

**Religious Coping, Depression, and Quality of Life
in People Living with HIV/AIDS**

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Dedications

To my husband and my daughter,
for their support, patience, and love.

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Abstract

Religious Coping, Depression, and Quality of Life in People with HIV

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Although religious coping is an essential part of dealing with the unique stressors related to HIV, surprisingly little research exists in this population. Particularly, the impact of negative aspects of religious coping in people with HIV has received little attention. The aims of this study were to examine the differential effects of positive and negative dimensions of religious coping on depression and quality of life, and to investigate the mediating role of benefit finding in the link between religious coping and psychological outcomes. One hundred and ninety eight individuals with an HIV or AIDS diagnosis in the eastern urban area of Philadelphia were included in the study. Positive and negative religious coping styles, depressive symptoms, quality of life, and benefit finding were measured in addition to demographic and clinical characteristics including ethnicity, education, religious affiliation, current mental treatment, CD4 cell count, and time since diagnosis.

As hypothesized, negative religious coping was significantly associated with a high level of depressive symptoms and a lower level of quality of life after controlling for relevant demographic and clinical variables. Positive religious coping was significantly associated with positive domains of outcome measures such as positive affect, life satisfaction, and provider trust, although there was no significant association between positive religious coping and overall depressive symptoms or quality of life. A mediation analysis revealed that benefit finding fully mediates the relationship between positive

religious coping and positive affect as well as life satisfaction. Furthermore, benefit finding significantly suppressed the positive association between positive religious coping and overall depressive symptoms, which is why positive religious coping was not significantly associated with overall depressive symptoms.

Results suggest that positive and negative religious coping may have differential effects on psychological adjustment in people with HIV: Negative religious coping may contribute to adverse effects on general emotional distress and maladjustment, whereas positive religious coping may facilitate positive aspects of psychological adaptation. The finding that benefit finding mediates the effects of positive religious coping on increased positive psychological aspects, but suppressed emotional distress, implies that people with HIV may benefit from interventions that incorporate benefit finding in addition to spirituality.

CHAPTER I. INTRODUCTION

Recent developments in the treatment of Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS) have substantially reduced mortality. However, the people living with HIV have continued to be affected by various stressors associated with disease management, treatment adherence, and adaptation to psychosocial changes after diagnosis of HIV, which has increased the prevalence of emotional distress such as depression. Given that stress and psychological distress can have deleterious effects on health and can affect the progression of HIV disease (Ironson & Hayward, 2008), increased knowledge of effective ways to cope with the stress associated with HIV is critical to helping individuals with HIV to maintain psychological and physical well-being.

When faced with a chronic or fatal medical illness, the majority of people tend to use their religious resources to cope with stress associated with the disease. In the United States, when hospitalized medical patients were asked about their coping strategies, nearly 90% of them reported that religion was a helpful resource, and 40% indicated that religion was the most important factor that helped them to move forward (Koenig, Pargament, & Nielsen, 1998). Studies of people with HIV have also demonstrated that religion/spirituality is a critical construct for them (Cotton et al., 2006; Kaldjian, Jekel, & Friedland, 1998; Lorenz et al., 2005) and the majority of people with HIV incorporated spirituality to overcome a sense of guilt and shame for engaging in risky behaviors (Kaldjian et al., 1998), to deal with the loss of loved ones to AIDS (Richards, Acree, & Folkman, 1999), and to find a sense of purpose in life (Siegel & Schrimshaw, 2002).

Pargament (1997) suggested that religious coping mediates the relationship between an individual's religious orientation and the outcomes of major stressors. He

indicated that general religious beliefs and practices are translated into specific forms of coping when an individual faces a stressful live event. Therefore, it is these specific coping methods that have direct implications on the individual's health during stressful periods. The study of religious coping, however, is in its infancy, especially in the area of HIV/AIDS. The present study was designed to further research in the area of religious coping among individuals with HIV/AIDS by investigating the effects of religious coping on psychological outcomes. The underlying mechanisms of this relationship were also explored.

CHAPTER II. BACKGROUND AND LITERATURE REVIEW

1. HIV/AIDS

HIV infects the T helper lymphocyte cells that play a critical role in organizing the actions of other immune system cells. A large reduction in the number of T helper cells jeopardize the immune system. The T helper cell is sometimes referred to as a CD4+ lymphocyte because it has the protein CD4 on its surface which HIV uses to attach itself to the cell before gaining entry (Chan & Kim, 1998). Increasing HIV viral loads and decreasing CD4+ counts cause profound changes and deficiencies in a person's immune system. Therefore, the CD4+ cell counts, as well as the HIV viral load in the blood, are important indicators of the progression of the HIV/AIDS virus. A diagnosis of AIDS can be made when CD4 cell count falls below 200.

1.1. Course of HIV/AIDS

Despite recent progress in the treatment of HIV infection, great variability in the course of this disease still exists, including the length of time before an AIDS diagnosis and mortality. If not treated, approximately 90% of individuals with HIV will progress to AIDS after 10-15 years (Buchbinder, Katz, Hessel, O'Malley, & Holmberg, 1994). Rapid progressors (10% of persons living with HIV) develop AIDS within 2 to 3 years following HIV infection, whereas long-term non-progressors (about 5%) remain asymptomatic even after 12 or more years (Kremer & Ironson, 2007). For people who are not treated with antiretroviral therapy, the median time from AIDS diagnosis to death is estimated at 10 months with a range from 3 to 51 months (Morgan et al., 2002). For those treated with antiretroviral therapy, the average survival time is estimated to be more than 5 years even after the diagnosis of AIDS (Schneider et al., 2005). HIV infection is known to go through

the following four stages: a) primary infection, b) asymptomatic disease, c) early symptomatic disease, and d) AIDS.

Primary Infection

The first stage of infection is similar to a bad case of flu and can last for 2 to 4 weeks (Guss, 1994). Once infected, an initial burst of viremia occurs with a subsequent drop in CD4+ cell counts (Piatak et al., 1993). Viral-like symptoms of fatigue, rash, fevers, night sweats, and weight loss (known as constitutional symptoms; Guss, 1994) can be experienced by the infected person. As the immune system fights and repels the virus, however, these symptoms disappear and CD4+ cells rebound, but the virus settles in the lymph nodes. Because HIV is highly concentrated in blood, tissue, and semen, the patient can be very contagious during this period and can transmit the virus as early as 24 hours after initial infection (Daar et al., 2001). Once the infection becomes amenable, the infected individual typically feels fine for years until the CD4+ cell count drops to less than 500. Many people do not feel the need to seek treatment once the above acute symptoms disappear and may not be aware of the infection unless a laboratory test is conducted (Koup, 2004).

Asymptomatic stage

During the second stage of disease progression, virus replication occurs internally and few symptoms are noted. The amount of HIV during this stage can be determined only by specific laboratory tests to measure viral load and CD4+ cell count. The average length of the asymptomatic disease stage is 10 years with the range from 2 weeks to 20 years. However, during this typically lengthy latency period, HIV inflicts most of the damage to the body by continuing to reproduce itself 10 billion times a day, every day (Burton, Keele,

Estes, Thacker, & Gartner, 2002). The most common symptom during this stage is swollen lymph nodes without pain (Guss, 1994) which tends to be perceived as benign to many people.

Early symptomatic stage

During the next stage of disease progression, originally called AIDS Related Complex (ARC) in the early phase of HIV/AIDS discovery, patients may again experience constitutional symptoms such as night sweats, weight loss, diarrhea, wasting syndrome, severe fatigue lasting several weeks, and prolonged fevers (Guss, 1994). Symptomatic HIV infection is caused mainly by opportunistic infections or cancers that the immune system would normally prevent without HIV. Every body system can become vulnerable to symptomatic HIV infection, thus this stage is frequently characterized by multi-system disease (C. B. Holmes, Losina, Walensky, Yazdanpanah, & Freedberg, 2003). Despite that the specific infection or cancer can be treated, the underlying action of HIV continues to weaken the immune system.

AIDS

The last and most serious stage is characterized by weakening of the immune system to the degree that the body becomes defenseless against infections. Opportunistic infections and AIDS-defining conditions commonly occur when CD4 cell counts drop below 200 (C. B. Holmes et al., 2003). The most common life-threatening opportunistic infection for people with AIDS during this stage is a fungus affecting the respiratory system which is evident by a dry cough, fever, night sweats, and increasing shortness of breath (Guss, 1994). Other problematic opportunistic infections include neurological deficits or seizures, severe headache, diarrhea and abdominal pain, tuberculosis, and cancer. Also

observed are psychiatric symptoms of depression, hallucinations, delusions, and paranoia (Wood & Dietrich, 1990).

Based on the disease progression processes summarized above, the Centers for Disease Control and Prevention (CDC) classified HIV as categories A, B, and C. Category A refers to HIV infection without symptoms. Category B is to classify symptomatic conditions attributable to HIV infection that do not meet clinical category C definitions. Category C represents clinical conditions attributable to HIV infection or CD4 count less than 200, which is equivalent to a diagnosis of AIDS. Once patient has reached category C, the patient remains in that category even if their clinical condition improves.

1.2. Risk Factors

In the United States alone, approximately one million people are living with HIV or AIDS, with 40,000 new cases every year (CDC, 2008). HIV is transmitted through infected human body fluids including blood, semen, vaginal secretions, and breast milk (Substance Abuse and Mental Health Services Administration, 2000). Therefore, activities involving the exchange of bodily fluids can be the modes of HIV transmission such as unprotected sexual activity, intravenous drug use, blood transfusions and organ transplants (prior to 1985). Needle sharing, trading sex for money or drugs, and having multiple sex partners are known to increase the risk for HIV transmission. A strong correlation has been reported between addiction and the risk of sexual transmission of HIV (Cheever, 2001). Non-injection drug use (e.g., crack cocaine) can increase the chance of the transmission of HIV by inducing risky sexual behaviors. In fact, a study involving 2,200 young adults in three inner cities reported that crack smokers were three times more likely to be infected with HIV than non-smokers (CDC, 2000).

1.3. Treatment

Since the 1996 introduction of the highly active antiretroviral therapy (HAART) designed to suppress the HIV virus, the prognosis of the disease has dramatically improved evidenced by longer life expectancy, reduction of disease progression, and fewer complications (Carpenter et al., 2000). Although not a cure for HIV infection, it can control viral replication for decades and reconstitute the immune system. For the individuals who take antiretroviral therapy, the mean age at death is estimated to be above 60 years, with 41% dying of illness not directly associated with HIV (Braithwaite et al., 2005).

According to antiviral drug treatment guidelines (Panel on Antiretroviral Guidelines for Adults and Adolescents, 2011), HAART should be initiated in all patients with a history of an AIDS-defining illness or with a CD4 count under 350. HAART is also recommended for patients with CD4 counts between 350 and 500. HAART for asymptomatic HIV-infected persons is recommended based on many factors including the individual's readiness to start drug treatment, likelihood of adherence to the treatment regimen, and the risks and benefits of antiretroviral therapy for that person in addition to CD4+ cell counts and viral load. Antiretroviral drug treatment plans, however, are very complicated, including three or more daily doses of several medications (some with dietary restrictions). Nausea, headaches, diarrhea, joint pain, neuropathy (numbness in limbs), and large amounts of fat deposits are common unpleasant side effects of antiretrovirals that may further complicate treatment.

2. HIV and Mental Health

2.1. HIV, Depression and Quality of Life

Since the advent of HAART basically changed a diagnosis of HIV from a virtual death sentence to life with a chronic disease, the focus of HIV treatment and research shifted from preventing death to living and aging with HIV (Kremer & Ironson, 2007). Investigating the mental health and quality of life in a large and growing cohort of persons with HIV have become important. Quality of life broadly refers to a patient's general well-being, including mental status, stress level, sexual function, and self-perceived health status. Researchers and clinicians can monitor the impact of disease and response to treatment by measuring subjective quality of life, in addition to medical indicators such as viral load and CD4+ count.

