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Stress and Coping in the Prediction of Psychological Distress among HIV-Seropositive African American Women

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UNIVERSITY OF MIAMI

STRESS AND COPING IN THE PREDICTION OF PSYCHOLOGICAL DISTRESS
AMONG HIV-SEROPOSITIVE AFRICAN AMERICAN WOMEN

By

Indira Leila Abraham-Pratt

A DISSERTATION

Submitted to the Faculty
of the University of Miami
in partial fulfillment of the requirements for
the degree of Doctor of Philosophy

Coral Gables, Florida

May 2010

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The purpose of this study was to examine general life stressors and emotion-focused and problem-focused coping strategies as prospective predictors of psychological distress in a sample of 209, low-income, urban, HIV-positive, African-American women. A secondary aim was to determine whether coping strategies mediated the relationship between life stressors and psychological distress. This study involved a secondary data analysis from a longitudinal National Institutes of Health (NIH) funded, randomized, family therapy efficacy study (Structural Ecosystems Therapy [SET]; Szapocznik et al., 2004). Participants completed self-report measures, including the Brief Symptom Inventory, Brief Cope (adapted), and Difficult Life Circumstances, as measures of psychological distress, problem-focused and emotion-focused coping, and general life stressors, respectively. These measures were completed at baseline, and at 3, 6, 9, and 18-month follow-up assessments. Results from longitudinal, cross-lagged, path model analyses provided some modest support regarding the hypothesis relating amount of life stressors to subsequent level of psychological distress symptoms. Results of the coping path models failed to support the hypotheses relating problem-focused coping and emotion-focused coping to subsequent distress (Hypotheses 2 and 3). Furthermore, the lack of direct associations between coping strategies and distress prohibited the examination of problem-focused and emotion-focused coping strategies as possible

mediators in the relationship between life stressors and psychological distress. Results and implications are discussed.

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CHAPTER 1

Introduction

The rate of HIV transmission among African American women continues to rise mainly due to heterosexual transmission (Fleming, Lansky, Lee, & Nakashima, 2006) posing unique challenges to this population. The AIDS diagnosis rate for African American females during 2005 was approximately 23 times the rate for white females and 4 times the rate for Hispanic females (Centers for Disease Control [CDC], 2008; CDC, 2009). In 2004, HIV/AIDS was the top cause of death for African American women aged 25-34 years (CDC, 2008; CDC, 2009). Based on the CDC's data from 33 states utilizing confidential, name-based HIV/AIDS reporting in 2005, 64% of the 126,964 women living with HIV/AIDS were black.

HIV/AIDS is no longer thought of as a terminal illness due to the emergence of triple combination medication therapies in the mid 1990s (protease inhibitors, non-nucleoside reverse transcriptase inhibitors (NNRTIs), and the antiretroviral drug, zidovudine (AZT; Palacio, Kahn, Richards, & Morin, 2002). Combination medication therapy transformed AIDS from an acute, fatal illness to a serious chronic illness in the late 1990s. Although treatment advances have slowed the rate of HIV progression and reduced many of its life-threatening complications, this chronic disease still requires complex medical regimens and essential preventive efforts to reduce complications and prolong life (Paterson, Thorne, & Russell, 2002). Additionally, HIV infection is known to produce neuropathological changes in deep grey structures (basal ganglia, thalamus, and brain stem nuclei) associated with mood and motivation disorders (Price et al., 1988). Despite more effective treatment regimens, the number of women living with HIV

infection who subsequently progress to full-blown AIDS has slightly increased and the rate of new cases of HIV infection continues to rise in low-income women (Hudson, Lee, & Portillo, 2003), particularly African American women, whom have been disproportionately affected by this disease. Many African American women living with HIV infection are living “in the context of chronic stress associated with poverty, mother-only parenting, and inadequate access to quality health care...” (Jones, Beach, Forehand, & the Family Health Project Research Group, 2001, p. 417). HIV-infected African American women tend to be single, lack a high school diploma, are unemployed, lack adequate financial resources (Land, 1994; Quinn, 1993) and face discrimination based on their race, gender, socioeconomic status, and health status (Owens, 2003). Living with HIV, in the context of the additional chronic stressors associated with poverty, single-parenting, and inadequate access to quality health care, may make African American HIV infected women particularly vulnerable or at-risk for mental health problems (Jones et al., 2001).

There is consistent evidence indicating that HIV-infected African American women experience high levels of adverse life events and appear a vulnerable group. Less is known about the factors that influence important mental health status in this group. Although the mental health status of HIV/AIDS infected African American women is thought to be affected by a number of factors, life stressors and coping responses are two potentially salient variables that have been understudied. Research on life stressors and coping in both general populations and chronic illness populations has generally shown these factors to have considerable impact on mental health status (Aldwin & Revenson, 1987; Cohen & Wills, 1985; Felton, Revenson, & Hinrichsen, 1984; Jenkins & Coons,

1996; McClure, Catz, Prejean, Brantley, & Jones, 1996; Thoits, 1995). Across many different populations (including low-income, minority populations) high levels of adverse life events have been linked to psychological symptoms and distress. Exposure to chronic life stressors in such populations has been found to contribute to psychological distress and predispose individuals to health problems by reducing the ability of the body to respond to immune system challenges (Gurung, Taylor, Kemeny, & Myers, 2004). Life events appraised as negative have been more strongly associated with psychological distress than events appraised as neutral or positive (Thoits, 1995). Research has also shown that negative life events and chronic difficulties play a strong role in provoking and maintaining depression (Moos & Swindle, 1990). Therefore, it may be very valuable to determine if HIV-infected African American women are at risk for psychological distress linked to high levels of life stressors and use of ineffective coping strategies.

Given the multitude of stressors that HIV-infected African American women potentially face in their daily lives, effective coping may be of critical importance with respect to daily functioning and general well being. Coping strategies involve cognitions and behaviors that are directed at managing stressful events and corresponding negative emotions (Folkman & Lazarus, 1990). “Coping consists of cognitive and behavioral efforts to manage specific internal and/or external demands that are appraised as taxing or exceeding the resources of the person” (Folkman & Lazarus, 1990, p. 315). Problem-focused coping strategies involve processes that actually change this relationship and are action-centered forms of coping (i.e., confrontation, planful-problem solving, and seeking social support). Emotion-focused coping processes only change the way in which the relationship is attended to (i.e., escape/avoidance, distancing, denial, and positive-

reappraisal). They are emotion-focused or cognitive coping strategies, because they involve mainly thinking rather than acting to change the person-environment relationship. They involve internal restructuring of cognitions and consequently change the meaning assigned to a given situation, and therefore change the corresponding emotional reaction.

People typically use both types of coping, "...although one type may be emphasized depending on the context, appraisal of the situation, and personal factors" (Aldwin, 1994). Research has frequently linked emotion-focused coping strategies as being utilized more frequently with uncontrollable events. Moreover, emotion-focused coping has generally been linked to greater psychological distress in populations of individuals living with chronic illness, including HIV (DeGenova, Patton, Jurich, & MacDermid, 1994; Felton & Revenson, 1984; Fleishman & Fogel, 1994; Leserman, Perkins, & Evans, 1992; Mitchell, Cronkite, & Moos, 1983; Pakenham, Dadds, & Terry, 1994). Furthermore, research on coping in individuals living with chronic illness indicates that use of avoidance coping strategies, specifically, is consistently linked with higher levels of psychological distress (e.g., Bombardier, D'Amico, & Jordan, 1990; Coyne, Aldwin, & Lazarus, 1981; Cronkite & Moos, 1984; Felton & Revenson, 1984; Felton, Revenson, & Hinrichsen, 1984; White, Richter, & Fry, 1992), and similar findings have been found in studies of coping in HIV-infected individuals (e.g., DeGenova et al., 1994; Fleishman & Fogel, 1994; Friedland, Renwick, & McColl, 1996; Leserman et al., 1992; Namir, Wolcott, Fawzy, & Alumbaugh, 1990; Nicholson & Long, 1990; Pakenham et al., 1994; Reed, Kemeny, Taylor, & Visscher, 1999; Wolf et al., 1991). Individuals who use more problem-focused coping strategies generally show lower levels of psychological distress subsequent to traumas experienced compared to

those who utilized more emotion-focused strategies (e.g., Simoni & Ng, 2000). Other research has also indicated that problem-focused coping is related to lower levels of psychological distress (e.g., Ball, Tannenbaum, Armistead, Maguen, & the Family Health Project Research Group, 2002; Felton & Revenson, 1984; Fleishman & Fogel, 1994; Mitchell et al., 1983; Pakenham et al., 1994; Vitaliano, Katon, Maiuro, & Russo, 1989) and better adjustment in adults living with chronic illnesses (Ball et al., 2002; Billings & Moos, 1981; Fleishman & Fogel, 1994; Friedland, et al., 1996; Namir, Walcott, Fawzy, & Alumbaugh, 1987; Pakenham et al., 1994).

There are, however, inconsistencies in the research focusing on the relationship between coping strategies and psychological distress. While many studies have reported that problem-focused coping is associated with lower levels of emotional distress and emotion-focused coping is linked to higher psychological distress, some studies have indicated the opposite pattern or have not found relationships between some coping strategies and distress (e.g., Baum, Fleming, & Singer, 1983; Nicholson & Long, 1990). Even if a consistent and systematic relationship was identified between coping strategies and psychological outcomes, the causal direction cannot be appreciated without longitudinal analysis (Aldwin & Revenson, 1987). Thus far, with few exceptions (Blaney et al., 1997; DeMarco, Ostrow, and DiFranceisco, 1999; Felton & Revenson, 1984; Menaghan, 1982; Moneyham et al., 1998; Pearlin, Menaghan, Lieberman, & Mullan, 1981), studies in both general and chronic illness populations have tended to use cross-sectional designs. Therefore, there does not appear to be a clear consensus as to the meaning of linkages between coping strategies and quality of psychological adaptation (Aldwin & Revenson, 1987).

Within the transactional framework, stress is a process that emerges from the interaction between environmental demands and individual resources (Aldwin, 1994). The perception of stress (appraisal) depends upon the extent of the environmental demand and the adequacy of resources that an individual has to cope with that demand. In other words, stressors arise because of a perceived shortfall of resources needed to deal with a problem. Although stress appraisal and coping theory imply the operation of complex transactions among event appraisals, evaluation of coping options, implementation of coping responses, and adaptational outcomes, typical studies of stress and coping examine main effects only. Alternatively, some research has also been done focusing on moderating (buffering) effects where researchers have proposed that coping has an effect on outcomes only to the degree that coping moderates the effect of stress on the outcome (Aldwin). This stress-buffering model proposes that perceived coping resources and implemented coping strategies may buffer the individual against the negative consequences of stress, with the effect on adjustment being apparent only at high levels of appraised stress. Coping resources are personal and social characteristics people may draw upon when faced with stressors (define a potential for action, but not an action itself); these resources influence the choice and efficacy of the coping strategies that people use in the response to stressors (Thoits, 1995; Pearlin & Schooler, 1978). Coping strategies are actual behavioral/cognitive attempts to manage specific situational demands that are viewed as exceeding one's ability to adapt (Thoits, 1995; Lazarus, 1991). Although there has been strong empirical support for the main effects (direct effects) model (Aldwin & Revenson, 1987; Cohen & Wills, 1985), there is limited empirical support for the stress-buffering model in the literature of both general and

chronic illness populations (Finney, Mitchell, Cronkite, & Moos, 1984; Pakenham et al., 1994) This suggests the need for further investigation of the possible stress-buffering effects of coping strategies, in addition to the analysis of the direct effects of coping, with respect to the understudied HIV-infected, African American women population.

Numerous studies of HIV-infected individuals, which have typically focused on men (or included few women), have documented the relationship between coping strategies and psychological distress (Penedo et al., 2001). In general, these studies are cross-sectional and have typically found that the use of **emotion-focused** coping strategies, such as avoidance and denial, has been associated with depression and anxiety and greater emotional distress (Fleishman & Fogel, 1994; Folkman, Chesney, Pollack, & Coates, 1993; Leserman et al., 1992; Namir et al., 1990; Nicholson & Long, 1990; Wolf et al., 1991). Avoidant coping has been associated with poor mental health and with situations of low controllability (Terry, 1994). Avoidant coping is often portrayed as a counter-productive, maladaptive response to life stress (Stein & Rotheram-Borus, 2004). Active (positive) coping has been associated with less mood disturbance or no association with mood state (Nicholson & Long, 1990). Both active and avoidant coping responses often co-occur in stressful situations (Carver & Scheier, 1994). It is important to note that many of the existing studies of HIV-infected individuals have examined coping with respect to HIV-specific stressors, while a small sample of studies have focused on general life stressors. Given that African American women infected with HIV (sample of interest) are impoverished and facing many life stressors in addition to those linked to HIV, it may be important to examine their coping in response to a large range of general life stressors.

Further, the ways in which individuals cope with general life stressors may be critical in the understanding important psychological adaptational outcomes. Given the elevated levels of life stressors that many HIV-infected African American women face, the ways in which these women cope with such stressors, may be important in understanding their well-being. The purpose of this study is to examine how general life stressors and coping responses of impoverished HIV-positive African American women relate to levels of psychological distress. Few studies have prospectively examined the effects of life stressors and coping on the subsequent development of or change in psychological distress. The benefits of this prospective design plan include allowing for a more clear appreciation of the nature of the relationships among these variables. Using either concurrent or prior predictors of distress (from a single time point), even when controlling for prior distress, is not adequate for testing relationships over time, since these predictors cannot be assumed to be stable over time, just as HIV infection is not stable over time (Blaney et al., 1997). Prospective analysis of these factors may be more valuable in suggesting how these variables relate to one another in a temporally ordered manner. This type of analysis can also potentially identify effective or ineffective use of coping strategies by examining their linkages with psychological distress. The proposed study will prospectively examine how levels of life stressors and/or coping strategy utilization contribute to the subsequent development of or change in psychological distress.

The following review of literature includes an overview of 1) the levels of stress experienced by HIV-infected women and introduction of factors that may influence mental health status, 2) the relationship between general life stressors (stressful life

events) and psychological distress, and 3) the relationship between coping strategies and psychological distress. A description of the purpose of this study and hypotheses will follow the review of the literature.

Review of the Literature

Psychological Distress among HIV-Infected Individuals

Existing literature suggests that psychosocial factors, such as depression, anxiety, and psychological distress may accelerate the progression of HIV (Leserman et al., 2000). Existing studies of both male and female HIV-infected individuals indicate high rates of psychological distress (e.g., Israelski et al., 2007; Maj, 1996). Cruess and colleagues' (2003) review of studies examining major depression prevalence in HIV-infected women revealed rates ranging from 1.9% to 35% in clinical samples and rates between 30% to 60% among community samples. This large range in prevalence rates is likely due to differences in study methodologies, populations, and small sample sizes in some studies (Cruess et al.). The higher prevalence rates indicated in the studies of community samples may suggest that many of these women struggle with symptoms of depression, yet do not seek or utilize treatment.

Studies comparing the psychological adjustment of HIV-infected women with that of HIV-infected men have generally found that women tend to experience high levels of psychological distress and that the levels they experience are as great or greater than those experienced by men (e.g., Cleary et al., 1993; Linn, Poku, Cain, Holzapfel, & Crawford 1995; Van Servellen, Aguirre, Sarna, & Brecht 2002). Most of the existing studies define psychological distress as involving either depressive symptoms or both symptoms of anxiety and depression. Although further research needs to be done to

explore gender differences with respect to psychological distress experienced by HIV-infected men and women, the current research suggests that HIV-infected women may be particularly vulnerable to experiencing symptoms of emotional distress.

Current studies examining HIV-infected women suggest that many of these women experience high levels of psychological distress, particularly depression (Catz, Gore-Felton, & McClure, 2002; Cook et al., 2004; Kaplan, Marks, & Mertens, 1997; Mellins, Kang, Leu, Havens, & Chesney, 2003; Miles, Burchinal, Holditch-Davis, Wasilewski, & Christian, 1997; Moneyham, Sowell, Seals, & Demi, 2000; Morrison et al., 2002). Some studies have utilized the Center for Epidemiological Studies-Depression (CES-D; Radloff, 1977) scale, a 20-item self-report measure of depressive symptoms occurring in the past week (a score of 16 is the recommended clinical-cutoff). For example, Catz and colleagues (2002) found that the mean CES-D score in a sample of 100 low-income HIV-infected women (84% African American) was in the clinically depressed range ($M= 24.5$; $SD=12.5$). This sample CES-D scores indicated that 56% of these women reported clinically significant symptoms of depression. A similar CES-D mean depression score was indicated in Moneyham and colleagues' (2005) sample of 280 HIV-infected women living in rural areas of the Southeastern United States ($M= 24.05$, $SD= 12.72$). Ickovics and colleagues' (2001) prospective study of 765 HIV-infected women (62% Black, 21% White, & 18% Hispanic or other ethnicities) indicated that 42% of the women reported chronic depressive symptoms (CES-D) scores of 16 or higher at least 75% of their study visits. The average number of study visits for participants was 10 with assessments conducted at 6-month intervals. CES-D means were reported to be relatively stable across study visits demonstrating that depression severity did not

increase over time on average. In a similar prospective study of HIV-infected women (mainly African American & Hispanic), Cook and colleagues (2004) found that 32% of women reported depressive symptoms at a level above the CES-D clinical cutoff of 16 at 75% or more of their study visits (semi-annual visits); Thirty-seven percent reported depressive symptoms intermittently.

Other studies of psychological distress in HIV-infected women using different distress/depression measures have found similar ranges. Some of the measures used have included the Brief Symptom Inventory (BSI), Hamilton Depression Inventory (HDI), and the Hamilton Depression Rating Scale (HDRS). The BSI (Derogatis, 1975, 1993) is a 53-item self-report inventory designed to assess psychological symptoms (psychological distress). The HDI (Reynolds & Kobak, 1995) is also a self-report inventory (23-item) used commonly to screen for symptoms of depression. The HDRS (Hamilton, 1967) is a 21-item, clinician-rated/administered scale, typically used to assess the severity of depression symptoms. In an examination of 53 HIV-infected women (32% African American, 40% White, 25% Latina, and 4% Native American), Kaplan and colleagues (1997) found that 38% of the participants were considered positive for depressive disorders and 43% for anxiety disorders, based on non-patient norms for the depression and anxiety subscales of the Brief Symptom Inventory (BSI: Depression subscale, $M = .94$, $SD = .97$; Anxiety subscale, $M = 1.10$, $SD = 1.01$). Morrison and colleagues' (2002) examination of differences in the rate of depressive and anxiety disorders between 93 HIV-infected women and a comparison group of 62 uninfected women (mainly rural African American and Caucasian) revealed that 19.4% of the HIV-seropositive women qualified for a diagnosis of current major depressive disorder compared to 4.8% of HIV-

seronegative women, based on clinician-rated, Hamilton Depression Rating Scale scores. In a study of 135 HIV-infected mothers (39% African American, 26% Latina, 21% White, and 15% mixed or other race), Murphy, Marelich, Dello Stritto, Swendeman, and Witkin (2002) found a moderately elevated mean level of depressive symptoms, yet well-below levels required for diagnoses of clinical depression. No differences between race/ethnic groups were found in studies in which such comparisons were reported. Overall, these studies indicate that anywhere from 20% to nearly 60% of HIV-infected women experience clinically meaningful symptoms of depression.

