MEDIATING AND MODERATING RELATIONS BETWEEN SOCIAL AND INDIVIDUAL RESOURCES ON PSYCHOLOGICAL ADJUSTMENT OF WOMEN LIVING WITH HIV/AIDS

by

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ABSTRACT

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Given the growing number of women living with HIV/AIDS and the prevalence psychological distress they experience, this research examined the social and individual resources that promote psychological adjustment (lower depression and anxiety, greater positive affect) among women living with HIV/AIDS. A vast literature has documented the positive association of social resources (i.e., social support) and individual resources (i.e., self-esteem, perceived control, coping strategies) on psychological adjustment. However, the majority of this research has failed to look beyond a main effects model or a stress-buffering model to examine the potential relations between social and individual resources on psychological adjustment. This dissertation conducted a secondary data analysis of an ethnically diverse sample of 146 women living with HIV/AIDS to examine three theoretical relations between social and individual resources on psychological adjustment: 1) Support-Mediation Hypothesis: the effects of social resources on psychological adjustment are mediated by individual resources; 2) Individual Resource-Mediation Hypothesis: the effects of individual resources on psychological adjustment are mediated by social resources; 3) Support-Moderation Hypothesis: the effects of social

resources on psychological adjustment are moderated by individual resources. The individual resource-mediation hypothesis was not supported. Similarly, limited evidence was found for the support-mediation hypothesis. Although neither control perceptions nor coping were found to mediate the associations between social resources and psychological adjustment, self-esteem was found to mediate the effects of social support on depressive symptoms. The strongest evidence was found for the support-moderation hypothesis. Specifically, perceiving health as uncontrollable and perceiving health as due to chance were found to moderate the associations between social conflict and depressive symptoms. Distancing/avoidant coping was found to moderate the associations of social support and social conflict on positive affect, and support seeking coping was found to moderate the association of social support on positive affect. Levels of illness-related stress did not alter the pattern of associations. These findings provide evidence that social and individual resources interact to promote psychological adjustment among HIV-positive women. Further, the complex patterns of these interactions, suggests that future theoretical and empirical work must seek to integrate social and individual resources in order to understand their role in psychological adjustment.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

Women Living with HIV/AIDS

Although the proportion of men diagnosed with HIV infection each year in the United States has stabilized or slowly decreased in recent years, the proportion of new cases diagnosed each year who are women has continued to grow (Centers for Disease Control and Prevention (CDC), 2006). In 2006, women comprised 27% of new AIDS cases and 25% of new HIV infections (CDC, 2006). The proportion of women newly diagnosed with HIV increased by over 300% between 1996 and 2006; from under 4,000 new cases in 1996 to over 13,000 in 2006 (CDC, 1996; 2006). These increases have resulted in estimated total of over 130,000 women living with HIV/AIDS in the U.S. (CDC, 2006). This trend, combined with extended survival rates for HIV-infected women, due in part to the benefits of more effective antiretroviral medications, has resulted in a substantial increase in the number of women confronting the psychological challenges of living with HIV/AIDS as a chronic illness.

Women living with HIV/AIDS may experience significant difficulties resulting in poor psychological adjustment (i.e., depression, anxiety, low positive affect) following their diagnosis. Indeed, HIV-positive women are more likely to be classified as meeting the criterial for depressive disorders than HIV-positive men (Turner & Fleishman, 2006). Epidemiological research has found that 77% of HIV-infected women report chronic or intermittent symptoms of clinical depression (Ickovics et al., 2001) and similar large-scale studies have identified 58%-67% of HIV-positive women as probable cases of clinical depression (Cook et al., 2006; Richardson, 2001). Other smaller-scale research has

identified similarly high rates (56-61%) of probable clinical depression (Catz, Gore-Felton, & McClure, 2002; Siegel, Karus & Dean, 2004; Siegel et al., 1998; Simoni & Cooperman, 2000; Updegraff, Taylor, Kemeny, & Wyatt, 2002). By comparison, only 21% of healthy population-based community samples report this level of depressive symptoms (Radloff, 1977). With respect to other indicators of poor psychological adjustment, HIV-positive women have also been found to report anxiety levels well above, and positive affect levels well below the general population (Catz et al., 2002; Morrison et al., 2002; Siegel et al., 1998; Updegraff et al., 2002). The advent and use of more effective HAART medications have not resulted in improved psychological adjustment for HIV-positive women (Cook et al., 2006; Morrison et al., 2002; Siegel et al., 2004; Turner & Fleischman, 2006). The high rates of psychological distress among women living with HIV/AIDS suggest the need to identify potentially modifiable factors associated with greater psychological adjustment, such that effective interventions can be designed and implemented.

Stress in the Lives of HIV-Positive Women

Individuals living with chronic illness, such as HIV/AIDS, confront a number of stressful experiences associated with their illness and its treatment, including the initial trauma of diagnosis, physical symptomatology and disability, uncertainty regarding the future, and fear of death (Siegel & Krause, 1991; Siegel & Lekas, 2002; Weitz, 1989). Perhaps the most frequent and consistently distressing stressor confronting individuals living with HIV/AIDS is the physical symptomatology associated with the illness (Siegel & Schrimshaw, 2005). Physical symptoms have been one of the most consistent factors influencing psychological adaptation to HIV/AIDS (Heckman et al., 2004; Hudson, Lee,

& Protillo, 2003; Johnson, Stallworth, & Neilands, 2003; Milan et al., 2005; Moneyham et al., 2005; Remien et al., 2006; Siegel et al., 1998; Siegel & Schrimshaw, 2007). Although the advent of more effective treatments may have ameliorated some symptoms, there has been a corresponding increase in the number of physical complaints that are side effects of these medications (Johnson, Stallworth, & Neilands, 2003; Siegel & Schrimshaw, 2005). Beyond the physical challenges posed by living with HIV disease, significant cognitive and emotional adjustments must be made in order to live with it as a chronic illness (Siegel & Lekas, 2002; Siegel & Schrimshaw, 2000). Thus, chronic illness forces individuals to psychologically adapt to the illness (e.g., accept uncertainty) and modify their lives in order to live with the illness (e.g., accept physical limitations, avoid stress, adhere to medications; Charmaz, 1983; Mages & Mendelsohn, 1979; Siegel & Krause, 1991; Siegel & Lekas, 2002; Weitz, 1989). Additionally, individuals living with some chronic illnesses, such as HIV/AIDS, may further experience significant societal and interpersonal stigmatization, leaving them feeling rejected, alone and unsupported (Herek & Glunt, 1988; Herek, Capitanio, & Wideman, 2002; Lekas, Siegel, & Schrimshaw, 2006). Despite significant improvements in HIV-treatment and society's increased awareness regarding HIV/AIDS, the illness-related stressors confronted by HIV-positive women have changed little in the past decade (Siegel & Schrimshaw, 2005).

Women living with HIV/AIDS confront many of the same stressors men with HIV/AIDS confront. However, women (both HIV-infected and uninfected) often face additional stressors that disproportionately impact them more than men, including the burden of caring for both children and family (Campbell, 1999; Hackl, Somlai, Kelly, &

Kalichman, 1997; Semple et al., 1993). Furthermore, because HIV-infected women are more frequently members of ethnic minorities than HIV-infected men, they tend to be burdened with greater poverty, less education, and a greater likelihood of past drug use (CDC, 2006). The additional stressors faced by HIV-infected women have led some to suggest that women experience HIV/AIDS in a qualitatively different way than gay men do (Ward, 1993). Indeed, some have argued that the financial, housing, and child-care burdens burden of low socioeconomic status may be a greater strain for women at risk for HIV than the risk of the illness (Gurung, Taylor, Kemeny, & Myers, 2004). However, studies that have examined the association of socioeconomic factors with the psychological adjustment of HIV-infected individuals have yielded few significant findings (e.g., Milan et al., 2005; Moneyham et al., 2005; Remien et al., 2006; Siegel & Schrimshaw, 2007). Because of the increased stress experienced by HIV-positive women and the potential negative impact it may have on their psychological adjustment, the current study focuses on the unique needs of HIV-positive women.