Although mortality and morbidity have substantially improved, the majority of HIV-infected individuals have been reported to experience high rates of mental health problems. (McCormack, Hayes, Lacey, & Johnson, 2001; Yi et al., 2006). Depression is one of the most common mental health problems reported among individuals with HIV/AIDS. The rate of depression among people with HIV infection is estimated from 5% up to 48%, depending on the population studied (Hartzell, Janke, & Weintrob, 2008). It was reported, however, up to 85% of HIV-positive individuals report some depressive symptoms that may not reach the diagnostic threshold for a major depressive disorder (Tate et al., 2003).

Many large-scale longitudinal studies has demonstrated that depression is associated with HIV disease progression measured by CD4 cell count, progression to AIDS, or mortality (Golub et al., 2003; Leserman et al., 1999; Page-Shafer, Delorenze, Satariano, & Winkelstein, 1996) (Cook et al., 2004; Ickovics et al., 2001). For example, a 9-year longitudinal study of 395 gay HIV-infected and initially asymptomatic men (Page-Shafer et

al., 1996) reported that progression to AIDS was faster among individuals classified as depressed at base-line. In a Cox regression analysis of the same cohort at 7-year follow-up, it was found that those who had elevated symptoms of depression at every visit had a 1.7 times greater risk of mortality compared to those who never had an elevated depression score (Mayne, Vittinghoff, Chesney, Barrett, & Coates, 1996). In another study where 96 initially asymptomatic HIV-infected gay men were assessed every 6 month for 5.5 years (Leserman et al., 1999), higher cumulative depressive symptoms (excluding somatic symptoms that could be related to HIV disease change) was associated with increased risk of AIDS. For every 3-point change on the Hamilton Depression Rating Scale, the risk of AIDS doubled. More recently, large-scale longitudinal studies with HIV infected women (Cook et al., 2004; Ickovics et al., 2001) showed that chronic depressive symptoms (CES-D >16 for at least 75% of visits) were associated with two times greater AIDS-related mortality and greater decrease in CD4 cell counts. It was also found that women who received mental health services had a significantly reduced chance of experiencing AIDS-related mortality.

Depressive symptoms has also been found to be associated with poor adherence to medication regimen in HIV-infected men and women (Berger-Greenstein et al., 2007; Safren, Radomsky, Otto, & Salomon, 2002). For example, a study of 211 patients found that 49.3% of depressive participants reported satisfactory adherence, versus 63.5% of non-depressive participants (Ferrando, Wall, Batki, & Sorensen, 1996). The depressive symptoms such as fatigue and lack of motivation may have interfered with adherence. In addition to interfering with adherence to medication, depressive symptoms have been

associated with increased prevalence of risky behaviors, including unprotected sexual activity and needle-sharing (Johnson, Rabkin, Lipsitz, Williams, & Remien, 1999).

Quality of life and depression in individuals with HIV/AIDS can be affected not only by the severity of the disease and the efficacy of treatment, but also by sociodemographic characteristics, psychosocial stressors, and coping styles. In particular, stress associated with living with HIV has been known to greatly affect quality of life and depressive symptoms. Therefore, understanding the unique stressors associated with HIV and how individuals with HIV cope with the challenges they face is crucial in helping individuals with HIV maintain optimal physical and psychological well-being.

2.2. Unique Challenges Associated with HIV

Living with HIV/AIDS is highly burdensome and imposes multiple challenges and stressors on patients' lives. The stigma is one of the largest barriers to coping with HIV/AIDS. Stigmatization is exacerbated due to prejudice toward members of the homosexual community, certain minority ethnic groups, drug users, and sex workers, all of whom are at increased risk of being infected with HIV (Bacha, Pomeroy, & Gilbert, 1999; Molassiotis et al., 2002). The stigma raises various issues regarding disclosing status, seeking social support, and developing and sustaining close interpersonal relationships (Clark, Lindner, Armistead, & Austin, 2003; Paxton, 2002). Unlike other chronic conditions such as cancer, numerous individuals living with HIV may decide to withhold support from family and friends in favor of keeping their illness a secret due to the stigma surrounding the illness. This may prevent one from receiving the needed support from family, friends, and religious communities. Simbayi and colleagues (2007) reported that greater occurrence of perceived stigma and experiences of discrimination were correlated

with the likelihood to disclose HIV status to a partner. In fact, many people with HIV perceive disclosure of one's disease status to others as a complex and ongoing stigmatizing process (Chenard, 2007; Venable, Carey, Blair, & Littlewood, 2006), which seems to result in social isolation and lower levels of emotional support (Emlet, 2006a, 2006b).

In addition to stigmatization by others, persons with HIV tend to have internal shame and feelings of guilt (Smiley, 2004). Past risky behaviors such as drug use or unprotected sexual activity may induce shame (Molassiotis et al., 2002). The possibility of passing the virus on to others may be another source of shame. Survival guilt, feelings of undeserved life or happiness, or anxiety or hopelessness about attracting another partner (Bor, Elford, Perry, & Miller, 1988) make people with HIV vulnerable to mental problems.

People with HIV/AIDS experience different types of daily life stressors associated with health management. Strict adherence to treatment regimen is necessary to maintain optimal health. Unlike other classes of medication, failure to take them as prescribed even as infrequently as 5% of the time, can allow the virus to mutate, creating resistance to anti-HIV medications in general (Kalichman, Kelly, & Rompa, 1997). Numerous strict dosing times and consequent lifestyle modifications, serious side effects of treatment, concerns about changing physical appearance and bodily functioning all add to stressors associated with HIV infection.

2. 3. HIV and Coping

Coping has been widely studied as a potential mediator or moderator between stressful situations and mental health related outcomes. One of the most widely accepted and supported theories of coping is the transactional model of stress and coping (Lazarus & Folkman, 1984). In this model, coping is viewed as efforts to deal with demands taxing a

person's resources. In this model of coping, adaptation to stressful circumstances is a dynamic process that includes primary appraisal of the nature of the event as a threat or harm, secondary appraisal of personal resources to deal with the situation, and specific strategies developed in an attempt to cope with the situation. According to Lazarus and Folkman (1984), coping attempts can be classified into two general categories: approach-based or problem-focused coping, and avoidance-based or emotion-focused coping. Problem-focused coping attempts to directly address the situation and change the source of stress. It is called approach-based because the person directly faces and works with the problem through their coping attempts. In contrast, emotion-focused coping attempts to decrease distressful emotional reactions to the adverse situation. This is referred to as avoidance-based coping because it does not directly address the situation, but rather focuses on emotional regulation. Problem-focused coping is likely to be used when a person perceives a situation as modifiable. On the other hand, emotion-focused coping may frequently be utilized when the situation is perceived as unchangeable (Lazarus & Folkman, 1984).

Similar to the area of general coping, most studies on coping with HIV are based on a transactional theory of stress and coping. A meta-analysis (Moskowitz, Hult, Bussolari, & Acree, 2009) of 63 studies published from 1990 through 2005 investigated which types of coping are related to psychological and physical well-being among people with HIV. It was found that Direct Action including problem focused coping and Positive Reappraisal were correlated with better outcomes across physical and emotional health categories. On the other hand, disengagement forms of coping including Behavioral Disengagement and Use of Alcohol and Drugs to Cope were associated with poorer outcomes. More recent studies

of the effects of coping on psychological adaptation in individuals with HIV consistently reported that approach coping strategies such as Seeking Support and Acceptance are correlated with lower levels of depression, whereas avoidance coping strategies such as Behavioral Disengagement and Denial are associated with higher levels of depression (Gore-Felton et al., 2006). In addition, cognitive coping strategies such as Positive Refocusing and Positive Reappraisal served as predictors of low depressive symptoms while Catastrophizing and Other-Blame were associated with high depressive symptoms (Kraaij et al., 2008).

The impact of specific coping strategies on depression among people with HIV have been examined through psychotherapeutic interventions designed to modify maladaptive psychosocial factors. For example, changes in cognitive coping skills such as reframing, active coping, and acceptance during cognitive behavioral stress management intervention were significantly correlated with low depressive symptoms (Lutgendorf et al., 1998). In their meta-analysis of 15 cognitive-behavioral interventions on the mental health and immune functioning among individuals with HIV, Crepaz and colleagues (2008) reported that persons who received training and gained adaptive coping skills (e.g., decreased emotion-focused coping and increased problem-focused coping) to manage and reduce stress showed a significant improvement in depressive symptoms.

3. HIV and Religious Coping

3.1. Concept of Religious Coping

Spirituality and religiosity can be broadly defined as any feelings, thoughts, experiences, and behaviors that arise from a search for the divine or the sacred (Hill & Pargament, 2003). Definitions of religiosity often emphasize institutional and social aspects,

whereas spirituality is frequently conceptualized as personal and subjective experience within specific contexts. However, considering that private forms of religiosity overlap with spirituality and spirituality is rooted in religion, spirituality and religiosity may be best described as overlapping constructs (Miller & Thoresen, 2003). Pargament (1997) observed that religion and spirituality share a common denominator, the sacred, which refers to God, the Divine, or Ultimate Reality. The sacred distinguishes religiosity/spirituality from other phenomena by setting it apart from the ordinary (Hill & Pargament, 2003).

Psychologically, religious and spiritual beliefs can be conceptualized as part of a person's cognitive schema and world view. Thus, as part of an individual's general orienting system, religiousness and spirituality may exert influence on how individuals appraise situations, participate in activities, and develop personal goals (Carone & Barone, 2001). If people are pushed beyond their limits by situations outside their control, they may want to choose their coping strategies based upon a pre-existing orienting system, including their religious faith (Harrison, Koenig, Hays, Eme-Akwari, & Pargament, 2001). Religion and coping are thought to converge when an individual who has a religious orientation to life in general is faced with adverse circumstances that exceed the limits of one's internal and external resources. Therefore, religious coping can be understood as "the use of religious beliefs or behaviors to facilitate problem-solving to prevent or alleviate the negative emotional consequences of stressful life circumstances" (Koenig et al., 1998).

Some dispositional dimensions of religiosity that need to be distinguished from religious coping include religious belief, religious well-being, religious commitment, and religious experience. Religious coping has been found to mediate the relationship between global religiosity and health outcomes (see Pargament, 1997 for review), which suggests

that religious coping strategies are more immediate and stronger predictors of health in stressful situations than global dispositional religious variables.

3.2. Measurement of Religious Coping

Until recently, religious coping has been assessed with global religious measures such as praying or attending religious services. Relying on these global variables, however, is likely to underestimate the complexity of religious coping. Religious coping is a multidimensional process that includes active, passive, cognitive, emotional, behavioral, and interpersonal strategies.

One of the most widely used indicators of religious coping involves using specific items of the Ways of Coping Scale (Folkman & Lazarus, 1988). The 67-item Ways of Coping Scale includes two explicitly religious items: “found new faith” and “I prayed.” In this approach, however, the special contribution of religion to coping tends to be obscured, because the small number of religious items are embedded in the broader dimension titled “Positive Reappraisal” coping (Pargament, Koenig, & Perez, 2000). Another common measure of religious coping adopted by prior studies is a four-item religious/spiritual coping subscale in a larger measure of general coping, the COPE (Carver, Scheier, & Weintraub, 1989). The four items include seeking God’s help, putting trust in God, trying to find comfort in religion, and praying more than usual. This measure taps into a spiritually-based, emotion-focused coping method.

Pargament and his colleagues have made major contribution to understanding and measuring religious coping. Assuming that religion offers various methods for coping with life’s problems, they have made efforts to assess different aspects of religious coping. Their early approaches to measure specific methods of religious coping focused largely on three

distinct styles of attaining control in the problem solving process: self-directing, deferring, and collaborative religious coping (Pargament, 1997; Pargament et al., 1989). Self-directed coping is defined essentially as an approach in which people cope by relying on themselves rather than God. In contrast, deferring approaches to religious coping are characterized by a refusal to take responsibility for the coping process. In this approach, individuals choose to rely exclusively on divine intervention when they are struggling. Collaborative religious coping is characterized by the attempt to cope to involve God in one's efforts to gain control. The Religious Problem Solving Scales, consisting of three 12-item scales, were constructed to measure these problem-solving styles. Research on these styles of coping has found that self-directed religious coping and collaborative religious coping are linked to higher self-esteem and a greater sense of control or mastery (Fabricatore, Randal, Rubio, & Gilner, 2004; Phillips, Pargament, Lynn, & Crossley, 2004), while deferring religious coping shows a negative relationship with these outcome variables (Pargament, 2002).

