



Published in final edited form as:

AIDS Behav. 2004 September ; 8(3): 221–235.

Religious Involvement, Coping, Social Support, and Psychological Distress in HIV-Seropositive African American Mothers

Guillermo Prado^{1,2}, Daniel J. Feaster¹, Seth J. Schwartz¹, Indira Abraham Pratt¹, Lila Smith¹, and Jose Szapocznik¹

¹ Department of Psychiatry and Behavioral Sciences, Center for Family Studies, University of Miami School of Medicine, Miami, Florida 33136.

Abstract

This study used a cross-sectional design to examine the role of religious involvement within a stress-process framework. Participants were 252 urban, low-income HIV-seropositive African American mothers. The relationships among religious involvement, stress, coping responses, social support, and psychological distress were examined using structural equation modeling. The number of stressors reported by the mother was related to greater religious involvement, which in turn was negatively related to psychological distress. Furthermore, the results suggest that social support, active coping, and avoidant coping responses mediated the relationship between religious involvement and psychological distress. According to the present results, interventions to attenuate psychological distress in HIV-seropositive African American mothers might focus on increasing social support, promoting active coping, and decreasing avoidant coping. The present findings suggest that this may be accomplished, in part, by promoting involvement in religious institutions and practices. However, in light of the cross-sectional design used in the present study, and given that religion may have both positive and negative consequences further research is needed to determine the extent to which promoting religiosity may increase or alleviate distress.

Keywords

religion; HIV/AIDS; African Americans; coping; social support; psychological distress; stress-process model

INTRODUCTION

HIV/AIDS Epidemiology in African American Women

African Americans have been disproportionately affected by the HIV/AIDS epidemic. Although African Americans comprised approximately 12% of the U.S. population in 2001, they accounted for over half of all new HIV infections reported in the United States during that year. African American women, in particular, are among the leading demographic groups in terms of HIV prevalence (Centers for Disease Control and Prevention [CDC-P], 2002a,b,c, 2003). In 2001, African American women accounted for 64% of HIV cases reported among women in the United States (CDC-P, 2003). Among women of childbearing age (i.e., 22–44), the rate of HIV infection for African Americans was four times the rate for Latinas and more than 16 times the rate for non-Hispanic Whites (CDC-P, 2003).

²Correspondence should be directed to Guillermo Prado, Center for Family Studies, 1425 NW 10th Avenue, 3rd Floor, Miami, Florida 33136; e-mail: gprado@med.miami.edu..

Religion in HIV-Seropositive African American Women

Religion has historically been an important aspect of African American culture. Religion and religious institutions have often provided African Americans with emotional, economic, and social support (Lincoln and Mamiya, 1990). Religion has also been linked with positive mental health outcomes in African Americans (Levin and Taylor, 1998; Williams *et al.*, 1991), especially those with chronic, terminal illnesses (Simoni *et al.*, 2002; Woods *et al.*, 1999). For HIV-seropositive African American women, it has been suggested that religion may serve as a protective factor against declines in physical and psychological health, as well as against progression of HIV (Morse *et al.*, 2000). In spite of the empirical evidence suggesting that religion is associated with improved psychological health in African Americans (Levin *et al.*, 1995; Woods *et al.*, 1999), little empirical research has been conducted on the mechanisms (e.g., social support and coping) that account for these associations (cf. Ellison *et al.*, 2001). However, research has indicated that, among HIV-seropositive individuals from other ethnic groups, religious involvement tends to be associated with lowered levels of distress (e.g., Simoni and Ortiz, 2003). Moreover, Jenkins (1995) found that, among HIV-seropositive military personnel, religious involvement was most often utilized as a response to stress among African Americans and among women. Religious involvement appears to have physical-health benefits for HIV-seropositive individuals as well. Ironson *et al.* 2002 found that religious involvement was associated not only with less psychological distress, but also with long-term survival, among HIV-seropositive individuals.

Specifying the mechanisms by which religious involvement is related to reduced distress in HIV-seropositive African American women may help facilitate the design of intervention programs to modulate psychological distress, and to help maintain good health, in African Americans (cf. Szapocznik *et al.*, in press). Preventing psychological distress is particularly important for those with HIV, given that psychological distress is associated with HIV progression (Cruess *et al.*, 2000a,b). Accordingly, the primary goal of this article is to examine the mechanisms by which religious involvement is related to psychological distress in a sample of HIV-seropositive African American mothers.

Religion and the Stress-Process Model

The relationship between stress and psychological distress has been the subject of extensive theoretical and empirical work. One of the approaches that have been advanced to examine the processes by which stress affects psychological distress has been the stress-process model (Folkman and Lazarus, 1988a,b; Lazarus and Folkman, 1984; Pearlin *et al.*, 1981; Pearlin and Schooler, 1978). The stress-process model holds that the relationship between stress and distress operates through coping resources and coping responses (Schmitz and Crystal, 2000). Coping resources include relational factors such as social support (Cohen and Wills, 1985). Coping responses refer to the ways in which individuals manage stress, including active coping (i.e., facing the problem directly), avoidant coping (i.e., attempting to evade the problem), and support coping (i.e., seeking help from others in addressing the problem). Active coping, in particular, has been found to be associated with well being (Simoni *et al.*, 2000), and avoidant coping is often associated with psychological distress (Feaster *et al.*, 2000; Feaster and Szapocznik, 2002). When confronted with a stressor or constellation of stressors, the individual is hypothesized to consider her/his coping resources and, given these resources, to make a decision as to which coping responses to employ. In a relatively basic formulation of the stress process, the constellation of stressors, coping resources, and coping responses will determine the extent to which the process leads to increased or decreased psychological distress.

The relationships between religious involvement and elements of the stress-process model have been explored in various studies. Briefly, religious involvement has been positively associated

with perceived social support (Simoni *et al.*, 2002), negatively associated with psychological distress (Simoni and Ortiz, 2003), and positively associated with active coping (Wright *et al.*, 1985). However, these relationships have been examined in piecemeal fashion, with each study examining one or two stress-process correlates of religious involvement. One study examining elements of the stress process variables as mediators of the effects of religious coping (not religious involvement) on depressive symptoms in HIV+ African American women found that active coping and self-efficacy mediated the association (Woods *et al.*, 1999).

The objective of the present study was to empirically test the role of religious involvement in the psychosocial aspects of the stress-process model in the context of a more comprehensive framework including stress, social support, general coping strategies, and psychological distress. Evidence suggests that relationships exist among religion, the physical manifestations of the stress process (e.g., cortisol), and physical health outcomes (Ironson *et al.*, 2002). However, given that our objective was to examine psychosocial components of the stress-process model, the study of biological markers and physical health outcomes is beyond the scope of this study.

The role of religious involvement in the stress-process model may be particularly relevant to HIV-seropositive, inner-city African American mothers. First, Feaster and Szapocznik (2002) demonstrated the relevance of the stress-process model for this group. Second, religious involvement is particularly relevant in African American culture (Lincoln and Mamiya, 1990), and to HIV-seropositive African American women in particular (Biggar *et al.*, 1999). Third, inner-city, HIV-seropositive African American women face multiple sources of stress such as long-term illness, poverty, and minority status. Fourth, a considerable percentage of African American women who are raising or have raised children in the inner city do not have male partners (Fields, 2003). For these reasons, a sample of HIV-seropositive African American mothers may be especially appropriate in testing the role of religious involvement within the stress-process model. In the sections that follow, we review findings that support the role of religious involvement within the stress-process framework.

