=most of the time, and 4=all of the time*), with a total score range from 14 (minimum) to 56 (maximum). Higher scores indicate a lower level of adherence. Internal consistency reliability and predictive validity of the Hill Bone CHBPT scale have been established in several studies (Dennison, Peer, Steyn, Levitt, & Hill, 2007; Kim et al., 2000; Krousel-Wood, Muntner, Jannu, Desalvo, & Re, 2005; Lambert, Steyn, Stender, Everage, Fourie, & Hill, 2006). Cronbach's alpha for this sample of women was 0.81.

The Brief RCOPE consisted of a 10 item 4-point Likert scale that assessed positive and negative R/S coping with stressful life events plus one additional Overall Brief RCOPE item to assess the extent to which religion is involved in understanding or dealing with a stressful situation (Fetzer Institute, 1999; Pargament, 2003; Pargament, Koenig, & Perez, 2000). Five positive items addressed searching for a spiritual connection, collaborative religious coping, seeking spiritual support, benevolent religious reappraisal, and ritual purification while the five negative items addressed punishing God reappraisal, spiritual discontent, self-directed religious coping, religious doubts, and anger at God. The Positive and Negative Brief RCOPE subscale scores ranged from 1 to 4 (*1=A great deal; 2-Quite a bit; 3-Somewhat, and 4-Not at all*). The Overall Brief RCOPE item responses include *1=Very involved, 2=Somewhat involved, 3=Not very involved, and 4=Not involved* at all. Scoring consists of summing positive and negative items separately (K. Pargament, personal communication January 23, 2014). Positive and Negative Brief RCOPE subscale scores range from 5 to 20, with lower scores indicating higher levels of R/S coping. The Overall Brief RCOPE score ranges from 1 to 4. This instrument has been validated in previous studies with reported Cronbach's alphas from 0.56 to 0.95 (Fetzer Institute, 1999; Monod, Brennan, Rochat, Martin, Rochat, & Büla, 2011). In this study Cronbach's alpha was 0.63 for the positive subscale, and 0.58 for the negative subscale.

The study participants' height, weight, and blood pressures were all measured by a research assistant trained in the study protocol. Height and weight were measured with Health-O-Meter® Professional physician beam scale (model 402KL) (Pelstar LLC, McCook, IL). Blood pressures were measured according to the Joint National Committee on the Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC-7) criteria (Chobanian et al., 2003) using the Omron digital blood pressure device (model HEM-780-N Intellisense®) with an adjustable cuff (Omron Healthcare Inc., Bannockburn, IL, 2006).

Procedure

Quantitative Data Collection

Eligibility of all participants was verified, the study was explained, and questions were answered before informed consent was obtained. Participants' height and weight were measured by the research assistant. Participants then completed the sociodemographic questionnaire, the Brief COPE, and Hill Bone CHBPT scale. Quantitative data, specifically blood pressure readings were collected first to obtain accurate readings. Specifically, participants were seated for at least five minutes and two consecutive BP readings were taken

in their dominant arm with one minute between measurements, and an average of the two blood pressure readings was obtained (Chobanian et al., 2003). Quantitative data was collected in about 30 to 60 minutes.

An important strategy is to collect all quantitative data before participant interviews are conducted because research studies have demonstrated the effects of talking on blood pressure readings. One study found that talking increases systolic and diastolic blood pressure by 5.3 and 6.3 mm Hg respectively, (Zheng, Giovannini, & Murray, 2012) and another study found greater increases of 19 and 13.3 mm Hg respectively (LePailleur, Montgermont, Feder, Metzger, & Vacheron, 2001). Moreover, LePailleur et al. (2001) found that the effect of talking had a residual effect where elevations in blood pressure readings that lasted almost six ($5.8 \pm .01$) minutes. We anticipated participants would talk and share their deep personal religious beliefs, feelings, and practices during the qualitative interview phase so all quantitative data was collected beforehand. Afterwards, participants were escorted to a private room for a face-to-face interview with the Co-principal investigator (DG).