More recently, however, rather than the general coping strategies that are assessed with the Religious Problem-Solving Scales, situationally-driven strategies have been emphasized in conceptualizing and measuring religious coping. In addition, researchers have begun assessing both negative and positive aspects of religious coping methods (Hill & Pargament, 2003). The RCOPE (Pargament et al., 2000) and its shorter version, the Brief RCOPE (Pargament, Smith, Koenig, & Perez, 1998), have resulted from those efforts. In contrast to the uni-dimensional characterizations of religious coping, the RCOPE is designed to be theoretically-based, comprehensive, and open to the negative as well as the positive aspects of religious coping.

More specifically, Pargament and colleagues (Pargament et al., 2000) proposed that religion serves five main functions. These functions are reflected in the five dimensions of the RCOPE: finding meaning, gaining control, gaining comfort from achieving closeness to God, intimacy with others and closeness with God, and life transformation. Based upon these dimensions, they developed and validated 21 different types of situation-specific religious coping strategies that serve those functions. These subscales include both positive and negative religious coping. Positive religious coping reflects a secure relationship with God, a belief in life's larger meaning, and a sense of spiritual connectedness with others (Pargament et al., 1998). Positive religious coping subscales include benevolent religious appraisals, collaborative religious coping, seeking spiritual support, spiritual connection, religious purification, and seeking help from clergy or members. Negative religious coping methods reflect a religious struggle that results from a more estranged relationship with God, a more dismal view of life, and a sense of disconnectedness with a religious community (Pargament, Murray-Swank, Magyar, & Ano, 2005). Examples of negative coping subscales include punitive religious reappraisals, spiritual discontent, self-directing religious coping, and interpersonal religious discontent. Both the RCOPE and the Brief RCOPE have demonstrated satisfactory internal validity, as well as predictable and consistent relationships with measures of religious orientation and physical and mental adjustment such as emotional distress, stress-related growth, and symptoms of post traumatic stress disorder.

3.3. Religious Coping in People with HIV

Whether HIV/AIDS is viewed as a terminal disease or chronic illness, individuals with HIV have reported relying on religiosity and spirituality as a source of comfort,

support, and hope (Saleh & Brockopp, 2001). Kaldjian et al. (1998) reported that 98% of hospitalized patients with HIV indicated belief in a divine being called God and 84% expressed a personal relationship with God. According to the Lorenz et al. study (Lorenz et al., 2005) that investigated a nationally representative sample of 2266 HIV-infected adults receiving care in the US, 85% of them expressed that spirituality was “somewhat” or “very” important in their lives. The study also reported that a majority of the sample indicated that they “sometimes” or “often” rely on religious or spiritual means when making decisions (72%) or confronting problems (65%). Specific coping methods reported by people with HIV include spiritual transformation (Schwartzberg, 1993), church attendance and prayer/meditation (Siegel & Schrimshaw, 2002), believing in a higher power (Richards et al., 1999), and collaboration with God (Woodard & Sowell, 2001).

4. Religious Coping, Depression, and Quality of Life in People with HIV

The relationship between religious coping and psychological outcomes across diverse populations have been increasingly addressed by researchers for the last decade or so. Few studies, however, have investigated the psychological adaptation of people with HIV/AIDS. Before the advent of HAART, religiousness/spirituality in people with HIV/AIDS was mostly studied qualitatively with the view that they were facing a terminal disease. Finding from these studies indicated that individuals with HIV/AIDS often found deeper meaning in life through a spiritual perspective after the diagnosis, and also experienced enhanced quality of life (Fryback & Reinert, 1999). After HAART became available, religious coping such as praying, reading religious materials, and taking problems to God have been reported to be associated with decreased emotional distress and increased quality of life among women with HIV (Sowell et al., 2000). In their study of 230

predominantly African American and Puerto Rican women with HIV, Simoni and colleagues (Simoni, Martone, & Kerwin, 2002) found that spiritually-based coping (e.g., praying, involving oneself in spiritual activities, rediscovering what is important in life, and finding new faith) was positively correlated with psychological adaptation, even after other types of coping such as constructive cognitions, realistic acceptance, community involvement, and avoidance were controlled. In a study of 100 HIV-infected women, however, frequency of prayer was associated with optimism about the future, but not with current depressive symptoms (Biggar et al., 1999). In addition, elevated psychological distress predicted prayer practices and spiritual beliefs in another study that included sixty five individuals with HIV (Somlai et al., 1996).

Studies investigating the effects of religious coping with cancer on psychological adjustment also produced mixed results. Thune-Boyle and colleagues (2006) reported in their review article that seven out of the 17 prior studies found religious coping to be beneficial, four studies found it to be harmful, and another seven studies found no effects. They explained that these inconsistencies may have been due to differences across studies in terms of disease stage and treatment, and religious affiliation. However, what might have been more critical was the fact that the studies employed crude methods for conceptualization and measurement of religious coping. One example is the “turning to religion” item of the COPE. Only one study (Stanton, Danoff-Burg, & Huggins, 2002) out of the eight studies that used the COPE inventory (Carver et al., 1989) reported “turning to religion” to be advantageous while two studies (Ben-Zur, Gilbar, & Lev, 2001; Harcourt, Rumsey, & Ambler, 1999) reported the same coping strategy to be associated with poor outcomes. These results indicate that “turning to religion” may have both positive and

negative implications. As Tarakeshwar and colleagues (Tarakeshwar, Khan, & Sikkema, 2006) pointed out, religious coping may go beyond things such as prayer, bible reading, and church attendance, and the relationship with God could be both a source of gratitude and a source of struggle.

In line with the notion that religious coping has both positive and negative aspects, Jenkins (1995) found that markers of spiritual struggle, including anger at God and alienation from God, were associated with higher levels of depression and loneliness in HIV-positive military personnel. In addition, negative religious beliefs and coping strategies have been found correlated with HIV disease progression. Specifically, the belief that “God is judgmental and punishing and is going to judge me harshly someday” was associated with a faster deterioration of CD4+ cells and poorer control of HIV, whereas the spiritual belief that “God is merciful” was protective of health over time (Ironson, Stuetzle, Fletcher, & Ironson, 2006). Given the negative as well as the positive impacts of religious coping, it is critical to investigate these two aspects of religious coping separately in their relationship with psychological outcomes.

Ano and Vasconcelles (2005) reviewed potential differential effects of positive and negative religious coping on psychological adjustment in their meta-analysis of 49 studies using the Brief RCOPE or similar constructs in various populations. The authors found that positive forms of religious coping were associated with positive psychological outcome (a cumulative effect size = .33) and less emotional distress (effect size = -.12), while negative forms of religious coping were related to poor psychological adjustment (effect size = .22). For example, more use of positive religious coping strategies, including spiritual support and benevolent religious appraisals of negative situations, was associated with positive

affect (Loewenthal, MacLeod, Goldblatt, Lubitsh, & Valentine, 2000), greater life satisfaction (Cohen, 2002; Fiala, Bjorck, & Gorsuch, 2002), stress-related growth (Roesch & Ano, 2003), and spiritual growth (Tarakeshwar & Pargament, 2001). On the other hand, greater use of negative religious coping strategies, such as attributions of situations to a punishing God and dissatisfaction with clergy, tended to be associated with more psychological distress, such as greater depression and anxiety, and ineffective resolution of negative life events (Exline, Yali, & Sanderson, 2000; Jenkins, 1995; Pargament et al., 1998).

To date, however, there are only a few studies that have investigated the effects of both positive and negative religious coping on psychological outcomes among people with HIV. One longitudinal study that used the Brief RCOPE enrolled 450 individuals with HIV from four clinical sites in three different cities and resulted in several publications. Specifically, Yi and colleagues (Yi et al., 2006) examined the cross-sectional effects of different aspects of religiosity, including positive and negative religious coping, religious well-being, and religious activities, on symptoms of depression. It was found that negative religious coping strategies, decreased attendance of religious meetings, and low spiritual well-being (sense of meaning, purpose, and peacefulness in life) were all associated with significant depressive symptoms in bivariate analyses. However, positive religious coping, prayer or meditation, and intrinsic religiosity were not related to depressive symptoms. In the same participants, Cotton and colleagues (2006) showed that positive religious coping was significantly associated with subscales of quality of life, including a positive association with life satisfaction and negative associations with overall functioning and HIV mastery, while negative religious coping was significantly negatively correlated with

all the subscales except for financial worries. More recently, Trevino and colleagues (2010) investigated the cross-sectional and longitudinal relationships between positive religious coping and negative religious coping versus biological (CD4 and HIV symptoms), psychological (quality of life, depression, and self-esteem), social, and spiritual well-being. It was found that positive religious coping was associated with greater self-esteem, spiritual well-being, and the life satisfaction subscale of quality of life, but not with depression or overall quality of life. However, negative religious coping was consistently associated with poorer quality of life, higher levels of depressive symptoms, and higher levels of HIV symptoms at baseline and follow-up.

Distinguishing positive and negative religious coping has resulted in a better understanding of the connection between religious coping and psychological adjustment. In addition, there is some evidence for differential effects of positive and negative religious coping on various types of psychological outcomes—i.e., overall beneficial effects of positive religious coping and deleterious effects of negative religious coping on psychological outcomes. However, it should be noted that, while the connection between negative religious coping and poor psychological outcome was consistently found, there have been inconsistencies in the relationship between positive religious coping and emotional distress, or general psychological adjustment. In other words, despite that positive religious coping has been associated with positive psychological outcomes and sub-domains of psychological functioning such as self-esteem, positive affect, and life satisfaction, its relationship with overall depression or quality of life has been equivocal. The inconsistent relationship between positive religious coping and emotional distress and negative health outcomes is also reported in other populations. For instance, Sherman and

colleagues (Sherman, Simonton, Latif, Spohn, & Tricot, 2005) examined the relationships between health and religious coping among 213 cancer patients and reported that negative religious coping was associated with significantly poorer functioning on most outcomes (e.g. depression, distress, pain, and fatigue), but that positive religious coping was not significantly related to any of the outcomes measured. Similarly, Burkner and colleagues (2004) conducted a study on religious coping among 90 patients with end-stage lung disease being evaluated for lung transplants and found that higher rates of depression and physical disability were strongly associated with punishing reappraisals. On the contrary to their hypothesis, however, positive coping strategies were associated with higher rate of depression and physical disability.

One of the potential explanations about the reasons for the inconsistent and weaker findings across studies for the effects of positive compared to negative religious coping on emotional distress is that positive religious coping may be more significantly associated with specifically positive aspects of psychological outcomes, while negative religious coping has more general effects on broader psychological outcomes (Trevino et al., 2010). Future research to clarify the differential effect of the positive and negative religious coping is warranted.

5. Potential Mechanisms of the Link between Religious Coping and Psychological Outcomes in People with HIV: Benefit Finding

As more evidence of the links between various religious and spiritual dimensions (e.g., coping) and mental health outcomes are reported, researchers have started thinking about the mechanisms through which religious involvement affects mental health. One prominent theory regarding the influence of religion on mental health involves finding

meaning or benefit through religion. Benefit finding can be defined as the efforts that individuals make to look for the positive aspects of their lives upon confronting stressors and what can be learned from that experience (Tennen & Affleck, 2002). It can be viewed as a way through which people integrate adverse events and their belief systems and reestablish a positive view of the world (Janoff-Bulman & Frieze, 1983). Religious/spiritual coping may play an important role in facilitating the process of finding meaning in stressful situations. As Wallace and Bergeman (2002) noted, religion or spirituality may lead people in adversity to find meaning, or a sense of coherence, in their lives. In their interviews with 63 older HIV-infected adults, Siegel and Schrimshaw (2002) reported that the religious and spiritual beliefs of their participants helped them to find a sense of meaning and purpose in their illness, which in turn aided them in accepting their diagnosis.