Social Resources in Psychological Adjustment

Social Support. Relationships with spouses, friends, and family have long been understood to play a significant role as social resources in the ability to manage life stressors. Several aspects of social relationships are implicated in the stress-distress process. Social support, the most frequently examined social resource in the stress literature, is multidimensional (Cohen, Underwood, & Gottlieb, 2000; Laireiter & Baumann, 1992; Schwartzer, Dunkel-Shetter, & Kemeny, 1994; Stroebe & Stroebe, 1996; Uchino, 2004; Veiel & Bauman, 1992) and includes both the structural aspects of social

relationships (e.g., size of social network, marital status) and the functional aspects of social relationships (e.g., perceived availability of support, received support). A considerable empirical literature has linked both structural dimensions of social support and perceived availability of social support to lower psychological distress (see Wills & Fegan, 2001, for review). In contrast to early theoretical expectations, however, the actual receipt of social support has been not been associated with better psychological adjustment, with much of the research identifying a positive relation between received support and psychological distress (e.g., Bolger, Zuckerman, & Kessler, 2000; Dunbar, Ford, & Hunt, 1998; Helgeson, 1993; McDowell & Serovich, 2007). As perceptions of social support have been most consistently linked to better psychological adjustment, and have been most frequently examined within the literature, the proposed study focuses on perceived availability of social support.

Social support has been proposed in the literature to function as either a main effect or as a stress moderator or 'buffer' (Cohen & Wills, 1985; Wills & Fegan, 2001; Stanton & Revenson, 2007). In the main effects model, social support is hypothesized to be beneficial for psychological adjustment regardless of the level of stress experienced, such that the higher the level of social support the greater the benefit for psychological adjustment. In the moderating model, social support is hypothesized to buffer the negative effects of stress on psychological adjustment, and therefore it is most beneficial for those with high levels of stress and little benefit for those with low levels of stress. Although empirical evidence for both models exists (Henderson, 1992), the majority of studies have identified only main effects on psychological adjustment, failing to identify

buffering effects (Stanton & Revenson, 2007; see Wills & Fegan, 2001 for review). When found, stress-moderating effects have been largely identified with functional aspects of support and they have typically accounted for a modest amount of variance explained in psychological adjustment (Cohen & Wills, 1985).

Social Conflict. Although social relationships frequently provide supportive benefits, they also may be negative and unsupportive (Revenson et al., 1991; Rook, 1984; Wortman & Lehman, 1985). Negative social interactions may include both clearly negative interactions such as social conflict, criticism, and hostility (Rook, 1984; Rook, 1998), as well as ineffective or unsupportive interactions such as avoidance, patronizing comments, and false cheerfulness (Ingram et al., 1999; Lepore, Silver, Wortman, & Wayment, 1996; Wortman & Lehman, 1985). Although Wortman and Lerman (1985) and others have emphasized the important differences between unsupportive social interactions and explicitly negative social interactions, here I follow Rook (1998) using the term, 'negative social interactions,' as a general term for both of these constructs. Elsewhere, when discussing the specific hypotheses for this study, I use the term 'social conflict' because here I operationalized negative social interactions as social conflict (just as I operationalized positive social interactions as social support).

The negative aspects of social relationships have received increased theoretical and empirical attention in recent years. Negative social interactions may be conceptualized either as a social stressor or as a negative function of social relationships frequently contrasted with the positive function of social support. Negative social relationships are conceptually distinct from social support, and are not equivalent to the absence of support.

An individual may perceive some members of his or her social network as highly problematic and unsupportive, while viewing others as valuable sources of support. Even the same individual may provide supportive and negative interactions, while others may provide little in terms of support or conflict. Like social support, negative social interactions may theoretically have either main effects or stress-moderating effects on psychological adjustment (Rook, 1998). Specifically, negative interactions may serve as an additional source of stress [direct effects model] or serve to amplify or exacerbate other stressors [stress-moderator] (Rook, 1998). Further, Lepore (1992) and others have argued that both positive and negative aspects of social relationships must be considered together. Empirical evidence has found that negative social interactions to be significantly related to poorer psychological adjustment (Manne & Zautra, 1989; Revenson, Schiaffino, Majerovitz, & Gibofsky, 1991; Rook, 1984; Schrimshaw, 2002; Siegel, Raveis, & Karus, 1997), but stress-moderating effects typically have not been found.

Within the HIV/AIDS context, both more social support and fewer negative social interactions have been identified as predictors of better psychological adjustment (Siegel, Karus, & Raveis, 1997) and slower disease progression (Ashton et al., 2005; Leserman et al., 2000; Leserman et al., 1999). Research has consistently found that perceived availability of social support is associated with psychological adjustment among gay men at risk for HIV infection (Lackner et al., 1993; O'Brien et al., 1993) and gay men living with HIV/AIDS (Hays, Turner, & Coates, 1992; Ingram et al., 1999; Kelly et al., 1993; Pakenham & Rinaldis, 2001; Remien, Wagner, Dolezal, & Carballo-Dieguez, 2003; Siegel, Raveis, & Karus,1994; 1997). Indeed, several studies have found that social

support predicted improved psychological adjustment over time among infected gay men (Johnson et al., 2001; Siegel, Karus, & Raveis, 1997), although not in all studies (Fleishman & Fogel, 1994). Similarly, the research on HIV-infected women has found that social support is associated with better psychological adjustment (Catz, Gore-Felton, & McClure, 2002; Miles, Holditch-Davis, Pedersen, Eron, & Schwatz, 2007; Moneyham et al., 2005; Prado et al., 2004; Remien et al., 2006; Schrimshaw, 2002; Siegel & Schrimshaw, 2007; Serovich et al., 2001; Simoni et al., 2000; Simoni & Cooperman, 2000) although not in all cases (Moneyham et al., 2000). Finally, although fewer studies have examined the relation of negative social relations to greater psychological distress among HIV-infected individuals, those that have offer unanimous evidence for this relation among both infected men and women (Heckman et al., 2004; Ingram et al., 1999; Milan et al., 2005; Miles et al., 2007; Schrimshaw, 2002; 2003; Song & Ingram, 2002; Ullrich, Lutegendorf, & Stapleton, 2002).

Individual Resources in Psychological Adjustment

Many individual cognitive or behavioral resources have been identified which have been consistently associated with psychological adjustment. The use of the term "individual resources" used here and throughout this review should *not* be understood as stable personality traits that do not vary by context. Rather, by individual resources I mean person-level cognitive and behavioral characteristics that reside within the individual (in contrast to social resources which originate and reside in the individuals' social relationships with others). Like social support and negative social interactions, individual resources may have a direct effect on psychological adjustment or they may serve to

moderate or buffer the negative effects of stress. The proposed study and the following review focus on self-esteem, perceived control, and coping. I have chosen to focus on these three individual resources for several reasons. First, each has been extensively hypothesized to serve protective functions in the psychological adaptation to stress and illness. By focusing on the three individual resources, I have chosen to exclude from my focus those individual-level factors that have been hypothesized to have negative implications for psychological adjustment (e.g., hostility, neuroticism). Furthermore, I have chosen to follow a group of theorists who have specified one or more of these three individual resources in each of the various mediating and moderating hypotheses between individual and social resources (e.g., Pearlin et al., 1981; Thoits, 1986; Sandler & Lakey, 1982; Hobfoll & Leiberman, 1987; Uchino, 2004). As such, whereas other individual-level resources (e.g., attachment, optimism, hope, hardiness) have been hypothesized to serve one of the three mediational or moderational pathways examined here (Anan & Barnett, 1999; Brissette, Scheier, & Carver, 2002; Johnson et al., 2001; Wallace, Bisconti, & Bergeman, 2001), my review of the theoretical literature in this area primarily indicates self-esteem, control, and coping as potentially serving in all three pathways. For example, attachment and openness to experience have both been identified as a potential facilitators of social resources, but as personality traits that are relatively stable, they would not be likely mediators between social resources and adjustment. Finally, in my review of the empirical literature examining the relation between social and individual resources, a great deal of the research examining this issue has been conducted using these three individual resources (e.g., Pearlin et al., 1981; Holahan & Moos, 1990; 1991; Ritter et al., 2000;