Religion and Stressors—There is evidence that the stress brought on by chronic illness leads to increased religious involvement. As Jenkins (1995, page 131) has stated, “HIV’s uncertain course and terminal outcome make it a situation where people may see themselves as having little personal control, a circumstance where people often turn to religion for answers (Spilka and Schmidt, 1983).” Moreover, Simoni and Ortiz (2003) note that religious involvement, and the faith that often accompanies it, afford the individual a sense of self-esteem and mastery in the face of a life-threatening illness. Religious involvement, then, may often be invoked in situations where stress either accompanies or exacerbates a life-threatening health condition such as HIV.

Religion and Social Support—Several studies have postulated social support as the mechanism by which the apparent benefits of religious involvement on mental health outcomes are produced (e.g., Ellison, 1994, 1995). African Americans often view their religious congregations and church-related activities as a regular place to meet and share their beliefs, values, ideas, and morals (cf. Ellison *et al.*, 2001). In addition, church members may provide emotional support, pastoral counseling, and economic aid to members of their congregation (Taylor and Chatters, 1988). African American church members may be especially attentive to those in need of the extra support and assistance, perhaps increasingly so for HIV-seropositive women (cf. Morse *et al.*, 2000). It is perhaps for these reasons that African Americans who are more religiously involved tend to have a larger social support network (Ellison and George, 1994). Moreover, in the stress-process literature, greater social support has been linked with lower levels of psychological distress (Koenig *et al.*, 1997; Nooney and

Woodrum, 2002). Therefore, two conclusions can be drawn from the literature on religious involvement and social support. First, religious involvement is likely to be related to greater degrees of social support, and second, the relationship between religious involvement and psychological distress may operate through social support.

Religion and Coping—Religion has been studied within the context of the coping process (see Moneyham *et al.*, 1998; Nooney and Woodrum, 2002; Pargament *et al.*, 1990, 1998; Siegel and Schrimshaw, 2002). Much of the research on the role of religion in the coping process has focused on religiously based coping strategies (Koenig *et al.*, 1992; Nooney and Woodrum, 2002; Pargament, 1997; Pargament *et al.*, 1999, 2001). However, given our interest in ascertaining the role of religious involvement in a general stress-process model among HIV-seropositive African American mothers, we focused specifically on the relationship between religious involvement and general coping strategies (e.g., active, support seeking, and avoidant).

Few studies have examined the relationship between religious involvement and general coping strategies. The research that has been conducted indicates that religion contributes to the coping process by increasing the use of active coping (e.g., positive reframing), and by decreasing the use of passive or avoidant coping strategies, in response to negative life events (Spilka *et al.*, 1985; Wright *et al.*, 1985). Given that these general coping strategies are associated with psychological distress, it may be reasonable to expect that religious involvement would be related to psychological distress indirectly through (i.e., mediated by) coping responses.

Religion and Psychological Distress—The relationship of religion to psychological distress and well-being has been widely examined. However, many of these studies have used religious coping rather than religious involvement per se (see Pargament, 1997, for a review). However, to maintain conceptual independence between religious involvement and coping responses in our examination of the stress-process approach, we focus here only on those studies that have examined religious involvement in relation to psychological distress. Religious involvement has been identified as a negative correlate of psychological distress in various HIV-seropositive populations, including African American women (Sowell *et al.*, 2000), Puerto Rican women (Simoni and Ortiz, 2003), and African American men (Koenig *et al.*, 1992). Simoni and Ortiz (2003) found that the relationship between religious involvement and psychological distress among HIV-seropositive Puerto Rican women was mediated by self-esteem and perceived control. Within the stress-process framework, other mediating mechanisms might be proposed. Specifically, as noted above, the stress-process approach might hold that both social support and general coping strategies would mediate the relationship between religious involvement and psychological distress.

The Present Study

The present study examined the role of religious involvement within a stress-process framework. In addition to the paths proposed within the stress-process model, we hypothesize that (a) religious involvement will mediate the relationship between stress and psychological distress; (b) religious involvement will be negatively related to psychological distress; and (c) both social support and general coping strategies will mediate the relationship between religious involvement and psychological distress. Specifically (see Fig. 1), we hypothesize that religious involvement will relate positively to stress, social support, and to active and support seeking coping responses, and will relate negatively to avoidant coping responses.

METHODS

Participants

Participants in this study were 252 urban, low-income HIV-seropositive African American mothers. Data for the present analyses were taken from the baseline assessment of a larger study testing the efficacy of Structural Ecosystems Therapy (Szapocznik *et al.*, in press) with HIV-seropositive African American mothers. Participants in the study were recruited from a large urban medical center and affiliated clinics, as well as from agencies that provide social services to HIV-seropositive individuals. An interviewer explained the study to each woman and obtained informed consent from her. The active phase of recruitment for this study extended from the fall of 1996 to the spring of 1999. To be eligible for participation in the current study, women had to meet the following screening criteria: (a) African American; (b) HIV-seropositive, as determined by self-report; and (c) at least 18 years of age. Additionally, (a) all women had to have at least one child, although there were no limits on the ages of children and children did not have to live with the mother; and (b) women had to report at least two interpersonal problems, including one family related problem, on our Recruitment/Screening form. Interpersonal problems listed on the screening checklist included having too much stress, feeling sad or depressed, feeling anxious or nervous, and feeling lonely. Family problems listed on the screening checklist included fear of disclosing HIV status to family members, conflicts with family, communication problems with family, drug/alcohol problems in the family, child custody problems, child-related problems (e.g., school, behavior, health), and problems with one's romantic partner. Nonfamily problems listed on the checklist included anxiety, depression, loneliness, transportation problems, and fear that others (outside the family) will discover one's HIV status.

The ages of the participants in the sample ranged from 18 to 62 (M age = 35.34, SD = 8.50). The median annual income level was \$6,864. With regard to the mothers' marital status, 109 (43%) were never married and not cohabitating, 25 (10%) were married and living with their husbands, 22 (9%) were married but living apart from their husbands, 48 (19%) were unmarried but cohabitating, 7 (3%) were widowed, 40 (16%) were divorced, and 1 participant's marital status was unknown. Mothers were mostly Baptist (65%), Pentecostal (8%), or nondenominational Christian (6%). The median number of children per woman was three. Over half of the sample (51%) reported having less than a high school education. Eighty-three percent of the participants were unemployed and reported receiving some form of public assistance. The mean CD4 cell count for the sample was 453.03 (SD = 300.49). Almost three quarters (72%) of the participants had been living with HIV for at least 3 years (M = 5.46 years, SD = 3.80). Sixty-four percent of the sample met a lifetime DSM-III-R diagnosis of drug abuse or dependence (measured in this study by the Structured Clinical Interview for DSM-III-R (SCID), Non-Patient Version for HIV-seropositive person) at the time of the assessment (Spitzer *et al.*, 1989).

Recruitment

The mothers in this study were recruited from community-based agencies that provide HIV care and other social services to HIV-seropositive individuals in South Florida. Recruitment occurred through flyers and in person at these sites. After each mother was recruited and her eligibility was determined, the recruiter arranged for an interviewer to explain the study, obtain consent, and conduct the assessment.