In fact, prior studies have found that benefit finding is correlated with lower levels of distress (Carver & Antoni, 2004; Frazier, Conlon, & Glaser, 2001) and higher levels of psychological well-being (Pakenham, 2005). Among HIV patients, benefit finding was significantly associated with positive affect and decreased psychological distress after controlling for social support, locus of control, and demographic confounds (Siegel & Schrimshaw, 2002). Although it has been suggested that benefit finding is related to both religiosity/spirituality and psychological outcomes, there is only one study that investigated the mediating role of benefit finding in the relationship among people with HIV/AIDS. Carrico and colleagues (2006) assessed 264 HIV-positive men and women and examined the associations among spirituality, positive reappraisal coping, and benefit finding as they relate to depressive symptoms and 24-hour cortisol output. The authors reported that positive reappraisal coping and benefit finding co-mediated the effect of spirituality on

depressive symptoms and that benefit finding is a candidate mediator for the effects of spirituality on 24-hour cortisol output. To date, however, there is no study that investigated the role of benefit finding in the connection between positive and negative religious coping and depression and quality of life.

6. Relationship between Positive and Negative Religious Coping

One theory postulates that people in severe distress may utilize both negative and positive coping strategies maximally and consequently a dominant effect of negative coping strategies might mask the beneficial effect of positive coping on psychological adaptation. This point is evident in Case & McMinn's study (2001) where the role of religious coping in emotional distress and overall functioning among psychologists were investigated. The authors reported a significant positive correlation between distress and positive religious coping, as well as negative religious coping. It was also found that positive and negative religious coping were positively correlated ($r = .32$). When positive religious coping was controlled with partial correlation, the relationship between negative religious coping and distress remained about the same. However, when negative religious coping was controlled, the relationship between positive religious coping and distress disappeared. A similar finding was reported in a study (Fitchett et al., 2004) that investigated the prevalence and correlates of religious struggle in three medical groups; oncology inpatients (N=97), diabetic outpatients (N=71), and congestive heart failure outpatients (N=70). Religious struggle was measured by the negative coping subscale of the Brief RCOPE. They found that half the total sample (52%) reported no religious struggle, while 15% reported moderate to high levels of religious struggle. On the other hand, about 60% of participants reported moderate to high levels of positive religious coping. Religious struggle was

associated with higher levels of depressive symptoms and emotional distress in all three patient groups and was significantly predicted by higher levels of positive religious coping.

The above findings suggest that individuals who use positive religious coping may consist of at least two groups: one group of individuals for whom religion may be a source of comfort and strength, unburdened by guilt or doubt, and the other group of people who make frequent use of both positive and negative religious elements to deal with illness or other adverse events. In line with this notion, in their prospective study of religious coping among patients undergoing autologous stem cell transplantation, Sherman and colleagues (2009) found that post-transplant physical well-being was significantly predicted by an interaction between positive and negative religious coping. More specifically, participants who scored high in both positive and negative religious coping at baseline reported the poorest physical well-being at post-transplant. Those who reported high positive and minimal negative religious coping at baseline reported the best physical well-being. Therefore, it is possible that negative religious coping may influence the relationship between positive religious coping and psychological outcomes. Although the above explanations have been discussed and suggested by some researchers, little research has been conducted to test those hypotheses. Because the relationship between religious coping and mental health is likely to be dynamic and complex, further studies to clarify the relationship are warranted.

CHAPTER III. RATIONALE AND HYPOTHESES

1. The Study Rationale

1.1. Need to study the impact of religious coping in people with HIV

Although there is a growing body of research on religious coping in medical populations, surprisingly little attention has been paid to individuals with HIV. People with HIV may be similar to people with other fatal illnesses such as cancer in that they experience fear of death, uncertainty, and existential problems (Kraaij et al., 2008). However, they carry an extra burden of stigma, and often experience rejection from their community (Clark et al., 2003; Paxton, 2002), which may contribute to certain characteristics of individuals with HIV. Therefore, it is important to examine the potentially unique ways of religious coping this population utilizes to deal with the stress associated with HIV.

1.2. Need to study both positive and negative aspects of religious coping

It is important to note that religiosity may represent both a source of pain and struggle for at least some people with HIV (Tarakeshwar et al., 2006). Given the religious stigma attached to HIV and its potential to challenge the individual's world view, people with HIV may be particularly prone to experience spiritual struggles. However, studies on coping strategies of people with HIV have focused on general religiosity and positive aspects of religious coping (Fryback & Reinert, 1999), and little attention has been paid to negative religious coping and its effects among people with HIV. Furthermore, studies have found that positive and negative religious coping have impacts on different aspects of psychological outcomes: positive religious coping is associated with positive psychological outcome while negative religious coping is related to broader emotional maladjustment

(Ano & Vasconcelles, 2005). Therefore, studies are warranted where both positive and negative religious coping are included and their differential effects on emotional well-being among people with HIV are examined.

1.3. Need to identify the mechanism linking religious coping and psychological outcomes

Although research has shown that religious coping plays a significant role in psychological adjustment of patients with HIV/AIDS (Sowell et al., 2000), an understanding of specific mechanisms through which religious coping affects patients with HIV/AIDS is still lacking. In addition, no study has investigated the mediating role of benefit finding in the link between positive and negative religious coping and mental health outcomes.

1.4. Need to clarify the relationship between positive and negative religious coping

It has been known that positive and negative religious coping methods are not completely separate or opposite to each other. Instead, positive and negative religious coping strategies have been reported to be positively correlated, especially under severe stress. To explain this, researcher have suggested that stress can act as a catalyst to mobilize all available coping efforts, including positive as well as negative coping strategies (Pargament, 1997). If this is true, people who use both types of coping maximally may display more distress than those who utilize positive religious coping with little usage of negative religious coping. Although there have been a few studies reporting a significant correlation between positive and negative religious coping (Fitchett et al., 2004; Sherman et al., 2005; Zwingmann, Wirtz, Muller, Korber, & Murken, 2006), little research has been

done to examine the influence of negative religious coping on the relationship between positive religious coping and psychological outcomes.

2. Aims and Hypotheses

The aims of the present study were to examine the differential effects of both positive and negative dimensions of religious coping on depression and quality of life, and to investigate the mediating role of benefit finding in the link between religious coping and psychological outcomes in people with HIV. These aims were addressed by testing the following hypotheses:

Hypothesis 1. Negative religious coping would be associated positively with overall depressive symptoms and negatively with overall quality of life, after controlling for demographic variables and HIV-related characteristics.

Hypothesis 2. Positive religious coping would be positively associated with positive domains of depressive symptoms and quality of life such as positive affect and life satisfaction, after controlling for demographic variables and HIV-related characteristics.

Hypothesis 3. The relationships between positive and negative religious coping and outcome variables will be mediated by benefit finding (see Figure 1).

Hypothesis 4. a) Positive religious coping would be significantly correlated with negative religious coping. b) Positive religious coping would show significant negative association with overall depression and positive association with quality of life, after controlling for negative religious coping as well as demographic variables and HIV-related characteristics.

CHAPTER IV. METHODS

1. Participants

Participants for the study were 200 individuals who have an HIV or AIDS diagnosis and presented at HIV clinic in urban Philadelphia. The participants were recruited from the Partnership Care Practice, which is under the auspices of Drexel University College of Medicine. The clinic has patients from every zip code and neighborhood in the Philadelphia metropolitan area. The patients of this clinic by major racial/ethnic groups consist of 69% Black, 17% White, and 13% Hispanic/Latino. Thirty-six percent of patients are women and 42% of patients are heterosexual. The inclusion criteria for the study required that each participant: 1) presented with the diagnosis of HIV-positive or AIDS (confirmed from chart); 2) was at least 18 years of age; and, 3) was able to read English at the 5th grade level. There were no exclusion criteria.

2. Measures

Demographic and clinical variables

Demographic and clinical data were collected both from chart reviews and patients' report. Demographic data included age, sex, ethnicity, sexual orientation, marital status, education level, employment status, religious affiliation, and mental treatment status. Clinical data included year diagnosed with HIV/AIDS, CD4+ cell count, viral load, reason for contracting HIV, and other medical problems.

Religious coping

Religious/spiritual coping styles were measured with the 63-item Religious Coping Scale (RCOPE) (Pargament et al., 1998). The RCOPE consists of 21 subscales, with 3 items for each subscale. The subscales represent two higher-order factors of positive and

negative religious coping. The RCOPE assesses how much individuals made use of various religious coping strategies with their current problems. Participants were asked how often they used each aspect of coping with regard to distressing circumstances in their lives with HIV on a 4-point Likert scale, ranging from 1= *not at all* to 4= *a great deal*. For most subscales good internal consistency was reported with α coefficients of .80 or greater among college sample and α 's of .65 or greater among medical sample. The RCOPE demonstrated evidence of validity by reporting the connecting between RCOPE and the measures of adjustment.

Depressive symptoms

Depressive symptoms were measured with the 20-item Center for Epidemiologic Studies-Depression Scale (CES-D) (Radloff, 1977). The CES-D is a self-report symptom rating scale to assess depressive symptomatology in community samples. The scale uses a 4-point Likert scale, ranging from 0= *rarely or none of the time* to 3= *all of the time*, with higher scores representing greater depressive symptoms. The scale demonstrated validity, internal consistency, and test-retest reliability (8-week interval, $r = .59$). The CES-D has been found to be a reliable and valid measure of depression in samples of cancer patients (Hann, Winter, & Jacobsen, 1999) and individuals diagnosed with multiple sclerosis (Verdier-Taillefer, Gourlet, Fuhrer, & Alperovitch, 2001). High internal consistency has been reported with Cronbach's α coefficients .89 for a sample with HIV (Simoni, Pantalone, Plummer, & Huang, 2007).

Quality of Life

The HIV/AIDS-Targeted Quality of Life (HAT-QoL) instrument was used to measure quality of life of people with HIV. The 34-item HAT-QoL assesses functions in

nine domains on a five-point scale ranging from 0= *all of the time* to 5= *none of the time*. Higher scores indicate better quality of life (W. C. Holmes & Shea, 1998). The nine domains include: Overall Functioning (6 items, Cronbach's $\alpha = 0.86$), Life Satisfaction (4 items, $\alpha = 0.87$), Health Worries (4 items, $\alpha = 0.86$), Financial Worries (3 items, $\alpha = 0.89$), Medication Worries (5 items, $\alpha = 0.84$), HIV Mastery (2 items, $\alpha = 0.85$), Disclosure Worries (5 items, $\alpha = 0.81$), Provider Trust (3 items, $\alpha = 0.8$), and Sexual Functioning (2 items, $\alpha = 0.90$). Each subscale is scored from 0 (worst functioning) to 100 (best functioning).

Benefit finding

A 17-item measure of benefit finding, which was originally used with breast cancer patients (Antoni et al., 2001) and adapted for use with HIV-positive populations (Carrico et al., 2006), was selected to measure meaning/benefit finding. The benefit-finding scale assesses the degree to which individuals with HIV feel that having HIV has made positive contributions to their lives. The stem for each question is "Having HIV has..." which is followed by potential benefits individuals may have experienced. Participants rate their responses on Likert-type scales ranging from 1= *not at all* to 5= *extremely*. These items assess potential benefits across a variety of domains, including a newfound sense of purpose, enhanced feelings of closeness with others, and acceptance of life's imperfections. A previous study that used this measure for individuals with HIV reported a Cronbach's α coefficient of .92.

3. Procedure

Under the permission of a physician, participants were approached at the recruiting site by the investigator while they waited for their appointments. Each participant was given the research study recruitment letter and asked to return it to the investigator or clinic staff

after signing it if they wanted to participate in the study. If they were interested in participating in the study, the investigator proceeded with obtaining informed consent. The participants were informed that participation was completely voluntary and that declining to participate would not negatively affect their medical care. Participants reviewed, along with the investigator, a detailed consent form approved by the Office of Research Compliance at Drexel University. The consent form described the purpose of the study, procedures, risks and inconveniences, benefits, economic considerations, confidentiality, voluntary participation, injury clause, health information disclosure, and the contact information of investigators. A personal copy of the consent form was provided to each participant.