Aspinwall & Taylor, 1992; Ross & Mirowsky, 1989; Sandler & Lakey, 1982; Bisconti & Bergeman, 1999; Manne & Glassman, 2000). Whereas other individual resources have been examined (e.g., Anan & Barnett, 1999; Brissette, Scheier, & Carver, 2002; Johnson et al., 2001; Wallace, Bisconti, & Bergeman, 2001) there have been too few empirical studies (e.g., 2 or 3 each) linking social resources to each of these other individual resources identified (as well as too few for each resource for each mediational and moderational pathway) to necessitate a systematic review. As such, the inclusion of other individual resources that have yet to achieve a critical mass of research linking them to social resources, while potentially serving to make this review more comprehensive, would likely serve to unnecessarily add to the complexity and take away from the focus of the current review. Finally, from a practical standpoint, the data on which the following empirical study is based included measures of self-esteem, control, and coping, but did not include other potential individual resources. As such, the empirical examination of these other possible resources was not possible here. Therefore, the current empirical study and the following review are limited to a the individual resources of self-esteem, control, and coping.

Self-esteem. As the affective evaluation of how one feels about one's self, qualities and attributes, self-esteem plays an important role in psychological adjustment. Although self-esteem has often been used as an indicator of positive psychological adjustment, theoretically it has been conceptualized as a distinct construct from psychological adjustment (Beck, 1983; Rosenberg, 1965; see Hewitt, 2002 for review). Specifically, whereas psychological adjustment is comprised of mood or affective states,

self-esteem is an evaluation of the self that is more closely tied with aspects of self and identity (Baumeister, 1998; Hewitt, 2002). Furthermore, self-esteem and its importance for psychological adjustment have been well-recognized as culturally-bound to Western norms and values, and has little relation to psychological adjustment in Eastern cultures (e.g., Abe, 2004; see Hewitt, 2002), therefore the two constructs appear to be theoretically and empirically distinct, albeit related. Strong associations consistently have been identified between self-esteem and subsequent psychological adjustment (Andrews & Brown, 1993; Kernis, Grannemann, & Mathis, 1991; Lewinsohn, Gotlib, & Seeley, 1997; Pearlin et al., 1981). Additionally, self-esteem has been theorized to play a central role in psychological distress, moderating the effects of stress on depression (Brown & Harris, 1978). Empirical evidence exists that self-esteem buffers the effects of stress on psychological adjustment (Corning, 2002; Greenberg et al., 1992; Whisman & Kwon, 1993), such that for those with high levels of self-esteem, stress is unrelated to depression; but for those with low self-esteem, stress is associated with higher depression.

Within the context of living with HIV/AIDS, self-esteem has not been widely examined as an individual resource potentially associated with psychological adjustment. However, in the majority of studies that have investigated this, researchers have found a positive relation between self-esteem and psychological adjustment among both men (Johnson et al., 2000; Land, Hudson, & Stiefel, 2003) and women (Moneyham et al., 2000; Neff, Amodei, Valescu, & Pomeroy, 2003; Simoni, Huang, Goodry, & Montoya, 2005; Simoni & Ortiz, 2003) living with HIV/AIDS. However, other research indicates that self-esteem may not be as beneficial for the psychological adjustment of HIV-infected

individuals as it is for uninfected individuals. Specifically, in a longitudinal study, Johnson and colleagues (2000) found that anxiety and depression declined among uninfected adults with high self-esteem, but that self-esteem had no effect on anxiety or depression among HIV-infected individuals. However, given that there were no significant changes in anxiety or depression over time, the meaning of these predictors of (nonsignificant) change is unclear. Clearly, future research into the role of self-esteem among individuals living with HIV/AIDS is greatly needed.

Control. Although perceptions of control have been operationalized in a number of different ways (e.g., self-efficacy, Bandura, 1986; hardiness, Kobasa, 1979; and mastery, Pearlin & Schooler, 1978), much of the research on this construct among medically ill populations has focused on locus of control (Lefcourt, 1966; Phares, 1957; Rotter, 1966; 1975) as it relates to physical health (Lau & Ware, 1981; Wallston et al., 1978; Wallston, 2001). Health locus of control has been operationalized as the degree to which people perceive themselves or others (e.g., physicians) to be in control of their health or whether they believe luck or chance is the primary determinant of their health. Perceptions of control over stress (e.g., illness) are central to psychological adjustment (Taylor, 1983) and are associated consistently with greater psychological adjustment, either directly or by moderating the effects of stress (e.g., Alloy & Clements, 1992; Brown & Siegel, 1988; Reich & Zautra, 1989; see Thompson, 1981; Wallston, 2001 for reviews). Although many stressors are objectively uncontrollable (e.g., terminal illness), perceptions of personal control or perceptions that others are in control (e.g., physician) have both been associated with better psychological adjustment among breast cancer patients

(Taylor, Lichtman, & Wood, 1984) and gay men with AIDS (Reed, Taylor, & Kemeny, 1993). This suggests that perceptions of control (or the illusion of control) may be more important than the actual ability to control stress (Taylor, 1983) or alternatively, that the perception of control over the consequences of stress (e.g., negative emotions, physical symptoms), rather than control of the stressor (e.g., illness) itself, is associated with psychological adjustment (Thompson, Sobolew-Shubin, Galbraith, Schwankovsky, & Cruzen, 1993).

Among individuals living with HIV/AIDS, the relation of perceptions of control over health to psychological adjustment has received little attention. However, the limited research that has been done in this area has found some evidence of a relation between perceptions of control and psychological adjustment to HIV/AIDS. Specifically, perceptions of control (Griffin & Rabkin, 1998; Pakenham & Rinaldis, 2001), internal control (Reed, Taylor, & Kemeny, 1993), self-efficacy (Carrico et al., 2007; Remien et al., 2006), and mastery (Neff et al., 2003; Simoni & Cooperman, 2000; Simoni & Ortiz, 2003) have been found to be associated with greater psychological adjustment in HIV-infected men and women. Although Kelly and colleagues (1993) failed to find an association between perceptions of internal control and adjustment, their study and others have found an association between perceptions of health as due to chance and lower psychological adjustment (Kelly et al., 1993; Evans, Ferrando, Rabkin, & Fishman, 2000). As such, taken together these studies appear to indicate that the perception of control over health (and the perceived lack of control) is important to psychological adjustment to HIV/AIDS.

Coping. Another frequently examined resource hypothesized to affect the stress-distress process is coping (Aldwin, 1994; Folkman & Moskowitz, 2004; Lazarus & Folkman, 1984; Zeidner & Endler, 1996). Coping has been defined as "cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984, p.141). Coping has a long history of being conceptualized as a relatively stable style of managing a variety of stressors (i.e., coping style; Carver & Scheier, 1994; see Ptacek & Gross, 1997, for review). However, I do not conceptualize coping as a personality style, dispositional trait, or independent of the context (e.g., the stressor) in which it takes place. However, I do conceptualize coping as a resource that resides within the individual and under individual control. Consistent with a transactional theory of coping (Lazarus & Folkman, 1984), coping is conceptualized as the person's own behaviors and cognitions in response to specific stressors and adaptive tasks aimed at addressing the stressor or its consequences. Indeed, the underlying assumption of the support-mediating hypothesis in which social support promotes subsequent adaptive coping (discussed in detail in the Theoretical Relations section) is rooted in a transactional model of stress and coping in which appraisals of resources (e.g., social support) are theorized to influence coping strategies.