Few studies have examined African American HIV-infected women exclusively, yet existing studies generally do suggest that African American women experience moderate to high rates of psychological distress. For example, in a sample of HIV-infected, low income, African American mothers, Miles and colleagues' (2003) documented a mean depression score that was near the clinical cutoff score on the CES-D. African American, HIV-infected, single mother-participants in Jones and colleagues' (2001) study were found to have mild to moderate levels of depression on average as measured by a clinician-rated depression measure (Hamilton Rating Scale for Depression: HRSD; $M=13.76$, $SD=9.02$). The depression subscale of the self-report BSI was also used in this study and also suggested a high mean level ($M=9.96$, $SD=3.97$) of emotional distress in this sample. The women in this sample were the primary caretaker for at least one child residing in the home and had not used intravenous drugs in the 6 months preceding the first assessment, and therefore the study authors considered the sample "healthy." Myers and Durvasula (1999) found that approximately 23% of African American women living with HIV or AIDS in their study of psychiatric disorder

prevalence in African Americans met criteria for major depression during the previous 12-month period (as assessed by a structured interview, the University of Michigan Revised Short Form of the Composite International Diagnostic Inventory: UM-CIDI; Kessler, Andrews, Mroczek, Ustun, & Wittchen, 1998). In summary, the existing studies of HIV-infected women, particularly African American women living with HIV, reveal significant numbers with meaningful levels of distress and/or depression.

Given the documented evidence of moderate to high levels of psychological distress in many women living with HIV infection, it is important to explore factors that influence this important index of mental health status. The current literature, which has focused primarily on HIV-infected men, has demonstrated that life event stressors and coping responses are important factors that influence level of distress in individuals living with HIV/AIDS. These studies are reviewed in the following section.

Life Stressors and Psychological Distress

It is well established that stressful life events play a significant role in affecting psychological well-being, especially in regards to psychological distress and depression. Major and chronic life stressors, such as serious physical illness, financial hardship, and persistent family and work problems have been consistently linked with psychological distress and psychiatric disorder in various populations (Moos & Swindle, 1990; Thoits, 1995). Events appraised as negative have been more strongly associated with psychological distress than events appraised as neutral or positive (Thoits, 1995). Research has also shown that negative life events and chronic difficulties play a strong role in provoking and maintaining depression (Moos & Swindle).

It is important to note that in existing studies of HIV-infected individuals, life stressors have been identified as either general life stressors (not necessarily related to HIV status/HIV-independent) or HIV-specific life stressors (HIV-dependent or related: stressors that are perceived to be directly related to HIV status). The literature review that follows will emphasize general life stressors (with some exceptions as noted). In studies examining general life stressors experienced by HIV-infected men, the following negative events or hassles have generally been found to be common: financial strains, changes in work responsibilities, and changes in relationships (Patterson et al., 1993; Peterson, Folkman, and Bakeman, 1996; Thompson, Nanni, & Levine, 1996). In these studies, such stressors are assumed not to be linked with HIV diagnosis.

Studies of mainly HIV-infected men have shown negative life events to be positively associated with psychological symptoms (Blaney et al., 1991; Peterson et al., 1996; Sikkema, Kochman, DiFranceisco, Kelly, & Hoffman, 2003). It is important to note, that most studies have examined these relationships within a cross-sectional framework. For example, in a cross-sectional study of coping, life stress, and psychological distress in HIV-infected men who have sex with men (MSM), Penedo and colleagues (2003) found that more personal loss life events, in addition to less perceived control over these events, were significantly associated with greater levels of psychological distress. Life events experienced in the past 6 months were assessed using a modified version of the self-report, Life Experiences Survey (43-items; Sarason, Johnson, & Siegel, 1978) and the Total Mood Disturbance distress index of the Profile of Mood States (POMS; McNair, Lorr, & Droppleman, 1971) self-report measure was used as a measure of psychological distress. Similarly, in a cross-sectional study of 160

asymptomatic and mildly symptomatic HIV-infected men, life stressors were significantly associated with depression (Patterson et al., 1993); specifically, life stressors experienced in the previous 6 months were associated with depressive symptoms in the past week as reported on the Beck Depression Inventory (Beck, 1967). Using the Psychiatric Epidemiological Research Interview (PERI; Hirshfield et al., 1977) and the Life Events Difficulty Schedule (LEDS; Brown & Harris, 1978), Patterson and colleagues examined three categories of life stressors: HIV-dependent, HIV-related, and HIV-independent life stressors. Interestingly, only the HIV-independent life stressors were associated with depression (e.g., chronic financial strain, marital problems, non-HIV health problems, and death of a family member/close friend from an accident or non-HIV related illness). Thompson, Nanni, and Levine (1996) surveyed 105 HIV-positive men and found that the men who experienced high levels of stressors and greater perceived stress also had elevated levels of depression on the CES-D. Thompson and colleagues designed their own life stressor scale for the study, the HIV Stressor Scale, and found that the specific stressful events most often linked to depression in this sample were related to relationships, finances/housing, and illness/death of others.

In a community sample of African American gay, bisexual, and heterosexual mixed HIV-serostatus men, Peterson, Folkman, and Bakeman (1996) found that both daily hassles and negative life events were correlated with depressive mood (using DeLongis, Folkman, & Lazarus' Hassles Scale (1988), a modified version of the Life Experiences Survey, and the CES-D, respectively). In this sample, it is important to note that HIV serostatus was not related to any of the stress, coping, or depression variables. The most frequent daily hassles reported by this sample included not having enough

money for necessities, not having enough money for extras, and not being organized, while one of the most frequently reported negative life events was change in work responsibilities. Daily hassles, negative life events, social support, and health symptoms were found to have the strongest linkages with mood.

Blaney and colleagues (1997) studied 40 HIV-infected men and examined concurrent relationships between distress and negative life events at multiple time points (baseline, 6 months, and one-year). Specifically, Blaney and colleagues examined whether changes over time in psychological distress were a function of changes over time in life event stressors and other predictors (e.g., coping strategy and social support). Life events stressors were defined as negatively rated life events for the prior 6 months as indicated on Sarason, Johnson, and Siegel's Life Experiences Survey (LES; 1978) and distress was measured using a distress composite score from the POMS. Change in levels of distress over a one-year period of time (3 timepoints) was associated with negatively rated life events, passive/maladaptive coping, and social support. Specifically, increased distress over time, was linked with concurrent increases in negatively rated life events, disengagement/denial (passive, maladaptive coping) and venting of emotions. Increases in turning to religion (considered an emotion-focused coping strategy) and social support availability were associated with decreased distress over time. A similar longitudinal investigation by DeMarco, Ostrow, and DiFranceisco (1999) involved a survey of 297 White and African-American, gay, mixed-HIV serostatus men. Demarco and colleagues examined the effects of stressors, coping, appraisals of control, and physical symptoms on depressed mood in gay men with and without HIV infection. Predictor variables were from Time 2 only (life stressors, control, coping, physical

symptoms), while the dependent variables represented change from Time 1 to Time 2 (depression change and AIDS-specific distress change), a one-year period of time.

Depressed mood was measured using the 5-item depression subscale from the Hopkins Symptom Checklist (HSCL; Derogatis, 1977a), a self-report measure. Four change score possibilities from Time 1 to Time 2 were delineated and served as the dependent variables: above the clinical cutoffs at both time points (significantly depressed), below the cutoff at Time 1 and above the cutoff at Time 2, above the cutoff at Time 1 and below the cutoff at Time 2, or below the cutoffs at both time points. DeMarco and colleagues reported that two stressor scores were derived from a scale based on Folkman et al., 1993 composed of 19 general life stressors and 13 HIV/AIDS specific stressors occurring in the last month (general life stressors and AIDS-specific life stressors scores were created). In multivariate analyses, DeMarco and colleagues tested two separate path models, one model for general life stressors, coping, perceived control, and depression change and another model for AIDS-specific stressors, coping, perceived control, and change in AIDS-related distress. These models were tested separately based on serostatus and ethnicity for a total of eight models predicting change in depression or change in AIDS-specific distress. With regard to the general life stressors model for HIV-infected men, increased levels of general life stressors were associated a significant direct effect on depression change; specifically, the report of increased life stress was related to worse depression outcome (in addition to greater use of detachment coping strategies). With regard to the AIDS-specific stressor model, DeMarco and colleagues reported an even stronger direct effect of AIDS-specific stressors on AIDS-specific distress change for HIV-infected men. Studies involving mixed-gender samples of HIV-infected individuals

have yielded similar findings, all within a cross-sectional framework (Carels, Baucom, Leone, & Rigney, 1998; McClure et al., 1996; O’Cleirigh, Ironson, & Smits, 2007). In general, these studies of individuals (mostly men) living with HIV suggest that life stressors, particularly negative life events that are not necessarily linked with HIV status, are associated with increased psychological distress.

In summary, studies of the relationship between general life stressors and psychological distress in individuals living with HIV infection have generally revealed that negative life events have a positive association with symptoms of psychological distress, including depression. These negative life events are often related to financial strains, relationship difficulties, general health problems (i.e., health problems not necessarily linked to HIV infection), and loss of significant others. A major limitation in the current literature reviewed is that the relationship between life stressors and psychological distress has exclusively been studied within a cross-sectional framework, preventing analysis of possible causal relationships.

Another limitation in the current research is that few studies have examined the impact of life stressors on psychological well being among African American HIV-infected women, many of whom are socioeconomically and socially disadvantaged (Armistead & Forehand, 1995) and face a vast burden of life stressors, both chronic and acute, that may compound distress (Greenwood et al., 1996). Many of these women live in high-stressed environments, facing multiple and often continuous stressors including: high-crime and overcrowded neighborhoods, racism, unemployment, poor education, poverty, violence, drug abuse, and single parenthood (Armistead & Forehand, 1995; Kimerling, Armistead, & Forehand, 1999; Kimerling, Calhoun, et al., 1999). Studies

examining life stressors in HIV-infected women have indicated high levels of stress in different life domains including financial problems, job loss, relationship problems/breakups, assault, abuse, caring for children, removal of children, and bereavement (Gillman & Newman, 1996; Greenwood et al., 1996; Jones, Beach, Forehand, & Foster, 2003; Leserman et al., 2005; O'Cleirigh et al., 2003; Smith et al., 2001). Furthermore, many African American women living with HIV are mothers. Mothers living with HIV, in particular, may be burdened with concerns about disclosing their serostatus to their children, concerned that their children may become stigmatized because of or despite their children's serostatus, and concerned with children's future welfare (Jenkins & Coons, 1996).

In the few studies conducted to date with respect to HIV-positive women, life event stress has been associated with psychological distress, including symptoms of depression. For instance, in a cross-sectional survey of 100 HIV-infected, low-income, minority women (84% African American), Catz and colleagues (2002) found that greater anxiety and depression symptoms were associated with women who reported higher levels of life stressors (major life stressors experienced in the past 6 months as self-reported on Holmes and Rahe's (1967) Social Readjustment Rating Scale: SRRS). Specifically, more life stressors, in addition to several other variables, contributed independently to elevated depressive symptoms on the CES-D ($R^2 = .46$, $F(7, 89) = 10.04$, $p < .001$). Psychological distress in this study was related, in part, to the occurrence of recent major life events, the women's use of avoidant coping strategies, and a lack of perceived social support. Of note, these women were found to have elevated levels of life stress in comparison to community norms and on average,

experienced nearly 7 major life events in the prior 6-months. In a sample of primarily African-American and Latina, impoverished, single, HIV-infected mothers with a history of substance use, Mellins, Ehrhardt, Rapkin, and Havens (2000) found that negative stressors experienced in the past 6 months, including death of family and friends, victimization, poverty, child care demands, relationship losses, and changes in health status, were extremely common and strongly correlated with current psychiatric symptoms. Current psychiatric symptoms were defined as total symptoms experienced in the past month across the Axis I diagnostic categories of the SCID (Spitzer, Williams, Gibbon, & First, 1990). In other words, women who experienced more life stressors (on a modified version of the PERI), particularly stressors related to loss and victimization, also experienced more psychological symptoms. The category of loss and victimization was the strongest correlate of current psychiatric symptoms and accounted for 23% of the variance. Authors in this study focused on both general life stressors (stressors related to family, finances, health, relationships, work, etc.) and HIV/AIDS- specific stressors (e.g., experiencing an opportunistic infection, disclosing HIV status). Stressor types were categorized for analysis and some resulting factors consisted of only stressors rated as negative by women while a couple factors were composed of only items rated as positive or neutral. In regard to experience of stressful life events, 75% of the women reported relationship and HIV stress, 70% family and household stress, 50% loss and victimization, 50% positive relationship changes, 28% reduced social contacts, and 20% work-related stress. Stressors related to loss/victimization and relationship and HIV

stress were associated with more psychological distress as measured by Dohrenwend, Shrout, Egri, and Mendelsohn's (1980) Demoralization Scale of the Psychiatric Epidemiology Research Interview.

In addition to the aforementioned cross-sectional studies, one longitudinal study of the relationship between life events and psychological distress among African American HIV-infected women was found in the current review of literature. In Jones, Beach, Forehand, and Foster's (2003) study, seventy-two African American women from inner-city New Orleans were assessed for family and non-family stressors and depressive symptoms at baseline and a follow-up assessment at approximately 12-14 months post-baseline. Jones and colleagues' main aim was to examine the association between stressful life events and self-reported health, with depressive symptoms as a potential mediator of this association. Of note, the authors defined a stressful life event as a traumatic event that involved a response of fear, helplessness, or horror. Jones and colleagues utilized the clinician-rated Life Stressor Checklist (LSC; Wolfe, Kimerling, Brown, & Crestman, 1997) which was designed to assess life stressors that would meet "Criterion A of the DSM-IV's (1994) definition of post traumatic stress disorder" (p. 584). Depressive symptoms were measured using the clinician-rated Hamilton Rating Scale for Depression (HRSD). A direct, prospective link between stress and depression was found (and depressive symptoms partially mediated the link between family stress and self-reported health). Results indicated that traumatic life events in the past year were associated with depressive symptoms both concurrently and longitudinally.

In summary, the existing research on women infected with HIV generally indicates that a range of negative life events, are associated with psychological distress.

However, given the variability in nature, severity, and duration of stressors commonly experienced by African American HIV-positive women, closer examination is needed with respect to how life stressors may affect the mental health status of this specific population. It is noteworthy that majority of the stressors linked with distress in existing studies are not necessarily closely associated with HIV infection. It seems important to further examine the contribution of such general life stressors to the mental health status of HIV-infected women who may experience particularly high levels of both acute and chronic stressors. Additionally, little attention has been devoted to whether or not stressful life events are prospectively associated with psychological distress. The cross-sectional nature of most available studies prevents conclusions regarding the nature of associations between stressor exposure and distress. Well-controlled prospective studies may be more informative. However, only one prospective study has been identified (Jones et al., 2003) and this study has several design limitations. Specifically, Jones and colleagues examined traumatic life events that may or may not commonly affect the entire population of HIV-infected African American women. Additionally, the authors noted the relatively small sample size and relatively high functioning status of the participants (i.e., no drug use in past 6 months and relatively low levels of depression) as possibly limiting the generalizability of the study's findings. The proposed study, therefore aims to investigate the impact of general life stressors on psychological status within a longitudinal (prospective) framework in a larger sample of African American women living with HIV.

Coping and Psychological Distress

As indicated previously, coping involves cognitive and behavioral attempts to manage internal or external demands viewed or appraised as taxing or exceeding one's resources (Lazarus & Folkman, 1984). A distinction is made between coping strategies that are active (problem-focused) aimed at managing problems, or avoidant (emotion-focused) that help to ease emotional distress but that are not designed to confront the stressor directly (Stein & Rotheram-Borus, 2004). Lazarus and Folkman (1984) define coping as a process by which people use cognitions and behaviors to manage situations (stressors) that they consider demanding. These coping strategies are targeted to modify the relationship between the stressors and negative consequences that might result (stressor effects). Problem-focused coping involves goal-oriented, action-based strategies that are aimed at altering the cause of the stress. Emotion-focused coping strategies are focused at managing the emotions provoked by stressors. Emotion-focused coping involves internal restructuring of cognitions which consequently change the meaning assigned to a given situation, and therefore change the corresponding emotional reaction. A significant number of studies have demonstrated that various problem focused coping strategies may buffer the adverse affects of stress on psychological distress (Ball et al., 2002; Billings & Moos, 1981; Fleishman & Fogel, 1994; Friedland, Renwick, & McColl, 1996; Namir et al., 1987; Pakenham et al., 1994). Alternatively, several emotion focused coping strategies may exacerbate stressor effects on symptoms of psychological distress (Bombardier, D'Amico, & Jordan, 1990; Coyne et al., 1981; DeGenova, Patton, Jurich, & MacDermid, 1994; Felton & Revenson, 1984; Felton, Revenson, & Hinrichsen, 1984; Fleishman & Fogel, 1994; Holahan & Moos, 1986; Leserman, Perkins, & Evans, 1992;

Pakenham, Dadds, & Terry, 1994; White, Richter, & Fry, 1992). However, there is some evidence, that positive reappraisal, one type of emotion-focused coping, may be helpful in reducing psychological distress (Folkman & Moskowitz, 2000); this may be particularly relevant when the reappraisal involves discovering opportunities for personal growth and how one's efforts can be of benefit to others. When viewed this way, positive reappraisal can aid in one experiencing a positive emotion and therefore less distress.

In the following review of studies examining coping and psychological distress, it is first essential to note some key limitations of the research. Study samples are often small or are defined narrowly by very specific characteristics (e.g., intravenous versus non-iv past-drug abusers), which raises concerns about sampling bias and consequently limits the generalization of findings. In many instances, samples are predominantly white (usually gay men) and of relatively high socioeconomic status, limiting generalization of study conclusions. As indicated by Ball and colleagues (2002), the few existing studies that examine HIV-infected women's coping have focused exclusively on intravenous female drug users or have only included small numbers of women. Moreover, few studies have studied the relationship between coping and distress in African American HIV-infected women living in impoverished urban communities where HIV infection rates are high. Furthermore, some researchers have focused specifically on how individuals cope with HIV, while other researchers have focused on how HIV-infected individuals cope with general life stressors. Another limitation across studies is that researchers have employed diverse (i.e., self-report, clinician-rated evaluations/interviews, and diagnostic evaluations), often atheoretical, measures of cognitive, affective, and behavioral coping strategies in response to stressors (Aldwin &

Revenson, 1987). The development of coping scales has been guided primarily by empirical considerations; therefore, there has been little agreement as to the conceptualization and measurement of coping strategies (Aldwin & Revenson, 1987; Ball et al., 2002). The dissimilar methods employed have made comparisons of findings across studies complex and have led to inconsistencies and apparently contradictory findings across studies.

Another important methodological issue to be considered is that most of the studies reviewed involve concurrent analysis of coping and distress relationships. Studies that examine longitudinal data often only have data from two time points making it difficult to appreciate the nature of the relationship between coping and distress. Blaney and colleagues (1997) suggested that simply using either concurrent or prior predictors involving stress and coping, even controlling for initial distress, is not sufficient in testing models over time during asymptomatic HIV-1 infection, as predictors measured at an earlier time, cannot be assumed to be stable over time. In HIV infection, change is likely to occur ranging from subtle, subclinical to more severe or even progressive changes, which may be reactive with either predictor or outcome variables (Blaney et al). As indicated by Blaney and colleagues, this issue is not addressed by simply controlling for initial distress; furthermore, using predictors from a single time point (whether prior or concurrent) ignores the effects of (and changes in) predictors at other points in time. In other words, disease progression, particularly in HIV, may lead to unmeasured changes that influence perceived stress, coping, and distress. In summary, these methodological

issues (e.g., small samples, specifically-defined samples, differences in coping conceptualization, use of coping measures, cross-sectional analysis) should be considered and may limit the interpretation of study findings in this arena.