Once informed consent had been provided through signature, the participant then was given the measures pertaining to demographic information, religious coping, meaning finding, perceived stress, depressive symptoms, and quality of life. Total time for the administration of all measures was approximately 30 minutes. As part of the consent to participate in the study, permission was requested to obtain diagnosis, CD4+ count and viral load, and medication information from the medical chart. All collected data, including measures, medical information, and consent forms, have been kept in locked files accessible only by authorized research personnel.

Approximately 250 individuals were given the research study recruitment letter and 200 of them expressed their interests in the study and completed the consent form. Of those who consented, two participants withdrew from the study due to time constraint. One hundred ninety-five participants wanted to enter a raffle drawing for ten \$20 Target gift cards. After the data collection, random selections were made and the winners were notified by phone so that they could pick up the gift cards at the clinic.

CHAPTER V. RESULTS

1. Demographic Characteristics

Out of 200 individuals who consented, two people withdrew from the study due to time constraints. Thus, 198 participants were included in the final analysis. The demographic and HIV-related characteristics of the sample are summarized in Table 1. The mean age of participants was 44.89 years (Range = 20-73) and 60.5% of participants were male. The majority of the sample was Black (74%) and the rest was comprised of White (15.1%), Hispanic (9.4%), or Other (1.5%). Approximately three-fourths reported a high school education or less and incomes less than \$20,000. 82.2% of participants were unemployed (26.3%) or on disability (55.9%). On average, participants had been living with HIV/AIDS for 13.31 years and had CD4 cell count of 487.75. About 10% of participants reported CD4 cell count less than 200. The majority reported contracting HIV through unprotected sex (67%) or injection drug use (15.9%). Slightly more than one-third were homosexual (25.7%) or bisexual (11.8%). The sample tended to be religious (84.3%) and the religious affiliation was predominantly Protestant (53.9%), Catholic (13.6%), Islam (7.9%), or Other (7.3%).

2. Descriptive Statistics for Study Variables

Study variables were collected including measures of depression, quality of life, religious coping, and meaning finding. The items on the RCOPE which measured positive religious coping were summed to produce a positive religious coping score. Likewise, the items measuring negative religious coping styles were summed to produce a negative religious coping score. The descriptive statistics for each measure are provided in Table 2. Participants used positive religious coping significantly more than negative religious coping,

$z = -12.8, p < .001$. The mean CES-D score was 24.7 ($SD = 12.4$). Significant depressive symptoms (CES-D score ≥ 16) were reported by 152 (76.8%) of the respondents.

3. Distribution of Study Variables

The main variables were viewed and checked for normality and adherence to regression assumptions. Positive religious coping and meaning finding scores were negatively skewed and negative religious coping was positively skewed. Each set of scores of positive religious coping and meaning finding were transformed by using the reflected square root of the scores, and the set of scores of negative religious coping were transformed by using the logarithm of the scores. The transformations helped to establish normality as seen in Table 3.

4. Correlation among continuous study variables

A number of significant correlations between continuous study variables were observed (Table 4). Higher levels of positive religious coping were correlated with greater benefit finding. Negative religious coping was positively correlated with depressive symptoms and negatively with quality of life. Greater benefit finding was associated with fewer depressive symptoms, as well as higher levels of positive religious coping. Finally, CD4 cell count was positively correlated with quality of life. However, neither depressive symptoms nor quality of life was significantly correlated with positive religious coping.

5. Relationship between the main study variables and categorical demographic variables

Prior to the main analyses, the relationships between categorical demographic variables (i.e., gender, ethnicity, marital status, education, income, employment, religious affiliation, sexual orientation, reason for contracting HIV, and mental treatment) and the

main outcome variables of the study (i.e., quality of life and overall depressive symptoms) were examined by conducting a MANOVA for each categorical demographic variable using the two main outcome variables as dependent variables. As shown in Table 5, education and mental treatment were significantly associated with outcome dependent variables.

Subsequent univariate analysis indicated that different levels of education were found to be significantly associated with both depressive symptoms ($F[3,183] = 7.40, p < .001$) and quality of life ($F[3,183] = 3.19, p < .05$). Participants who received a college or higher level of education reported significantly lower levels of depressive symptoms ($M = 11.10, SD = 6.17$) and quality of life ($M = 131.78, SD = 16.69$) than other groups.

Participants who were receiving treatment for psychiatric problems including depression, anxiety, and bipolar reported significantly higher levels of depressive symptoms ($M = 27.41, SD = 13.57; F[1,179] = 9.42, p < .01$), and lower levels of quality of life ($M = 107.46, SD = 22.38; F[1,177] = 6.21, p < .05$) than those who were not receiving treatment.

6. Hypothesis 1: Relationships between negative religious coping and depressive symptoms and quality of life

Hierarchical regression analysis was conducted to examine the effect of negative religious coping on depressive symptoms and quality of life, controlling for ethnicity, education, religious affiliation, sexual orientation, CD4 cell count, and time since diagnosis. The results are presented in Table 6. As hypothesized, negative religious coping was significantly positively associated with depression ($\beta = .30, p < .01$) and negatively with quality of life ($\beta = -.27, p < .01$) after controlling for demographics confounders and HIV-specific characteristics. In addition, greater use of negative religious coping was

significantly correlated with higher levels of negative affect, somatic symptoms, and interpersonal problems (Table 8a). Negative religious coping also was significantly correlated with all the subscales of quality of life (Table 8b).

7. Hypothesis 2: Relationships between positive religious coping and depressive symptoms and quality of life

In a similar hierarchical regression analysis, it was found that positive religious coping was not significantly associated with overall depressive symptoms or quality of life (Table 7). However, as hypothesized, positive religious coping was significantly correlated positively with several subscales of depressive symptom and quality of life such as positive affect, life satisfaction, and provider trust, and negatively with health worries and financial worries (Tables 8a & 8b). Subsequent regression analyses in Table 9 showed that greater use of positive religious coping significantly predicted enhanced positive affect ($\beta = .21, p < .05$), greater life satisfaction ($\beta = .19, p < .05$), and less health worries ($\beta = -.26, p < .01$).

8. Hypothesis 3: Mediating role of benefit finding

To test a potential mediating role of benefit finding in the relationship between religious coping and the outcome variables, a series of regression analyses were conducted. According to the procedure outlined by Baron and Kenny (1986), the most commonly used method to test for mediation effects, a significant relationship between the independent variable (X) and the dependent variable (Y) was required (first criterion), as well as a significant association between the independent variable and the mediating variable (second criterion), and the mediator's significant prediction of the outcome variable when it enters with an independent variable (third criterion).

However, based on more recent procedures of mediational analysis suggested by MacKinnon, Krull, and Lockwood (2000) and MacKinnon and Fairchild (2009), the first assumption of the significant association between an X and Y is not required. The authors argued that mediation can exist even in the absence of such a significant relation and illustrated several scenarios where significant mediation exists but the overall effect of X on Y is not significant. As one of the examples, they demonstrated the case of suppression (inconsistent mediation), in which the directions or signs of the direct effect of X on Y and the indirect effect of X on Y by a mediator is opposite (e.g., positive versus negative), resulting in a total effect of X on Y close to zero. The second and third criteria involving significant relationships between X and mediator, and between mediator and Y were still required in new procedures. Based on the suggestions made by Baron and Kenney (1986) and MacKinnon and colleagues (2000, 2009), a mediating role of benefit finding was examined not only in the relationship between positive religious coping and positive affect/life satisfaction where there were significant associations between them, but also in the relationship between positive religious coping and overall depressive symptoms/quality of life where there were no significant associations.

Mediation model for the relationship between positive religious coping and positive outcomes

Positive religious coping was significantly positively correlated with positive affect ($r = .17, p < .05$), life satisfaction ($r = .19, p < .01$), and negatively with health worries ($r = -.18, p < .05$) and financial worries ($r = -.19, p < .01$). However, benefit finding (potential mediator) was significantly associated with only positive affect ($r = .36, p < .001$) and life satisfaction ($r = .30, p < .001$), not with health worries ($r = -.06, p = .44$) nor with financial

worries ($r = .01, p = .94$). Therefore, mediation analyses were conducted for the relationships between positive religious coping and these two outcome variables. The results (Figures 2 and 3) showed that benefit finding fully mediates the associations of positive religious coping with positive affect (Sobel $z = 4.72, p < 0.001$), and with life satisfaction (Sobel $z = 4.19, p < 0.001$). More specifically, when benefit finding was added to the link between positive religious coping and positive affect and life satisfaction, the coefficients for positive religious coping reduced to negative, indicating full mediation.

Mediation model for the relationship between positive religious coping and overall depressive symptoms

Using the rationale of MacKinnon and colleagues (2000, 2009), the mediating role of benefit finding in the relationship between positive religious coping and depressive symptoms was tested because benefit finding was significantly associated with both positive religious coping (second criterion) and depressive symptoms (third criterion) in spite of a non-significant relationship between positive religious coping and depressive symptoms (first criterion). Figure 4 provides the results of the regression analyses. When benefit finding was added to the model, the β weights for positive religious coping predicting depressive symptoms increased and the relationship became significant ($\beta = .32, p < .01$), indicating a suppressive mediation (Mackinnon & Fairchild, 2009; MacKinnon et al., 2000). In other words, the results showed a situation where positive religious coping seemed to be positively associated with depressive symptoms, the greater use of religious coping predicted the higher level of benefit finding, and the higher level of benefit finding predicted the less depressive symptoms. Thus, the direct effect of positive religious coping on depressive symptoms was positive ($\beta = 0.08$, insignificant), and the indirect effect of

positive religious coping on depressive symptoms mediated by benefit finding was negative ($\beta_1(0.08) - \beta_2(0.32) = -0.24$). These two opposing effects cancelled each other out and resulted in an insignificant effect of positive religious coping on depressive symptoms. The Sobel test result revealed that the magnitude of the increase was statistically significant and that benefit finding was a significant mediator of the connection between positive religious coping and depressive symptoms.

Quality of life, the other outcome variable, was not significantly associated with benefit finding (violation of the second criterion). Therefore, a mediation model for the relationship between positive religious coping and overall quality of life was not tested.

Mediation model for negative religious coping and outcomes

Although negative religious coping was significantly associated with depressive symptoms and quality of life, benefit finding, the potential mediating variable was not significantly associated with negative religious coping, failing to meet the second criterion of mediation. Therefore, the mediating role of benefit finding in the relationship between negative religious coping and outcome variables was not evaluated.

Further regression analyses (Table 10) revealed that negative religious coping was significantly associated with depressive symptoms ($\beta = .31, R^2 = .26, \Delta R^2 = .09, p < .001$) and quality of life ($\beta = -.27, R^2 = .14, \Delta R^2 = .07, p < .01$), even after controlling for benefit finding in addition to other control variables. In other words, negative religious coping predicted depressive symptoms and quality of life over and beyond the effects of benefit finding.

9. Hypothesis 4: Relationship between positive and negative religious coping

To explore whether there was a correlation between positive and negative religious coping and whether the effect of negative religious coping influenced the beneficial impact of positive religious coping on emotional distress, a correlation and a regression analysis were conducted, respectively. As anticipated, positive and negative religious coping were significantly correlated ($r = .21, p < .01$). However, the association between positive religious coping and overall depressive symptoms and quality of life remained insignificant, even after controlling for negative religious coping, in addition to demographic and HIV-related variables (Table 11).

CHAPTER VI. DISCUSSION

1. Study Aims

This study investigated the differential effects of positive and negative dimensions of religious coping on depressive symptoms and quality of life in people with HIV. More specifically, the study examined whether positive religious coping is associated with positive domains of depressive symptoms and quality of life, whereas negative religious coping is associated with overall depressive symptoms and quality of life including both positive and negative domains of outcome variables. This study also examined the role of benefit finding as a mediator of the relationships between positive and negative religious coping and outcome variables, as well as the relationship between positive and negative religious coping.