Qualitative Data Collection

For the qualitative phase of the study participant interviews were conducted using an adapted semi-structured interview guide (see Table 1) in a private room at the church with an Olympus™ digital voice recorder (Model VN-702PC). The semi-structured interview guide was adapted from Lewis' (2011) qualitative study of medication adherence and spiritual perspectives in older African American women with hypertension. The questions were developed from the empirical literature (L. Lewis, Personal Communication, June 6, 2014) with an additional item (#10 that would elicit additional information not asked in the interview guide). The semi-structured interview guide contains 10 items that elicit open-ended questions about how high blood pressure affects the way a person feels, the effects of religion and spirituality on health, and how one uses spirituality to make decisions about taking high blood pressure medication. Questions also elicited the ways health care providers can help participants use their spirituality to make decisions about taking their medication. Prior to the interview, each participant was given the definition of spirituality as: "a search for a connection to what is divine or sacred" and a definition of religion was defined as "a tradition of spiritual beliefs and practices shared by a group of people" (Alcorn et al., 2010). Participants were also assured of anonymity and informed "that there is no right or wrong answer to the questions." The interview setting was a quiet, enclosed room, with good lighting and the participant and interviewer were seated at a small circular table which allowed for direct eye contact and to build rapport. At the end of each interview participants were asked questions that clarified their answer from field notes taken during interviews. After completion of all data collection instruments and the interview, each participant was given a \$10 gift card as a token of appreciation for their participation in the study. The qualitative interviews lasted about 30 to 45 minutes.

The procedures for qualitative data collection and analysis followed Lincoln and Guba's (1985) framework for establishing trustworthiness in qualitative research (credibility, dependability, confirmability, and transferability). Exemplars of participant interviews were used to establish authenticity (Guba & Lincoln, 1994) in this study. Field notes were taken during interviews and compared to participant transcriptions and main themes. Member checks were done with several participants to ensure accuracy of derived themes. An audit trail was kept that recorded all phases of the study. Peer debriefing occurred each day of at the end of data collection with the PI and research assistant to discuss aspects of data collection, the study protocol, and scheduling for the subsequent data collection. All data were collected on Saturday mornings at a local church that was easily accessible to participants.

Data Analysis

Quantitative Analysis

Descriptive data, physiologic data, and data from questionnaires were analyzed using descriptive statistics, measures of central tendency (mean, median, and mode), frequency percent, and measures of variability (range, variance, and standard deviation) with SPSS software, version 21 (IBM, SPSS, Armonk, NY). The conceptual and operational definitions for analysis of study variables are as shown in Table 7.

Qualitative Analysis

Participant interviews were transcribed verbatim line-by-line immediately after each interview, and coding schema followed an iterative process (D.G.). Transcriptions were checked for accuracy and reread several times until no more themes emerged. Thematic codes were confirmed by conferring with a qualitative content expert for accuracy, relevance, and meaning. Content analysis of themes was also checked by a second nurse researcher for accuracy and qualitative rigor (W.A.). Using interpretive descriptive analytic techniques (Thorne, 2008) which included triangulation, constant comparative analysis was done by comparing individual transcripts with other transcripts and quantitative data (adherence scale and subscale scores, mean BP readings, and R/S Brief COPE scores). Transformation of qualitative data into quantitative data for analyses was done using thematic coding. A frequency count of thematic codes (see Table 2) (Tashakkori & Teddlie, 1998) was done on participants' interviews. Coded qualitative data were examined in relation to quantitative data, including age, blood pressure, the Hill Bone CHBPT scores, and the Brief RCOPE subscale scores, and analyzed with Spearman's correlation analyses (see Table 6).