Numerous studies of HIV-infected individuals, which have typically focused on men, have documented the relationship between coping strategies and psychological distress (Penedo et al., 2001). *Across studies, coping strategies have been examined in mainly 3 different frameworks: (1) coping with respect to HIV-related/specific stressors (coping strategies used to cope with HIV/HIV-related symptoms/or the stress of living with HIV), (2) coping with one specific, recent stressful event, or (3) coping with respect to general life stressors.* The majority of studies fall into the first category mentioned (coping with respect to HIV-specific stressors). In general, studies examining coping with respect to HIV-related stressors have found that the use of emotion-focused coping strategies such as avoidance and denial have been associated with depression, anxiety, and greater emotional distress (e.g., Blaney et al., 1991; DeGenova et al., 1994; Fleishman & Fogel, 1994; Folkman et al., 1993; Folkman, Chesney, Pollack, & Phillips, 1992; Gore-Felton et al., 2006; Krikorian, Kay, & Liang, 1995; Leserman et al., 1992; Namir, Wolcott, Fawzy, & Alumbaugh, 1990; Penedo et al., 2001; Reed, Kemeny, Taylor, Wang, & Visscher, 1994; Wolf et al., 1991). Conversely, the use of active/problem-focused coping strategies has been associated with less mood disturbances in HIV-infected patients (Namir et al., 1987; Wolf et al., 1991). Once again, most studies of coping and psychological distress in HIV-infected individuals are cross-sectional.

For example, Leserman and colleagues (1992) described the coping strategies used by asymptomatic, HIV-infected gay men by examining 7 coping factors (from a modified COPE: Coping in Health Illness Project Questionnaire): helpless coping, denial, fighting spirit, personal growth, planning, seeking social support, and turning to religion. Fifty-two asymptomatic HIV-infected gay men and a comparison group of 53 HIV-negative gay men were evaluated. All HIV-seropositive men were without AIDS or AIDS-related complex. Participants were asked to rate how they “generally cope with, or handle the threat of, getting AIDS.” Authors reported that in comparison to HIV-seronegative men, HIV-seropositive men generally used more fighting spirit, denial, and helplessness coping strategies. With respect to racial differences, relative to white, gay, HIV-infected men ($N = 40$), African American, gay, HIV-infected men ($N = 17$) reported use of more helplessness, denial, and turning to religion, while also indicating less use of seeking social support in coping with AIDS. Leserman and colleagues also examined the relationship between coping and depressed mood in the past week and found that denial coping was linked to greater depression in the entire sample. With regard to only the HIV-seropositive men in this study, those who endorsed more helplessness and denial coping strategies were more likely to report depressed symptoms. Use of fighting spirit and personal growth coping by HIV-infected men was associated with less depressive symptomatology. The coping strategies of planning, seeking social support, and turning to religion were not significantly linked to scores on any of the depression measures. Of note, relative to white HIV-infected men, African American HIV-infected men reported greater depression. Depressive symptoms were assessed using several measures: the

Carroll Rating Scale for Depression (self-report; Carroll, Feinberg, Smouse, Rawson, & Greden, 1981), the Profile of Mood States (POMS; self-report), and the clinician-rated Hamilton Rating Scale for Depression (HRSD).

In the cross-sectional examination of the role of coping as a mediator of dysfunctional attitudes and depression in a sample of 115 HIV-infected symptomatic men, Penedo and colleagues (2001) found that the use of adaptive coping strategies, such as active coping and planning, was linked with lower depression and the use of denial and avoidant coping were correspondingly linked to higher levels of depressive symptoms as self-reported on the Beck Depression Inventory: BDI. Using Carver's COPE (1989), adaptive coping was defined as active coping, planning, acceptance, seeking emotional support, and seeking instrumental support, while maladaptive coping was defined as denial, avoidance, mental disengagement, and behavioral disengagement. Prior to mediation analyses, Penedo and colleagues reported direct associations between the two coping strategies and depressive symptoms. The authors also indicated that both adaptive coping and maladaptive coping mediated the relationship between dysfunctional attitudes and depressive symptoms. In another cross-sectional study of HIV-infected symptomatic gay men, Penedo et al. (2003) found that higher levels of approach coping were significantly associated with lower psychological distress scores (BDI & POMS' Total Mood Disturbance Index), while higher levels of avoidant coping were significantly associated with higher distress scores. The approach-oriented dimension of coping consisted of active coping, planning, seeking emotional support, and seeking instrumental

support and acceptance, while the avoidance-oriented coping dimension consisted of denial, behavioral disengagement, and mental disengagement (as measured using the situational version of the COPE-28).

In all 3 of the aforementioned studies (Leserman et al., 1992; Penedo et al., 2001; Penedo et al., 2003) of HIV-infected men, despite differences in coping and distress/depression measures used, avoidant/denial coping was consistently associated with psychological distress. In two of the three studies, a clear negative relationship between active/approach coping and distress and a positive relationship between avoidant coping and distress were identified. Leserman and colleagues (1992) found that some coping strategies (i.e., helplessness and denial coping) were associated with depressive symptomatology, while others (i.e., fighting spirit and personal growth coping) were associated with less depressive symptoms. Leserman and colleagues' also indicated that the active coping strategies of planning, seeking social support, and turning to religion were not significantly linked to depressive symptoms. Studies involving mixed-gender samples typically have not-analyzed gender differences in coping-distress relationships, likely due sample size constraints. However, these mixed-gender studies, in general, tend to suggest similar overall findings in comparison to studies of all male participants: individuals living with HIV infection who deal directly (problem-focused/active coping) with stressors associated with their HIV status experience less psychological distress, unlike those individuals who use more avoidant coping (emotion-focused) responses (Grassi, Righi, Sighinolfi, Makoui, & Ghinelli, 1998; Leslie, Stein, & Rotheram-Borus, 2002; Turner-Cobb et al., 2002).

The only longitudinal study identified in the current review of HIV-infected men, was a survey of 297 White and African-American, gay, mixed-HIV serostatus men by DeMarco, Ostrow, and DiFranceisco (1999). As mentioned previously, Demarco and colleagues examined the effects of stress, coping, appraisals of control, and physical symptoms on depressed mood in men with and without HIV infection. Predictor variables were from Time 2 only (stress, control, coping, physical symptoms), while the dependent variables represented change from Time 1 to Time 2 (depression change and AIDS-specific distress change), a one-year period of time. Depressed mood was measured using the 5-item depression subscale from the Hopkins Symptom Checklist (HSCL; Derogatis, 1977a), a self-report measure. Four change score possibilities from Time 1 to Time 2 were delineated and served as the dependent variables: above the clinical cutoffs at both time points (significantly depressed), below the cutoff at Time 1 and above the cutoff at Time 2, above the cutoff at Time 1 and below the cutoff at Time 2, or below the cutoffs at both time points. Stress scores were derived for both general life stressors and AIDS specific life stressors. Using an abbreviated version of the Ways of Coping Scale (Folkman & Lazarus, 1988), participants rated on a 4-point scale the extent to which they used various cognitive and behavioral responses to attempt to cope with their most stressful life areas; coping was assessed relative to both general and AIDS-specific stressors. A second-order factor analysis on the Ways of Coping Scale data yielded two factors for each domain (general and AIDS-specific): a detachment factor consisting of self-controlling, cognitive escape-avoidance, behavioral escape-avoidance, and distancing coping, and an involvement factor consisting of playful problem-solving, seeking social support, and positive reappraisal coping. HIV-infected

men reported greater use of detachment coping in comparison to HIV-negative men. In multivariate analyses, DeMarco and colleagues tested two separate path models, one model for general life stressors, coping, perceived control, and depression, and the another model for AIDS-specific stressors, coping, perceived control, and depression. These models were tested separately based on serostatus and ethnicity for a total of eight models, with general stressors (and AIDS-specific stressors-separately), coping, perceived control factors used as predictors of depression. In both the AIDS-specific stressor and general stressor models, neither type of coping predicted outcomes involving change in depression classification (i.e., neither detachment nor involvement coping predicted AIDS-specific distress or general distress). Authors reported that one possible explanation for the failure of coping to predict change in distress is that the study sample appeared to consist of both HIV-positive and HIV-negative men whom reported low means of levels of general- and AIDS-specific stressors. As a result of coping failing to predict distress, Demarco and colleagues examined the most depressed portion of their sample separately ($N = 43$, 15% of the sample); Time 2 depression was regressed against Time 1 depression, HIV status, physical symptoms, general stress, control, detachment, and involvement coping). In this subset of men, involvement coping was significantly inversely related to depressive symptoms ($F(1,41) = 8.68, p < 0.01$). This relationship was not found when the same analyses was repeated for AIDS-specific stress (the only significant predictor found was degree of AIDS-specific stress). These findings are consistent with a possible protective influence of involvement coping in dealing with general life stressors. Another incidental finding was that HIV-infected men reported

greater use of detachment coping in comparison to HIV-men with regards to AIDS-specific stressors, but no differences in levels of utilization of coping strategies were indicated with respect to general stressors.

Several studies of women infected with HIV, mostly cross-sectional in design, have examined coping with respect to HIV-specific stressors in prediction of distress. These studies have generally found that the use of active or problem focused coping is associated with lower emotional distress while the use of avoidant and other emotion focused coping strategies is related to poorer emotional adjustment and greater depression. For example, in a cross-sectional study of 100 low-income African American women in Baton Rouge, Louisiana, Catz, Gore-Felton, and McClure (2002) found that use of greater avoidant coping (escape-avoidance), less planful problem solving, less social support, and more life stressors contributed independently to greater depressive symptoms (CES-D). Coping with regard to the subject's HIV status was assessed using the planful problem solving and escape-avoidance subscales of the Ways of Coping Questionnaire. The occurrence of life stressors in the past 6 months was measured using the Social Readjustment Rating Scale (SRRS).

Simoni, Demas, Mason, Drossman, and Davis (2000) conducted a cross-sectional study of Black non-Hispanic and Black Hispanic, HIV-infected women in New York City examining HIV-specific coping in association with psychological distress HIV disclosure, and social support. The authors found that adaptive coping correlated negatively with psychological distress (both depression and mood disturbance), while avoidant coping was positively associated with two indices of psychological distress- the CES-D and a shortened form of the Profile of Moods States (POMS-SF). The study used

an adapted Ways of Coping Checklist, in which participants were asked how much each coping strategy was used in dealing with the effects of HIV/AIDS on their health and the life-threatening nature of the illness. The adaptive coping subscale was composed of the constructive cognitions, community involvement, and spiritual resilience subscales of the adapted WOC.

In another cross-sectional study examining trauma, coping, and depression, among HIV-infected women residing in New York (46% African American & 47% Hispanic), Simoni and Ng (2000) found that depressive symptomatology was positively correlated with avoidant coping and negatively related to adaptive coping (as measured by an adapted Ways of Coping (WOC) scale; the CES-D was used to assess depressive symptoms in the previous week). As in the previous study (Simoni, Demas, Mason, Drossman, & Davis, 2000), the adaptive coping subscale was composed of the constructive cognitions, community involvement, and spiritual resilience subscales of the adapted WOC. Another finding of this study was that women tended to use adaptive coping strategies more frequently than avoidant ones in the past 30 days to deal with the effects of HIV/AIDS on their health and the “life-threatening nature of this illness.”

In a study of 29 women infected with HIV receiving services at a psychiatric AIDS clinic, Commerford, Gular, Orr, Reznikoff, and O’Dowd (1994) found that the emotion-focused coping strategies of self-blaming denial, wish-fulfilling fantasy, and emotional expression were each significantly and positively related to anxiety and depression. Of the three problem-focused coping strategies assessed (cognitive restructuring, information seeking, and threat minimization), threat minimization was found to be significantly positively correlated with both anxiety and depression.

Commerford and colleagues theorized that threat minimization (refusing to dwell on thoughts of illness while putting distressing thoughts aside consciously) may be symptomatic of one's psychological distress; in other words, refusing to think about one's illness may suggest an inability to cope with its reality. It is important to note that women in this sample were referred to the psychiatric clinic from their general medical clinic because of psychological distress. In this study, the Felton Coping Scale (Felton, Revenson, & Hinrichsen, 1984), a self-report questionnaire, and the Anxiety and Depression subscales of the self-report Symptom Checklist 90-R (SCL-90R; Derogatis, 1977b) were used to assess coping strategies and psychological distress, respectively.

A different pattern of findings was indicated by Ball and colleagues' (2002) study of low-income African American women, living with and without HIV infection ($N = 242$: 99 HIV-infected and 143 non-infected women). When the HIV-infected women's data were analyzed separately, emotion-focused coping was inversely associated with general psychological distress and depressive symptomatology; no direct effects for problem-focused coping were identified. In this study, coping was assessed using the COPE, with women being asked to specifically think about strategies they used to cope with their HIV-positive status. Although there were no direct effects for problem-focused coping, Ball and colleagues found that problem-focused coping interacted with illness (HIV) stage to predict three areas of functioning: general psychological distress, depressive symptomatology, and physical symptomatology. Illness stage was defined as either asymptomatic or symptomatic/AIDS, according to CDC stage classifications [Stage 2 (asymptomatic) or Stage 3 (AIDS)]. Specifically, for asymptomatic women, low levels of problem-focused coping were associated with poorer functioning on all three

indices (general psychological distress, depressive symptoms, and physical symptoms). The opposite relationships were indicated for symptomatic women: low levels of problem-focused coping were associated with better functioning in all three areas. Ball and colleagues indicated that this counterintuitive finding was similar to findings of Moneyham and colleagues' (1998) and hypothesized that one possible explanation for their results lies in the cross-sectional nature of their data. In other words, symptomatic women who are feeling more physically and psychologically distressed were attempting to use problem focused strategies in order to manage their distress.

Across most of the aforementioned studies of HIV-infected women (Catz et al., 2002; Commerford et al., 1994; Simoni et al., 2000; Simoni & Ng, 2000), avoidant and other emotion-focused coping strategies were linked to distress/depressive symptoms. One exception to this pattern was in Ball and colleagues (2002) study of low-income HIV-infected African American women; authors found that emotion-focused coping was related to less general psychological distress. In a few of these studies, it was found that coping strategies involving constructive cognitions and related active coping strategies were associated with less distress, however, in one study (Commerford et al., 1994) threat minimization (a problem-focused coping strategy) was found to be linked to greater depressive symptoms. Another study (Ball et al., 2002) had mixed findings regarding problem-focused coping; specifically, low levels of problem-focused coping were associated with greater psychological distress and depression in asymptomatic seropositive women, while the opposite pattern was indicated for symptomatic women.

The only longitudinal study found in the current review of HIV-specific coping in women was Moneyham and colleagues' (1998) examination of active and passive coping

in relation to emotional distress and physical symptoms among a sample of 184 women infected with HIV (85% African American). These women were recruited from 8 HIV/AIDS treatment sites in both rural and urban settings in Georgia. Differences in HIV-related psychological distress and HIV-related physical symptoms were examined in relation to coping measured concurrently and 3 months earlier. This study utilized data from the fourth and fifth interviews in a series of 5 data collection periods; the fourth data collection period was designated “Time 1” and the fifth data collection period was designated “Time 2.” Study authors designed their own measures of coping and HIV-related emotional distress (see Moneyham et al. for further explanation). The active coping scale consisted of items that measured use of spiritual activities, seeking social support, and behaviors related to managing the illness, while the avoidance scale was used as a single measure of passive coping. HIV-related emotional distress was measured by 17-items, representing a range of both positive and negative emotional responses. Separate structural equation models for active coping and avoidance coping were tested. In the model for active coping, active coping at Time 1 was significantly and positively related to active coping at Time 2. Time 2 active coping was negatively related to Time 2 emotional distress. No effect of active coping at Time 1 on emotional distress at Time 2 was found. Therefore, only concurrent active coping was negatively related to emotional distress. The model for avoidance coping indicated that avoidance coping at Times 1 and 2 were positively related to (each other), but neither was linked with emotional distress at Time 2. The nonsignificant relationship between avoidance coping and emotional distress was not expected by study authors, although it is consistent with Ball and colleagues’ (2002) findings, as previously mentioned. It is important to

note that a significant study limitation, was the use of measures specifically developed for the study (including their self-designed coping measure and HIV-related emotional distress measure); the validity and psychometrics of the instruments developed for the study had not been established at the time of the study and the instruments were designed based on data obtained from a sample of mainly poor, Black, single mothers whom had limited education.

In summary, as was seen with regard to the studies of HIV-infected men, existing studies focusing on HIV-specific coping and psychological distress in HIV-infected women have used diverse measures based on different conceptualizations of coping. However, the results of these studies suggest active, problem-focused coping strategies generally are associated with lower emotional distress while avoidant, emotion-focused strategies are typically associated with greater psychological distress. Exceptions to these general patterns have been noted.

As mentioned previously, few studies have examined coping with respect to general life stressors in individuals living with HIV. In a cross-sectional study of mixed-gender and demographically diverse sample of HIV-infected individuals ($N = 80$; 78% male; 54% African American, 44% White, & 2% other), Carels and colleagues (1998) found that greater use of escape/avoidance coping and accepting responsibility (i.e., self-blaming) was associated with greater psychological distress (measured by depressive symptomatology on the CES-D and psychological symptoms on the BSI). Although accepting responsibility coping was associated with lower psychological well-being, Carels and colleagues reported that adaptation of the coping questionnaire (shortened version of the Ways of Coping Questionnaire/22-items) utilized in their study revealed

items reflecting self-criticism, rather than acceptance behaviors. Distancing, planful problem-solving, and positive reappraisal coping strategies were not found to be associated with psychological distress.

Blaney and colleagues (1997) conducted a study to investigate whether changes over time in psychological distress were a function of changes over time in coping, life stressors, and social support, in 40 gay men living with asymptomatic HIV infection. In this study, concurrent relationships between the study variables (including distress and coping) were examined at study entry, 6-months, and one-year. The COPE was used to assess typical coping (how often the participant coped as stated) and 4 different coping factors were assessed: active coping, denial/disengagement coping, venting emotions, and turning to religion. Blaney and colleagues found that disengagement/denial and venting emotions coping (all emotion-focused coping strategies) were associated with greater distress, whereas turning to religion was associated with less distress.

Only one longitudinal study in the current review of literature examined coping with respect to general life stressors in HIV-infected individuals. DeMarco, Ostrow, and DiFranceisco (1999) assessed coping with respect to general stressors (in addition to AIDS-specific stressors as reviewed previously) in a sample of 297 men (105 HIV-seropositive and 194 seronegative African American and Caucasian men; 72% White, non-Hispanic). Two coping factors using the shortened version of the Ways of Coping Questionnaire (22-items) were assessed with respect to general life stressors: a detachment factor (self-controlling, escape-avoidance, distancing) and an involvement factor (planful problem-solving, seeking social support, and positive reappraisal). Neither coping factor predicted distress, with respect to general life stressors, except with

regard to the most distressed (depressed) portion of men in this sample; in this portion of the sample, involvement coping was negatively associated with depressed mood. It is important to note that men in this study reported relatively low levels of general (as well as AIDS-specific) stressors.