2. Main Findings

Relationship between religious coping and depressive symptoms and quality of life

As hypothesized, negative religious coping demonstrated significant associations with both overall depressive symptoms and quality of life, as well as most sub-dimensions of the outcomes, controlling for demographic variables and HIV-related covariates. Positive religious coping, as anticipated, was significantly associated with positive outcomes such as positive affect and life satisfaction. However, it was not significantly associated with general depressive symptoms or quality of life. These results are consistent with previous studies reporting that positive religious coping was related to positive outcomes but not to emotional distress, while negative religious coping was a more consistent and stronger predictor of emotional distress and general psychological maladjustment to stress (Pearce, Singer, & Prigerson, 2006; Winter et al., 2009). These findings also support the view that

positive religious coping may contribute to facilitating positive and meaning-based psychological outcomes, rather than preventing negative and symptom-based ones (Tix & Frazier, 1998). On the other hand, negative religious coping may promote faith-related struggle and promote psychological distress under extreme stress (Ai, Park, Huang, Rodgers, & Tice, 2007).

Although positive and negative religious coping may lead to differential effects on psychological outcomes, the competing interpretations cannot be ruled out. It is possible that individuals who feel better psychologically and experience positive affect may use more positive religious coping and those who are distressed may reveal their religious struggle. Another explanation may involve the relationship between positive and negative coping, which is discussed further below.

Mediating factor of religious coping

Benefit finding was found to mediate the relationship between positive religious coping and general depressive symptoms, as well as the association of positive religious coping with positive affect and life satisfaction, controlling for important control variables. Benefit finding explained all the variance in the relationship between positive religious coping and positive affect and significant portion of the variance in the link between positive religious coping and life satisfaction. Consistent with the existing theoretical model of benefit finding (Hobfoll, 2002; Taylor, 1983; Taylor, Kemeny, Reed, Bower, & Gruenewald, 2000), those who frequently used positive religious coping found more benefit from their illness, which presumably led to more positive affect and greater life satisfaction.

The findings of the present study provide support for the existing theoretical conceptualizations of the role of meaning-based processes through which people attempt to

integrate stressful situations into their belief system so that they can reestablish a view of the world consistent with their existing meaning structure (Janoff-Bulman & Frieze, 1983). The theory postulates that individuals may experience enhanced positive affect and life satisfaction when this integration process becomes successful and the discrepancy between current situation and one's belief system is minimal. In the spirit of this theoretical framework, the results of the present study suggest that benefit finding reconstructs disease-related cognitions to provide a sense of purpose and meaning in living with the disease. According to some authors, finding meaning may be a central component of psychological recovery from traumatic events (Taylor, 1983) or the ultimate motivation to maintain one's physical and mental health (Park & Folkman, 1997).

The mediating role of benefit finding in the link between positive religious coping and overall depressive symptoms was suppressive. In other words, benefit finding significantly suppressed the positive association between positive religious coping and depressive symptoms, and thus, when it is controlled, greater use of positive religious coping significantly predicted a higher level of depressive symptoms. Therefore, benefit finding may prevent individuals who used positive religious coping strategies from experiencing depressive symptoms. This role of benefit finding is consistent with the existing theoretical model and results from previous studies: those who frequently used positive religious coping found more benefit from their illness, which led to fewer depressive symptoms. Again, the results of the present study highlight the importance of the meaning-based process in maintaining psychological well-being. However, it is noteworthy that without the effect of benefit finding on depressive symptoms, a high level of positive

religious coping is associated with increased depressive symptoms. This issue is further discussed below in the section of the relationship between positive and negative coping.

Negative religious coping was not significantly associated with benefit finding and thus the mediating role of benefit finding for negative religious coping could not be tested. Further regression analyses showed that negative religious coping predicted depressive symptoms and quality of life above and beyond benefit finding. These results indicate that negative religious coping may uniquely or directly predict individuals' adjustment to stress over benefit finding (Pargament et al., 1998). An alternative explanation is that the effects of negative religious coping may be mediated by other factors than those which mediate the effects of positive religious coping. In fact, Pearce and colleagues (Pearce et al., 2006) found that self-efficacy, optimism, and social support partially mediated the relationship between negative religious coping and quality of life and life satisfaction, but not the relationship between positive religious coping and outcomes variables. Similarly, social support has been reported to mediate the association between negative religious coping and caregiving burden (Pearce et al., 2006), but not the relationship between positive religious coping and distress and life satisfaction (Tix & Frazier, 1998).

Relationship between positive and negative religious coping

A correlation analysis revealed that positive and negative religious coping were positively correlated with each other. The moderate positive relationship between the two religious coping methods indicates that people with HIV may use positive and negative coping simultaneously and that using positive religious coping does not preclude religious struggle and doubt. This is consistent with the mobilization effect (Pargament, 1997) in which severe stress may prompt individuals to increase their religious coping, whether

positive or negative. However, the relationships between positive religious coping and general depressive symptoms and quality of life were not significant, even after controlling for negative religious coping. The results in this patient sample did not support the explanation that the lack of significant association of positive religious coping with overall depressive symptoms may result from the effect of negative religious coping that overrides or masks the beneficial effect of positive religious coping on outcome variables.

The insignificant relationship between positive religious coping and depressive symptoms even after controlling for the effect of negative religious coping suggest that positive religious coping methods may have mixed implications in themselves. *A post hoc* correlation analysis between each subscale of religious coping and outcomes (Table 12) supported this notion. For example, the correlation results revealed that religious purification ($r = .28, p < .01$) and seeking religious direction ($r = .15, p < .05$) were significantly positively correlated with depressive symptoms. Religious purification includes the items “Confessed my sins” and “Asked forgiveness for my sins,” and seeking religious direction includes the items “Asked God to help me find a new purpose in life” and “Prayed to find a new reason to live.” These subscales reflect viewing religion as a way of making meaning out of their current pain and pursuing comfort by striving to recover their relationship with God. However, the very act of one’s continuing to use these strategies may represent a situation in which the individual has difficulty achieving a sense of meaning and comfort through these coping strategies. Therefore, it is possible that individuals who are increasingly using these coping strategies may be the ones who experience a struggle to reconcile with God in a process of doubt, but have not yet reached the point where they deny or blame God, which makes them experience distress. Although

these coping methods were related to increased depressed mood, the same measures were significantly correlated with benefit finding which suppressed elevated depressed mood as reported in this study. Therefore, positive religious coping methods appear to be complex and dynamic processes, rather than unidirectional, and its mixed implication may lead to insignificant or inconsistent relationship between positive religious coping and depressive symptoms.

Several previous studies in fact reported results that are in line with the above notion that was originally proposed by Pargament (1997). For example, Pargament and colleagues (2004) noted that positive religious coping methods such as religious purification, religious forgiveness, and religious conversion predicted depressed mood and/or decline in quality of life. However, the same methods were also related to improvement on the stress-related growth or spiritual outcome measures. Similarly, Gall and colleagues (2009) found that patients who engaged in seeking religious direction coping which is one of the positive religious coping strategies, as well as pleading for direct intercession and spiritual discontent coping methods, reported greater distress and decreased emotional well-being at various points of time.

3. Implications

The present study highlighted the importance of assessing both positive and negative religious coping in people with HIV by demonstrating their differential effects on psychological outcomes. It also extended previous literature by adding a mediating role of benefit finding for the effect of positive religious coping, but not for negative religious coping. The current study also revealed that positive and negative religious copings are

related although the correlation minimally explained the influence of negative religious coping on the effect of positive religious coping on emotional distress.

The results of this study suggest several clinical implications. Because religion is a significant resource for people living with HIV, assessing their religious coping strategies will be beneficial in understanding their level of functioning and providing them with appropriate care. Especially, it may be important to recognize patients' spiritual disappointments and struggle early on and refer them for psychotherapy or to religious clergy in order to decrease further detrimental outcomes, given that negative religious coping seems to have strong and consistent negative effects on well-being. For individuals who turn to positive religious coping with little struggle, it would be helpful to ensure that related resources are available so that they can maintain their well-being. However, because positive coping is not simple and sometimes reflects religious struggle, it is also critical to understand the ambivalence many individuals may experience to provide an appropriate care. Taking into consideration how long an individual has strived to gain meaning and comfort from God may be useful in understanding the ambivalence because a longer effort is more likely to be related to a struggle. Specifically, for people with HIV, resolving feelings of guilt and finding a new direction seem to be a painful long process, and thus, discovering the effects of the coping strategies related to these issues may provide significant information about their psychological adjustment.

The findings of this study also suggest that interventions that facilitate positive religious coping and decrease negative religious coping may be beneficial to people with HIV. In fact, Tarakeshwar and colleagues (2005) assessed a psycho-spiritual intervention in their pilot study and reported that participants experienced decreased religious struggle and

depression over the course of the intervention in which participants had an opportunity to identify personally relevant positive religious coping strategies and express their spiritual struggle. Such intervention might have provided an important step to rebuild a relationship with God and to find meaning and direction in participants' lives. Last but not the least, given the finding that benefit finding mediates the relationship between positive religious coping and positive outcome, and suppresses the positive association between positive religious coping and depressive symptoms, it may be particularly helpful to encourage spiritual practices and beliefs that are likely to promote benefit finding in coping with HIV.

4. Limitations

The study has several limitations. First, this study is cross-sectional, which precludes any conclusions of causal direction, and does not provide information about the process of religious coping over time or its long-term effects. Second, the sample was recruited from one site in a large city on the East Coast, and the majority of participants were black with primarily Christian affiliation. Therefore, generalizing the results of this study to individuals of other ethnicities and religious denominations should be done with caution. Another methodological limitation of the present study is that the data presented are self-reported, which may be influenced by several factors such as social desirability or mood.

5. Future directions

The differential effects of positive and negative religious coping on psychological adjustment need to be replicated in a larger and more diverse sample of people with HIV to be generalized to different religious and ethnic groups. For example, a majority of the participants in this study belonged to a low socio-economic status, which might have

limited the beneficial effects of positive coping strategies. Longitudinal studies are warranted to further elaborate the relationships between different coping strategies and outcome variables. The causality of the differential effects of positive and negative religious coping on mental health outcomes can be studied by utilizing a longitudinal design. In addition, investigating the change or stability of religious coping across time and the long-term consequences of each coping method will contribute to clarifying the mixed implications of several positive religious coping strategies. The ultimate health implications of the coping methods that are related to increased depressive symptoms and decreased quality of life may be able to be determined through examining their long-term consequences in a longitudinal study.

Although distinguishing two broad types of religious coping, positive and negative, is certainly informative, examining the effects of more specified religious coping strategies may be able to provide a clearer picture regarding the relationship between religious coping and psychological outcomes. Investigating specific forms of religious coping may allow us to pinpoint which coping strategies are more beneficial or harmful for certain aspect of mental health outcomes. Identifying such specific relationship may help narrowing down the target of intervention. Whereas many studies have examined the main effects of religious coping, more research is needed to identify variables that may moderate such effects. An individual's religious affiliation, level of religiousness, or ethnicity may play a moderating role in the relationship between religious coping and psychological health. In fact, Tix and Frazier (1998) reported that Protestants' use of religious coping was associated with better adjustment both concurrently and over time, whereas Catholics' religious coping was not associated with adjustment but was actually associated with poorer

adjustment over time. Identifying a potential moderator may be useful in determining the subgroups for whom religious coping is more effective. Especially, it may provide a potential explanation regarding the inconsistent and insignificant relationship between positive religious coping and general psychological adjustment.

Given that there was a significant positive correlation between positive and negative coping strategies, it may be of interest for future investigations to further explore the experience of individuals who report both positive and negative religious coping. Sherman and colleagues (2009) characterized different groups by the levels of positive and negative religious coping: individuals who report high levels of both positive and negative religious coping were characterized as having spiritual conflict, those who score high on positive and low on negative religious coping were characterized as having an ambivalent reliance on faith, and those who score high on negative and low on positive were characterized as having spiritual distance/alienation. The main characteristics of each combination may be interesting research topics to understand the dynamics of individuals' actual coping behaviors. In addition, considering that previous efforts have focused on demonstrating the effects of religious coping on psychological outcomes, identifying factors affecting an individual's level of religious coping can be another interesting topic for future research.