The original conceptualization of coping categorized strategies as one of two kinds of coping – problem-focused or emotion-focused coping (Lazarus & Folkman, 1984). Problem-focused coping consists of actions taken to eliminate or modify the stressor; while emotion-focused coping includes actions or cognitions which attempt to regulate

emotions in response to stress (Lazarus & Folkman, 1984). The literature on problem- and emotion-focused coping has been inconsistent, with some studies finding both problem- and emotion-focused coping to be associated with lower psychological distress (e.g., Epping-Jordan et al., 1999), and others with more psychological distress (e.g., Compas, Worsham, Ey, & Howell, 1996). Problem-focused strategies have been found to be most effective when the stressor is controllable, whereas emotion-focused coping may be more effective in circumstances when the stressor is uncontrollable (Aldwin & Revenson, 1987; see Aldwin, 1994 for review). Inconsistencies in the findings regarding emotion-focused coping may be explained by the failure of past research to distinguish between coping through emotional expression (e.g., talking to someone about how you feel) and other potentially less beneficial emotion-focused coping strategies (e.g., avoidance; Stanton, Danoff-Burg, Cameron, & Ellis, 1994; Stanton & Franz, 1999). Indeed, recent research among breast cancer patients has found coping through emotional expression to be predictive of decreased distress, fewer medical visits, and greater perceived health even after controlling for other forms of coping (Stanton, Danoff-Burg, Cameron, Bishop, Collins, et al., 2000).

Other investigations of coping have used an alternative conceptualization of coping which focuses on avoidant and approach forms of coping (Holahan & Moos, 1987; Moos & Schaefer, 1993). Avoidant coping strategies are cognitive and behavioral strategies that allow one to deny or avoid the stressor and psychological reactions to the stressor (e.g., pretend it never happened, focus on other activities instead, drink or use other drugs). In contrast, active or approach coping strategies allow one to confront or approach the

stressor itself (e.g., taking medication, seeking professional care, making a plan of what to do) or address the emotional reactions resulting from the stressor (e.g., talking to someone about one's feelings, going to support groups). Empirical examinations of the relation between avoidant coping and psychological distress have found that while short-term use of avoidant coping may be effective, the long-term use of avoidant coping is consistently related to higher levels of psychological distress; approach coping, on the other hand, is generally associated with lower levels of distress in both the short- and long-term (Felton & Revenson, 1984; Holahan, Moos, Holahan, & Brennan, 1995; 1997; Major, Richards, Cooper, Cozzarelli, & Zubek, 1998; see Suls & Fletcher, 1985; Moos & Schaefer, 1993 for reviews).

Among individuals living with HIV/AIDS, the relation between aspects of coping and psychological adjustment has not been extensively examined. Consistent with the trend in the literature away from studying emotion- and problem-focused strategies, nearly all of the literature on coping with HIV/AIDS has examined the role of approach or avoidant strategies (with the exception of Pakenham & Rinaldis, 2001). Within the HIV/AIDS context, avoidant coping may include denying the diagnosis ever occurred (or its associated ramifications), drinking or using other substances to avoid thoughts about the illness, or avoiding information about HIV/AIDS. Approach coping within the HIV/AIDS context are not strategies to eliminate the stressor (e.g., cure the illness), but active strategies to treat and prevent or slow illness progression (e.g., seeking medical care, making a plan to adhere to medication, eating better), to address other illness-related stressors (e.g., seeking out community-based agencies to obtain services, talking to others

to gain information), and to address the emotions surrounding the illness (e.g., seeking out professional psychological care, seeking a support group, talking with friends and family). This research has consistently found that avoidant/escape/denial coping strategies are associated with poor psychological adjustment among men (Clement & Schonnesson, 1998; Fleishman & Fogelm 1994; Penedo et al., 2001; Remien et al., 2003) and women (Catz et al., 2002; Gore-Felton et al., 2006; Moneyham et al., 2005; Siegel, Gluhoski, & Karus, 1997; Simoni & Ng, 2000; Song & Ingram, 2002) living with HIV/AIDS. In contrast, research on the relation of approach or what some have termed "adaptive" coping strategies to psychological adjustment have yielded inconsistent findings. Although several studies of HIV-infected individuals have found that approach/adaptive strategies are associated with better psychological adjustment (Catz et al., 2002; Fleishman & Fogel, 1994; Murphy et al., 2000; Penedo et al., 2001; Simoni & Ng, 2000), several others have found no relation between approach coping and psychological adjustment to HIV/AIDS (Clement & Schonnesson, 1998; Moneyham et al., 2005; Remien et al., 2003; Siegel et al., 1997). However, the meaning of these different findings is difficult to determine, given the wide variability in the content and assessment of approach coping, as well as the different populations studied (i.e., women, gay men, adolescents).

Rationale for the Study of the Relations Between Social and Individual Resources

Despite considerable research within the stress-distress literature on the independent effects of social and individual resources on psychological adjustment, there is

a dearth of theoretical and empirical research examining the relations *between* social and individual resources (Schreurs & de Ridder, 1997; Wills & Fegan, 2001). Although much of the stress-distress literature has moved beyond the examination of social and individual resources in isolation (i.e., examining a single resource) to examine multiple resources at once, much of this research continues to look only at the main or direct effects of social and individual resources on psychological adjustment. For example, although it is not uncommon to find studies that examine the association of social support, negative social interactions, and one or more individual resources with psychological adjustment, the majority fail to examine the interrelationships between these resources. As such, the field has less information on the larger stress process to which all of these resources contribute. Further, the dominance of the stress-buffering hypothesis in the stress-distress literature has resulted in the neglect of other theoretical mechanisms by which social and individual resources might potentially influence psychological adjustment. Despite the frequent empirical examination of the stress-buffering hypothesis, the relative scarcity of significant stress-buffering effects suggests the need to examine other potential roles of social and individual resources in the stress-distress process (see Wills & Fegan, 2001 for review).

Alternative theoretical mechanisms have been long been proposed by which social and individual resources may influence psychological adjustment including serving as either mediators or moderators of one another (see Theoretical Relations; e.g., Pearlin et al., 1981; Thoits, 1986; Schreures & de Ridder, 1997; Sandler & Lakey, 1982; Hobfoll & Leiberman, 1987). Indeed, even since the inception of this research study, there has been considerable increase in both the theoretical discussions of this issue (Folkman &

Moskowitz, 2004; Stanton & Revenson, 2007; Stanton, Revenson, Tennen, 2007; Taylor & Stanton, 2007; Uchino, 2004; Wills & Fagen, 2001) and further empirical examination of these issues (see Empirical Research). However, the potential mediating and moderating relations between social and individual resources have been far less examined than main-effects and stress-buffering models (Schreures & de Ridder, 1997; Wills & Fegan, 2001). The limited amount of research to examine these relations between social and individual resources has resulted in a number of deficiencies in our theoretical understanding of the contribution of both social and individual resources to the stress process (Kessler, 1992; Pearlin et al., 1981; Pierce, Lakey, Sarason, Sarason, & Joseph, 1997; Roos & Cohen, 1987; Schreurs & de Ridder, 1997; Thoits, 1995; Wills & Fegan, 2001). First, by examining only the direct or main effects of social and individual resources on psychological adjustment, the field may be left with a fundamental misunderstanding of the role of social and individual resources on psychological adjustment. Thoits (1995) in her review of the stress literature suggested that the mechanisms through which perceived social support promotes well-being "remain poorly specified and require substantial elaboration and testing." When suggesting future directions of research on social support, Wills and Fegan (2001) wrote that studies of "how the effect of social support is mediated will be of considerable value." Kessler (1992) and others (Bolger & Eckenrode, 1991) have suggested that without examining the mediating and moderating effects of individual resources, it remains unclear whether the relation between perceived support and psychological adjustment is spurious or not.