Table 2. Quantified Themes of the Influence of Religious/Spiritual Coping on Adherence (N=20)

Theme	N (%)	Representative Quote
1. Feelings of dizziness, lightheaded, sick	Yes: 16 (80) No: 4 (20)	When it's not under control, I feel dizzy and weak. I feel lightheaded and woozy. If it's really high confused.
2. Belief in God or Supreme being	Yes: 20 (100)	Knowing who God really is, who's the Savior of my life, who died on the cross and set me free that I might be born again to have the right to the tree of life so when I leave this earth I can meet Him face to face.
3. Prayer as the primary coping mechanism	Yes: 18 (90) No: 2 (10)	I pray first you know and I ask God whatever is in me take it out. Well I pray first and ask God to give me strength.
4. Adherence is conceptualized as obedience to God's will	Yes: 16 (80) No: 4 (20)	Long ago when I was younger I didn't do. But now since I'm older, I'm wiser so I do what God says, He gave me five senses, I'm gonna use them well. And I wanna stay healthy to be here a long time.
5. Healthcare providers can pray and provide information	Yes: 15 (75) No: 5 (25)	We pray together, my doctor prays with me. He leads me in a Christian way, and encourages me to strengthen me and the importance of getting my blood pressure under control and exercise.

Triangulation

As part of data analysis we chose triangulation because all methods possess biases and limitations, thus using only one method yields biased and limited results, however when two or more methods with offsetting biases are used to assess a given phenomenon, results converge or corroborate one another, then the validity of inquiry findings is enhanced (Greene, Caracelli & Graham, 1989). Quantitative and qualitative data were analyzed separately. Quantitative data was analyzed first, then qualitative data was analyzed. The qualitative data was quantitized in order to compare the frequency of derived themes with R/S Coping scores, mean BP readings, and HBCHBT adherence scale and subscale scores. Because this study was designed from a constructivist viewpoint we were guided by the view that there is no hierarchy of data collection techniques whereby one technique is judged more objective or accurate than another (Sandelowski, 2000). Following completion of all data collection and analysis, the results were iteratively compared against known norms for blood pressure (< 140/90 mmHg), adherence scores indicating full adherence (score nearest to 14), and summative scores for positive and/or negative religious coping and the overall R/S coping score. The field notes were revisited to identify any important clues to interpretation of data. From the field notes it was noted that participants had difficulty when asked about religion and spirituality as two separate domains. Most of the women had long pauses when answering questions about these two items (#3 and #4) and had to think about their answers before responding. Lastly, we used exploratory correlational analyses to identify statistical significance among selected variables.

Results

Participant Characteristics

Tables 3 and 4 show participant characteristics. Of the 22 African American women who were screened, 20 met the inclusion criteria and completed the study. Participants were 32 to 86 (Mean age 54, $SD \pm 11.6$) years old, and the majority were > 50 years old (95%). The majority were married (45%), completed high school (45%), and had incomes less than \$30,000 (65%). Mean systolic blood pressure was 133 mm Hg (± 20) and mean diastolic blood pressure 85 mm Hg ($SD \pm 12$). The average weight was 222 pounds with an average body mass index of 37. The mean Hill Bone CHBPT total scale score was 21.9 ($SD \pm 5.9$). Table 5 shows the subscales scores for sodium intake, appointment keeping, and medication taking.

The scores (see Table 5) for the Positive Brief RCOPE subscale was 6.7 ($SD \pm 1.94$), and was 18.2 ($SD \pm 2.04$) for the Negative Brief RCOPE subscale. The Overall Brief RCOPE score was 1.55 ($SD \pm .75$). Table 6 shows the results of the Spearman's correlation analyses. Positive correlations were found between systolic blood pressure (SBP) and age, SBP and diastolic blood pressure (DBP), and lastly, Positive Brief RCOPE scores and the Overall Brief RCOPE score.

Thematic Codes

Following a recursive process, five themes emerged that described how participants viewed the influence of R/S coping on adherence to their HTN treatment regimen (Table 2). These were: (a) Feelings of dizziness, lightheadedness, and feeling sick; (b) Belief in God or a Supreme Being, (c) Prayer as the primary coping mechanism, (d) Adherence conceptualized as obedience to God's will, and (e) Need for healthcare providers to pray and provide more information. Themes are described below and elucidated with quotes from participant interviews.