In summary, despite varying study methods, measures, and coping classifications, these three studies (Blaney et al., 1997; Carels et al., 1998; DeMarco et al., 1999) generally suggest that at least some escape/avoidant coping strategies (emotion-focused) are associated with greater psychological distress. Although Carels and colleagues (1998) found that greater use of escape/avoidance coping and self-blaming was associated with poorer psychological well-being, they did not find an association between distancing, positive reappraisal, and planful problem-solving strategies and psychological well-being. Similarly, Blaney and colleagues (1997) found no relationship between active coping and distress, but did find a positive relationship between disengagement/denial and venting emotions coping strategies and distress, in addition to an inverse relationship between turning to religion (as a coping strategy) and distress. Although DeMarco and colleagues (1999) did not find relationships between detached or involvement coping and distress in their sample of men, separate post-hoc analysis of the most distressed portion of their sample revealed that involvement coping (planful problem-solving, seeking social support, and positive reappraisal) was negatively associated with depressed mood.

Summary

In summary, African American women with HIV appear to be at high risk for psychological distress, with depression rates varying between 30-60% among community

samples of HIV-infected women. HIV-infected women experience psychological distress as much or more than their male counterparts (e.g., Cleary et al., 1993; Linn et al., 1995; Van Servellen et al., 2002). Given the disproportionate rates of HIV among African American women, there is a critical need to learn more about emotional distress in this population and the key factors contributing to it. Psychosocial stressors and coping strategies may be important factors in understanding the mental health status of African American women living with HIV/AIDS (Feist-Price & Wright, 2003). Given that many African American women infected with HIV are impoverished and presumed to be facing many life stressors in addition to those associated with HIV, general stressful life experiences and the adequacy of coping with such experiences may well influence psychosocial adaptation in this vulnerable group. In the few studies that have examined the effects of general life stressors on HIV-infected women, findings have indicated that these stressors, particularly negatively-rated stressors, are associated with psychological distress. With respect to coping in HIV-infected individuals, research generally indicates that the use of problem-focused coping strategies is related to less emotional distress, while the use of emotion-focused coping tends to be linked to psychological distress. Yet, it is important to note that there have been inconsistent results in this literature likely related to variations in the characteristics of samples, methodological differences in study designs and in measurement methods. Important trends have emerged that should be clarified in studies with improved design features.

A common characteristic of most of the research to date on life stressors, coping, and psychological distress among HIV-infected individuals is that relationships among these variables have typically been examined cross-sectionally, therefore, limiting

inferences regarding possible causal relationships. Other-methodological issues that prevent a simple summation of findings across studies include the use of: small and narrowly defined samples, variations in measures and measurement methods, and differing conceptualizations of both stressor and coping constructs. A majority of studies have examined coping with respect to HIV-specific stressors and fewer have examined coping with respect to general life stressors. Only a few studies have examined stress, coping, and distress among HIV-infected individuals within a longitudinal framework (e.g., DeMarco et al., 1999; Jones et al., 2003; Moneyham et al., 1998). Across these few studies, methodological differences (sample size, type of sample, measures used, coping definitions, low levels of psychological distress, etc.) make comparisons difficult. In Jones and colleagues' study (2003) of African American HIV-infected women, negative life events were prospectively associated with depressive symptoms; this finding parallels the findings of other cross-sectional studies of HIV-infected individuals. Results of the few available prospective studies of coping-distress relationships have not yielded many positive findings. Moneyham and colleagues' study (1998) of HIV-infected women revealed no prospective associations between either active coping or avoidant coping and emotional distress. Similarly, DeMarco and colleagues (1999) did not find prospective associations between involvement or detachment coping strategies and distress, except in the most distressed portion of men in their sample. In this subgroup, involvement coping was found to be negatively associated with depressed mood. The need for further prospective studies in this area seems clear.

Multiple studies have demonstrated cross-sectional relationships between stressful life events and distress in HIV-positive samples including African American women.

Similarly, many studies have demonstrated relationships between various emotion-focused coping strategies and psychological distress. Problem-focused coping has generally been found to be associated with less distress and depression in cross-sectional studies. Results of these studies suggest possible adverse influences of stress exposure and certain emotion focused coping strategies on mental health status of HIV-infected, minority individuals. The possible protective effects of various problem-focused coping strategies are suggested in numerous studies involving the same HIV-infected groups. However, psychological distress may lead to more emotion-focused coping and greater exposure to adverse events. Similarly, low levels of distress may encourage more active/problem-focused coping. Cross-sectional analyses of the sort most often reported in the literature cannot address the nature of these associations. A crucial step in understanding the nature of stress, coping, and distress relationships is to study these factors in prospective studies in which temporal relations among these variables can be appreciated. Blaney and colleagues (1997) suggest that examining changes in distress over time rather than simply predicting subsequent outcome from predictors measured at a single time point (either concurrent or prior, with initial distress controlled) is preferred. This approach controls for the mean level of distress over time for each individual, while showing how concurrent changes among other variables are related to changes over time in distress (Blaney et al.). Another approach, however, would be to predict distress/changes in distress from prior life event exposure and prior coping strategies across a series of assessment points over a period of time.

The proposed study aims to address limitations in most available studies by utilizing a larger sample size, well-validated measures, and incorporating a prospective

design that enables an appreciation of the temporal relationships among general life stress, coping, and psychological distress in HIV-infected African American women. Specifically, the proposed study will examine the relationship of stressful life events, coping strategies and psychological distress prospectively across 18-months. This examination aims to assist in the understanding of how life stressors and coping responses unfold over time in a chronically stressed population and how these factors relate to subsequent-psychological well-being. Emotion-focused and problem-focused coping have been selected because these factors have been found to predict distress with some consistency in previous cross-sectional analyses. General life stressors have emerged as promising, but understudied factors in predicting mental health status in this group. Being able to identify HIV-infected women who are at risk for psychological distress, due to life stressors and utilization of (or lack of) certain coping strategies, may be very helpful to those charged with the responsibility of serving this vulnerable group.

Study Purpose and Hypotheses

The purpose of this study is to examine life stressors and coping strategies as prospective predictors of psychological distress in a sample of HIV-positive African-American mothers. A secondary aim of this study is to determine whether coping strategies mediate the relationship between life stressors and psychological distress. The current study is a secondary analysis of data derived from a National Institutes of Health (NIH) funded family therapy efficacy study (Structural Ecosystems Therapy [SET]; see Szapocznik et al., 2004). The aim of this study is to address the following research questions: 1) Do stressful life events prospectively predict psychological distress across an 18-month period (baseline, 3 months, 6 months, 9 months, & 18 months)? 2) Does

problem-focused coping prospectively predict psychological distress across time? 3)

Does emotion-focused coping prospectively predict psychological distress across time?

4) Does problem-focused coping prospectively mediate the relationship between stressful life events and psychological distress across time? 5) Does emotion-focused coping prospectively mediate the relationship between stressful life events and psychological distress across time?

The following hypotheses will be tested in the current investigation: 1) Stressful life events will prospectively predict psychological distress. A positive relationship is hypothesized. 2) Problem-focused coping will prospectively predict psychological distress. An inverse relationship is hypothesized. 3) Emotion-focused coping will prospectively predict psychological distress. A positive relationship is hypothesized. 4) Emotion-focused coping will mediate the relationship between stressful life events and psychological distress across time; the link between stressful life events and distress is explained in terms of its association with emotion focused coping. 5) Problem focused coping will mediate the relationship between stressful life events and psychological distress across time; the link between stressful life events and distress is explained in terms of its link with problem focused coping.

CHAPTER 2

Method

Participants and Procedures

This study is a secondary data analysis from a larger longitudinal study testing the efficacy of Structural Ecosystems Therapy (SET) with low income, inner-city African American HIV-infected mothers (see Szapocznik et al., 2004). Participants for the current analyses were 209 women who participated in the SET study. Assessments of the women were conducted at baseline, 3 months, 6 months, 9 months, and 18 months. Of note, the study maintained low attrition rates throughout follow-up (follow up rates: 90% at 3-months, 88% at 6-months, 92% at 9-months, and 63% at 18-months). The current study examines data from all assessment points. A comprehensive overview of the SET project is provided elsewhere (Szapocznik et al.). This was a three condition randomized control trial (standard care, person-centered attention individual therapy, and structural ecosystems therapy (SET) where two intervention therapies began after baseline assessment and ended just prior to the 9-month post-baseline assessment.

In the SET study, 588 HIV-seropositive African American women were approached for participation at various health-related facilities in Miami-Dade County, Florida (poor, inner-city African American women). Specifically, women were recruited from a large county public hospital and affiliated clinics, as well as other community health clinics and agencies that provided HIV care or services. Flyers were posted at recruitment sites and medical/agency staff also assisted in identifying potential participants. Project staff members then met with women to explain the study, determined eligibility, and obtained informed consent. Recruitment for this study was

done from the fall of 1996 through the spring of 1999. Eligibility criteria included the following: women were at least 18 years of age, had at least one child, had a current CD4 count greater than 50, reported having at least one family problem, had no current psychiatric diagnosis involving psychosis, and did not report drug use within the prior six months prior to baseline assessment. After excluding women who were not interested in study participation and women who did not meet the specified inclusion criteria, 209 women represented the baseline sample in the current analysis (see Szapocznik et al, 2004 for additional details).

All assessments were completed at the participant's home or other convenient location by study assessors, ensuring as much privacy and confidentiality as possible. Assessors administered all measures and recorded the participant's responses using laptop computers. All measures were administered verbally to participants with a written copy of the measure provided to the participant for review. Cue cards were used to show item response choices for appropriate assessments. Assessors were African American, Caribbean American, or Hispanic females who had a master's degree or were enrolled in doctoral studies in the fields of psychology or social work. Participants were compensated for their time and effort in completing the assessments. Additional information regarding assessment procedures used in the current sample can be found in Szapocznik et al., 2004 and Prado et al., 2004.

Measures

Demographic information

Demographic information was obtained from the participant including: age, marital status, number of children, household members, yearly income, educational level, employment status, date of HIV diagnosis, and last CD4 count.

Stressors

Difficult Life Circumstances Questionnaire (DLC): This measure lists 34 stressors that are relevant to poor, inner-city women and asks the participant to specify whether the stressor was present. The subjective impact of the stressor is rated on a scale of 1-7 (Barnard, 1989). For this study, only the total count of stressors will be used in order to avoid confounding perceived stressor impact with psychological distress. Additionally, several items related to the participant's own health were excluded in order to avoid confounding stress with psychological distress (e.g., "Have you had frequent minor illnesses in the past year?, Have you been hospitalized in the past year for any reason-- accident or illness? Do you or someone in your household have a long-term illness?"). In this study, Cronbach's alpha for the scale of 31 stressors was .63.

Coping

COPE- Revised. A revised version of Carver's Brief Cope (1997) was used to assess coping responses. All items from Carver's Brief Cope were retained and an additional 11 items developed for use with this population (see Feaster and Szapocznik, 2002) were added to form the revised version used in this study. This 38-item measure consists of statements which participants rated on a 4-point Likert scale reflecting the extent to which they engaged in the stated activity. "Convergent validity was established

in a validation sample ($n = 44$) in which the correlations between the corresponding scales from the original Cope and the version used here ranged between 0.51 and 0.83” (as described in Prado et al., 2004). Although the Brief Cope was not designed to specifically yield problem-focused and emotion-focused coping scales, the COPE has been used extensively to generate these scales in research.

In the proposed study, only the COPE problem-focused (PFC) and emotion-focused (EFC) coping scales will be employed. Specifically, problem-focused coping scale includes items reflecting active coping (taking action), planning, and seeking and using social support. The COPE emotion-focused coping scale assesses suppression of thoughts and feelings, denial, self-blame, ventilation, stoicism, behavioral disengagement, self-distraction, and yearning for the past. Items for this measure are rated on a 4-point Likert-type scale ranging from 1 = “*I haven’t been doing this at all*” to 4 = “*I’ve been doing this a lot.*” In this study, Cronbach’s alpha for the combined subscales on the PFC and EFC dimensions were .83 and .85, respectively.

Psychological distress

The Global Severity Index (GSI) from the Brief Symptom Inventory (Derogatis, 1975) will be utilized to measure psychological distress. The Brief Symptom Inventory (BSI) is comprised of 53 self-report items that assess the respondent’s psychological symptoms within the past 7 days. The BSI assesses the following nine dimensions: (a) depression, (b) anxiety, (c) paranoid ideation, (d) psychoticism, (e) somatization, (f) interpersonal sensitivity, (g) hostility, (h) phobic anxiety, and (i) obsessive-compulsive behavior (Derogatis, 1993). Each item is rated on a 5-point Likert scale ranging from 1

(*not at all*) to 5 (*extremely*). The GSI is calculated by deriving an item mean response (i.e., 1-5) across the 53 items. In this study, Cronbach's alpha for scores on the Global Severity Index was .96.

Preliminary Analyses

Descriptive statistics regarding participant demographic characteristics at baseline will be conducted as part of the preliminary analyses to include the mean age of the sample, marital status, household and personal income, employment, and educational status. Self-reported T-cell (CD4) count will also be reported. Descriptive statistics will be reported for life stress, problem-focused coping, emotion-focused coping, and psychological distress/global stress index score at each measurement point. Skewness and kurtosis analyses will be performed on continuous measures to determine the nature of the distributions and in preparation for path analyses.

Primary Analyses

The main analyses involved examining prospective models of the following hypotheses (see Figures 2.1-2.3): Total of life stressors (DLC) at each assessment was used to predict the psychological distress (BSI) changes at subsequent follow-up (after a 3- or 9-month time lag), in order to evaluate life stressors as potential causal risk factors of psychological distress without temporal ambiguity (Figure 2.1). The last available DLC score was discarded in this analysis (Time 5); Problem-focused coping (PFC) at each follow-up was used to predict BSI changes at subsequent follow-up (Figure 2.2). The last available PFC score was discarded in this analysis (Time 5); Emotion-focused coping (EFC) at each follow-up was used to predict BSI changes at subsequent follow-up (Figure 2.3). The last available EFC score at Time 5 was discarded in this analysis. The

longitudinal relationships were examined using cross-lagged panel analyses (Finkel 1995) across an 18-month time frame (Time 1 = baseline, Time 2 = 3 months, Time 3 = 6 months, Time 4 = 9 months, and Time 5 = 18 months post-baseline). This type of analysis allows for the examination of the possible causal ordering of variables.

Path analyses using AMOS 7.0 (Arbuckle, 2006) were conducted to test the specified autoregressive relations and cross-lagged effects between stressors and distress, PFC and distress, and EFC and distress over time (3 separate path models). Analyses were conducted using the full information maximum likelihood estimation method, which estimates means and intercepts to handle missing data (Enders 2001). To evaluate the overall fit of a model, AMOS provides a chi-square goodness-of-fit statistic. The chi-square statistic is based on a comparison of the predicted and observed covariance matrices. A non-significant chi-square value indicates good fit. However, because trivial differences between the predicted and observed matrices may lead to a significant chi-square when large samples are used, three other goodness-of-fit indices will be used, including the relative chi-square, CFI, and RMSEA. The relative chi-square (also called normal or normed chi-square) is thought to be less dependent on sample size and is obtained by dividing the chi-square fit index by degrees of freedom ($CMIN/df$). Kline (2005) suggests that a relative chi-square value of around 3 or less is acceptable. The comparative fit index (CFI; e.g., see Bentler, 1990; Bollen, 1989) compares the fit of a substantive model to the fit of some predetermined baseline mode, usually a null model in which covariation among variables is constrained to equal zero. The CFI ranges from 0 to 1 and a value close to 1 indicates a very good fit. The CFI is considered to be relatively robust against violations of assumptions and should be greater than or equal to

.90 to indicate an acceptable fitting model (Hu & Bentler, 1999). The root mean square error of approximation (RMSEA) statistic adjusts the estimate of absolute fit for the complexity of the hypothesized model. Smaller values of RMSEA indicate better model fit, with values less than 0.06 representing acceptable model fit (Hu and Bentler) and values less than or equal to .08 suggesting adequate fit (Kline, 2005). In summary, models that provide an acceptable fit to the data in the current study will have a relative chi-square value of around 3 or less, CFIs greater than or equal to .90, and RMSEAs less than or equal to .08.

In all analyses, full models with all paths freely estimated were initially tested and then assessed with the goodness of fit indices (as well as the examination and significance of the standardized path coefficients). The hypothesized path models consisted of two types of paths: autoregressive (stability) paths expressing the relations of the same observed variable over time and cross-lagged paths expressing the relation of an observed variable to another observed variable over time. Because the panel waves were mostly equally spaced, it was expected that the stability paths of psychological distress and stressors (or emotion-focused or problem-focused coping) were equal across waves. As a consequence, the cross-lagged effects between variables from each wave to the subsequent wave were expected to be equal to their variables from one wave to the subsequent wave. Paths from one wave to the subsequent wave were therefore constrained to be equal to their corresponding paths. Unconstrained models were compared to the constrained models using chi-square difference tests; if no differences were found, path models with the constrained paths would be retained. In addition to

these paths, the error terms for the path (regression) equations between the variables of interest within the same time point were allowed to be inter-correlated (synchronous correlation equality constraints).

The second set of proposed analyses involves a prospective mediation analysis of problem-focused coping as a possible mediator of the relationship between stressful life events and distress; the same mediation analyses will be repeated with emotion-focused coping as a possible mediator (see Figures 2.4 & 2.5). In order to test for mediation, the following conditions (outlined by MacKinnon, Fairchild, & Fritz, 2007) will first need to be supported by the previous (aforementioned) set of analyses: (1) stressful life events must prospectively predict psychological distress, (2) problem-focused coping (& emotion-focused coping) must prospectively predict psychological distress, and (3) stressful life events must prospectively predict problem-focused coping (& emotion-focused coping). In other words, these analyses will examine the possible mediating roles of PFC (Time 1) and EFC (Time 1) in the relation between life stress (Time 1) and psychological distress (Time 2) using a longitudinal design. This method will be repeated for all assessment points and included in the mediation modeling. Two separate sets of mediation models will be tested to evaluate whether problem-focused and emotion-focused coping each individually mediate the relationship between life stress and psychological distress (Figures 2.4 & 2.5). If the above stated conditions are met in the predicted direction, and the effect of life stressors drops to a non-significant level in the regression equation, then the model meets the conditions for mediation. The Mplus (Muthen & Muthen, 2007) statistical package will be utilized for these analyses.

Moderation/Group Effect

After each cross-lagged model was tested for the total sample, each final model was also tested for equality across the three treatment group condition assignments separately (family therapy, individual therapy, community control random group assignment) using multigroup analyses in AMOS 7.0. A significant difference between estimates of the unstandardized beta weights of corresponding paths (relations) in each set of models means that group assignment moderates this relationship. If differences across groups were found, the last step would involve exploring individual paths that may have differed in a planned post-hoc exploration and examining differences in the indirect effects implied for the three groups.

CHAPTER 3

Results

Preliminary Analyses

Descriptive statistics regarding participant demographic characteristics at baseline were computed as part of the preliminary analyses (Table 1). The mean age of the sample was 36 years (SD = 8.0) and 87% reported being unmarried and not cohabitating. The median household income was reported to be \$9,672 and 80% of participants reported being unemployed. Fifty-one percent of the women had less than a high school education. At the time of the first assessment, the mean self-reported T-cell (CD4) count was 461.6 (SD = 303.6). Descriptive statistics are reported in Table 2 for life stressors, problem-focused coping, emotion-focused coping, and psychological distress/global stress index score at each measurement point and intercorrelations among the measured variables are provided in Tables 3 & 4. Skewness and kurtosis analyses were performed on continuous measures to determine the nature of the distributions and to ensure that all assumptions for path analyses were met.