Furthermore, the potential existence of relations between social and individual

resources and the direction of those relations have considerable implications for the development of clinical interventions to assist those who experience poor psychological adjustment. Numerous interventions have focused on the provision of support to assist in psychological adjustment. However, if social resources are mediated by individual resources, then the provision of support may not be the most effective or efficient method of promoting psychological adjustment. In that case, interventions may better serve individuals by promoting individual resources rather than social support, or by promoting both social and individual resources.

Theoretical Relations Between Social and Individual Resources

As noted earlier, the majority of the empirical research has examined a *main effects model*, in which social and individual resources are hypothesized to be directly associated with better psychological adjustment. However, three alternative theoretical relations between social resources and individual resources have been hypothesized (See Figure 1). First, the *support-mediation hypothesis* proposes that social support serves to promote or increase the levels of individual resources which, in turn, reduce psychological distress. For example, emotional support from a spouse may work to preserve an individual's sense of self-esteem and perception of control over the illness, and through these pathways indirectly promote the patient's psychological adjustment. A second relation between social resources and individual resources, the *individual resource-mediation hypothesis*, specifies that individual resources promote the perception or receipt of social support, which in turn, promotes psychological adjustment. For example, a woman who is coping well following her HIV diagnosis may elicit greater support and as a result perceive others

as more supportive than individuals who do not cope as effectively. The third potential relation, the *support-moderation hypothesis*, proposes that an interaction or conditional relation exists between social and individual resources; that is, social support has beneficial effects on psychological distress among individuals with certain levels of individual resources. For example, support may be beneficial only for those who lack individual stress-resistant resources by compensating for low levels of individual resources. Alternatively, individual resources may benefit only those who lack social resources, such that individual resources may compensate for low levels of social support. Furthermore, for each of the three hypothesized relations, the level of stress experienced may further influence the relations between social and individual resources, such that each hypothesized relation is proposed to exist for those experiencing high levels of stress, but not for those with low levels of stress. Below, the theoretical basis for each of these hypothesized relations is reviewed with respect to self-esteem, control, and coping.

Support-Mediation Hypothesis. A number of researchers have hypothesized several mediating mechanisms by which social support (and perhaps by extension, social conflict) may indirectly influence psychological adjustment (See Figure 1). The support-mediation hypothesis, originally proposed by sociologists, is based on a social-cognitive view in which external factors (e.g., social resources) influence internal cognitions (e.g., individual resources). Pearlin et al. (1981) hypothesized that the effects of stress on psychological adjustment were not direct, but were mediated by self-esteem. Pearlin et al. (1981) hypothesized that stress erodes self-esteem, which in turn leaves individuals susceptible to poor psychological adjustment. Thus, Pearlin et al. suggested that the

effects of social support are "mainly indirect," with social support having psychological benefits by preventing the detrimental effects of stress on self-esteem. Among stressed and non-stressed individuals (i.e., with and without job loss), Pearlin et al. (1981) hypothesize that self-esteem mediates the effects of social support only for those who experience stress. However, in the presence of uniformly high levels of stress (e.g., individuals living with a chronic illness), the support mediating effect should be observed for the entire population experiencing this stressor.

In addition to suggesting that social support serves to preserve self-esteem, Pearlin et al. (1981) similarly hypothesized that perceptions of control or mastery serve as a mediator of the relation between social support and psychological adjustment. As with self-esteem, Pearlin et al. (1981) suggested that stress significantly erodes perceptions of control, which, in turn, leads to poorer psychological adjustment. They hypothesized that social support has its beneficial function on psychological adjustment not directly, but indirectly by preventing the negative effects of stress on perceptions of control. As such, Pearlin et al. (1981) suggest that perceptions of control mediate the effects of social support only for those individual who experience stress. However, as noted above, in populations which experience universally high levels of stress, the support-mediation effects of control may be observed for the full population.

Thoits (1986) concurred that the effects of social support on psychological adjustment are most likely indirect rather than direct. However, Thoits (1986) argued that social support influences the stress-distress process by promoting effective coping strategies. Thoits proposed that social support serves as "coping assistance," such that the

actions of others can facilitate or strengthen an individual's own coping strategies. Specifically, she suggested that emotional support (e.g., having someone to listen) serves to increase an individual's own emotion-focused coping (e.g., expressing emotions). Similarly, receipt of instrumental support (e.g., having someone drive you to a physician's appointment) serves to facilitate an individual's own problem-focused coping (e.g., seeking medical care).

Individual Resource-Mediation Hypothesis. In contrast to the support-mediation hypothesis, other researchers have hypothesized that rather than social relationships influencing individual characteristics, the reverse occurs: individual characteristics influence the perception and receipt of social support (See Figure 1). From a personality perspective which posits that individual resources are often established early in life and remain relatively constant across social or environmental situations, individual characteristics such as self-esteem, perceived control, and coping strategies would remain stable and influence later social relationships. Thus, the individual resource-mediation hypothesis is in direct conflict with the support-mediation hypothesis discussed above. In one of the earliest to attempts to formulate this perspective, Eckerode (1983) hypothesized that the seeking and receipt of support may be influenced by control perceptions. Specifically, those with an external locus of control would not seek support from others because support would be considered of little assistance if the stressor is perceived to be uncontrollable or due to chance/luck. A similar perspective has been offered by Silver, Wortman, and Crofton (1990) with regard to support provision and coping. Specifically, they suggest that victims of life crisis (i.e., cancer) who are perceived

as coping poorly or who are coping extremely well (and thus perhaps not needing support) are likely to receive less support than those who are perceived as coping moderately well (Silver et al., 1990). Finally, self-esteem may serve to promote greater social support, such that those with higher self-esteem are likely to interact more easily and effectively with others, attract a larger social network (Newcomb, 1990), and perceive themselves as having more available support (e.g., perceived availability of support). This support, in turn, positively influences psychological adjustment. As such, self-esteem would influence psychological adjustment indirectly through its effects on social support.

Support-Moderation Hypothesis. The third hypothesis is that a moderating relation or interaction exists between social and individual resources, such that social resources serve to promote psychological adjustment only for those with certain levels of individual resources (see Figure 1). Two opposing and contradictory support-moderation hypotheses have been offered. One conceptualizes social and individual resources as compensatory (i.e., having either social or individual resources is beneficial but having both confers no added benefit: Hobfoll & Leiberman, 1987), such that support may benefit those who lack individual resources or individual resources may benefit those who lack social resources. The second conceptualization of the support-moderation hypothesis maintains that social and individual resources are most beneficial in combination (i.e., only having both social and individual resources is beneficial: Sandler & Lakey, 1982). Specifically, support may benefit only those who are high in individual resources, or individual resources benefit only those who are high in social resources, but having only individual or only social resources provides less benefit (e.g., Sandler & Lakey, 1982).

Much of the early work in this area focused on the interaction between control and social support. Sandler and Lakey (1982), one of the first to propose this perspective, hypothesized that those who perceive their stress as controllable will make better use of support than those who view the stressor as outside their individual control. A support moderating effect also has been hypothesized for self-esteem; however it differs greatly from that proposed for control. Hobfoll and Leiberman (1987) proposed what they termed a substitution hypothesis in which social support serves as a substitute for those who lack self-esteem, proposing that social support would be most beneficial for those with low self-esteem. As such, psychological adjustment is expected to be lowest among those with low levels of both social support and self-esteem.