Assessments

All assessments were conducted at the woman's home or other location convenient to the woman (e.g., the home of a family member). For purposes of confidentiality and privacy, all efforts were made to conduct the assessments in a quiet room in the home. Efforts were made

to set up appointments when other family members were unlikely to be home. For example, a majority of the assessments were set up during hours when family members would be at school or at work. In cases where other family members were present in the home, the assessor would politely request that these family members leave the room so that the interview could be private and confidential. On rare occasions, family members interrupted an assessment (e.g., by walking into the room where the assessment was being conducted). In these cases, the interviewer stopped the assessment until these family members had left the room. Interviewers administered the assessments and recorded participants' responses on laptop computers. Although attempts were made to maximize privacy, we cannot rule out that lack of privacy could have affected some of the responses, and unfortunately we did not collect the data needed to test this hypothesis. Participants were paid \$50 for completing the assessment. The measures described in this article were part of a larger assessment battery administered to participants. The average completion time for the larger battery ranged from 120 to 150 min.

Assessors were African American, Caribbean American, or Hispanic females between the ages of 25 and 30. Assessors either had a master's degree in counseling psychology or social work or were enrolled in a psychology doctoral program. All assessors were trained for a period of three months by the Project Director (L.S.) or by the most senior assessor (I.A.P.).

Measures

Religious Involvement—Although the larger study was not specifically designed to study religious involvement, the importance of religious involvement in the HIV-seropositive African American mothers in our study became evident as the study progressed. Thus, we identified existing items to measure religious involvement. The religious involvement construct was measured by participants' responses to four different items. Of the four items, one was adopted from Carver's Brief Cope (Carver, 1997), one from the Feetham Family Functioning Survey (Roberts and Feetham, 1982), and two from the Support and Service Utilization Schedule (Kaminsky *et al.*, 1989). Items asked the participants about 1) the frequency with which they attended organized religious services, 2) the amount of time they spent in religious and spiritual activities, 3) the amount of time they spent reading religious materials, and 4) the amount of time they spent praying or meditating. Table I lists the four items as well as their response scales.

Stress—Stress was measured using the Difficult Life Circumstances Questionnaire (Barnard, 1989). This measure was selected because it is composed of stressors relevant to poor, inner city women. For each of the 34 stressors listed, the participant was asked to indicate (a) whether the stressor was present in her life and (b) the subjective impact of the stressor (on a scale of 1–7). Sample items include: (a) Do you need more money for necessities? (b) Is one of your children being abused sexually, emotionally, or physically by anyone? (c) Do you have a problem with alcohol or drugs (prescription or street)? To avoid confounding stress with psychological distress, the total count of stressors, rather than their subjective impact, was used.

Available Social Support—Available social support was measured using the Social Support Questionnaire – Short Form (SSQ-6) (Sarason *et al.*, 1987). The SSQ-6 asks the respondent to list the number of people they can count on for six different aspects of support (e.g., “Whom can you really count on to help you feel more relaxed when you are under pressure or stress?”). The SSQ-6 was used in the present study to enumerate the size of the woman's available support network.

Coping Responses—Coping responses were measured using the Brief Cope (Carver, 1997), plus 11 additional items for use with this population (see Feaster and Szapocznik, 2002). Convergent validity was established in a validation sample ($n = 44$) in which the

correlations between the corresponding scales from the original Cope and the version used here ranged between 0.51 and 0.83. Although the Brief Cope was not specifically designed to yield active, support, and avoidant coping scales, the Cope has been used extensively to generate these scales in research on HIV-seropositive persons (Blaney *et al.*, 1997; Feaster *et al.*, 2000; Feaster and Szapocznik, 2002; Goodkin *et al.*, 1992). A confirmatory factor analysis, reported in the “Confirmatory Factor Analyses” section below, was conducted to determine if the Brief Cope also yielded these three factors. Active coping includes items measuring positive reframing, planning, and taking action. Support coping includes items measuring use of emotional and instrumental support, talking with others, and use of therapy. Avoidant coping included items measuring use of suppression of thoughts, denial, self-blame, ventilation, stoicism, behavioral disengagement, self-distraction, and yearning for the past. The support coping and social support measures used in this study were distinct from one another, in that support coping refers to the use of or reliance on sources of support whereas social support refers to the size of the available support network. Items for this measure are rated on a 4-point Likert-type scale ranging from 1 = *not at all* to 4 = *a lot*.

Psychological Distress—Psychological distress was measured using the Brief Symptom Inventory (BSI; Derogatis, 1993). This 53-item instrument asks respondents to rate, on a 5-point Likert scale ranging from 0 = *Not at all* to 5 = *Extremely*, the extent to which specific items (e.g., feeling lonely, feeling very self-conscious with others, and feeling easily annoyed or irritated) have distressed them in the past week. The BSI assess nine dimensions: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism (Derogatis, 1993).

Means, standard deviations, ranges, and reliabilities for each of the subscales are reported in Table II. As explained below, the reliabilities are calculated using a method similar to that used to calculate Cronbach’s alpha.

RESULTS

Analytic Plan

A number of preliminary steps were taken to ascertain the feasibility of estimating a structural equation model to test the study hypotheses. First, confirmatory factor analyses (i.e., measurement models) were performed on individual measures at the scale level. Because of sample size (and power) considerations, in each confirmatory factor analysis we reduced the number of indicators by combining the items randomly into parcels composed of two or three items apiece (cf. Bandalos and Finney, 2001; Feldt, 2002). These parcels were then used as indicators in the confirmatory factor analysis. The appropriateness of each latent construct was evaluated primarily in terms of the comparative fit index (CFI), which compares the hypothesized model to a model perfectly fitting the data, and the root mean square error of approximation (RMSEA), which estimates the degree to which residual (error) variance contributes to model misspecification. The chi-square statistic is reported but is not used in interpretation because it is vulnerable to inflation with large sample sizes (Kline, 1998). Normally, CFI values of .90 (Bentler and Stein, 1992) or greater, and RM-SEA values of .08 or less (Bentler and Bonett, 1980; Byrne, 2001), are indicative of good model fit, with RMSEA values of .05 or less considered to be near-perfect fits (MacCallum *et al.*, 1996). Reliability for each latent construct is estimated using the formula for composite reliability recommended by Fornell and Lacker (1981). This formula posits reliability as the ratio of variance explained by the construct to the total variance among the indicators. The formula is an approximation of the coefficient (i.e., Cronbach’s) alpha that can be computed using the loadings from a confirmatory factor analysis. These reliabilities are presented in the text (see Confirmatory Factor Analyses below) as well as in Table II.

Second, the full measurement model was estimated with all measures freely correlated to assess whether the latent variables included in the model were measuring distinct constructs (i.e., whether the correlations among latent variables were low enough to reflect discriminant validity; cf. Kline, 1998). Third, provided that adequate discriminant validity was present, structural equation models (SEM) including the measurement models (between the indicator variables and latent constructs) and the hypothesized paths were estimated. To test the mediational roles of the variables in the hypothesized model, the results of three separate path analyses are presented. The first model tested for the association between stress and psychological distress. The second model tested added religious involvement to the model. The addition of religious involvement allowed us to test not only the direct paths between stressors and both psychological distress and religious involvement, but also the mediating role of religious involvement in the relationship between stressors and psychological distress. The final model tested represents the full-hypothesized model, including coping styles and social support (Fig. 1). This model allows for the examination of all of the direct paths as well as the indirect paths between religious involvement and psychological distress through social support and the coping responses. Thus, this final model tests our hypothesis that social support and coping responses may mediate the effect of religious involvement on psychological distress. Fit statistics for the models were evaluated against the same standards ($CFI \geq .90$, $RMSEA \leq .08$) used to evaluate the measurement models. The power to uncover significant nonfit of an SEM model can be calculated based on the distribution of the RMSEA (MacCallum *et al.*, 1996). For the hypothesized model and a sample size of 252, there is over 95% power to uncover a deviation from near perfect model fit ($RMSEA = .05$) of .030 (i.e., an alternative hypothesis of $RMSEA = .080$).