Primary Analyses

The initial model comparisons within each of the hypothesized models showed that the equality of the autoregressive terms and cross-lag terms across time could not be rejected. Therefore, the following models presented incorporate the equality of these terms as the primary test of the hypothesized relationships. All hypothesized models were tested and described below. After testing the hypothesized models, post-hoc, exploratory analyses

were done to improve the each path model's fit to the data; these exploratory analyses did not relate to the hypotheses of the current investigation and will therefore not be presented in the following results section.

Model 1-Stress & Distress

Hypothesis 1: It was hypothesized that stressful life events would prospectively predict psychological distress. A positive relationship was expected.

The hypothesized stress-distress model (Figure 2.6) provided an adequate fit to the data: $X^2 = 128.624$ (41), ns, CFI = .900, RMSEA = .101 (CMIN/df = 3.137). In this model, the autoregressive paths for the stressors and distress variables were significant (refer to Table 5). The standardized coefficient for the autoregressive path for life stressors varied from .56 to .59 due to minor differences in the residual variance and the standardized coefficient for the autoregressive path for distress was .71 at all time points (see Figure 2.6). **Additionally, the cross-lagged pathways between life stressors and distress were significant** ($\beta = 0.006$, $p = .033$ for all four pathways: Time 1 stressors to Time 2 distress, Time 2 stressors to Time 3 distress, Time 3 stressors to Time 4 distress, and Time 4 stressors to Time 5 distress; see Table 5). The standardized coefficient for this cross-lag term was .06. These results indicate that there was a very modest effect of life stressors on subsequent self-reported distress.

Model 2-Problem-Focused Coping (PFC) & Distress

Hypothesis 2: It was hypothesized that problem-focused coping (PFC) would prospectively predict psychological distress. An inverse relationship was expected.

With respect to the hypothesized problem-focused coping-distress model (Figure 2.7), only the autoregressive paths for psychological distress and problem-focused coping (PFC) were significant in this mode, revealing stability in both PFC and distress across

time (refer to Table 6). The standardized coefficient for the autoregressive path for PFC varied from .47 to .49 due to small differences in the residual variance, and the standardized coefficient for the autoregressive path for distress was consistently .74 at all timepoints (see Figure 2.7). None of the hypothesized cross-lag paths predicting distress from PFC were significant (Table 6). This hypothesized model did not fit the data adequately: $X^2 = 140.135$ (41), ns, CFI = .870, RMSEA = .108 (CMIN/df = 3.418).

Model 3-Emotion-Focused Coping & Distress

Hypothesis 3: It was hypothesized that emotion-focused coping (EFC) would prospectively predict psychological distress. A positive relationship was expected.

Figure 2.8 displays the hypothesized emotion-focused coping (EFC)-distress model, in which all cross-lagged and autoregressive paths were estimated. The model fit indices showed an adequate fit to the data, specifically $X^2 = 128.41$ (41), ns, CFI = .917, RMSEA = .101 (CMIN/df = 3.128). All autoregressive paths for psychological distress and EFC were significant, indicating stability in both EFC and distress across time (Table 7); standardized path coefficients ranged from .62 to .66 for EFC and .72 to .73 for distress across time points. Contrary to the proposed hypotheses, none of the cross-lagged paths from EFC to subsequent distress were significant. Model fit statistics for all path models are displayed in Table 8.

Mediation Analyses

The second set of proposed analyses was to involve a prospective mediation analysis of emotion-focused and problem-focused coping as possible mediators of the relationship between stressful life events and distress (see Figures 2.4 & 2.5):

Hypotheses 4: Emotion-focused coping was expected to mediate the relationship between stressful life events and psychological distress across

time.

Hypotheses 5: Problem-focused coping was expected to mediate the relationship between stressful life events and psychological distress across time.

However, the prerequisite conditions required to test for mediation were not met by the primary analyses (MacKinnon, Fairchild, & Fritz, 2007), therefore, mediation analyses could not be conducted.

Supplemental, Post-Hoc Analyses

Test of Treatment Group Differences in Final Models:

Each of the modified, final models for the total sample was tested for equality across the three treatment group condition assignments separately (family therapy, individual therapy, community control random group assignment) using multigroup analyses in AMOS 7.0. No significant group differences were found in any of the three final models (refer to Table 9). These results indicate that the three final models did not differ by treatment group.

CHAPTER 4

Discussion

The goal of the current study was to investigate the relationship of general life stress and coping strategies in the prospective prediction of psychological distress among urban African American women living with HIV infection. This investigation involved secondary analysis of data from a longitudinal study of HIV-infected, low-income, African American women living in urban Miami (Szapocznik et al., 2004). Existing research indicates that this population of women is particularly vulnerable to psychological distress and mental health problems due to the life stressors associated with poverty, single-parenting, urban-living, in addition to the stressors related to poor health (both general health and HIV-related health stressors). Emotion-focused and problem-focused coping strategies have been found to be linked to distress with some consistency in previous cross-sectional analyses, but mainly in the context of coping with HIV-related stressors; to date, there has been little examination of coping with respect to general life stressors, which may be a large source of distress in HIV-infected African American women. Based on the review of existing literature of HIV-infected individuals (including men, women, and specifically African American women) and indication of little prospective/longitudinal examination of stress, coping, and distress, hypotheses were developed to examine the prediction of psychological distress using general life stress, problem-focused coping (PFC), and emotion-focused coping (EFC). Three separate prospective path models (stress-distress, PFC-distress, and EFC-distress) were examined across 5 assessment points (spanning the course of 18-months) to test study hypotheses. Although two of the three hypothesized path models provided an adequate fit to the data

overall (the stress-distress and EFC-distress models), only Hypothesis 1 was supported in the modest, yet significant finding of self-reported life stressors predicting subsequent distress symptoms at all time periods assessed (refer to Figure 2.6 & Table 8). This significant, modest effect of life stressors on subsequent distress ($\beta = 0.06, p = .033$ for all four prospective paths) was found in the hypothesized path model testing these prospective paths and autoregressive paths for stressors and distress. The autoregressive paths for stressors and distress were also significant indicating relative stability of these variables over time (refer to Figure 2.6 & Table 5). Of note, both distress and life stressors had large effects on their respective, subsequent scores, however, distress had a larger effect on subsequent scores; this finding indicates that self-reported distress symptoms had a higher level of stability over time than number of life stressors reported.

The hypothesized prospective relationships were not supported in the PFC and EFC models (i.e., PFC and EFC were not found to predict subsequent distress; refer to Figures 2.7 & 2.8). The only significant effects in these coping path models were autoregressive effects of all variables in the respective models (see Figures 2.7 & 2.8). This signifies the relative stability of coping (EFC and PFC) and distress across time. Of note, although EFC, PFC, and distress respectively had large effects on their subsequent scores, the distress and EFC variables had much larger autoregressive effects when compared to the PFC variables (i.e., distress and EFC had higher levels of stability over time than PFC). Since no significant prospective relationships were identified in the testing of Hypotheses 2 & 3, the hypotheses examining PFC and EFC as possible mediators in the stress-distress relationship (Hypotheses 4 & 5; refer to Figures 2.4 & 2.5) were unable to be tested.

Stress and Distress

With regard to **the stress-distress prospective model**, the current study found significant, yet very modest prospective relationships between self-reported life stressors and subsequent self-reported symptoms of distress across the study period (supporting Hypothesis 1). **Given the findings in the current investigation related to life stressors and psychological distress symptoms, several factors need consideration in the interpretation of the study results, including factors related to measurement, method/study design, and sample characteristics.** First, given the modest effect between life stressors and subsequent distress symptoms, measurement issues in the current study may have led to a limited ability to detect stronger relationships between general life stress and psychological distress. Evaluation of the distribution of distress scores (Brief Symptom Inventory Global Distress Index) across the five time points revealed that there was relatively elevated levels of distress, on average, across the five time points assessed. The mean levels of distress in this sample, ranging from .76 to 1.01 across assessment periods, were above the non-patient, female norms ($M=.35$, $SD=.88$; Derogatis, 1993), and approximately 30% of women at the baseline assessment (T1) scored one standard deviation above the non-patient, female norms. At time points 2, 3, 4, & 5 the rates of women above this level (> 1 S.D.) were 21%, 22%, 17%, and 17%, respectively. Of note, the baseline (T1) mean score exceeded the clinical cut-off suggested by the BSI author, Derogatis ($> .825$). However, the mean level of distress in the current population was still below BSI psychiatric patient norms (Derogatis; psychiatric outpatient, $M = 1.32$, $SD = .72$; psychiatric inpatient, $M = 1.37$, $SD = .86$).

Overall, the relative mean stability of scores across the current 18-month investigation suggests this sample of women, on average, to be experiencing elevated levels of chronic distress. The stability of scores across the 18-month study period also indicates that much of the variance in distress was explained by the level of distress from previous, adjacent time points; moreover, the relationship of distress on subsequent distress scores had a much larger effect than the relationship of life stressors on subsequent life stressors (Distress $b = .71$ between all timepoints; Stress $b = .56 - .59$ across timepoints). Overall, the distress (BSI) data in the current investigation supports the premise that these women were experiencing psychological distress; however, the relatively elevated level of distress among the women in the current sample may have decreased the ability to detect relationships between general life stressors and psychological distress, due to the range restriction that resulted from the skewness of distress scores.

Regarding the general life stressor measure (Difficult Life Circumstances; DLC), three items from the original DLC measure were removed from the study's analysis in an attempt to limit confounding the measure of general life stress with that of HIV-related stressors ("Have you had frequent minor illnesses in the past year?, Have you been hospitalized in the past year for any reason--accident or illness? Do you or someone in your household have a long-term illness?"). Across most assessment points (particularly T1-T4), the mean number of life stressors endorsed (approximately 9-10 stressors out of 31 total stressors) and the specific stressors (items) endorsed, was relatively stable over time (T1: $M = 9.69$, $SD = 3.57$; T2: $M = 9.10$, $SD = 3.58$; T3: $M = 8.87$, $SD = 3.32$; T4: $M = 8.22$, $SD = 3.08$). Johnson, Booth, and Barnard (1989) suggested a cut-off score of 6 and above on the DLC in the detection of cases at high risk for maladaptive family,

parenting, and child outcomes; their research with high-risk mothers indicated mean DLC scores in the range of 5.3 to 6.3 (5.3 during pregnancy, 6.4 when their child was 2 years old, and 6.3 at 3 years). The present sample's mean scores (at each assessment) were above the cut-off score (≥ 6) recommended by Johnson et al. and higher than the mean scores in their research with high risk mothers; in fact, 89.9% of the women had a DLC stressor count at or above the suggested cut-off (≥ 6) at the baseline assessment (T1). The scores in the current research, therefore, suggest that these women scored in the range suggesting vulnerability to negative outcomes related to family, parenting, and children, given the amount of life stressors they reported, which supports the current finding with regard to self-reported stressors significantly predicting subsequent symptoms of psychological distress.

Detailed analysis of the DLC indicated that the items endorsed most frequently (over 70% of the time) were related to the respondent not having enough money for necessities (Item 29), not having a car presently (Item 30), and wishing they had more education so life would be better for them (Item 32). One could argue that these items do not necessarily represent major life stressors or negative life events (i.e., not having a car), or perhaps these items could be better construed as hassles that would not necessarily affect mental health status. Some of the least endorsed items (endorsed 6% or less of the time), included the respondent or household member having an alcohol/drug problem (Items 17 & 19), the respondent being a victim of a crime (Item 20), and the respondent or their child being physically abused (Items 21, 23, & 26); these items could be construed as major life stressors, and perhaps even as traumatic life stressors. The low endorsement of these more significant life stressors may have contributed to the finding of a modest, yet

significant association between the DLC stressor count and psychological distress in this current investigation. The items endorsed at intermediate levels (items endorsed approximately 30% of the time), such as the respondent having regular arguments with their partner or other family members (Items 1 & 31), having long-term debts/credit problems (Items 5 & 6), and the respondent's children experiencing learning/behavioral problems (Items 27 & 28), appear to involve events that could be considered as either stressors or hassles. The experience of such events at this level perhaps wouldn't be expected to produce noteworthy levels of psychological distress.

The DLC data obtained in the current study suggest that there may be other key stressors experienced by the women that were not assessed by this measure, despite the fact the DLC measure was originally designed to measure chronic family stressors (Barnard, 1989). Conversely, the DLC data in the current study may instead indicate that this group of HIV-infected women are atypical in their reporting fewer **significant**, negative life events and less distress than found in prior studies. In other words, although the women reported an overall high mean level of stressors, the relative low endorsement of significant, negative life stressors (that would be expected to be linked to psychological distress) may have contributed to the modest, yet significant findings in this study. Existing studies of HIV-infected individuals have utilized diverse measures of life stressors and have also indicated varying levels of difficult or negative life stressor exposure. For instance, Blaney and colleagues' (1997) investigation of 40 asymptomatic HIV-infected men across a one-year period revealed that these men experienced a mean count of negative life events of 6.8 (SD = 5.9) at baseline, 5.6 (SD = 6.0) at 6-months, and 4.2 (SD = 5.2) at one-year (LES asked about events in the past 6 months). Similarly,

Carels and colleagues (1998) use of the LES with 80 HIV-infected individuals (22% female; 54% African American; 22% current intravenous drug users), revealed an average of 4.51 negative life events in the past 3 months; the most frequent negative life stressors reported were changes in sleep habits (63%), financial status (58%), eating habits (53%), closeness with family (51%), and social contacts (46%). Catz and colleagues (2002) used the SRRS (43 major life events that participant may have experienced in the past 6 months) to assess major life events in 100 HIV-infected women (84% African American); their research indicated that these women experienced 6.5 major life events on average. In Mellins et al.'s (2000) study of 40 HIV-infected African American and Latina women (mothers), using an adapted version of the PERI (total of 50 items/general and HIV-specific life stressors), women reported a mean of 8 life events, with a majority of the life stressors classified in the relationship/HIV stress (75% endorsement), family/household stress (70% endorsement), and loss/victimization (50% endorsement) categories. Jones, Beach, Forehand, and Foster (2003) indicated that their sample of 72 HIV-infected African American women endorsed an average of 15.4 (SD = 11.0) traumatic family and non-family related life events in the past year using the clinician-rated, brief version of the Life Stressor Checklist (LSC-16 items; Wolfe et al., 1997); the most frequently endorsed family stressors were “having a family member put in jail (61.8%), having an abortion/losing a baby (45.1%), and witnessing family violence (40.6%)” (p. 590). The nature of the life events assessed by Jones and colleagues was very different from the current and other studies reviewed, as the stressors counted were events that would meet the DSM-IV (1994) Criteria A of the definition of posttraumatic stress disorder, which involves fear, helplessness, or horror as a response to a traumatic

event. Due to the variety of life stressor measures, the types of life stressors assessed, varying time frames of assessment of life events, and dissimilar populations in the aforementioned studies, comparison of the current sample's life stressor endorsement (count/level) is difficult. However, while excluding Mellins and colleagues' (2000) study of both HIV-specific and general life stressors and Jones and colleagues' (2003) examination of traumatic life events, the current study's mean count of general, family-related stressors at each assessment (ranging from approximately 8 to 10 life events) was still higher than the other studies (Blaney et al., 1997: M = 4.2-6.8 negative life event count; Carels et al., 1998: M=4.51 negative life event count; Catz et al., 2002: M=6.5 major life event count). Despite the indication of high levels of family-related stressors in the current sample and anticipated vulnerability in experiencing distress symptoms, it may be possible that the relatively low levels of significant, negative life stressors diminished the impact of life stressors in relation to the women's mental health status. Moreover, HIV-specific stressors were not assessed in the current investigation, so it is unclear how these specific stressors in combination with the high levels of family stressors may have related to subsequent psychological distress.

A study design/methodological factor that may be related to the current study's modest, yet significant stress-distress prospective findings, is the issue of time-lag. The first methodological concern is the actual duration of the time lag between assessments (3 months between the first four assessments and 9 months before the last assessment at T5). Although this study utilized longitudinal data from 5 time points spanning an 18-month period of time (baseline, 3 months, 6 months, 9 months, and 18 months), it could be argued that collection of data across differently-spaced time

intervals, perhaps shorter-time lags, may have yielded different (or stronger) results. Furthermore, the time lag of 9 months before the last assessment (T5) was indeed different from all the prior time lags and may represent a time span where possible effects may have diminished. The time lag issue has been discussed by many researchers (Cole & Maxwell, 2009; de Jonge et al., 2001; de Lange, Taris, Kompier, Houtman, & Bongers, 2003; Dormann & Zapf, 2002; ter Doest & de Jonge, 2006; Zapf, Dormann, & Frese, 1996) and varying lengths of time have been suggested for observing an effect, with no firm consensus on ideal time intervals. Cole and Maxwell (2009) note that in such longitudinal studies, “this time interval might be shorter or longer than the time lag that actually separates the emergence of the disorder from the occurrence of the risk event; missing the optimal time lag can have rather remarkable statistical consequences” (p. 80). Cole and Maxwell also mention that stressful live events (as risk factors) “...often vary with regard to their timing, duration, and intensity- and the exact temporal relation of such events to specific psychopathology outcomes is not well described” (p. 92-93). Furthermore, Cole and Maxwell suggest that under these circumstances, time-lags that are mistimed can lead to inaccurate conclusions about the relationship of the variables being studied. In regard to research in the area of organization stress (occupational stress), Zapf, Dorman, and Frese (1996) describe an adjustment process that occurs over time in response to stress; specifically, when an individual is exposed to stressors, there is an adjustment process where one develops coping mechanisms to diminish the impact of stressors on an outcome. Furthermore, as part of this adjustment process, negative outcomes may initially increase with stressors, but as individuals adjust to the stressors with time, negative outcomes decrease although stressors are still present (Zapf, Dorman,

& Frese). Zapf and colleagues concluded that the period of time that it takes for coping responses, adjustment, and the subsiding of negative outcomes, is still up for debate. Although convenient for a research study, the time span of 3 months (and 9-months at T5) between follow-up assessments in the present study may have been too large of a gap between assessments to determine stronger effects (i.e., effects that may have been present, could have dissipated before the 3-month interval lapsed). Without further prospective research in this area, it is currently unclear what time frame of follow-up would most suitable in delineating these relationships.

In light of the current study's results with respect to stress-distress, there should also be some consideration of the demographic (health-related) characteristics of the women that participated in this study. This sample consisted of African American women, living with HIV-infection, parenting multiple children, and living with limited financial means and education in urban Miami in the late 1990s. Miami was noted as an "HIV epicenter" for being the ranked third among U.S. metropolitan areas in terms of AIDS incidence rate during the period from July 1996-June 1997 (U.S. DHSS, 1998; Lalota et al., 2001). This was also a time when antiretroviral medications and combination treatment for HIV become available for the first time leading to dramatic decreases in number of AIDS cases and AIDS deaths (CDC, 2009 & 2006). However, it is important to note (as specified in Szapocznik et al., 2004), that at the beginning of the study's recruitment of participants in 1996, women with CD4 counts of above 200 were allowed to enroll in the study [a CD4 count below 200 was one of the co-criteria for a medical diagnosis of AIDS at that time, prior to the introduction of effective protease inhibitors and more effective combination treatments

(CDC, 1992)]. With the introduction of the antiretroviral medications and the corresponding improvements in survival rates of HIV-infected individuals, the study's CD4 count criteria was lowered from 200 to 50 for women who were taking protease inhibitors (Szapocznik et al.). The self-reported CD4 count at study entry (T1 baseline assessment) had a large degree of variability across the sample (Mean CD4=462, SD=304), indicating that based on CD4 count alone as a health indicator, the sample was very heterogeneous at study entry. CD4 counts were not examined at follow-up assessments within the current study, so it is unclear how this variable may have changed over time or possibly influenced or interacted with the variables studied. Other measures of health status were not included in the current study, but this information may have provided more clarity about the variability of health status in this sample and possible effects or interactions of health status with the other variables of interest.