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APPENDIX A: TABLES

Table 1. Sample Characteristics

Variables	<i>N</i>	Mean	<i>SD</i>	Range
Age	197	44.89	10.09	20-73
Year Since Diagnosis	190	13.31	7.56	0-30
CD 4 Cell Count	184	487.75	237.21	38-1300
	<i>N</i>	Percentage		
Gender				
Male	118	60.5%		
Female	75	38.5%		
Transgender	2	1.0%		
Ethnicity				
Caucasian	29	15.1%		
African-American	142	74.0%		
Hispanic/Latino	18	9.4%		
Asian	0	0.0%		
American Indian	1	0.5%		
Pacific Islander	0	0.0%		
Mixed ethnicity	2	1.0%		
Marital Status				
Married/Living with partner	30	15.8%		
Widowed	13	6.8%		
Divorced/Separated	31	16.3%		
Single/Never married	116	61.1%		
Education				
Some high school	62	33.2%		
High school diploma	74	39.6%		
Some college	41	21.9%		
College and over	10	5.3%		
Income				
<\$20,000	148	79.1%		
\$20-40,000	28	15.0%		
\$40-60,000	5	2.7%		
\$60-80,000	2	1.1%		
\$>80,000	4	2.1%		
Employment				
working full-time	11	5.9%		
working part-time	16	8.6%		
a volunteer	6	3.2%		

	unemployed, but seeking to work	49	26.3%		
	on disability	104	55.9%		
Religion					
	None	30	15.7%		
	Catholic	26	13.6%		
	Protestant	103	53.9%		
	Islam	15	7.9%		
	Judaism	2	1.0%		
	Hinduism	0	0.0%		
	Buddhism	1	0.5%		
	Other	14	7.3%		
Sexual Orientation					
	Heterosexual	117	62.6%		
	Bisexual	22	11.8%		
	Homosexual	48	25.7%		
Reason of HIV Contraction					
	Unprotected Sex	122	67.0%		
	Injecting Drug Use	29	15.9%		
	Spouse	14	7.7%		
	Blood Transfusion	4	2.2%		
	Other	13	7.1%		
Mental Treatment					
	Yes	82	45.3%		
	No	99	54.7%		

Table 2. Descriptive Statistics for Study Variables (Standard Score)

Variable	Mean	Std. Deviation	Range
Positive religious coping	105.26	26.55	36 - 144
Negative religious coping	43.31	13.06	24 - 80
Quality of life	112.07	22.14	57 - 175
Depressive symptoms	24.67	12.37	0 - 56
Benefit finding	60.64	16.57	18 - 85

Table 3. Skewness of main variables after appropriate transformation

Variables	Skewness		
	Statistic	Std. Error	Z score
Positive religious coping	-.018	.173	-0.10
Negative religious coping	.336	.173	1.94
Quality of life	-.116	.174	-0.67
Depressive symptoms	.299	.173	1.73
Benefit finding	-.177	.173	-1.02

Table 4. Pearson Correlation Coefficients among Study Variables

Variables	Pos. relig. coping	Neg. relig. coping	Quality of life	Depress. Symp.	Benefit Finding	CD4 Count	Viral Load	Year Since Diag.	Age
Positive religious coping	1.00	.21**	-.10	.08	.61***	.09	.05	.12	.12
Negative religious coping		1.00	-.39***	.45***	-.01	-.05	-.05	-.09	-.03
Quality of life			1.00	-.58***	.13	.17*	.01	.08	.11
Depressive symptoms				1.00	-.17*	-.03	-.02	-.09	-.04
Benefit Finding					1.00	-.07	.08	.11	.07
CD4 Count						1.00	-.18	-.12	.01
Viral Load							1.00	-.03	-.34***
Year Since Diagnosis								1.00	.42**
Age									1.00

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 5. MANOVA Results for Categorical Demographic Variables and Outcome Variables

Categorical Demographics	Wilks' Lambda	df	<i>F</i>	<i>p</i>
Gender	.967	(4, 378)	1.58	.18
Ethnicity	.955	(8, 368)	1.08	.38
Marital status	.978	(6, 366)	.69	.66
Education	.872	(6, 360)	4.26	.00***
Income	.948	(8, 358)	1.22	.29
Employment	.971	(8, 356)	.67	.72
Religious affiliation	.928	(12, 362)	1.15	.32
Sexual orientation	.952	(4, 362)	2.24	.07
Reason for contracting HIV	.964	(8, 348)	.81	.59
Mental treatment	.947	(2, 176)	4.95	.01**

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 6. Hierarchical multiple regression for negative religious coping predicting depressive symptoms and quality of life

Independent Variables		Depressive symptoms			Quality of life		
		β	R^2	ΔR^2	β	R^2	ΔR^2
Step 1	Demographics		.11	.11**		.04	.04
	Education	-.23*			.05		
	Mental Treatment	-.22*			.19*		
Step 2	HIV variables		.12	.01		.07	.03
	CD 4	-.06			.17		
	Time since Diag.	-.10			.07		
Step 3	Religious Coping		.20	.08**		.14	.07**
	Negative Religious Coping	.30**			-.27**		

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 7. Hierarchical multiple regression for positive religious coping predicting depressive symptoms and quality of life

Independent Variables		Depressive symptoms			Quality of life		
		β	R^2	ΔR^2	β	R^2	ΔR^2
Step 1	Demographics		.11	.11**		.04	.04
	Education	-.23*			.05		
	Mental Treatment	-.22*			.19*		
Step 2	HIV variables		.12	.01		.07	.03
	CD 4	-.06			.17		
	Time since Diag.	-.10			.07		
Step 3	Religious Coping		.13	.01		.09	.02
	Positive Religious Coping	.08			-.14		

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 8a. Correlation between religious coping and subscales of depressive symptoms

Religious Coping	Depressive Symptoms			
	Negative Affect	Somatic Symptoms	Positive Affect	Interpersonal
Positive	.13	.14	.17*	
Negative	.45***	.38***	-.12	.40***

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 8b. Correlation between religious coping and subscales of quality of life

Religious Coping	Quality of Life							
	Overall Function	Life Satisfaction	Health Worries	Financial Worries	Medication Worries	HIV Mastery	Disclosure Worries	Provider Trust
Positive		.19**	-.18*	-.19**				.17*
Negative	-.27***	-.19**	-.36***	-.22**	-.31***	-.28***	-.19**	-.20**

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 9. Hierarchical regression for positive religious coping predicting subscales of quality of life and depressive symptoms

Independent Variables		Life satisfaction	Health worries	Financial worries	Provider trust	Positive affect
		β	β	β	β	β
Step 1	Demographics					
	Education	-.02	.12	.11	.12	-.01
	Mental Treatment	.20*	.14	.24**	-.14	.24**
Step 2	HIV variables					
	CD 4	.02	.16	.14	.03	-.07
	Time since Diagnosis	.08	.02	-.05	.16	.07
Step 3	Religious Coping					
	Positive Religious Coping	.19*	-.26**	-.15	.18	.21*

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 10. Hierarchical multiple regression for negative religious coping predicting depressive symptoms and quality of life, after controlling for benefit finding

Independent Variables		Depressive symptoms			Quality of life		
		β	R^2	ΔR^2	β	R^2	ΔR^2
Step 1	Demographics		.11	.11**		.04	.04
	Education	-.24**			.05		
	Mental Treatment	-.21*			.19*		
Step 2	HIV variables		.12	.01		.07	.03
	CD 4	-.06			.17		
	Time since Diag.	-.10			.06		
Step 3	Mediator variable		.17	.04*		.07	.00
	Benefit finding	-.23*			.07		
Step 4	Religious Coping		.26	.09***		.14	.07**
	Negative Religious Coping	.31***			-.27**		

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 11. Hierarchical multiple regression for positive religious coping predicting depressive symptoms and quality of life after controlling for negative religious coping

Independent Variables		Depressive symptoms			Quality of life		
		β	R^2	ΔR^2	β	R^2	ΔR^2
Step 1	Demographics		.11	.11**		.04	.04
	Education	-.23*			.10		
	Mental Treatment	-.22*			-.18		
Step 2	HIV variables		.12	.01		.07	.03
	CD 4	-.06			.19		
	Time since Diag.	-.10			.05		
Step 3	Negative Religious Coping	.30**	.20	.08**		.14	.07**
Step 4	Positive Religious Coping	.01	.20	.00	-.12	.14	.01

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 12. Pearson correlation between subscales of religious coping and outcome variables

	Quality of life	Depressive symptoms	Benefit finding
Positive Religious Coping			
Benevolent religious reappraisal	-.04	-.02	.46***
Collaborative religious coping	-.10	.06	.37***
Active religious surrender	.05	.05	.49***
Seeking spiritual support	-.02	-.01	.43***
Religious focus	-.17*	.13 ⁺	.50***
Religious purification	-.20**	.28***	.39***
Spiritual connection	-.09	.05	.47***
Seeking support from clergy/church members	-.09	.11	.45***
Religious helping	-.01	.05	.49***
Seeking religious direction	-.23**	.15*	.45***
Religious conversion	-.14 ⁺	.07	.53***
Religious forgiving	-.14 ⁺	.03	.47***
Negative Religious Coping			
Punishing God reappraisal	-.32***	.36***	-.12 ⁺
Demonic reappraisal	-.28***	.25***	.08
Reappraisal of God's power	-.12 ⁺	.21**	-.03
Passive religious deferral	-.25**	.26***	.13 ⁺
Pleading for direct intercession	-.35***	.27***	.28***
Self-directing religious coping	-.05	.14 ⁺	-.16*
Spiritual discontent	-.35***	.44***	-.18*
Marking religious boundaries	-.23**	.25***	.16*
Interpersonal religious discontent	-.23**	.17*	-.03