Confirmatory Factor Analyses

Religious Involvement—Prior to examining the factor structure of the four items, a Kolmogorov-Smirnov normality test was performed on each item. These analyses revealed that several of the items were highly skewed in a negative direction. As a result, a natural log transformation was performed on those items. Because of 0 values, a value of 1 was added to each of the items prior to taking the natural log. Confirmatory factor analysis was then used to test the extent to which the four religious involvement items could be collapsed into a single factor (this was done for all variables measured). The model provided an excellent fit to the data: $\chi^2(2) = 4.85$, $p = .09$; $CFI > .99$; $RMSEA < .08$. Factor loadings for the observed variables were all highly significant: praying or meditating, $\beta = .50$; attendance at organized religious services, $\beta = .73$; reading religious materials, $\beta = .62$; time spent in religious or spiritual activities, $\beta = .73$. Reliability for the religion construct was .74.

Social Support—The six SSQ-6 items were posited to load on a single latent variable. We reduced the number of indicators by combining the six items randomly into three parcels, each composed of two items. Reliability for the social support construct (using the three parcels) was .84. The CFI for this construct was 1.00.

Coping Responses—A confirmatory factor analysis of the Brief Cope items indicated that the coping responses measured by the Brief Cope loaded on latent variables corresponding to active, support, and avoidant coping. To reduce the number of indicators, items for each of the three coping strategies (i.e., active, support-seeking, and avoidant) were randomly combined into parcels (each parcel composed of two items). Reliability for the active, support seeking, and avoidant coping were .69, .75, and .82, respectively. The CFI index for the Cope measurement model is .96 ($RMSEA < .06$).

Psychological Distress—To reduce the number of indicators, and because the initial standardization sample showed that all dimensions loaded on an overall construct (Derogatis,

1993), the nine scales from the Brief Symptom Inventory were combined randomly into three parcels, each composed of three scales. The reliability coefficient for the psychological distress construct is .93 (CFI = 1.00).

Findings

Estimation of the model including only stress and psychological distress produced a good fit to the data: $\chi^2(2) = 3.42, p < .20$; CFI $> .99$; RMSEA $< .06$. Path coefficients indicated that stress and distress were significantly and positively related, $\beta = .21, p < .01$. When paths between (a) stress and religious involvement and (b) religious involvement and psychological distress were added to the stress-distress model, model fit remained good: $\chi^2(18) = 30.27, p < .05$; CFI $> .99$; RMSEA $< .06$. Consistent with our hypothesis, the results indicated that stress and religious involvement were positively related, $\beta = .17, p < .05$, and that religion was directly and negatively related to psychological distress, $\beta = -.15, p < .05$. However, the direct path between stress and psychological distress remained statistically significant, $\beta = .23, p < .001$, indicating that religious involvement did not mediate the relationship between stress and psychological distress. Moreover, the indirect relationship between stress and psychological distress through religion was small, $\beta = .17 \times -.15 = -.03$, relative to the size of the direct effect.

The full-hypothesized model tests the relationships between religion and psychological distress and possible mediators of the relationship between religion and psychological distress. The three dimensions of coping—active, support, and avoidant—were allowed to correlate freely (i.e., residuals in these equations are correlated). The results indicate that the model fit the data well: $\chi^2(189) = 323.05, p < .001$; CFI $> .93$; RMSEA $< .06$. Figure 2 shows the standardized regression weights for each of the paths³. As with our previous models, stress was positively related to religious involvement, $\beta = .19, p < .05$, indicating that mothers who experienced more stressors were more likely to be religiously involved. In this model, religious involvement was not related to psychological distress. However, religious involvement was positively related to social support, $\beta = .15, p < .05$, active coping, $\beta = .21, p < .05$, and support coping, $\beta = .21, p < .01$, and negatively related to avoidant coping, $\beta = -.16, p < .05$. Thus, mothers who were more religiously involved were more likely to report more perceived social support, as well as more active and support coping responses, and less avoidant coping responses. Active ($\beta = -.29, p < .01$) and avoidant ($\beta = .73, p < .001$) coping were directly related to psychological distress, while social support ($\beta = -.04, ns$) and support coping were not ($\beta = -.001, ns$). Moreover, the path between religious involvement and psychological distress ($\beta = .03$) was reduced to non-significance when social support and coping were added to the model. Thus, according to Baron and Kenny's (1986) definition of mediation, we concluded that active and avoidant coping mediated the relationship between religious involvement and psychological distress. Moreover, (a) available social support was negatively related to avoidant coping, and (b) avoidant coping responses were positively related to psychological distress. Therefore, it can be inferred that social support and coping style both partially mediate the relationship between religious involvement and psychological distress.

Even though active coping, avoidant coping, and available social support all either mediated or partially mediated the relationship between religious involvement and psychological distress, avoidant coping appeared to be the strongest mediator. The standardized (total) indirect relationship between religion and psychological distress through avoidant coping was

³The same model in Fig. 2 was estimated using age as a covariate. Age was added to the model by adding a path between age and our primary predictor, stress as well as between age and our primary outcome, psychological distress. Neither of these paths were significant when the overall model was tested. Income, education, and length since HIV diagnosis were also examined as possible covariates, but were not included in the model because these variables were not significantly correlated with the composites indicated by the constructs in our model.

$\beta = -.14$. This relationship is represented as the sum of two indirect effects: (a) the indirect relationship between religious involvement and psychological distress through avoidant coping, and (b) the indirect relationship between religious involvement and psychological distress through available social support and avoidant coping. In comparison, the standardized (total) indirect relationship between religious involvement and psychological distress through active coping was $\beta = -.07$.

DISCUSSION

In the present study, we examined the relationship between religious involvement and psychological distress in a sample of poor, inner-city, HIV-seropositive African American mothers. Specifically, we sought to extend previous research by exploring the role of religious involvement within a stress-process framework. Religious involvement was posited as mediating the relationship between stress and psychological distress, and social support and coping were posited as mediating the relationship between religious involvement and psychological distress.

Our findings were largely consistent with the stress-process model. Although religious involvement did not mediate the relationship between stress and psychological distress, we found that both social support and coping mediated the relationship between religious involvement and psychological distress. Specifically, in our sample of HIV-seropositive African American mothers, (a) religious involvement was directly related to higher levels of active coping and to lower levels of avoidant coping; (b) religious involvement was related to higher levels of social support, which in turn was related to higher levels of active coping and to lower levels of avoidant coping; and (c) active and avoidant coping styles were negatively and positively related to psychological distress, respectively.