The significant, prospective associations between general life stressors and distress in the current investigation have similarities and differences in comparison to those of Jones and colleagues' (2003). Jones and colleagues similarly found prospective (and concurrent) relationships between family-related life events and depressive symptoms. Their study of 72 inner-city HIV-infected women in New Orleans, Louisiana involved analysis of baseline (life events and depressive symptoms) and 1 year follow-up data (depressive symptoms). However, several key differences between the current investigation and the Jones et al. study. Jones and colleagues used clinician-administered/rated measures (The Life Stressor Checklist and the Hamilton Rating Scale for Depression) in comparison to the current study's use of self-report measures. Further, Jones and colleagues' measured family-specific life events with the Life Stressor

Checklist (LSC; Wolfe et al., 1997). The events from the LSC measure are considered to be traumatic events (meeting part of the criteria for post-traumatic stress disorder) and contrast with the current study's focus on daily, family-related, difficult life circumstances, which were events perceived as carrying varying degrees of impact (a combination of negative, positive, and neutral events typically not experienced as "traumatic"). The strength and nature of the traumatic, family-related life stressors measured in Jones et al.'s study, in comparison to daily, family-related life stressors measured in the current study, may help explain the apparent differences in the strength of associations reported. Additionally, Jones et al. used depressive symptoms (Hamilton Rating Scale for Depression; Hamilton, 1960) as their outcome, which can be construed as a more narrowly defined, specific subset of psychological distress symptoms in comparison to the current investigation's use of general distress symptoms (BSI: Global Distress Index). Jones et al.'s investigation only entailed two assessment points (12 months apart), while the current investigation included 5 assessment points across an 18 month timeframe (mostly 3 months apart). Interestingly, the most frequently endorsed family stressors in Jones et al.'s study consisted of some of the least endorsed stressors in the current study, despite both samples being comprised of inner-city, low-income African American women infected with HIV.

Additionally, the current investigation's findings with respect to stressful events predicting psychological distress confirms results found in longitudinal studies of HIV-infected men (refer to DeMarco et al., 1999 and Blaney et al., 1997). DeMarco and colleagues' (1999) longitudinal study of Caucasian and African American HIV-infected men, indicated that men's exposure to general stressors was a significant, direct predictor

of depression; specifically, increased general life stressors were related to worse depression outcome, and this relationship was unmediated by any other variable studies (PFC, EFC, perceived control, and physical symptoms). This study was based on responses from 297 White (72%) and African American (28%), non-infected and HIV-infected (35%) men enrolled in a longitudinal, multicenter AIDS cohort study examining behavioral and psychosocial factor of men at risk for AIDS. In addition to general life stressors, DeMarco and colleagues separately examined AIDS-specific stressors in relation to the prediction of AIDS-specific distress. Similarly, AIDS-specific stress was directly and significantly related to AIDS-specific distress, and unmediated by the other variables included in their path model. Above and beyond the differences in sample characteristics, it is important to note several key methodological and design differences that complicate direct comparison of the current study to Demarco et al.'s investigation. The study of Demarco and colleagues only had two assessment points, occurring 1 year apart (T1 and T2) in comparison to the current investigation's inclusion of 5 assessment points across an 18-month time span. Also, those authors utilized different measures in comparison to the current investigation (Demarco et al., used a stress scale based on Folkman et al. 1993, the depression subscale of the Hopkins's Symptom Checklist, and a self-designed AIDS-specific distress measure). The design of DeMarco and colleagues' longitudinal study also differed from the current study, by the authors' use of depression/distress change scores (difference of T1 & T2 scores) and the use of predictors (including general life stress and AIDS specific stress) that were measured at Time 2 (T2); these predictors were measured at a time when the depression/distress change would have already occurred. Their analyses, therefore, did not involve

examination of true prospective relationships as in the current examination. Similar to Demarco et al.'s study, Blaney and colleagues (1997) found that increases in 40 HIV-infected men's psychological distress levels over a one year period (3 assessment points) were linked to concurrent increases in negatively-rated life event impact scores. The lack of prospective analysis and specific measure of negatively-rated life event impact utilized in Blaney et al.'s study differs from the current investigation. Specifically, use of the LES negative life event impact scores (the sum of the perceived impact ratings), incorporates "individual appraisal, which is seen as a critical variable in life events research" (Blaney et al., 1997, p.636; Lazarus & Folkman, 1984). The use of the count of difficult life events instead of a summation of the life event impact scores may have affected current study findings.

Although there is substantial literature supporting cross-sectional/concurrent relationships of life stressors and psychological distress in HIV-infected individuals, including some studies of HIV-infected women and African-American HIV-infected women, only a modest, prospective association between number of general life stressors and subsequent self-reported distress symptoms was found in the current investigation. The subset of cross-sectional studies focusing specifically on negatively-rated life events and perhaps HIV-specific life events may need further study within a prospective analysis to better understand the nature of meaningful stressful life events and how they potentially impact HIV-infected African American women's mental health status over time. Furthermore, greater examination of this population is needed to better understand what types of life stressors may impact symptoms of distress, which have strong, well-

known associations with poor health status, particularly in immuno-compromised populations (Evans et al., 1997; Leserman, Petitto, Golden, et al., 2000; Leserman, Petitto, Perkins, et al., 1997; Leserman, 2008; Patterson et al., 1995).

Coping-Distress

With regard to both the **problem-focused coping-distress and emotion-focused coping-distress models** in the current investigation, no prospective relationships were found, contrary to study hypotheses. Given the lack of significant findings, several aspects of the current investigation need consideration in the interpretation of the study results, including factors related to measurement, method/study design, and sample characteristics. As previously mentioned, measurement issues in the current study may have led to a decreased ability to detect relationships between coping and psychological distress. Overall elevated (and relatively stable) levels of distress, relative to community norms, were reported on the Brief Symptom Inventory Global Distress Index across the five time assessment points. It is conceivable that the mean level of distress among the women in the current sample may have decreased the ability to detect relationships between coping and psychological distress. Additionally, an adapted Brief COPE (Carver, 1997) self-report measure was used to assess how women were coping with all of the general stressors in their lives currently. For the purposes of this study, problem-focused and emotion-focused scales were derived based on Folkman and Lazarus' (1990) conceptualization and consistent with other researchers' use of these derived scales from the Brief Cope (Coolidge, Segal, Hook, & Stewart, 2000; Cooper, Katona, & Livingston, 2008; Cooper, Katona, Orrell, & Livingston, 2008; Fisher, Segal, & Coolidge, 2003). In the current study, the derived PFC and EFC scales had good internal consistency

(Cronbach's alphas: .825 and .846, respectively). Although there are many ways to conceptualize and measure coping strategies, even with reportedly good (reliable and valid) measures, if there are too few perceived meaningful stressors to be dealt with, the significance of coping remains unclear. This appears to be a factor in the current study, given that participants reported relatively low levels of life stressors on the DLC.

Additionally, as mentioned previously, some of the events reflected in items endorsed on the DLC measure, may have not met the threshold for consideration as major life stressors, stressors that had significant enough impact to create threat appraisals that required corresponding coping responses. In other words, when life challenges are not great, there would presumably be limited opportunity for situational demands to be perceived as exceeding the ability to adapt.

Also noteworthy is the restricted variability of both PFC and EFC scores across the current study, which may have decreased power to detect relationships with regards to distress outcome. Another consideration with respect to the use of the Brief Coping in the current study is that this measure, and other commonly used coping measures, may not be the most appropriate for use in certain populations, like urban, African American HIV-infected women. As mentioned by Moneyham and colleagues (1998), their use of a self-designed coping measure was due to the "concern that existing measures might not be contextually or culturally relevant to this population" (Moneyham et al., p. 354). Furthermore, they argued that the use of their coping measure provided pertinent information about living with HIV-infection that would not have otherwise been assessed or detected by other existing coping measures. If the use of coping strategies unique to the current sample of HIV-infected African American women was not captured by the

Brief Cope measure (in the cases where there was adequate life stressors present), this would have led to an incomplete assessment of coping strategies and would not have provided an accurate examination in terms of the women's coping in relationship to psychological distress symptomatology.

As mentioned previously, the methodological issue of time-lag may also be related to the current study's lack of significant findings with respect to the coping-distress models. The lag of 3 months between assessments (and 9 months before the last assessment at T5) may have been too long of a period to detect effects of stressors that would meaningfully evoke coping strategies and consequently affect symptoms of psychological distress. Carver (2007) raised the issue of time-lag in examining prospective effects of coping:

... Should you measure coping on one day and the outcome variable the next day? A week later? A month later? Three months later? With some outcome variables, it would seem to be necessary to permit a fairly substantial delay before assessment of the outcome. With others it is less clear. How much sense does it make, for example, to measure coping with a stressor at one time point, then measure emotional well-being a year later? (p. 127)

As previously mentioned, the time span of 3 months (and 9-months at T5) between follow-up assessments in the present study may have been too large of a gap between assessments to determine any meaningful effects (i.e., whatever effects that may have been present, could have dissipated before the 3-month interval lapsed). Without further prospective research in this area, it is currently unclear what time frame of follow-up would most suitable in delineating these relationships across time.

As previously stated, another factor that may have contributed to the current study's results is the self-reported health status of the study's participants. The

variability of self-reported CD4 count at study entry (T1 baseline assessment) and changes in the study's inclusion criteria related to CD4 count resulted in a heterogeneous sample of HIV-infected African American women. Since CD4 count or other related health status variables were not included as control variables, it is unclear how health factors may have affected the coping-distress relationships across time.

The lack of prospective findings between PFC and EFC coping and distress in the current investigation was similar to Moneyham's and colleagues' (1998) findings in their prospective research of active coping (problem-focused), avoidance coping (emotion-focused), and HIV-related emotional distress over a 13-month period. In their sample of 184 rural and urban HIV-infected women in Georgia (85% African American), Moneyham and colleagues reported the lack of significant findings in their separate analyses of PFC and EFC (at Time 1/baseline) in the prediction of emotional distress 3-months later (at Time 2), despite the finding that PFC coping was concurrently, negatively related to emotional distress (both measured at Time 2). Of note, Moneyham et al.'s study sample consisted of predominantly African American women (85%) and included predominantly single (73%), low-income (70% under \$10,000), mothers (83%) residing in urban areas (80%), ranging from 15-59 years old ($M=34$, $SD=8.92$). In comparison to the current study of only African American HIV+ women, who were all mothers residing in an urban environment, the sample of women in Moneyham and colleagues' study were more or less comparable in terms of relationship/marital status, income, and age. A unique aspect of the Moneyham and colleagues' study was their use of self-designed HIV-related coping and distress measures that were not yet validated with their population of interest (assessing coping strategies used to deal with one's HIV

disease and emotional responses when thinking about one's HIV infection). Their measures appeared to assess different (or more narrowly-defined) constructs in comparison to those used in the current study, but nonetheless yielded similar results to the current investigation.

The current study's lack of prospective coping-distress findings was also similar to findings in DeMarco and colleagues' (1999) analysis of detachment (EFC), involvement coping (PFC), stress, and psychological distress in their sample of mixed HIV serostatus (HIV+ and HIV-) men. Both detachment (EFC) and involvement (EFC) were not found to predict outcomes on either depression or AIDS-specific distress when examining only HIV-infected men (no significant coping-distress relationships were apparent in the sub-sample of HIV-negative men either). Their path model included detachment (EFC), involvement (PFC), general life stress, perceived control, and physical symptoms as predictors of depression within the subset of HIV-positive participants only. DeMarco et al.'s study had several differences in comparison to the current analysis, including differences in measures, constructs, and design. Specifically, their study only had two assessment points (occurring 1 year apart), utilized measures different from the current study, and employed measures that appear to represent the constructs of interest in a different manner in comparison to the current investigation. General coping (coping in daily life) was measured in the current investigation using an adapted Brief Coping, while DeMarco and colleagues examined coping in relation to the participant's use of "strategies to attempt to cope with their most stressful life areas" (DeMarco et al., 1999, p. 1709), as measured by the Ways of Coping Scale. Furthermore, Demarco et al. evaluated coping with respect to both general and AIDS-specific stressors

and utilized depression and AIDS-specific distress as outcomes. As mentioned previously, the design of DeMarco and colleagues' longitudinal study also differed from the current study, by their use of depression/distress change scores (difference of T1 & T2 scores) and use of predictors that were measured at T2. Their examination, therefore, focused on concurrent relationships within a longitudinal time frame, but not within a prospective frame. Of note, Demarco and colleagues' conducted supplemental analysis of the most depressed subset of their sample ($N = 43$, 15% of their sample); this supplemental investigation revealed that involvement coping (PFC) was significantly and negatively associated with depressed mood in this subset of depressed men. Once again, these results represented change in depression score from Time 1 to Time 2 in relation to involvement coping (PFC) at Time 2. Although not analyzed in the current study, perhaps a similar investigation of only the most depressed portion of the current sample may have yielding findings of interest.

With respect to the existing literature reviewed relating coping strategies and psychological distress in HIV-infected individuals, the majority of the research has been cross-sectional and has focused either on coping with respect to general life stressors or HIV-specific life stressors. **The use of EFC has typically been associated with greater emotional distress, while PFC has been linked with less distress in research on coping in relation to HIV-specific stressors.** Studies of HIV-infected women, including HIV-infected African American women (Catz et al., 2002; Simoni & Ng, 2000; Simoni et al., 2000; Commerford et al. 1994; Ball et al., 2002) have generally indicated the same pattern of findings when examining the use of coping strategies in response to HIV-related stressors (PFC associated with lower emotional distress, while EFC has been

more likely to be associated with psychological distress/depressive symptoms). Some studies of HIV-infected women (i.e., Ball et al., 2002; Commerford et al., 1994; Moneyham et al., 1998) have noted mixed or unclear findings in relation to coping with HIV-related stressors warranting further examination in this population.

Three existing studies examine coping with respect to general life stressors in mostly HIV-infected men (Carels et al., 1998; Blaney et al., 1997; & DeMarco et al., 1999). Despite diverse study methods, these studies have indicated that some types of emotion-focused coping are positively associated with psychological distress, while results of analyses of relationships between problem-focused coping strategies and distress have been mixed. Continued examination of the role of general life stressors both cross-sectionally and prospectively appears to be needed, particularly with respect to HIV-infected African American women.

Implications

The modest, yet significant prospective findings supporting only one of the three main hypotheses in the current study suggest that future investigations are needed to understand prospective relationships between stressful life circumstances, coping strategies, and psychological distress in the understudied population of HIV-infected African American women. Additional research is needed to explore the full scope of life stressors that these women experience, including which types of stressors (e.g., family, general, HIV-related) and to what degree these stressors impact mental health status. It is also possible that refinements need to be made in the conceptualization and measurement of emotion-focused and problem-focused coping relevant to the population of interest in the current study in order to ascertain relationships between coping and distress. The

current findings did reveal that this population of women, overall, was experiencing elevated levels of chronic psychological distress, relative to community norms; their overall levels of reported psychological distress were consistent with other studies of HIV-infected women and reflect moderate to high levels of distress and/or depressive symptoms (i.e., Cook et al., 2004; Ickovics et al., 2001; Kaplan et al., 1997; Miles et al., 2003; Morrison et al., 2002; Murphy et al., 2002; Myers & Durvasula, 1999). However, given the limitations of the current investigation, it is unclear how coping strategies prospectively relate to psychological distress. Life stressors did have a modest effect on subsequent distress in this sample of women, but further investigation is warranted.

The study findings also indicated a relatively low-level of significant chronic family life stressors and stability of these stressors across time. Specifically, there was a low degree endorsement of life stressors that would be considered traumatic and/or major (e.g., the respondent or family member having a drug/alcohol problem, being victimized, being physically abused). The most highly endorsed life stressors (e.g., not having enough money for necessities, not having a car, wishing they had more education) may have not been perceived as “significant” life stressors, to a degree that would affect mental health status. Additionally, there was limited variability in both PFC and EFC across the current study; moreover, the limited range of psychological distress symptoms and relatively elevated levels of distress may have also decreased the ability to detect relationships in the current investigation. Furthermore, the assessment of coping in a sample that did not endorse a high degree or variable degree of major or significantly negative life stressors likely decreased the possibility of detecting significant effects.

Nonetheless, this study contributes to the existing literature examining life stress, emotion-focused and problem-focused coping, and psychological distress in poor, inner-city HIV-infected African American women. There is limited stress-coping research with this specific population and much of the existing research appears to be limited to cross-sectional analysis. Overall, few studies in the literature reviewed have used samples of HIV+ African American women as large as was used in the current study ($N = 209$). For example, Jones' et al 2003 prospective study involved a sample consisting of 72 HIV+ African American women, Moneyham's et al (1998) longitudinal study utilized 154 HIV+ African American women, while most of the remaining studies (cross-sectional) utilized samples of approximately 100 HIV+ African American (non-Hispanic) women (i.e., Ball et al., 2000, $N = 99$; Catz et al., 2002, $N = 100$; Simoni, Demas, Drossman et al., 2000, $N = 106$; Simoni and Ng, 2000, $N = 108$). Future studies should include large enough samples of HIV-infected African American women to gain a better understanding of this unique population.

Related to study design, a key strength of the current study was the use of a prospective, longitudinal design that encompassed five assessment points in an 18-month period. Additionally, the use of path analyses in the current study has certain advantages over other statistical approaches, including the ability to disentangle causal relationships and use of a temporally-sequenced model (Lleras, 2005) to study relationships over time. Despite most hypotheses not being supported, the longitudinal nature of the study design enabled assessment of the effects of earlier stressful life events and coping strategies in relation to subsequent psychological distress symptoms. The design allowed for the longitudinal analyses of the associations between stress, coping, and psychological

distress in an attempt to expand current knowledge based on mainly cross-sectional studies. Future research should consider path analysis and structural equation models in the examination of these relationships over time along with design improvements, including larger sample size, analysis of mediators/moderators, and other possible variables to include (i.e., health status, social support, etc.). Future studies should investigate potential reciprocal and other more complex relationships of the variables studied.

Some clinical implications of this study can be identified. Clinicians, mental health providers, and medical providers need to be aware that many HIV-infected African American women may be experiencing elevated and possibly clinically significant levels of psychological distress, despite not indicating the presence of many significant life stressors. The association of psychological distress with poor health outcomes in HIV-infected populations has been well-established. Future research in the areas of life stress and coping strategies relevant to this population may help guide clinicians and providers in designing and/or providing appropriate programs, interventions, and case management in efforts to decrease psychological distress and improve health outcomes. Innovative methods and measures should be designed to better capture aspects of life stress and coping strategies in this population, which may also lead to better interventions for psychological distress.

Limitations and Future Directions

An overarching limitation of this study is the existence of relatively low levels of stress and the relative stability of coping and distress variables over the course of the study. This phenomenon unexpectedly presented a combination of circumstances that

may have limited the possibility of accurately investigating the nature of stress, coping, and distress in the current study's population (limited the ability to detect any significant effects). Further exploration is needed regarding the use of stress, coping, and distress measures that are sensitive and relevant to the population studied. Instead of using the total count of stressors from the DLC measure, perhaps analysis of total impact scores may have provided more meaningful information in the current investigation.