Table 3. Participant Physiologic Characteristics (N=20)

Variable	N (%)	Mean (SD) ^a	Range (Range Limit)
Age (years)		64 (\pm 11.6)	54 (32-86)
\geq 50	19 (95%)		
Height (inches)		64.8 (\pm 2.9)	13.25 (58.75-72)
Weight (pounds)		222.35 (\pm 57.8)	255 (141-396)
BMI ^b		37 (\pm 7.9)	29 (24-53)
$>$ 30 (kg/m ²)	17 (85%)		
Normal (18.5-24.99)	2 (10%)		
Abnormal (25 or $>$)	18 (90%)		
Systolic Blood Pressure		133 (\pm 20.33)	88 (92-180)
\leq 140 mm Hg	13 (65%)		
\geq 140 mm Hg	7 (35%)		
Diastolic Blood Pressure		85 (\pm 12.4)	46 (64-110)
\leq 90 mm Hg	13 (65%)		
\geq 90 mm Hg	7(35%)		

Note. ^aStandard Deviation, ^bBody Mass Index, ^cCenters for Disease Control guidelines

Table 4. Sociodemographic Characteristics of the Sample (N=20)

Variable	N (%)
Marital Status	
Single	3 (15)
Married	9 (45)
Divorced/Separated	2 (10)
Widow	6 (30)
Education	
< High school	2 (10)
GED/ High school	9 (45)
Some college post HS	5 (25)
College graduate	4 (20)
Income*	
< \$30,000	13 (65)
\$30,000 - \$49,999	2 (10)
\$50,000 or more	4 (20)
Religious Affiliation	
Baptist	17 (85)
Methodist	1 (5)
Church of Christ	2 (10)
Close friends/relatives	
10 or less	16 (75)
11 or greater	3 (15)
Length of HTN	
5 years or less	9 (45)
6 to 10 years	1 (5)
11-15 years	1 (5)
More than 15 years	9 (45)
Number of anti-HTN medications	
One	14 (70)
Two	2 (10)
Three	2 (10)
Four	1 (5)
Five	1 (5)
OTC remedies	
Yes	5 (25)
No	15 (75)
Family history of HTN	
Yes	16 (80)
No	3 (15)
Unknown	1 (5)
Have Insurance	
Yes	18 (90)
No	2 (10)

Table 5. Hill-Bone Compliance to High Blood Pressure Therapy (CHBPT) Scale and BRIEF Cope Scores (N=20)

Variables	Possible Score	M (SD)	S.E.M.	Range (Range Limit)
Hill Bone CHBPT scale (Total)	14-56	21.9 (\pm 5.9)	1.32	21 (16-37)
Sodium subscale (Items 3, 4, & 5)	3-12	7.25 (\pm 2.12)	.475	7 (5-12)
Appointment keeping subscale (Items 6 & 7)	2-8	4.70 (\pm 1.26)	.281	5 (2-7)
Medication subscale (Items 1, 2, 8, 9, 10, 11, 12, 13, 14)	9-36	11.75 (\pm 3.83)	.858	13 (9-22)
Positive Religious/Spiritual Coping	5-20	6.7 (\pm 1.94)	.43	6 (5-11)
Negative Religious/Spiritual Coping	5-20	18.2 (\pm 2.04)	.45	7 (13-20)
Overall Religious/Spiritual Coping	1-4	1.55 (\pm 0.75)	.16	2 (1-3)

Note. S.E.M: standard error of the mean.

Table 6. Exploratory Analysis of Correlation between Age, Hill Bone CHBPT Scale, Brief RCOPE Scores and Blood Pressure (N=20)

Variable	Age	Hill Bone CHBPT	SBP	DBP	Positive RCOPE Subscale	Negative RCOPE Subscale	Overall RCOPE Subscale
Age	–						
Hill Bone CHBPT	.126 (.598)	–					
SBP	.555* (.011)	.298 (.202)	–				
DBP	-.044 (.855)	.179 (.451)	.675** (.001)	–			
Positive RCOPE Subscale	.076 (.749)	.086 (.717)	.087 (.716)	-.071 (.766)	–		
Negative RCOPE Subscale	.313 (.179)	-.174 (.464)	-.002 (.995)	-.225 (.340)	.167 (.481)	–	
Overall RCOPE Coping score	-.121 (.613)	-.135 (.570)	.137 (.566)	.076 (.749)	.536* (.015)	.085 (.721)	–

Note. *Significant at the $*P < .05$, $** P < .01$ (two-tailed); SBP: systolic blood pressure; DBP: diastolic blood pressure.