The results of the present study support much of the prior literature on the relationships between religious involvement and psychosocial functioning (Ellison, 1997; Levin and Taylor, 1998). The finding that religious involvement was positively related to active coping, and negatively related to avoidant coping, is consistent with other research (cf. Spilka *et al.*, 1985; Wright *et al.*, 1985). The finding that religious involvement was positively related to social support was consistent with research reported by Ellison and George (1994). Despite the consistency of these findings with prior research, it should be noted that the measure of social support used in this study was a qualitative measure of perceived social support and not a measure of actual social support received or social support satisfaction. This is important because (a) previous research has documented important differences between perceived and received social support and (b) measures of perceived and of received social support are often only weakly correlated (Furukawa *et al.*, 1998; Goodwin and Plaza, 2000). Nevertheless, within the context of the current model, perceived support is more consistent with the view of social support as a coping resource, whereas in the literature received support would seem to be a consequence of both perceived support and the decision to utilize social support (i.e., the support coping response) (cf. Furukawa *et al.*, 1998).

The integrative model examined in the present study affords the benefit of including all of these previously reported relationships in a single model and testing for potential mediating effects. The present model also contextualizes religious involvement in relation to multiple components of the stress-process model. However, it must be noted that not all aspects of the stress-process model were included in the present analyses. Processes such as mastery, self-esteem, and self-efficacy, which are frequently included in stress-process models (Pearlin *et al.*, 1981), have also been shown to mediate the relationship between stress and psychological distress (Simoni and Ortiz, 2003) as well as relationships between religious coping and psychological distress in HIV-seropositive individuals (Woods *et al.*, 1999).

One of the more noteworthy findings of the present study is the prominent role of active and avoidant coping. Coping responses have been previously established as strong correlates and predictors of psychological distress (Moneyham *et al.*, 1998). Avoidant coping, in particular, was the strongest correlate of psychological distress identified in the present study, accounting for 53% of the variability in psychological distress. In the present analyses, religious involvement and social support were significantly and negatively related to avoidant coping. This set of findings suggests that religious involvement and social support may serve as mechanisms by which avoidant coping might be reduced, and therefore by which psychological distress might be prevented or ameliorated.

The finding that religious involvement was related to psychological distress through general (i.e., nonreligious) coping strategies is inconsistent with the assumption that the effects of religious involvement on psychological distress operate largely through religiously related coping mechanisms (cf. Pargament, 1997). However, it must be acknowledged that the present study did not include measures of religious coping or religious support. It is possible that the inclusion of such measures would have attenuated the relationships between religious involvement and indices of general social support and coping strategies. This limitation notwithstanding, however, the fact that religious involvement was strongly related to general nonreligious coping strategies is noteworthy.

Limitations

First, one of the most important limitations of the present study is the use of a cross-sectional design. Although the structural equation model fit the data well, it is possible that some or all of the paths may have operated in a direction opposite of that proposed by the stress-process approach. For example, it may be that using more active and less avoidant coping leads to more active involvement in religious activities. Moreover, the cross-sectional design did not allow us to examine effects of religious involvement and stress-process variables on changes in psychological distress over time.

Second, it must be noted that structural equation modeling is an extremely constructivist technique designed to evaluate the fit of a prespecified model to the data. Unlike more traditional analytic methods, structural equation modeling is not designed to identify the best-fitting model from among a set of variables. Therefore, despite the good model fit observed in the present study, other models may have provided a comparable or superior fit to the data.

Third, despite the fact that our measure of religious involvement provided adequate internal consistency, it is unidimensional and was not designed to measure multiple aspects of religiosity or spirituality (cf. Hill and Pargament, 2003). For example, other measures of religion such as the RCOPE (Pargament *et al.*, 2000) and the Brief RCOPE (Pargament *et al.*, 1998), which assess religious coping, may have provided additional information on types of religious coping methods used in stressful life events. It is possible that aspects of religious involvement, such as prayer, church attendance, and religious intensity, would have been related to psychological distress through religious coping or other mediating mechanisms.

Fourth, our assessments were home-based, and therefore we cannot discount the possibility that the mothers' answers may have been influenced because of their perceived lack of privacy. However, as described above in the assessment procedures, efforts were made to minimize this bias by conducting assessments in quiet rooms and scheduling assessments during times when relatives would likely be out of the home.

Fifth, our sample was drawn from the baseline assessment for a randomized clinical trial. This trial did not use a population-based or epidemiological sample. Therefore, care should be taken in generalizing the results of this study to the broader population of HIV-seropositive African

American mothers. For example, the distribution of demographic variables (e.g., education and income) may be different in this sample relative to the larger population of HIV-seropositive African American mothers.

Conclusions

Despite these limitations, the present study has suggested that it may be possible to incorporate religious involvement into a stress-process framework. Given the importance of religious involvement in African American culture, the inclusion of religious involvement may help to increase the relevance of the stress-process model for HIV-seropositive African American mothers. The mediational relationships obtained in the present study suggest pathways by which religious involvement might influence psychological distress, and they highlight the pivotal role of coping strategies in psychological distress. Understanding and further exploring these relationships is of public health importance, particularly in the light of the recent emphasis on government-supported faith-based service provision. The current investigation suggests that religious involvement has multiple, though individually somewhat modest, relationships with psychological distress. This highlights the usefulness of testing the effect of religious involvement in an expanded stress-process model.

Practical and Clinical Implications

The present results may have useful implications for intervening with HIV-seropositive African Americans. It has been shown that psychological distress has the potential to accelerate the progression of HIV (Cruess *et al.*, 2000b) and that behavioral interventions have the potential to slow the progression of HIV by reducing distress (Antoni *et al.*, 2000; Cruess *et al.*, 2000a). In outcome analyses for the larger clinical trial from which data for the present study were taken, Szapocznik *et al.*, (in press) found that, on average, HIV-seropositive African American mothers in the sample scored at or above the clinical threshold for distress as measured by the Brief Symptom Inventory (Derogatis, 1993). Given these high levels of distress, and given the high HIV incidence rates among African American women (CDC-P, 2002a,b,c), developing interventions to reduce psychological distress in HIV-seropositive African American women is an important public health priority.

According to the present results, interventions to attenuate psychological distress in HIV-seropositive African American mothers might focus on promoting active coping and decreasing avoidant coping. The present mediational findings suggest that this may be accomplished, in part, by promoting involvement in religious institutions and practices (which in turn may increase social support as well). However, given that religion may have both positive and negative consequences (Nelson *et al.*, 2002), and given the cross-sectional design used in the present study, further research is needed to determine the extent to which promoting religiosity may increase or alleviate distress.

Acknowledgements

We would like to thank the recruitment, assessment, and data management and analysis staff who contributed to the present study. We would also like to express our appreciation to the women who participated in this project. This work was supported by a grant from the National Institute of Mental Health (grant R37 MH55796) to José Szapocznik, Principal Investigator.