* $p < .05$, ** $p < .01$, *** $p < .001$, ⁺ $p < .10$

APPENDIX B: FIGURES

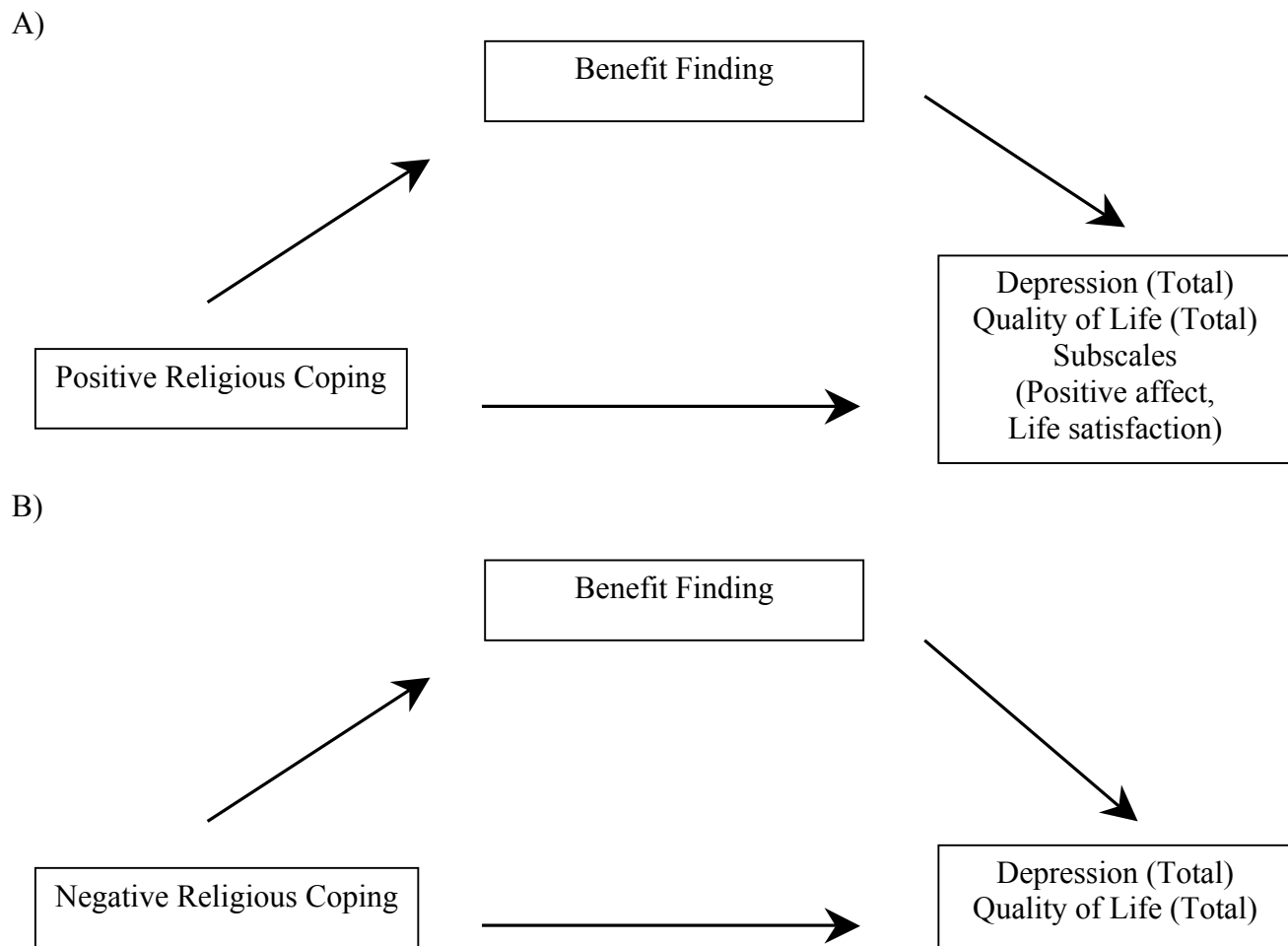


Figure 1. A hypothetical mediating role of benefit finding in the relationship between positive (panel A) and negative (panel B) religious coping and outcome measures

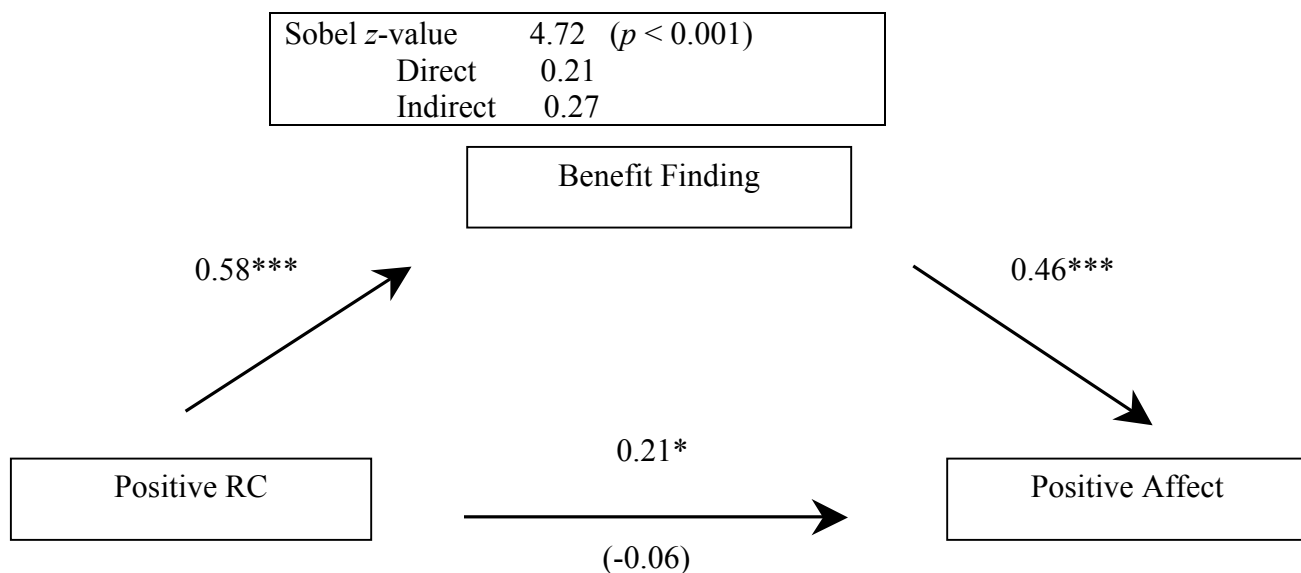


Figure 2. Mediation model of benefit finding in the relationship between positive religious coping and positive affect. The standardized regression coefficient between positive religious coping and positive affect controlling for benefit finding is in parenthesis. * $p < .05$, *** $p < .001$

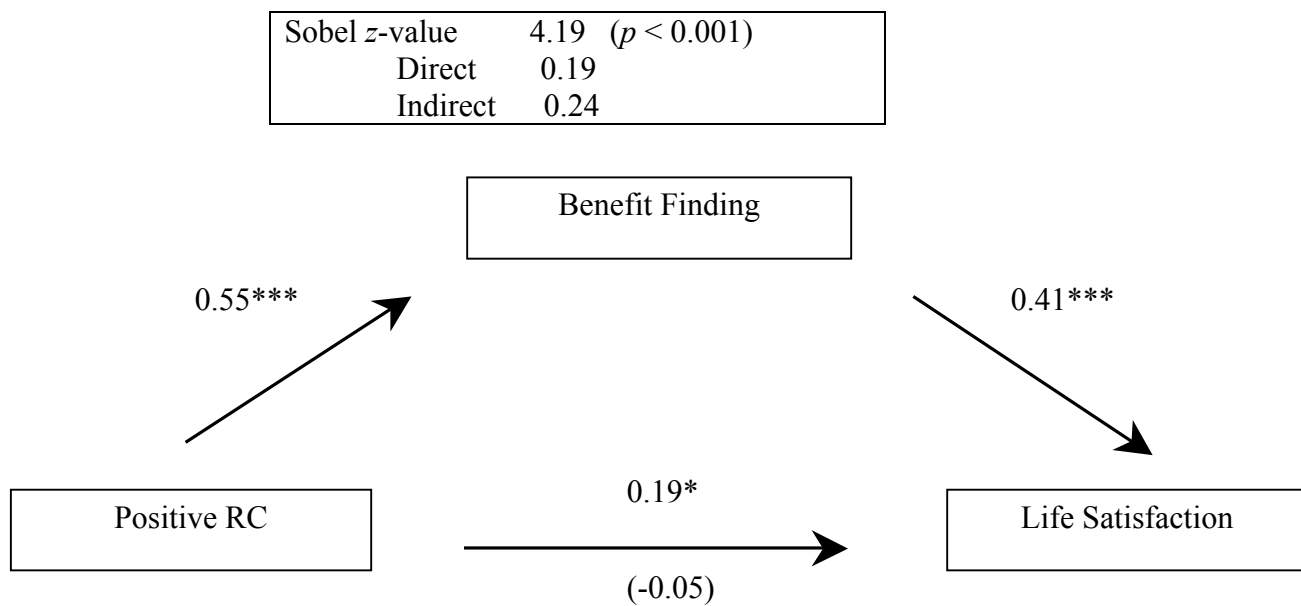


Figure 3. Mediation model of benefit finding in the relationship between positive religious coping and life satisfaction. The standardized regression coefficient between positive religious coping and life satisfaction controlling for benefit finding is in parenthesis. * $p < .05$, *** $p < .001$

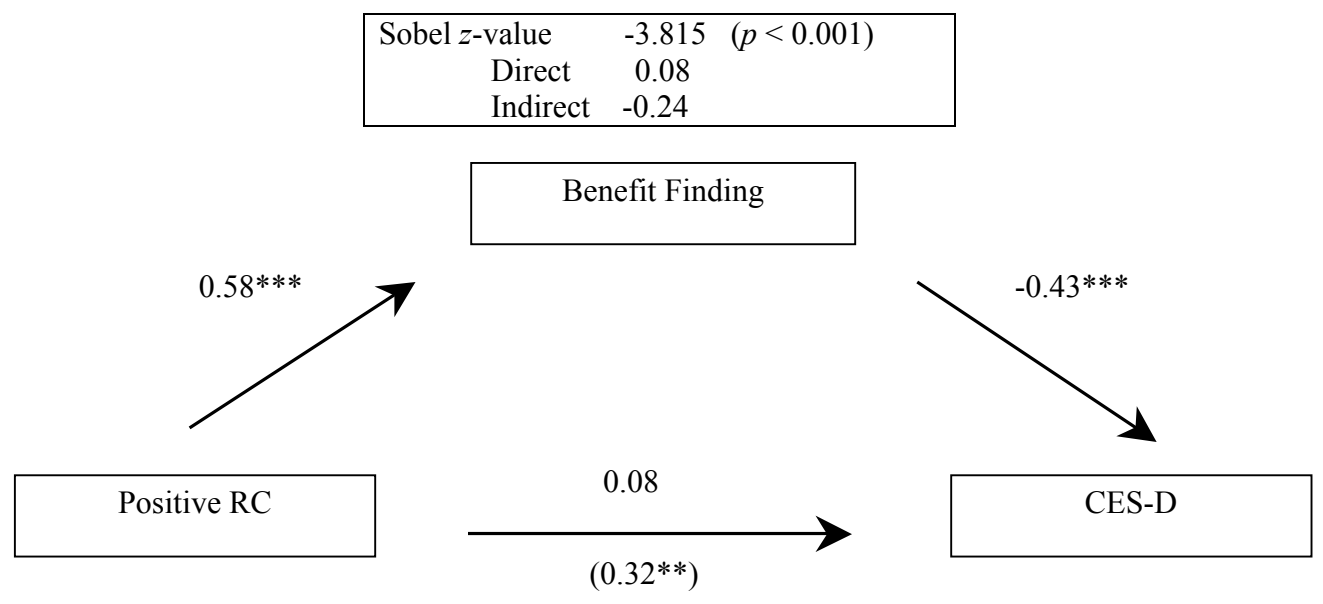


Figure 4. Mediation model of benefit finding in the relationship between positive religious coping and depressive symptoms. The standardized regression coefficient between positive religious coping and depressive symptoms controlling for benefit finding is in parenthesis.
** $p < .01$, *** $p < .001$

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Lee, M., Nezu, A.M., and Nezu C.M. (under submission). Religious Coping, Depression, and Quality of Life in People with HIV.
Lee, M., Nezu, A.M., and Nezu C.M. (in preparation). Acculturation Stress, Problem Solving, and Depressive Symptoms in Korean Immigrants.
Lee, M., Williams, J.M., Alicia, R., McCrae C. (in preparation). Insomnia, Depression, and Anxiety among Patients with Implantable Cardioverter Defibrillator

POSTER PRESENTATIONS (recent selections)

- Nezu, A. M., Nezu, C. M., **Lee, M.**, Haggerty, K., Salber, K., Greenberg, L., Raggio, G., Bennett, P., Ricelli, S., (2011). Social Problem Solving as a Mediator of Posttraumatic Growth and Quality of Life Among Heart Failure Patients. Poster session to be presented at the Annual Meeting of the Association for Behavioral and Cognitive Therapies (ABCT), Toronto, Canada.
Lee, M., Nezu, A.M., and Nezu C.M. (2010). *Acculturation Stress, Problem Solving, and Depressive Symptoms in Korean Immigrants*. Poster session presented at the Annual Meeting of the Association for Behavioral and Cognitive Therapies (ABCT), San Francisco, CA.
Lee, M., Nezu, A.M., and Nezu C.M. (2009). *Religious/spiritual coping, depression, and quality of life in people with HIV/AIDS*. Poster session presented at the Annual Meeting of the Association for Behavioral and Cognitive Therapies (ABCT), New York, NY.

PROFESSIONAL MEMBERSHIP

- American Psychological Association (Div. 12 Clinical Psychology)
 Association for Behavior and Cognitive Therapies (Student Member)
 Philadelphia Behavioral Therapy Association (Student Member)