Table 7. Conceptual and Operational Definitions for Analysis of Study Variables

Variable	Conceptual Definition	Operational Definition	How Analyzed
Adherence	the extent to which a person's behavior (which includes) taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider (Sabate, 2003)	Scores 22 or lower are 80% adherent (range 14-56)	SPSS cumulative score, then mean and standard deviation command
Hypertension	the average of 2 or more diastolic BP measurements on at least 2 subsequent visits is ≥ 90 mm Hg or when the average of multiple systolic BP readings on 2 or more subsequent visits is consistently ≥ 140 mm Hg. (JNC-7, 1997)	Systolic ≥ 140 mmHg Diastolic ≥ 90 mm Hg	Clinical definition of Systolic 140mmHg or less, Diastolic 90 mmHg or less
Weight	a gravitational force on an object	Professional beam scale	CDC guidelines
Body Mass Index (BMI)	BMI is a person's weight in kilograms divided by the square of height in meters.	Calculated BMI formula: weight (kg) / [height (m)] ²	weight (kg) / [height (m)] ²
Religious/Spiritual Coping	efforts to understand and deal with life stressors in ways related to the sacred" (Pargament et al., 2011, p. 52)	Brief COPE score	SPSS cumulative score, then mean and standard deviation command
<p>QUALITATIVE Themes Steps to analysis. Transcripts read and reread. Key words were highlighted. Interview questions reread, <i>Psychology of Religion</i> re-read, interview and field notes re-read. Literature re-read on AA spiritual beliefs, then keys words written in margins. Thematic analysis using an inductive approach. Data reduction followed. Meetings with researchers to obtain validation, agreement, then:</p> <p>Inductive logic using interpretive analysis Quantitizing of themes Constant comparison (concurrent with triangulation) Triangulation Interpretive description</p>			

Feelings of dizziness, lightheadedness and sickness. Symptoms of high blood pressure are for the most part absent, and thus high blood pressure is known as “the silent killer,” however, when it is out of control, symptoms manifest. When asked how does high blood pressure make you feel, 80% ($n=16$) of the women described being lightheaded, sick, dizzy or woozy. This theme permeated most of the participants’ interviews. One participant (#10) said, “High blood pressure seems to control my life. You always have to be on guard. It’s so humiliating to have high blood pressure because it defines you, you know you’re set aside by your actions, your weight, your background and it upsets me because of that.” Another participant (#11) stated, “my high blood pressure makes me feel headache-ish (sic), nauseated-no sense kinda like my equilibrium is off and I feel pretty bad.” Other descriptors were consistent with the medical literature and described by participants (in parentheses) as: “woozy” (#4), “out of sorts” (#1), “I can’t explain it” (#3), “dizzy and sluggish” (#5), “different, not myself” (#6), and, “pretty bad sometime” (#7). The literature on hypertension frequently describes it as “the silent killer,” however, we found that participants felt and describe specific physical symptoms when blood pressure is high.

Belief in God or Supreme Being. All 20 women expressed a belief in God or a Supreme Being. Participant #2 stated, “I believe that there is a Supreme Being because when I look around me and I see things that happen, like all of the things that are happening now and just life itself, I can’t not think that there isn’t a God.” Another participant (#5) said, “I define my spirituality as total belief in God. That’s my spirituality and someone to connect to when I am in need and I can’t go to anyone else, I can always go to Him.” Participants described being led by God and seeking Him for direction and purpose. Several women said, “I talk to *Him* about it.” The feelings and beliefs in God were powerful; but as one participant noted, “Even though I know God is divine, and that He can do anything but fail, I still know if I have this condition, I still have to take my medicines. Participants knew God was in control of all things, but they also knew that they had to do their part by taking their anti-hypertensive medication as prescribed to maintain blood pressure control.