References

- Antoni MH, Cruess DG, Cruess S, Lutgendorf S, Kumar M, Ironson G, Kilmas N, Fletcher MA, Schneiderman N. Cognitive-behavioral stress management intervention effects on anxiety, 24-hr urinary norepinephrine output, and t-cytotoxic/suppressor cells over time among symptomatic HIV-infected gay men. *Journal of Consulting and Clinical Psychology* 2000;68:31–45. [PubMed: 10710838]

- Bandalos, D. L., and Finney, S. J. (2001). Item parceling issues in structural equation modeling. In G. A. Marcoulides and R. E. Schumacker (Eds.), *New developments and techniques in structural equation modeling* (pp. 269–296). Mahwah, NJ: Erlbaum.
- Barnard, K. E. (1989). *Difficult life circumstances (DLC)* Seattle, WA: NCAST.
- Baron RM, Kenny DA. The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology* 1986;51:1173–1182. [PubMed: 3806354]
- Bentler PM, Bonett DG. Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin* 1980;88:588–606.
- Bentler PM, Stein JA. Structural equation modeling in medical research. *Statistical Methods in Medical Research* 1992;1:159–181. [PubMed: 1341656]
- Biggar H, Forehand D, Devine D, Brody G, Armistead L, Morse E, Simon P. Women who are HIV infected: The role of religious activity in psychosocial adjustment. *AIDS Care* 1999;11:195–199. [PubMed: 10474622]
- Blaney NT, Goodkin K, Feaster D, Morgan R, Millon C, Szapocznik J, Eisdorfer C. A psychosocial model of distress over time in early HIV-1 infection: The role of life stressors, social support and coping. *Psychology and Health* 1997;12:633–653.
- Byrne, B. M. (2001). *Structural equation modeling with AMOS: Basic concepts, applications, and programming* Mahwah, NJ: Erlbaum.
- Carver CS. You want to measure coping but your protocol's too long: Consider the Brief COPE. *International Journal of Behavioral Medicine* 1997;4:92–100. [PubMed: 16250744]
- Centers for Disease Control and Prevention. (2002a). HIV infection cases by sex, age at diagnosis, and race/ethnicity, reported through December 2001, from areas with confidential HIV infection reporting. Available at <http://www.cdc.gov/hiv/stats/hasr1302/table8.htm>
- Centers for Disease Control and Prevention. (2002b). Age-specific prevalence of diagnosed diabetes, by race/ethnicity and sex, United States, 1999. Available at <http://www.cdc.gov/diabetes/statistics/prev/national/fig51999.htm>
- Centers for Disease Control and Prevention. (2002c). Estimated female adult/adolescent AIDS incident, by exposure category and race/ethnicity, diagnosed in 2000, and cumulative totals through 2000. Available at <http://www.cdc.gov/hiv/stats/hasr1301/table20.htm>
- Centers for Disease Control and Prevention. (2003). HIV/AIDS among African-Americans. Available at <http://www.cdc.gov/hiv/pubs/Facts/afam.htm>
- Cohen S, Wills TA. Stress, social support, and the buffering hypothesis. *Psychological Bulletin* 1985;98:310–357. [PubMed: 3901065]
- Cruess DG, Antoni MH, Schneiderman N, Ironson G, McCabe P, Fernandez JB, Cruess SE, Klimas N, Kumar M. Cognitive-behavioral stress management increases free testosterone and decreases psychological distress in HIV-seropositive men. *Health Psychology* 2000a;19:12–20. [PubMed: 10711583]
- Cruess S, Antoni M, Kilbourn K, Ironson G, Klimas N, Fletcher MA, Baum A, Schneiderman N. Optimism, distress, and immunologic status in HIV infected gay men following Hurricane Andrew. *International Journal of Behavioral Medicine* 2000b;7:160–182.
- Derogatis, L. R. (1993). *Brief Symptom Inventory: Administration, scoring, and procedures manual*. Minneapolis, MN: National Computer Systems.
- Ellison, C. G. (1994). Religion, the life stress paradigm, and the study of depression. In J. S. Levin (Ed.), *Religion in aging and health: Theoretical foundations and methodological frontiers* (pp. 78–121). Thousand Oaks, CA: Sage.
- Ellison CG. Race, religious involvement, and depressive symptomatology in a southeastern US community. *Social Science and Medicine* 1995;40:1561–1572. [PubMed: 7667660]
- Ellison, C. G. (1997). Religious involvement and the subjective quality of family life among African Americans. In R. J. Taylor and J. J. Sidney (Eds.), *Family life in Black America* (pp. 117–131). Thousand Oaks, CA: Sage.
- Ellison CG, Boardman JD, Williams DR, Jackson JS. Religious involvement, stress, and mental health: Findings from the 1995 Detroit area study. *Social Forces* 2001;80:215–249.

- Ellison CG, George LK. Religious involvement, social ties, and social support in southeastern community. *Journal for the Scientific Study of Religion* 1994;33:46–61.
- Feaster DJ, Szapocznik J. Interdependence of stress processes among African American family members: Influence of HIV serostatus and a new infant. *Psychology and Health* 2002;17:339–363. [PubMed: 16609749]
- Feaster, D. J., Szapocznik, J., Smith, L., Samuels, D., Dadson, M. J., and Antoni, M. (2000). *The influence of stress, family problems, support, and coping on psychological distress among HIV+ and HIV–urban low-income African American mothers* Technical report, University of Miami School of Medicine.
- Feldt LS. Estimating the internal consistency reliability of tests composed of testlets varying in length. *Applied Measurement in Education* 2002;15:33–48.
- Fields, J. (2003). *Children's living arrangements and characteristics: March 2002* (Current Population Report P20-547). Washington, DC: U.S. Census Bureau.
- Folkman S, Lazarus RS. The relationship between coping and emotion: Implications for theory and research. *Social Science and Medicine* 1988a;26:309–317. [PubMed: 3279520]
- Folkman S, Lazarus RS. Coping as a mediator of emotion. *Journal of Personality and Social Psychology* 1988b;54:466–475. [PubMed: 3361419]
- Fornell CR, Lacker DF. Two structural equation models with unobservable variables and measurement error. *Journal of Marketing Research* 1981;18:39–50.
- Furukawa T, Sarason I, Sarason BR. Social Support and adjustment to a novel social environment. *The International Social Psychiatry* 1998;44:56–70.
- Goodkin K, Blaney NT, Feaster DJ, Fletcher MA, Baum M, Mantero-Atienza E, Klimas N, Millon C, Szapocznik J, Eisdorfer C. Active coping style is associated with natural killer cell cytotoxicity in asymptomatic HIV-1 seropositive homosexual men. *Journal of Psychosomatic Research* 1992;36:635–650. [PubMed: 1403998]
- Goodwin R, Plaza SH. Perceived and received social support in two cultures: Collectivism and support among British and Spanish students. *Journal of Social and Personal Relationships* 2000;17:282–291.
- Hill PC, Pargament KL. Advances in the conceptualization and measurement of religion and spirituality. *American Psychologist* 2003;58:64–74. [PubMed: 12674819]
- Ironson G, Solomon GF, Balbin EG, O'Cleirigh C, George A, Kumar M, Larson D, Woods TE. The Ironson-Woods Spirituality/Religiousness Index is associated with long survival, health behaviors, less distress, and low cortisol in people with HIV/AIDS. *Annals of Behavioral Medicine* 2002;24:34–48. [PubMed: 12008793]
- Jenkins RA. Religion and HIV: Implications for research and intervention. *Journal of Social Issues* 1995;51:131–144.
- Kaminsky, S., Kurtines, W., Hervis, O. E, Millon, C., Blaney, N., and Szapocznik, J. (1989). A family systems perspective in counseling HIV infected persons and their families. In P. Van Steijn (Ed.), *AIDS: A combined environmental and systems approach* (pp. 119–135). Amsterdam, The Netherlands: Swets and Zeitlinger.
- Kline, R. B. (1998). *Principles and practice of structural equations modeling* New York: Guilford.
- Koenig HG, Cohen HJ, Blazer DG, Pieper C, Meador KG, Shelp F, Goli V, DiPasquale B. Religious coping and depression among elderly, hospitalized medically ill men. *American Journal of Psychiatry* 1992;149:1693–1700. [PubMed: 1443246]
- Koenig HG, Hays JC, George LK, Blazer DG, Larson DB, Landerman LR. Modeling the cross sectional relationship between religion, physical health, social support, and depressive symptoms. *American Journal of Geriatric Psychiatry* 1997;5:131–144. [PubMed: 9106377]
- Lazarus, R. S., and Folkman, S. (1984). *Stress, appraisal and coping* New York: Springer.
- Levin JS, Chatters LM, Taylor RJ. Religious effects on health status and life satisfaction among Black Americans. *Journal of Gerontology: Social Sciences* 1995;50:154–163.
- Levin JS, Taylor RJ. Panel analysis of religious involvement and well-being in African Americans: Contemporaneous vs. longitudinal effects. *Journal for the Scientific Study of Religion* 1998;37:695–709.
- Lincoln, C. E., and Mamiya, L. H. (1990). *The black church in the African American experience* Durham, NC: Duke University Press.