Only recently have researchers begun to propose an equivalent support-moderation hypothesis for coping (e.g., Lepore & Helgeson's [1998] social-cognitive processing model). Specifically, they suggest that those who experience higher social conflict/constraint and who cope through avoidance would be more likely to experience negative psychological adjustment. By extension, those with low levels of social support and high levels of avoidant coping would also be expected to experience negative psychological adjustment. Indeed, some studies have found evidence of this (Jacobsen et al., 2002; Devine, Parker, Fouladi, & Cohen, 2003). Similarly, the logical converse would also be anticipated, that those who have high support (or low social conflict) and who either do not use avoidant coping, or those who use more approach coping, would be anticipated to have better psychological adjustment. This latter hypothesis, which is consistent with Sandler and Lakey's (1982) view of control perceptions, suggests that

social support may be most effectively mobilized or utilized by those who also have effective coping strategies. For example, individuals who are effective in making thoughtful plans to solve the problem (one effective approach coping strategy) may be best prepared to put those plans into action if they perceive themselves as having a supportive social network. Conversely, a support by coping interaction congruent with the substitution hypothesis could exist with social support having the most benefit for those who are otherwise coping poorly (e.g., avoidant coping), such that social support serves as a substitute for effective coping.

Stress as a Necessary Condition. Implicit within all of these hypothesized relations is that social and individual resources serve to counter the negative effects of stress on the psychological adjustment of HIV-positive women. Specifically, it could be suggested that neither social nor individual resources would be necessary for good psychological adjustment if stress were not present. This raises the question of whether these same associations would be observed in women who report experiencing relatively little or no stress. As the above review suggests, stress may complicate the relation between social and individual resources (e.g., Pearlin et al., 1981). That is, several researchers have suggested that the three hypothesized relations between social and individual resources exist only under conditions of high stress; not among those with low levels of stress. As such, stress is not hypothesized to alter the nature of each hypothesis, but rather specifies the conditions under which these relations exist. Pearlin et al. (1981) argued that a significant level of stress was a necessary condition for the relation between social support and both self-esteem and mastery to exist. Similarly, Sandler and Lakey

(1982) and others have also suggested that the support-moderating hypothesis would be present only for individuals under high stress, such that a three-way interaction would exist among support, control, and stress. No such moderating effects of stress have been proposed for the support-promoting hypothesis.

Below, the empirical literature addressing each hypothesized relation between social and individual resources is reviewed alongside that which further examine the role of stress, noting when research identified an effect of stress on these relations.

Empirical Research on the Relation between Social and Individual Resources

Criteria for Selected Literature: Below, the empirical research that has evaluated each of the three hypothesized relations between social resources (e.g., social support and conflict) and individual resources (i.e., self-esteem, control, and coping) on psychological adjustment are examined. To identify relevant studies, a series of literature searches were conducted in both PsycInfo (1806 - present) and Medline/Pubmed (1950 -present) to obtain all articles beginning with the earliest articles covered, through to the most recent, current and updated as of March 1, 2008. Although these searches requested all articles (back to 1806 in the case of PsycInfo), the earliest article that met my criteria was from 1981. All articles that were classified in OVID as related to "social support", "social conflict", "social interactions", "negative social interactions", or "social constraints" were selected as articles related to social resources. Articles that were classified in OVID as related to "self-esteem" or "self-concept", to "control", "locus-of-control", "perceived control", "mastery", or "self-efficacy", and to "coping behavior" were selected as articles related to individual resources. As noted earlier, additional individual resources were also

searched for in preliminary examinations (e.g., “optimism”), however, too few articles were identified that examined the association between these individual resources and social resources. Thus, subsequent searches were more focused. No limitations were imposed based on outcome variables, so that the widest possible number of outcomes could be examined. All articles with at least one key word related to a social resource and one key word related to an individual resource were extracted.

This revealed a overwhelming number (N = 10,690) of empirical articles that largely examined only the main effects of both social and individual resources. Therefore, additional key words were added to limit the literature including “mediate”, “mediating”, “mediation”, “indirect”, “moderate”, “moderating”, and “moderation.” This resulted in 1,898 articles. Because of problems obtaining and evaluating dissertations, and difficulty translating non-English language articles, 649 dissertations and 46 non-English articles were excluded.

Abstracts of all articles (N = 1203) were then subsequently reviewed. Articles with no psychological adjustment outcome were removed. Specifically, studies were included only if they assessed at least one indicator of positive or negative affect or mood states (e.g., depressive or anxious symptoms, positive and negative affect, psychological well-being, general psychological distress, internalizing and externalizing symptoms, PTSD symptoms, suicide attempts) that might be indicative of a clinical pathology or disorder or indicative of the absence of such mood disorders (e.g., positive affect). Studies of physiological health outcomes and health behavior outcomes were excluded as the potential mechanisms that influence these outcomes may differ from those of

psychological adjustment. To the extent that studies of quality of life include a separate psychological or mental health component, they were included. However, quality of life studies that combine physical symptoms, physical impairment, and psychological symptoms have been excluded due to the confounding of mental and physical health. Further, other behaviors (e.g., academic achievement, job satisfaction, life satisfaction, self-esteem) that are frequently used as proxy indicators of psychological adjustment but that are not directly assessing the presence or absence of a psychological disorder or mood state were excluded.

The full text of all remaining articles, as well as any articles that could not be clearly ruled out, were obtained. The full articles were then reviewed to determine if they had hypothesized or examined one or more mediating or moderating relations between social and individual resources. Those articles that neither hypothesized nor examined the relation between social and individual resources (such as those that were examining mediating and moderating roles of other variables, for example, just stress-buffering, just mediation or moderation among two social resources, just mediation or moderation between two individual resources) were removed. In addition to the articles identified through literature search techniques, the reference lists of all theoretical and empirical articles were examined to identify additional empirical or theoretical articles relevant to this review. Any articles whose title indicated potential relevance and any articles that were described in the text of the citing article as relevant were obtained and reviewed using the same criteria noted above.

The three hypothesized relations between social and individual resources have been

subjected to relatively less empirical examination than the significant theorizing in this area might suggest and despite the frequency with which the direct effects of social and individual resources have been examined. However, as noted earlier, even since the beginning of this study, a significant increase in the number of new empirical studies have been undertaken that examine the relations between social and individual resources (particularly the support-mediation hypothesis). Furthermore, the number of studies differs dramatically depending on the hypothesis (with the support-mediation hypothesis having by far the most) and depending on the individual resource examined (with coping receiving the most examination). The research that has examined the support-mediation, individual resource-mediation, and support-moderation hypotheses has, primarily, examined social resources along with only one of the three individual resources (e.g., examined support and coping, but not control or self-esteem). Thus, the presentation of the research for each hypothesis has been divided among each of the three individual resources. When multiple hypotheses are examined in the same study, the results are presented and summarized in the review for each hypothesis. Because not all studies have examined the relation of individual resources with both social support and social conflict, there are fewer studies the social conflict side of these hypothesized relations. Studies which examined social support and those which examined social conflict or other negative aspects of social relationships are presented separately. Thus, although a number of studies have examined one of the three hypotheses, some hypotheses and some individual resources have amassed a considerable body of research, whereas others have received relatively little empirical attention. Furthermore, the research which has examined the

hypothesized relations have a number of methodological problems (see Methodological Advances section below). Below, the empirical evidence for each of the three hypothesized relations are reviewed.

Support-Mediation Hypothesis. The hypothesis that social support indirectly affects psychological adjustment by promoting individual psychological resources has been the most frequently examined of the three hypothesized relations with forty-five empirical examinations of this hypothesis identified. The findings of each of these studies examining the support-mediation hypothesis are summarized in Table 1. These studies, regardless of the individual resource examined, have provided considerable evidence of the support-mediation hypothesis that social resources may boost or maintain self-esteem, enhance perceptions of control, or facilitate more adaptive coping strategies, which in turn are associated with better psychological adjustment. Evidence for this hypothesized relation would take the form of individual resources mediating the effects of social support on psychological adjustment.