Prayer as the primary coping mechanism. Prayer was the women’s primary mechanism for coping with stressors, chronic illness, and life in general. Eighteen (90%) participants described praying to help make decisions about their health. Participants described the act of praying in various forms as, “talking to God,” “speaking to Him daily,” and “asking God . . .” Participant #15 said, “I talk to the Lord about it. What to do. I talk to Him every day, all day.” Another participant (#20) said, “Yes I use prayer. I ask God to help me to remember to take my medicine. I say, dear God please help me.” Participant (#1) stated, “Well most times I just pray about it. And I understand that God already knows what’s going on with me personally. But what I do is ask Him to direct me in the right path to go in order to make the better decisions and do better for my personal health and for myself.”

Adherence conceptualized as obedience to God’s will. Eighty percent ($n=16$) of these participants described adherence as obedience to God’s will. Participant #1 stated: “...But I know God wants me whole and healthy. And He wants me to be obedient not only to His Word but to the words of the physicians and the things that they prescribe (medicine) that are supposed to be helpful for your body.” Another participant (#3) stated, “How can I explain this? Firstwise pray and ask for help, and go by directions from God.” Participant (#1) expressed, “I don’t want to be in a position where I may have to lose a limb or something like that, or run into diabetes. So I just know that there are consequences of not doing the right thing even though I don’t always be obedient, I try to be as obedient as I possibly can to avoid it.”

Need for healthcare providers to pray and provide information. The final theme that emerged from participant interviews was how healthcare providers can provide prayer and information to help them adhere to their treatment regimen. Seventy-five percent ($n=15$) of the women voiced a desire for prayer from their healthcare provider and participants said that they

should provide more information regarding HTN care and management. Participant #16 stated, “They tell me what I am supposed to do, how I am supposed to take them (medicines) and you know we just pray about it. I use prayer in everything.” This participant felt she got the needed information from her healthcare provider and through prayer that it was the right information to treat her HTN. Participant #4 stated, “I would welcome prayer but my doctor doesn’t, but my dentist prays, I’m not scared anymore and I feel better.” Having the healthcare provider pray for guidance concerning the right treatment to prescribe helped study participants overcome fears and concerns about the adverse effects of anti-HTN medication-taking.

Integration of Qualitative and Quantitative Results

An important component of mixed method design is integration of quantitative and qualitative results (Johnson & Onwuegbuzie, 2011; Leech, 2012). This study sought to identify the R/S coping behaviors of older African American women with HTN and explore how R/S coping influenced their adherence using qualitative and quantitative data. Qualitative thematic data revealed that study participants demonstrated a strong belief in God and prayer as a primary coping behavior. Many described being immersed in their religion and did not see spirituality and religion as separate entities. This is consistent with other research studies (Holt, Clark, Debnam, & Roth, 2014; Marler & Hadaway, 2002). For example, Hill and Pargament stated, “The empirical reality is that most people experience spirituality within an organized religious context and fail to see the distinction between these phenomena” (2008, p. 4). The dominant theme that emerged from participant interviews was prayer. Prayer helped the women adhere to their hypertensive treatment regimen. The findings of this study corroborate the philosophical underpinnings of religious/spiritual coping and its influence on adherence. In the quantitative data results, the Hill Bone CHBPT total scale scores were halfway between being fully adherent (score of 14) and non-adherent (score of 56). Perfect adherence scores were noted on the medication subscale for 40% ($n=8$) of the women on the Hill Bone CHBPT scale. Participants viewed adherence as obedience to God’s will. However, some participants stated they needed more information regarding HTN and the treatment regimen. While there was no correlation in this particular sample between Hill Bone CHBPT scale scores and Brief RCOPE scores, there was a correlation between Positive Brief RCOPE scores and their Overall Brief RCOPE scores. Lastly, the mean blood pressure for this sample was 133/85 mm Hg. This indicates that the blood pressure of study participants was controlled and less than the stage I hypertensive range of 140/90 mmHg or higher.