- MacCallum RC, Browne MW, Sugawara HM. Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods* 1996;1:130–149.
- Moneyham L, Hennessy M, Sowell R, Demi A, Seals B, Mizuno Y. The effectiveness of coping strategies used by HIV-seropositive women. *Research in Nursing and Health* 1998;21:351–362. [PubMed: 9679811]
- Morse EV, Morse PM, Klebba KE, Stock MR, Forehand R, Panayotova E. The use of religion among HIV-infected African American women. *Journal of Religion and Health* 2000;39:261–276.
- Nelson CJ, Rosenfeld B, Breitbart W, Galiotta M. Spirituality, religion, and depression in the terminally ill. *Psychosomatics* 2002;43:213–220. [PubMed: 12075036]
- Nooney J, Woodrum E. Religious coping and church-based social support as predictors of mental health outcomes: Testing a conceptual model. *Journal for the Scientific Study of Religion* 2002;41:359–368.
- Pargament, K. I. (1997). *The Psychology of religion and coping: Theory, research, and practice* New York: Guilford.
- Pargament KI, Ensing DS, Falgout K, Olsen H, Reilly B, Haitsma KV, Warren R. God help me: (1): Religious coping efforts as predictors of the outcomes to significant negative life events. *American Journal of Community Psychology* 1990;18:793–823.
- Pargament KI, Koenig HG, Perez LM. The many methods of religious coping: Development and initial validation of the RCOPE. *Journal of Clinical Psychology* 2000;56:519–543. [PubMed: 10775045]
- Pargament KI, Smith B, Koenig H, Perez L. Patterns of positive and negative religious coping with major life stressors. *Journal for the Scientific Study of Religion* 1998;37:710–724.
- Pargament KL, Tarakeshwar N, Ellison CG, Wulff KM. Religious coping among the religious: The relationship between religious coping and well-being in a national sample of Presbyterian clergy, elders, and members. *Journal for the Scientific Study of Religion* 2001;40:497–513.
- Pearlin LI, Menaghan EG, Lieberman MA, Mullan JT. The stress process. *Journal of Health and Social Behavior* 1981;22:337–356. [PubMed: 7320473]
- Pearlin LI, Schooler C. The structure of coping. *Journal of Health and Social Behavior* 1978;19:2–21. [PubMed: 649936]
- Roberts CS, Feetham SL. Assessing family functioning across three areas of relationship. *Nursing Research* 1982;31:231–235. [PubMed: 6920663]
- Sarason IG, Sarason BR, Shearin EN, Pierce GR. A brief measure of social support: Practical and theoretical implications. *Journal of Social and Personal Relationships* 1987;4:497–510.
- Schmitz MF, Crystal S. Social relations, coping, and psychological distress among persons with HIV/AIDS. *Journal of Applied Social Psychology* 2000;30:665–683.
- Siegel K, Schrimshaw EW. The perceived benefits of religious and spiritual coping among older adults living with HIV/AIDS. *Journal of the Scientific Study of Religion* 2002;41:91–102.
- Simoni JM, Demas P, Mason H, Drossman JA, Davis ML. HIV disclosure among women of African descent: Associations with coping, social support, and psychological adaptation. *AIDS and Behavior* 2000;4:147–158.
- Simoni JM, Martone MG, Kerwin JF. Spirituality and psychological adaptation among women with HIV/AIDS: Implications for counseling. *Journal of Counseling Psychology* 2002;49:139–147.
- Simoni JM, Ortiz MZ. Mediation models of spirituality and depressive symptomatology among HIV-positive Puerto Rican women. *Cultural Diversity and Ethnic Minority Psychology* 2003;9:3–15. [PubMed: 12647322]
- Sowell R, Moneyham L, Hennessy M, Guillory J, Demi AI, Seals B. Spiritual activities as a resistance resource for women with Human Immunodeficiency Virus. *Nursing Research* 2000;49:73–82. [PubMed: 10768583]
- Spilka B., Hood, R. W., and Gorsuch, R. L. (1985). *The psychology of religion: An empirical approach*. Englewood Cliffs, NJ: Prentice-Hall.
- Spilka B, Schmidt G. General attribution theory for the psychology of religion: The influence of event-character on attributions to God. *Journal for the Scientific Study of Religion* 1983;22:326–329.
- Spitzer, R., Williams, J., Gibbon, M., and First, M. (1989). *Structural clinical interview for DSM-III-R disorders*. New York: New York State Psychiatric Institute, Biometrics Research Department.

- Szapocznik, J., Feaster, D. J., Mitrani, V. B., Prado, G., Smith, L., Robinson, B. C., Schwartz, S. J., Mauer, M. H., and Robbins, M. S. (in press). Structural ecosystems therapy for HIV-seropositive African American women: Effects on psychological distress, family hassles, and family support. *Journal of Consulting and Clinical Psychology*
- Taylor RJ, Chatters LM. Church members as a source of informal social support. *Review of Religious Research* 1988;30:193–203.
- Williams DR, Larson DB, Buckler R, Heckman R, Pyle C. Religion and psychological distress in a community sample. *Social Science and Medicine* 1991;32:1257–1262. [PubMed: 2068608]
- Woods TE, Antoni MH, Ironson GH, Kling DW. Religiosity is associated with affective status in symptomatic HIV-infected African American women. *Journal of Health Psychology* 1999;4:317–326.
- Wright SD, Pratt CC, Schmall VL. Spiritual support for caregivers of dementia patients. *Journal of Religion and Health* 1985;24:31–38.