Consideration of an alternative life stressor measure that encompasses general, family-related, and HIV-specific life stressors relevant to low-income, HIV-infected African American women should also be explored in future research, as well as incorporating the individual's appraisal of life stressors.

The use of self-report measures is a second limitation of this study. Issues of social desirability and response bias may have affected outcomes measured. Specifically, individuals experiencing depression may have a negative bias and memory-related problems that affect their report of coping behaviors (Rosenberg, Peterson, & Hayes, 1987). Future studies should consider the use of structured interviews or multi-measure approaches to improve the validity of the data obtained.

A third limitation is related to the sample's demographic characteristics. The current study used a sample of primarily low-income, HIV-infected African American women residing in urban Miami, Florida, which limits generalizability of study findings. Additionally, the sample was drawn primarily from a large public hospital affiliated with a university and the participants did not have a current psychiatric diagnosis, including substance abuse or major depression, at the time of study enrollment. The findings of the current study would therefore only relate to similar populations.

A fourth limitation of the current investigation relates to lack of health status information in the analysis. Self-reported CD4 count was the only health indicator obtained (at baseline assessment) and it was not controlled for in this analysis. Because of the self-report nature of this information, there may be some inaccuracies present in this data. Overall, the CD4 data indicated great variability across this sample and it is unclear how this may have affected the study results. One source of variability, as previously mentioned, may be the change in CD4 count study inclusion criteria. The study period occurred when antiretroviral medications and combination treatment for HIV were first becoming available to affected individuals and subsequently led to improved health outcomes for many. The change in CD4 criteria for women taking antiretroviral/combination treatments may have introduced variety to the sample that was not analyzed in the context of the current study. Additionally, because of medical issues such as medication adherence and resistance, it is unclear how the health status of these women many have changed over the course of study enrollment. As indicated by Blaney and colleagues (1997), HIV infection is likely to change over time and have differing effects on an individual's health and functioning; furthermore, these changes may be reactive with predictor or outcome variables. Other measures of health status were not included in the current study, but this information may have provided more clarity about the variability of health status in this sample and the possible role of health status in stress, coping, and distress. Future studies should include health status information, perhaps verified through medical record review or obtained through blood draw in effort to obtain valid health indicators.

A fifth limitation of the study may be the duration of the time-lag used in the prospective design, as previously mentioned (3 months between the first four assessments and 9 months before the last assessment at T5). Although this study utilized longitudinal data from 5 time points spanning an 18-month period of time (baseline, 3 months, 6 months, 9 months, and 18 months), it could be argued that collection of data across shorter-time intervals may have yielded different results. Furthermore, the time lag of 9 months before the last assessment (T5) was indeed different from all the prior time lags and may represent a time span where possible effects may have diminished. The time lag issue has been discussed by many researchers (Cole & Maxwell, 2009; de Jonge et al., 2001; de Lange et al., 2003; Dormann & Zapf, 2002; ter Doest & de Jonge, 2006; Zapf, Dormann, & Frese, 1996) and varying lengths of time have been suggested for observing an effect, with no firm consensus on ideal time intervals. The optimal periods of time between stressor exposure and corresponding coping responses and between coping responses and subsequent adjustment (experiencing and resolution of negative outcomes) is still debatable. Further prospective research in this area is needed to help determine more suitable time frames in delineating these relationships across time.

A sixth limitation of the study is the attrition rate towards the end of the study. Although the sample at baseline consisted of 209 women with generally high follow-up rates across the first four assessment periods, there was a substantial decline in follow-up at Time 5 (92.3% at T4 versus 63.2% at T5). The decrease in participants between these last two assessments was unlikely to have a significant effect on the study's current findings given the nature of the statistical design, nonetheless, this could be considered a potential sample and design limitation.

Finally, there are certainly a number of other variables in the existing literature that would be expected to have direct or moderating effects on distress that are not a focus of the current study. For example, social support, impact (or appraisal) of major life events, and other factors may have had direct or indirect effects on distress. Additionally, more complex models exploring reciprocal effects and second-order autoregressive relationships of the variables of interest should be investigated further. Finally, studies should investigate these variables within a prospective framework to gain a better understanding of how the psychological status of HIV-infected African American women can be impacted by these variables over time.

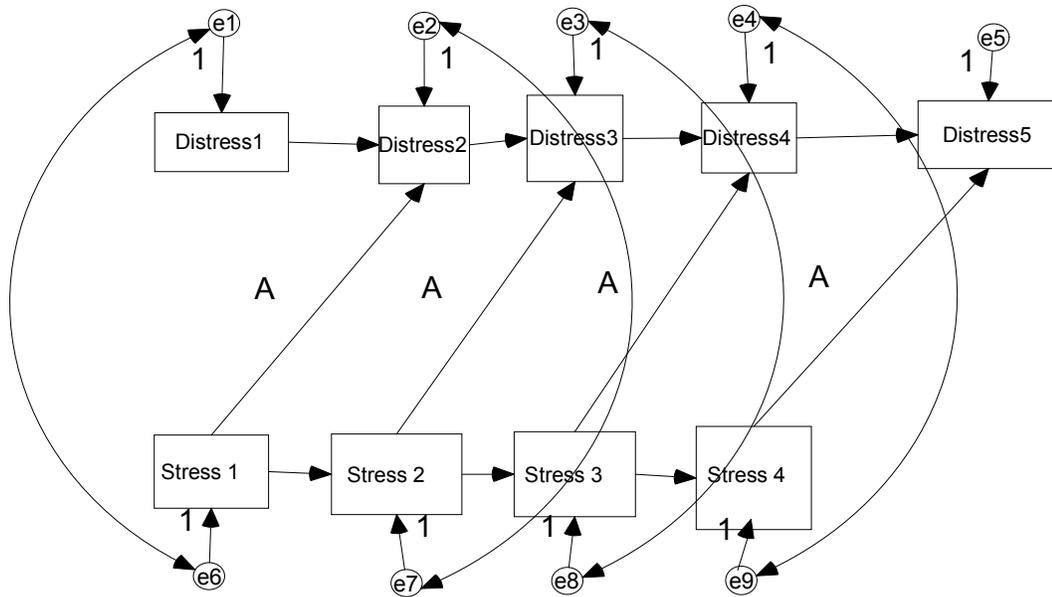


Figure 2.1. Hypothesized path model 1: Life stressors prospectively predict psychological distress.

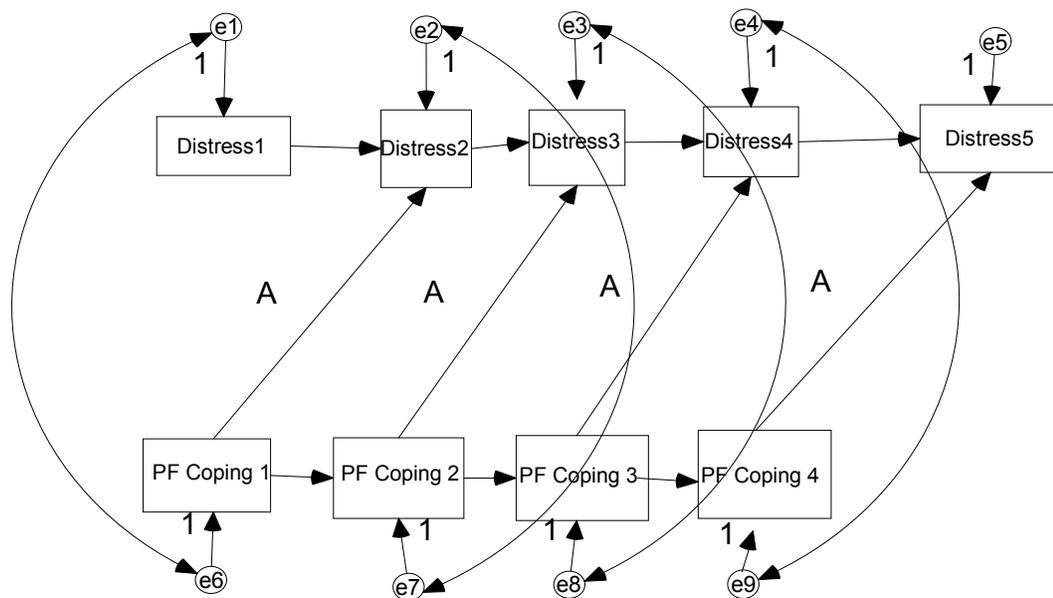


Figure 2.2. Hypothesized path model 2: Problem-focused (PF) coping prospectively predicts psychological distress.

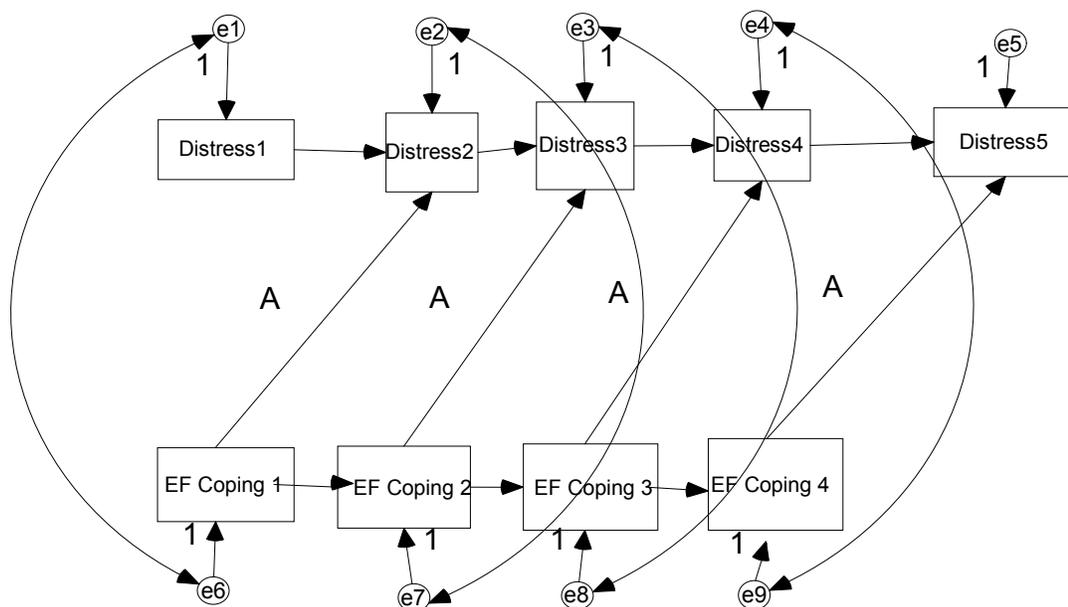


Figure 2.3. Hypothesized path model 3: Emotion-focused (EF) coping prospectively predicts psychological distress.

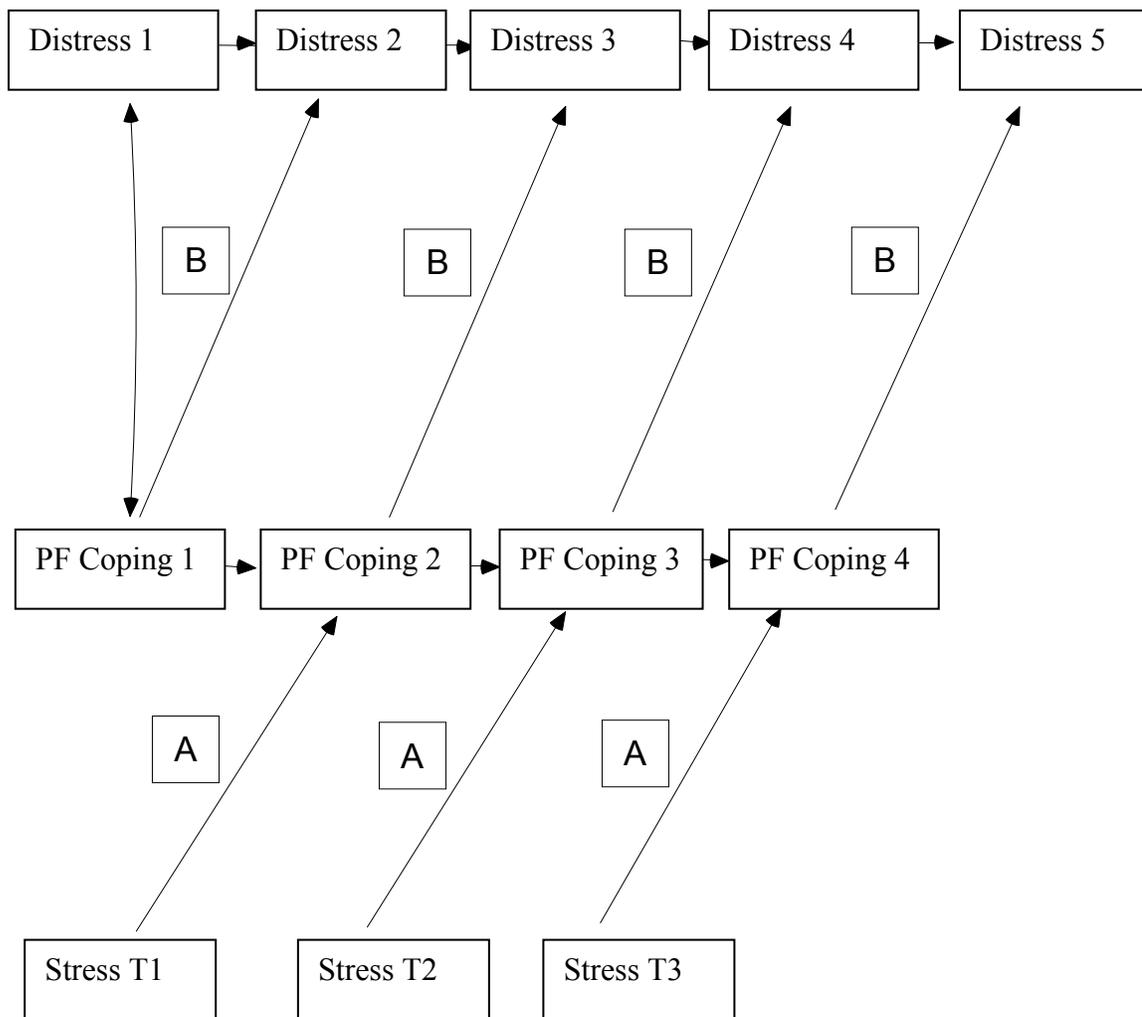


Figure 2.4. Hypothesized path model: Problem-focused (PF) coping as mediator of stress-distress relationship.

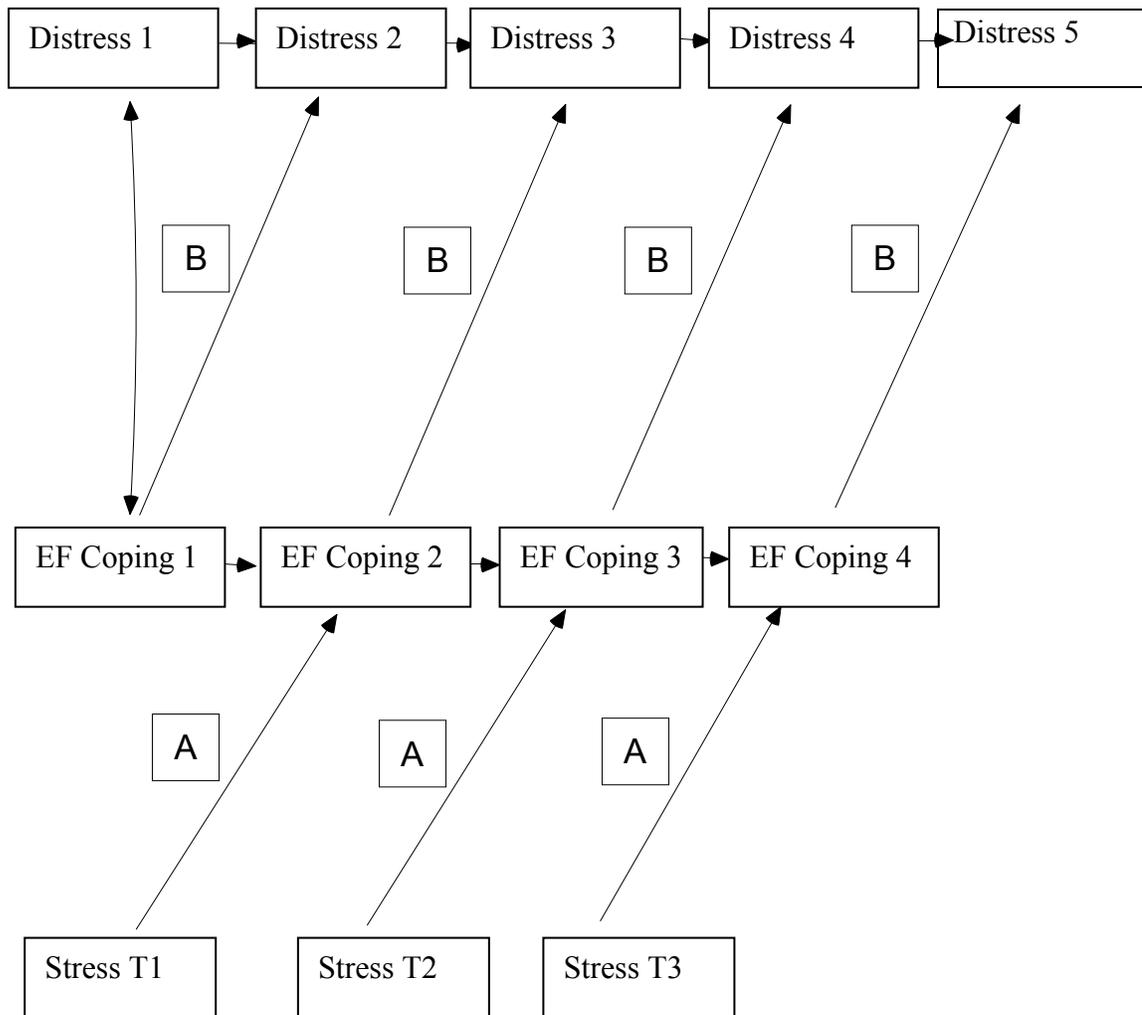


Figure 2.5. Hypothesized path model: Emotion-focused (EF) coping as mediator of stress-distress relationship.

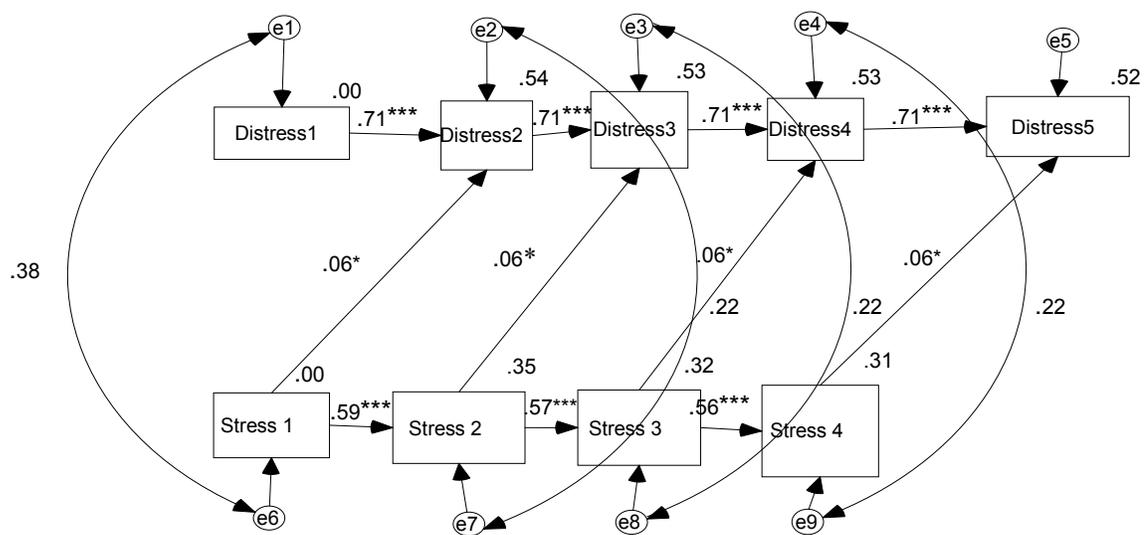


Figure 2.6. Hypothesized path model results: Stress-distress. Standardized regression coefficients are displayed. * $p < .05$; *** $p < .001$.