A growing body of research has examined the support-mediation role of self-esteem. Ten studies examining this hypothesis were identified. This research has found evidence that self-esteem mediates the effects of social support and of social conflict on psychological adjustment, although not unqualified. Specifically, several cross-sectional (Abe, 2004; Bovier, Chamot, & Perneger, 2004; Simoni et al., 2005) and longitudinal studies (DuBois et al., 2002; Pearlin et al., 1981; Yang, 2006) have found that self-esteem fully mediates the association between social support and psychological adjustment. Evidence of partial mediation has also been noted (Symister & Friend, 2003). However,

evidence of the support-mediating role of self-esteem has not been universal, with some studies also failing to find evidence of support-mediation (Abraido-Lanza, 2004; Druley & Townsend, 1998). The evidence that self-esteem mediates the effects of social conflict is more inconsistent, with one study finding evidence of full mediation (Druley & Townsend, 1998) and another finding no mediation (Symister & Friend, 2003). In several of these studies, the central role of stress was highlighted; such that the mediating effects of self-esteem (on support and conflict) were found only among only those with high levels of stress (i.e., those who were unemployed, but not those with were employed, Pearlin et al., 1981; among arthritis patients, but not health controls, Druley & Townsend, 1998). Furthermore, several of these studies are limited by the fact that the authors combined both self-esteem and control/mastery into a single mediating variable (Simoni et al., 2005) or entered them in a single step in the regression model (Bovier et al., 2004; Yang, 2006). Therefore, it is not possible to distinguish whether it is self-esteem or mastery that serves as the true mediator, or whether a combination of both is required for mediation to occur.

A growing body of empirical research has examined perceptions of control (or related constructs) as a potential mediator of the effects of social support/conflict on psychological adjustment. These fourteen studies have provided equivocal evidence on whether control perceptions mediation the association between social resources and psychological adjustment. Specifically, although several studies have found evidence for support-mediation both cross-sectionally (Bovier et al., 2004; Major et al., 1990; Martire et al., 1998; Simoni et al., 2005; Thompson & Prottas, 2005) and longitudinally (Yang, 2006), a significant number of studies have also failed to identify a support-mediating role

of control perceptions (Abraido-Lanza, 2004; Creed & Bartum, 2008; Morris & Long, 2002; Saltzman & Holahan, 2002). Others have found only evidence of partial mediation (Bisconti & Bergeman, 1999; Bullers, 2000). Far fewer studies have examined the potential conflict-mediating role of control perceptions, and these have found some evidence of both full (Manne & Glassman, 2000) and partial mediation (Bullers, 2000). However, at least one large representative survey study of adolescents and adults suggested that support-mediation and conflict-mediation may be conditional (i.e., only for some groups, but not others; Lincoln et al., 2003). Specifically, Lincoln and colleagues (2003) found that control perceptions mediated the association between social support and adjustment only for Whites (i.e., social support had direct effects for African Americans) but that conflict was mediated by control perceptions for African Americans but not for Whites (for whom conflict had direct effects). Similarly, once again, stress may play an important role in the identification of stress-mediating effects of perceived control. For example, mastery mediated the effects of social support on psychological adjustment among those who experienced significant stress (i.e., unemployment), but not among the unstressed (Pearlin et al., 1981). However, the importance of stress was not universally noted, as many of the studies that found a support-mediation role of control perceptions were conducted on general samples that were not experiencing a particular stressor (university students, Bovier et al., 2004; a random sample of older adults, Yang, 2006; a random sample of adults in North Carolina, Bullers, 2000; a national sample of working adults, Thompson & Prottas, 2005). Thus, suggesting that either stress is not a necessary condition for control to mediated the role of support, or alternatively, that even general

community samples experience sufficient stress to permit support-mediation.

Coping has been the most frequently examined of the individual resources hypothesized to mediate the role of social support or social conflict on psychological adjustment, with twenty-five studies identified. However, the findings from these studies are equivocal. Specifically, much of this literature suggests that approach coping mediates the association between social support and adjustment (Crean, 2004; Holohan & Moos, 1990; 1991; Holahan et al., 1997; Holahan, Moerkbak, & Suzuki, 2006; Manne & Zautra, 1989; Prado et al., 2004;Valentiner et al., 1994), and avoidant coping strategies mediate the association of social conflict and adjustment (Crean, 2004; Fleishman et al., 2000; Holahan et al., 1997; Karlsen, Idsoe, Hanestad, Murberg, & Bru, 2004; Lepore & Helgeson, 1998; Manne & Zautra, 1989; Manne & Glassman, 2000; Manne et al., 2003; 2005; Schnur, Valdimarsdottir, Montgomery, Nevid, & Bovbjerg, 2004). However, other studies have found that avoidant coping can mediate the association between support and adjustment as well (Devine et al., 2003; Heckman et al., 2004; Karlsen et al., 2004). In contrast, a substantial number of other studies have failed to find that coping serves a support mediating (Boehmer, Luszczynska, & Schwartzer, 2007; Cordova, Cunningham, Carlson, & Andrykowski, 2001; Dunkley, Zuroff, & Blakstein, 2003; Fleishman et al., 2000; Frazier et al., 2000; Holahan et al., 1995; Oxlad & Wade, 2006; Ross & Mirowsky, 1989; Shen et al., 2004) or conflict mediating (Heckman et al., 2004) function. However, when support mediation was identified, it was found only for those experiencing high levels of stress (Holahan & Moos, 1990;1991), a pattern similar to that of other individual resources. Other studies are consistent with this finding in that they were conducted

among patients who all experienced high levels of stress (e.g., cancer patients, cardiac patients, HIV patients). As such, support mediation most consistently found among high stress samples (or high stress subsamples).

Individual Resource-Mediation Hypothesis. Little empirical research has examined the individual resource-mediation hypothesis among any of the three individual resources (see Table 2 for a detailed review of these studies). Further, the research that has been conducted has yielded weak evidence for this hypothesis that stipulates that individual resources promote or facilitate higher levels of social support (or lower social conflict), such that social support is found to mediate the effects of individual resources on psychological adjustment.

Only three longitudinal studies have examined the potential for self-esteem to promote or facilitate higher levels of social support (Aspinwall & Taylor, 1992; Newcomb, 1990; Ritter et al., 2000), and they provide only limited evidence of the individual resource-mediation hypothesis. In the only study to find evidence of social support as an self-esteem mediator, Ritter et al (2000) found that social support mediated the effects of self-esteem on subsequent depression among inner-city pregnant women. In contrast, in another study, self-esteem was found to be unrelated to subsequent social support among college students (Aspinwall & Taylor, 1992). One potential reason for the failure to identify an individual resource-mediation effect may be the absence of a high level of stress among students. Finally, Newcomb (1990), although finding significant relations between self-esteem and subsequent social support, did not examine a psychological adjustment outcome, and thus did not investigate the individual resource-

mediation hypothesis.

The potential of social resources to mediate the effects of control perceptions has received minimal empirical examination. Only one of four studies has found evidence of this hypothesized relation. In the only study to provide evidence of the control-mediating role of social support, Thompson and colleagues (2002) found that the association between African American women's self-efficacy in dealing with experiences of domestic violence and suicide attempts was fully mediated by social support from family and friends. In contrast, Bisconti and Bergeman (1999) found no evidence of social support serving as a mediator between perceived control and depression in either of their two elderly samples. Further, Aspinwall and Taylor (1992) found that locus of control was unrelated both cross-sectionally or longitudinally to social support among college students. A single study of women attending a neighborhood health clinic found that an internal locus of control was associated with greater support mobilization (Eckenrode, 1983). However, the relation to a psychological adjustment outcome was not examined, and thus the individual resource-mediation hypothesis was not fully tested. It should be noted, that each of these three studies was conducted in samples without a high level of stress (i.e., healthy populations) whereas Thompson and colleagues (2002) found evidence in an extremely stressed sample (i.e., women with a recent history of domestic violence). Thus, if stress is a necessary condition, as some have hypothesized, then mediation would not be expected in these samples. Future research among samples with high stress levels is needed to examine this possible explanation for the null findings. The potential mediating relation between control and social conflict remains unexamined.