This sample of women had high Positive Brief RCOPE scores. The mean Positive Brief RCOPE score was 6.7 (SD ± 1.9) indicating “a great deal” or very high positive coping. Also the mean Negative Brief RCOPE subscale score was 18.2 (SD ± 2.0) indicating that these women did not use negative coping as their way of managing stress. Of interest, the majority of the sample ($n=17$) were obese and all of the women used salt some of the time to all of the time. Although weight and salt intake were not the primary variables under study, we acknowledge that these results are concerning and deserve further study.

This is the first of its kind to explore the influence of Religion/Spirituality on adherence in African American women with hypertension using mixed method approach. Similar studies such as Brown (2000), Alcorn et al. (2010), and Lewis (2011) have studied these phenomenon but not in the manner we designed this study, thus our comparison of previous findings offers limited discourse.

Discussion

In this mixed methods study, the most commonly used religious/spiritual coping behavior was prayer. Study participants indicated that prayer was an important coping mechanism that helped them adhere to their anti-hypertensive medication treatment regimen. This finding is consistent with other studies (Harrigan, 2011; Koenig, 2012; Koenig, George, Hays, Larson, Cohen, & Blazer, 1998; Williams, Keigher, & Williams, 2012) that have explored R/S coping behaviors. Prayer has also been found to bring about other positive health outcomes such as, lower SBP, and alleviation of depression (Chatters, Taylor, Jackson, & Lincoln, 2008; Duru, Sarkisian, Leng, & Mangione, 2010; Williams, Keigher, & Williams, 2012). Prayer as a religious/spiritual coping behavior serves as an important cultural norm for a majority of African American women and should be considered a high priority when taking a health history or caring for this population. Interestingly, many of the study participants believed God works through healthcare providers. Similar results were cited by Mansfield et al. (2002) in the study of religious beliefs of African Americans in the Southeastern United States. Figueroa, Davis, Baker, and Bunch (2006) examined spirituality in the context of African American culture and how it relates to health care seeking behaviors using focus groups. They found spirituality influenced health care seeking behaviors and parallel to our study was the desire to have a healthcare provider who was spiritually-oriented and believed in God and prayer.

The principal goal of our study was to identify the influence of R/S coping on adherence behaviors in older African American women with HTN. Adherence estimates are mixed in the empirical literature. Kressin et al. (2007), in a large study ($N=793$), explored associations among patients' race, self-reported experiences with healthcare providers, attitudes and beliefs about HTN, and medication adherence. Their study found that patient beliefs were significantly related to medication adherence. We therefore encourage healthcare providers to learn more about patients' beliefs, not only about HTN or medication, but also about strategies that help patients control high blood pressure. Religious/spiritual beliefs cannot be ignored because there is a clear spiritual-health connection to adherence (Fletcher, 2009; Holt, Schulz, & Wynn, 2009; Johnson, Elbert-Avila, & Tulskey, 2005). Koenig's (2012) comprehensive review of research on R/S from 1872 to 2010 provides solid evidence of the need for healthcare providers to integrate spirituality into patient care. These findings also suggest that for future health promotion programs to be successful in church-based settings, spiritual care interventions should include prayer and inclusion of religious practices in assessment, implementation, and evaluation of program outcomes. Several studies (Figueroa et al., 2006; Lewis, 2011; Lewis & Ogedegbe, 2008) have suggested spiritual interventions and religious/spiritual assessment to foster culturally congruent holistic health care. Conversely, in a sample of African American women ($n=23$), Mattis (2002) investigated one broad question: "How do religion and spirituality inform African American women's efforts to cope with and construct meanings about the adverse circumstances they encounter?" (p. 311). According to these authors, religion/spirituality tends to help women in a number of ways as revealed in the eight themes discovered that include: interrogate and accept reality, gain the insight and courage needed to engage in spiritual surrender, confront and transcend limitations, identify and grapple with existential questions and life lessons, recognize purpose and destiny, define character and act within subjectively meaningful moral principles, achieve growth, and trust in the viability of transcendent sources of knowledge and communication (p. 312).