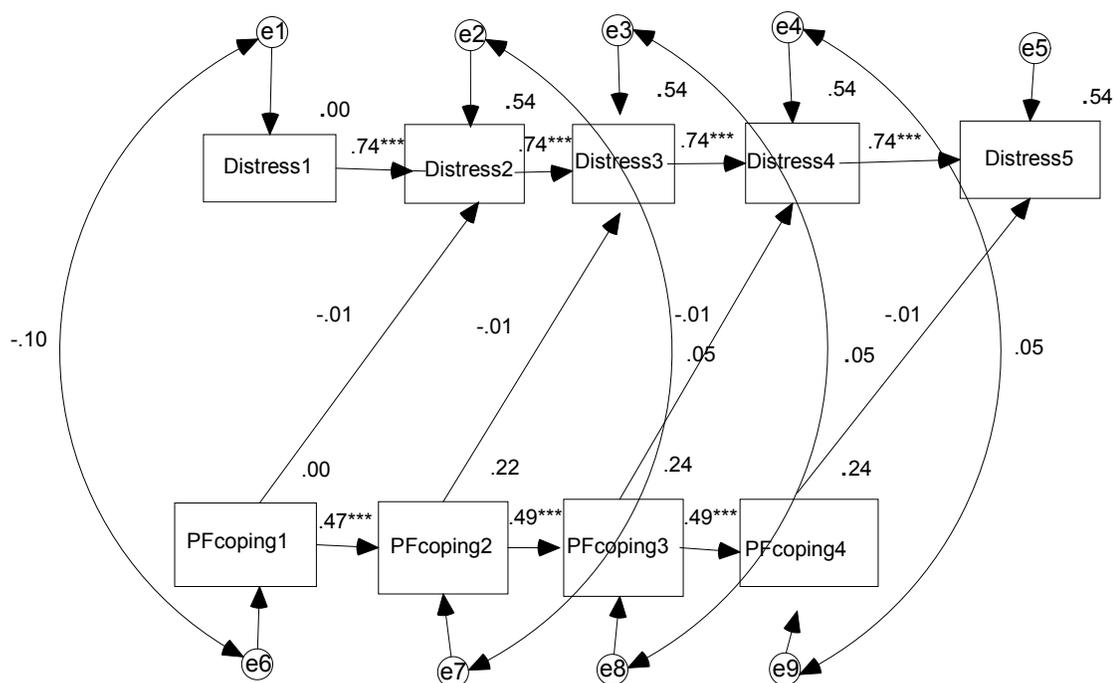


Figure 2.7. Hypothesized path model results: Problem-focused (PF) coping-distress. Standardized regression coefficients are displayed. *** $p < .001$.

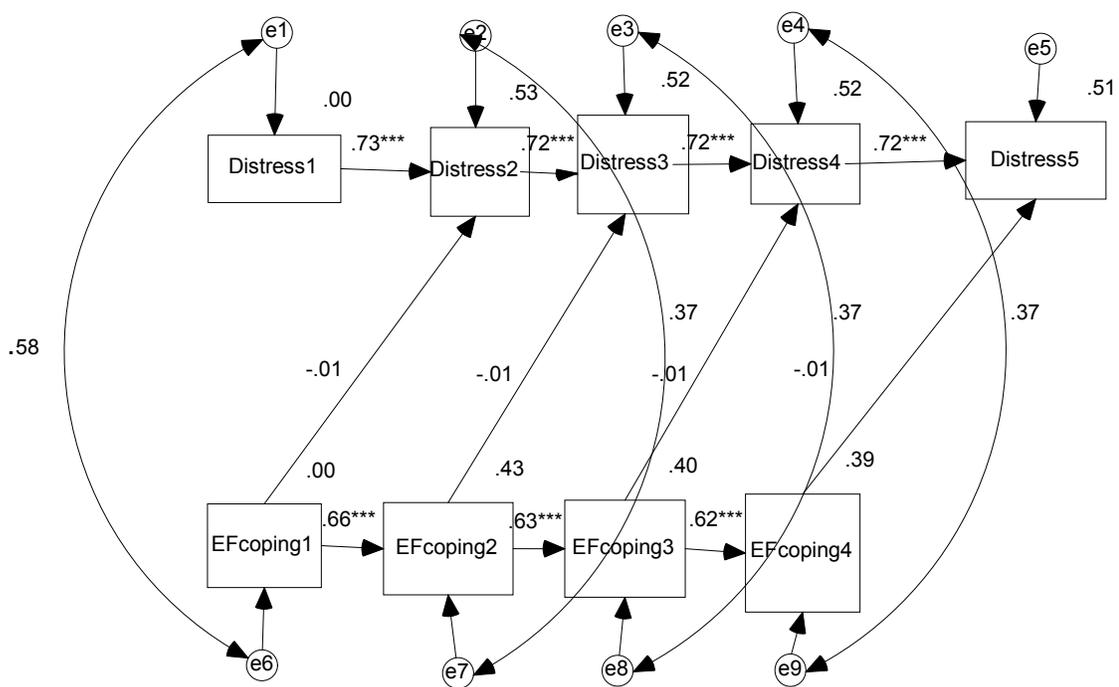


Figure 2.8. Hypothesized path model results: Emotion-focused (EF) coping-distress. Standardized regression coefficients are displayed. *** $p < .001$.

Table 1

Baseline Characteristics of Participants

Characteristic	Frequency		<i>M</i>	<i>SD</i>	<i>Median</i>
	<i>n</i>	%			
Age	209		35.47	8.0	
Socioeconomic indicators					
Household Annual Income					\$ 9,672
Participant Personal Income					\$ 7,000
Receiving public assistance	173	83%			
Marital Status					
Never married/not cohabitating	87	42%			
Married/living with spouse	26	13%			
Married/living apart from spouse	20	10%			
Unmarried/cohabitating	36	17%			
Widowed	6	3%			
Divorced	33	16%			
Unknown status	1	--			
Educational Background					
Less than high school education	107	51%			
Employment Status					
Unemployed	167	80%			
CD4 (T-cell) count at baseline (self-reported)			461.6	303.6	

Table 2

Means (M) and Standard Deviations (SD) of Stress, PFC, EFC, and Distress Scores across Study Period

Time (T)	Stress		PFC		EFC		Distress	
	M	SD	M	SD	M	SD	M	SD
T1	9.69	3.57	23.52	5.31	34.44	9.17	1.01	.69
T2	9.10	3.58	23.71	5.70	31.97	8.94	.88	.67
T3	8.87	3.32	23.64	5.87	29.88	8.45	.80	.63
T4	8.22	3.08	23.41	5.47	30.45	8.21	.76	.61
T5	8.61	3.90	23.74	5.89	29.05	7.98	.76	.60

Note. T1=baseline ($N = 209$), T2= 3 months ($N = 189$), T3= 6 months ($N = 185$), T4 = 9 months ($N = 193$), T5= 18 months post-baseline ($N = 128$); PFC = problem-focused coping, EFC = emotion-focused coping.

Table 3

Correlation Matrix for All Variables in Stress-Distress Model

Variable	1	2	3	4	5	6	7	8	9
1. T1 Distress	-								
2. T2 Distress	.73**	-							
3. T3 Distress	.62**	.77**	-						
4. T4 Distress	.58**	.72**	.77**	-					
5. T5 Distress	.41**	.58**	.65**	.65**	-				
6. T1 Stress	.38**	.30**	.30**	.26**	.23**	-			
7. T2 Stress	.31**	.39**	.33**	.33**	.26**	.61**	-		
8. T3 Stress	.28**	.33**	.32**	.34**	.21*	.47**	.60**	-	
9. T4 Stress	.23**	.24**	.26**	.36**	.43**	.55**	.57**	.50**	-

Note. * $p < .05$; ** $p < .01$.

Table 4

Correlation Matrix for All Variables in Coping (PFC-Distress, EFC-Distress) Models

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. T1 Distress	-												
2. T2 Distress	.73**	-											
3. T3 Distress	.62**	.77**	-										
4. T4 Distress	.58**	.72**	.77**	-									
5. T5 Distress	.41**	.58**	.65**	.65**	-								
6. T1 PFC	-.10	-.08	-.01	-.01	.05	-							
7. T2 PFC	.11	.05	.05	-.01	.03	.59**	-						
8. T3 PFC	-.02	-.06	.01	-.01	-.01	.46**	.40**	-					
9. T4 PFC	.04	.05	.04	.10	-.09	.49**	.51**	.50**	-				
10. T1 EFC	.58**	.40**	.30**	.30**	.18*	.14*	.21**	.05	.15*	-			
11. T2 EFC	.53**	.51**	.38**	.32**	.22*	.08	.19**	.05	.16*	.69**	-		
12. T3 EFC	.35**	.42**	.52**	.36**	.44**	.12	.04	.20**	.03	.52**	.63**	-	
13. T4 EFC	.27**	.36**	.35**	.46**	.28**	.13	.04	.00	.11	.54**	.58**	.64**	--

Note. * $p < .05$; ** $p < .01$.

Table 5

Unstandardized Path coefficients, Standard Errors, and t-values for Hypothesized Stress-Distress Model

Path	Estimate	SE	<i>t</i>	<i>p</i>
<u>Autoregressive paths</u>				
Distress _{t-1} → Distress _t	.704	.026	26.79	<.001***
Stress _{t-1} → Stress _t	.558	.033	16.98	<.001***
<u>Cross lag paths</u>				
Stress _{t-1} → Distress _t	.006	.003	2.14	.033*

Note. * $p < .05$; *** $p < .001$.

Table 6

Unstandardized Path coefficients, Standard Errors, and t-values for Hypothesized Problem Focused Coping-Distress Model

Path	Estimate	SE	<i>t</i>	<i>p</i>
<u>Autoregressive paths</u>				
Distress _{t-1} → Distress _t	.737	.025	29.46	<.001***
PFC _{t-1} → PFC _t	.493	.038	13.04	<.001***
<u>Cross lag paths</u>				
PFC _{t-1} → Distress _t	-.001	.002	-.51	.608

Note. ****p* < .001.

Table 7

Unstandardized Path Coefficients, Standard Errors, and t-values for Hypothesized Emotion Focused Coping-Distress Model

Path	Estimate	SE	<i>t</i>	<i>p</i>
<u>Autoregressive paths</u>				
Distress _{t-1} → Distress _t	.7181	.027	26.12	<.001***
EFC _{t-1} → EFC _t	.6175	.030	20.40	<.001***
<u>Cross lag paths</u>				
EFC _{t-1} → Distress _t	-.0002	.001	-.18	.858

Note. ****p* < .001.

Table 8

Model Fit Indexes for Hypothesized Path Models

Model	$X^2(df)$	X^2/df	CFI	RMSEA (90% CI)
Stress-Distress Initial Model	128.624	3.14	0.900	0.101
	(41)			
PFC-Distress Initial Model	140.135	3.42	0.870	0.108
	(41)			
EFC-Distress Initial Model	128.241	3.13	0.917	0.101
	(41)			

Note. df = degrees of freedom; CFI = Comparative Fit Index; RMSEA = root mean square error of approximation; CI = confidence interval; PFC = problem-focused coping, EFC = emotion-focused coping.

Table 9

Test of Treatment Group Differences for Hypothesized Path Models

Model	X^2 (<i>df</i>)	X^2 Difference	<i>df</i> Difference	<i>p</i> Value
Stress-Distress Model-	263.388 (139)			
Constrained Across Groups				
Stress-Distress Model-	251.724 (131)	14.176	8	0.17
Unconstrained Across Groups				
PFC-Distress Model-	279.086 (139)			
Constrained Across Groups				
PFC-Distress Model-	274.819 (131)	4.267	8	0.83
Unconstrained Across Groups				
EFC-Distress Model-	240.479 (139)			
Constrained Across Groups				
EFC-Distress Model-	236.345 (131)	4.134	8	0.84
Unconstrained Across Groups				

Note. *df* = degrees of freedom; PFC = problem-focused coping, EFC = emotion-focused coping.

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Appendix 1. Difficult Life Circumstances Measure

Directions: Below is a list of problems. You must decide if a particular one is a problem for you. If any of these questions make you uncomfortable, you don't have to answer. We can help you the most by knowing the difficult circumstances you face in your life.

Responses: YES/NO; If any item was checked yes, rate how this is affecting your life: (-3) extremely negative, (-2) moderately negative, (-1) somewhat negative, (0) no impact, (+1) slightly positive, (+2) moderately positive, (+3) extremely positive

1. Are you having regular arguments or conflicts with your present partner/steady/boy/girlfriend?
2. Are you having some sort of problems with any one of your former spouses/partners?
3. Is your partner in jail?
4. Is your partner away from the home more than half of the time because of a job or other reason?
5. Do you have long-term debts other than a house mortgage (2 years or more)?
6. Do you have problems with your credit rating; Do you get hassled pretty often by bill collectors or collection agencies?
7. Have you been looking for a job and have not been able to find one? (Score as a no if mother is employed or not looking)
8. Does your work interfere with your family life? (no if not working or no family)
9. Does your partner's work interfere with your family life (no if no partner)
10. Do you have trouble with your landlord?
11. Do you have trouble finding a place to live that is suitable and you can afford?
12. Do you feel that you do not have enough privacy?
13. Do you have people living with you – relatives or friends – that you wish weren't there?
14. Do you have neighbors who are really unfriendly or giving you problems?
15. Do you or someone in your household have a long-term illness?*
16. Have you had frequent minor illnesses in the past year?*
17. Do you have a problem with alcohol or drugs (prescription or street)?

18. Does your partner have a problem with alcohol or drugs?
19. Does someone in your household other than you or your partner have a problem with alcohol or drugs?
20. Have you been the victim of a crime in the past year?
21. Has your current partner ever physically abused you? (no if no partner).
22. Has your current partner ever verbally or emotionally abused you (put-downs or saying things that make you feel really bad or worthless)?
23. Is someone other than your present partner presently abusing you sexually, physically, or emotionally?
24. Have you been hospitalized in the past year for any reason – accident or illness?*
25. Are you without a phone at your present home or apartment?
26. Is one of your children being abused sexually, emotionally, or physically (by anyone)?
27. Is one of your children experiencing learning problems or other school problems that require you to consult with the teacher or other school officials?
28. Has one of your children been having serious emotional or behavioral problems at home (e.g., repeated nightmares, repeated tantrums, repeated major aggressive outbursts, etc.)?
29. Do you need more money with necessities?
30. Are you without a car at present?
31. Are you having regular arguments or conflicts with any family member?
32. Do you wish you had more education so that things would be better for you?
33. Would your life be better if you lived in a different neighborhood?
34. Are you experiencing problems in dealing with either or both of your parents?

Note: * items not used in current analyses

Appendix 2. Brief COPE Items

Directions: When people face hard situations, they have a variety of reactions. These next questions have to do with how you've been coping with all of the stressors in your life. Tell me HOW MUCH you've been doing each of these things, not whether it seems to help or not. There are no right or wrong answers.

Responses: *Not at all = 1, A little bit = 2, Medium = 3, A lot = 4*

Emotion-Focused Scale

1. I've been doing things to try to take my mind off the situation.
2. I've been doing something to think about it less, such as going to the movies, watching TV, reading, daydreaming, sleeping, or shopping [anything like these].
3. I've been giving up trying to deal with the situation.
4. I've been giving up the attempt to cope.
5. I've been saying things to let my unpleasant feelings escape.
6. I've been expressing my negative feelings.
7. I've been saying to myself "this isn't real."
8. I've been refusing to believe that it has happened.
9. I've been criticizing myself.
10. I've been blaming myself for things that happened.
11. I've been trying to keep my feelings to myself, and not to let others know how difficult things are.
12. I've been yearning for this never to have happened, or wishing I could return to the way things used to be.
13. I've been actively trying to push down or ignore my feelings about what's happened.
14. I've been actively trying not to think about the situation and its impact on my life.

Problem-Focused Scale

1. I've been concentrating my efforts on doing something about the situation I'm in.
2. I've been taking action to try to make the situation better.
3. I've been trying to come up with a strategy about what to do.

4. I've been thinking hard about what steps to take.
5. I've been getting emotional support from other people.
6. I've been getting comfort and understanding from someone else.
7. I've been trying to get advice or help from other people about what to do.
8. I've been getting help and advice from other people.

Appendix 3. Brief Symptom Inventory

Directions: Below is a list of problems people sometimes have. Please read each one carefully, and circle the number to the right that best describes HOW MUCH THAT PROBLEM HAS DISTRESSED OR BOTHERED YOU DURING THE PAST 7 DAYS INCLUDING TODAY. Circle only one number for each problem and do not skip any items.

Responses: *Not at all = 0, A little bit = 1, Moderately = 2, Quite a bit = 3, Extremely = 4*

1. Nervousness or shakiness inside.
2. Faintness or dizziness.
3. The idea that someone else can control your thoughts.
4. Feeling others are to blame for most of your troubles.
5. Trouble remembering things.
6. Feeling easily annoyed or irritated.
7. Pains in heart or chest.
8. Feeling afraid in open spaces.
9. Thoughts of ending your life.
10. Feeling that most people cannot be trusted.
11. Poor appetite.
12. Suddenly scared for no reason.
13. Temper outbursts that you could not control.
14. Feeling lonely even when you are with people.
15. Feeling blocked in getting things done.
16. Feeling lonely.
17. Feeling blue.
18. Feeling no interest in things.
19. Feeling fearful.
20. Your feelings being easily hurt.
21. Feeling that people are unfriendly or dislike you.
22. Feeling inferior to others.
23. Nausea or upset stomach.

24. Feeling that you are watched or talked about by others.
25. Trouble falling asleep.
26. Having to check and double check what you do.
27. Difficulty making decisions.
28. Feeling afraid to travel on buses, subways, or trains.
29. Trouble getting your breath.
30. Hot or cold spells.
31. Having to avoid certain things, places, or activities because they frighten you.
32. Your mind going blank.
33. Numbness or tingling in parts of your body.
34. The idea that you should be punished for your sins.
35. Feeling hopeless about the future.
36. Trouble concentrating.
37. Feeling weak in parts of your body.
38. Feeling tense or keyed up.
39. Thoughts of death or dying.
40. Having urges to beat, injure, or harm someone.
41. Having urges to break or smash things.
42. Feeling very self-conscious with others.
43. Feeling uneasy in crowds.
44. Never feeling close to another person.
45. Spells of terror or panic.
46. Getting into frequent arguments.
47. Feeling nervous when you are left alone.
48. Others not giving you proper credit for your achievements.
49. Feeling so restless you couldn't sit still.
50. Feelings of worthlessness.
51. Feeling that people will take advantage of you if you let them.
52. Feelings of guilt.
53. The idea that something is wrong with your mind.