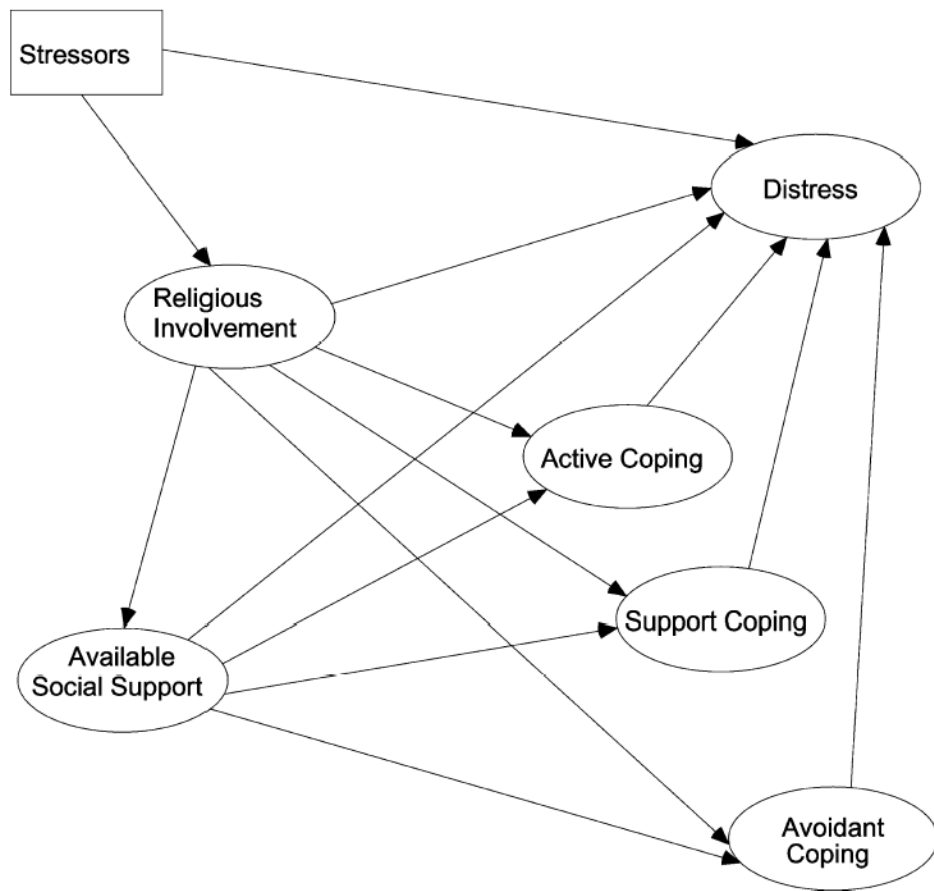


Fig. 1. The role of religious involvement in the stress-process model: Hypothesized model of relationships.

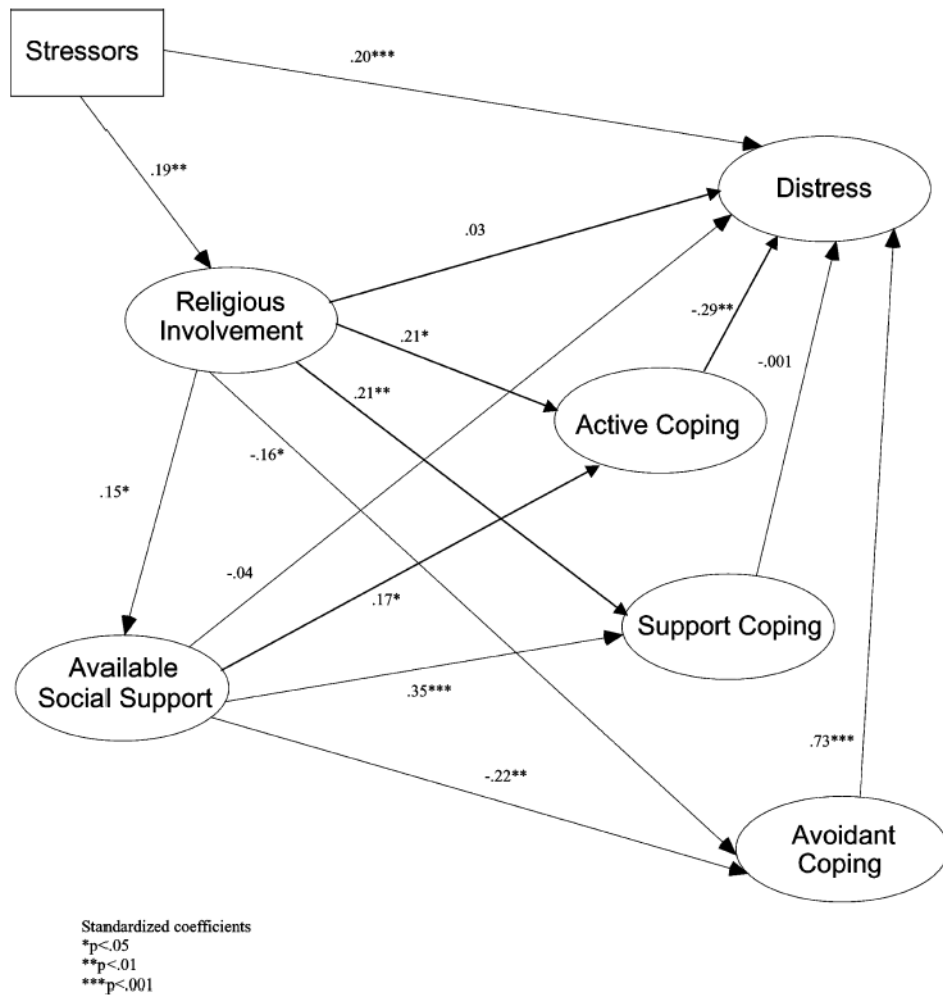


Fig. 2. The role of religious involvement in the stress-process model: Results from the model estimation.

Table I**Religious Involvement Items and Rating Scales**

Item	Rating Scale
<p><i>Support and Service Utilization Schedule</i> (Kaminsky <i>et al.</i>, 1989) Items 1 and 2 refer to the following statements: During the past 3 months, how often (indicate number of times) do you use any of the following types of religious (or spiritual) support?</p>	<p>Continuous Continuous</p>
<p>1. Attending organized religious services (church) 2. Reading religious material</p>	
<p><i>Feetham Family Functioning Survey</i> (Roberts and Feetham, 1982) Item 3 refers to the following statement:</p>	<p>7-point Likert scale ranging from 1 = <i>little</i> to 7 = <i>very much</i></p>
<p>3. The amount of time you spend in religious/spiritual activities? How much time is there now?^a</p>	
<p><i>Cope</i> (Carver, 1997) 4. I've been praying or meditating.^a</p>	<p>4-point Likert scale ranging from 1 = <i>not at all</i> to 4 = <i>a lot</i></p>

^aThe time frame for this item is 3 months.

Table II
Descriptive Statistics for the Religious Involvement Items and the Stress-Process Variables

Variable	Mean (SD)	Range	Reliability ^a
<i>Religious involvement</i>			.74
Attendance at organized religious services	29.86 (24.70)	0–99	
Reading religious material	2.37 (3.75)	0–30	
Time spent in religious activities	3.85 (2.15)	1–7	
Praying or meditating	3.32 (.99)	1–4	
<i>Stress</i> —Total count of stressors	7.77 (4.10)	0–19	N/A ^b
<i>Available social support</i>	13.91 (7.93)	0–54	.84
<i>Coping strategies</i>			
Active	25.73 (4.57)	11–32	.69
Support	21.78 (5.17)	8–31	.75
Maladaptive	36.89 (9.59)	15–59	.82
<i>Psychological distress</i> —Global Severity Index	1.03 (.72)	0–3.34	.93

^aReliability is estimated using the formula for composite reliability recommended by Fornell and Lacker (1981). This formula posits reliability as the ratio of variance explained by the construct to the total variance among the indicators. The formula is an approximation of Cronbach's α .

^bReliability is not reported for the number of stressors, because number of stressors is a count of dichotomous (e.g., yes/no) responses, and hence reliability estimates are not appropriate.