In our study, theme #4: *Adherence is conceptualized as obedience To God's will* is similar to Mattis' theme #2 spiritual surrender. Other similarities are noted as participant #12 stated, "I want to be healthy and live for my family and for my fellow man." This excerpt coincides with Mattis' theme #6 defining character and acting within subjectively meaningful

moral principles. Our themes are consistent with Mattis (2002) assertion that meaning cannot and should not be divorced from epistemology. In our search to interpret and describe the religious/spiritual behaviors on adherence in African American women with hypertension, we found our results to also be consistent with Tate's (2011) study of the role of spirituality in African American women with breast cancer. Tate's integrative review (2011) of the current literature offers support for spirituality and prayer as a meaningful part of African American women with breast cancer.

Previous studies of religious/spiritual coping suggest that religion is more helpful to some people than others (Pargament, 1997). Neighbors, Jackson, Bowman and Guring (1983) surveyed adult African Americans and found prayer was the most helpful behavior that helped participants cope with serious personal problems. Neighbors et al. (1983) study found prayer was more helpful in poor, older, and female participants. Additionally, prayer was reportedly more helpful in participants who were African American, less educated, widowed, churchgoers, and fundamentalists (Pargament, 1997).

Limitations

Generalizations to a larger populations and inferential statistics are limited due to the small sample size and heterogeneity of participants. Data saturation was obtained with 20 participants and the qualitative phase of the study was weighted more than the quantitative measures. Also, since sampling was done in only one rural area in Texas with only African American women generalizations to the larger population remains limited.

Conversely, the mixed methods research design is an emerging epistemological paradigm that is still the subject of much debate and controversy (Archibald, Radel, Zhang, & Hanson, 2015; Creswell, 2011). One issue is quantifying qualitative data. However, the mixed methods design was an appropriate strategy to explore the personal stories, responses of women, and thus the thick, rich data that could not have otherwise been captured by a single research design in order to develop spiritual interventions for nurses and healthcare providers. The authors' paradigmatic stance is of a pragmatist orientation (Onwuegbuzie & Leech, 2005) and we feel use of mixed methodology is the best design to explore research questions in search of convergence of the results. Furthermore, an important aspect of mixed method designs is context discovery which involves creative insight possibly leading to new knowledge (Teddlie & Tashakkori, 2011, p. 288). From the emergent themes, the importance of prayer at every level of coping with stress-related HTN was noted in this sample of older African American women. The qualitative nursing research approach interpretive description is grounded in an interpretive orientation that acknowledges the constructed and contextual nature of much of the health-illness experience, yet also allows for shared realities (Thorne et al., 1997). We believe that the religious/spiritual behaviors of African American women with hypertension are greatly influenced by their religious beliefs and cultural practices and should be assessed in healthcare settings as a means of promoting adherence.

Clinical Implications

An important lesson for healthcare providers is the need to respect the R/S beliefs and practices of older African American women. Belief in God and prayer are of the highest priority in the majority of this population, especially when making decisions about their health. In participant interviews, one question asked, "In what way can your healthcare provider help you use your spirituality to make decisions about taking your medication for your high blood pressure?" Seventy-five percent of the women in this study said they would welcome prayer and more health information from their healthcare provider. Thus patients have spiritual needs

that healthcare providers should consider in order to provide humanistic, holistic care. Moreover, because health care providers are perceived as authoritative figures by many patients, healthcare providers who pray with patients might increase the chances of greater adherence in patients while demonstrating caring, and cultural sensitivity to patients' needs. We recognize that all nurses and other healthcare providers may not share the same R/S beliefs as their patients, and may not be able to genuinely meet the patients' need for prayer, thus a referral to a healthcare provider with similar R/S beliefs may be indicated.

Conclusion

This study provides much needed insight into the influence of R/S coping on adherence to HTN treatment. Furthermore, knowledge gained from this study can help healthcare providers understand the importance of religion and spirituality in helping patients cope with their problems. Further research on R/S coping behaviors and their influence on adherence should aim to develop interventions to improve adherence and include prayer as a significant phenomenon.

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