Of the five studies that examined the role of social resources as a mediator of coping, three have identified significant mediation (Buenaver et al., 2007; Norberg et al., 2006; Silver et al., 1990). Neither of the longitudinal studies (Aspinwall & Taylor, 1992; Frazier et al., 2000) have identified a individual resource-mediation effect for coping. Specifically, neither avoidant nor active coping were found to be related to subsequent social support among college students (Aspinwall & Taylor, 1992), and avoidant strategies were unrelated to subsequent support among renal transplant patients (Frazier et al., 2000). Potential reasons for the failure to identify mediating effects of social resources on coping may be because both of these studies examined received support rather than perceived availability of social support. However, two recent cross-sectional studies and a laboratory experiment have found some evidence of a coping-mediating role of social resources. Specifically, Norberg and colleagues (2006) found in study of the parents of pediatric cancer patients that social support fully mediated the association between support seeking coping and anxiety. In contrast, Buenaver and colleagues (2007) found that among pain patients social conflict, but not social support, served as a mediator of the associational between catastrophizing and depression. In a novel laboratory experiment in which a tape recorded conversation with a confederate cancer patient was presented to college students, investigators found that how well the patient appeared to be coping was associated with the degree to which students were willing to provide support for and interact with the cancer patient (Silver et al., 1990). Specifically, those students who heard a patient who was coping poorly with their cancer and those who heard a patient coping very well were less willing to provide support in the future, suggesting a potential

curvilinear relation. To the extent that the these experimental findings regarding willingness to provide support translate into greater receipt and perceptions of support by patients, these findings offer some evidence of the individual resource-mediation effects of coping.

Support-Moderation Hypothesis. Although the support-moderation hypothesis was one of the first of the proposed relations between social and individual resources, and was frequently examined early on, as interest in locus of control waned, so too did the research examining the support-moderation hypothesis. Examinations of the support-moderation hypothesis have focused almost exclusively on the interaction between social support and locus of control, with several studies consistently finding evidence of this relation. The hypothesis has not been extensively applied to other individual resources (i.e., self-esteem, coping), but those studies that have examined it have all yielded evidence of this hypothesis. The empirical findings of studies examining the support-moderation hypothesis are summarized in Table 3. As noted earlier, the support moderation hypothesis stipulates that social support (or social conflict) is associated with psychological adjustment only for individuals with a specific level of individual resources (i.e., low levels for the compensatory model and high levels for the additive model). As such, a statistical interaction between social and individual resources on psychological adjustment is hypothesized.

Although only two studies have examined the potential interaction between social support and self-esteem, both provide empirical evidence of the support-moderation hypothesis (van Baarsen, 2002; Hobfoll & Leiberman, 1987). Both studies found a

significant social support by self-esteem interaction on indicators of psychological adjustment. Examination of these interactions reveals that those with either high self-esteem or high social support (or both) were less depressed than those who had both poor self-esteem and low support (van Baarsen, 2002; Hobfoll & Leiberman, 1987). As such, these two studies provide empirical evidence (albeit limited) of the support-moderation hypothesis in which social and individual resources may substitute for one another (i.e., compensate for one another; having either is beneficial, having both confers no additional benefit). The moderating relation between self-esteem and social conflict remains unexamined.

The most frequently examined support-moderation hypothesis concerns the moderating role of control on social support (Bisconti & Bergeman, 1999; Cauce, Hannan, & Sargeant, 1992; Creed & Bartrum, 2008; Cummins, 1988; Hobfoll & Lerman, 1988; Leftcourt, Martin, & Saleh, 1984; Morris & Long, 2002; Ross & Mirowsky, 1989; Sandler & Lakey, 1982; Stetz, Stetz, & Bliese, 2006; Verhoeven, Maes, Kraaij, & Joekes, 2003), with most (8 of 11) studies finding evidence of the support-moderation hypothesis. In studies of students, stress was often found to be a factor in this relation between social support and control, such that a stress-buffering effect of social support takes place only for those who perceive themselves as more in control (e.g., Sandler and Lakey, 1982, Cauce et al., 1992; Leftcourt et al., 1984; Cummins, 1988). This suggests that individuals with a high internal locus of control make better use of the support they receive, but also that this effect is specific to conditions of high stress. Similar findings were identified among military police officers (Stetz et al., 2006). However, at least one study failed to

identify stress as a necessary condition for support moderation (but did find a significant interaction; Hobfoll & Lerman, 1988), probably because mothers of ill children experienced uniformly high levels of stress. However, the importance of stress is not universal, and has been questioned by other studies. A large multi-site European study of teachers found neither a significant support by control interaction, nor any evidence that stress altered the association (Verhoeven et al., 2003). Similarly, another study of a stressed population (e.g., unemployed Australians) found no significant interactions, despite the inherent presence of stress (Creed & Bartrum, 2008). Other studies of relatively non-stressed populations have found significant interactions between social support and control, but of an entirely different nature. Rather than finding that control was a necessary condition for social support to have an association with distress, they found that social support and control could substitute for one another such that only those with neither resource were at most risk for psychological distress (among female clerical workers, Morris & Long, 2002; among a probability sample of adults, Ross & Mirowsky, 1989). No studies to date were identified that have examined the moderating relation between control and social conflict.

The interaction between social resources (both support and conflict) and coping has only been examined in four recent studies (Devine et al., 2003; Griffin, Friend, Kaell, & Bennett, 2001; Jacobsen et al., 2002; Shimazu, Shimazu, & Odara, 2005), all of which found evidence of the support-moderating role of coping. In two longitudinal studies with cancer patients, a significant social support by avoidant coping interaction was found, such that high levels of social support appeared to be protective against the adverse role of

avoidant coping on subsequent psychological adjustment (Devine et al., 2003; Jacobsen et al., 2002). Social support was also found to interact with more adaptive coping strategies such that they enhance one another's benefits. Specifically, Japanese workers were found to have the least psychological distress when they reported high levels of both co-worker support and active coping (Schimazu et al., 2005). Further, two negative forms of social and individual resources have also been found to interact, such that they too further enhance their negative association. Specifically, the interaction between social conflict and venting coping was found to be significant (Griffin et al., 2001), such that rheumatoid arthritis patients who experienced social conflict (i.e., anger or irritation from others) in response to their pain and who vented negative emotions were found to have higher negative affect nine months later.

Summary. Although there is an extensive literature documenting the roles that social resources (i.e., social support and conflict) and individual resources (e.g., self-esteem, control, and coping) have on psychological adjustment to stress, far less research has examined the potential relations between social and individual resources. A total of only 64 studies were identified which examined one or more of these hypotheses, a strikingly small number considering the vastness of the stress literature and the multiple individual resources included. The strongest empirical support has been found for the support-mediation hypothesis, while the weakest empirical support has been found for the individual resource-mediation hypothesis. Empirical evidence for all three hypothesized relations have been identified for each of the three individual resources. However, most, if not all of the hypothesized associations have received either too little empirical

examination, or the empirical evidence has been equivocal. The findings reviewed here strongly suggest the need for further examination of all three hypothesized relations between social resources and individuals resources in the psychological adjustment to stress.

Advances of the Current Research over Past Research

Despite the growing body of research examining the relations between social and individual resources, the empirical literature suffers from a number of limitations. The current study will advance the understanding of the relations between social and individual resources by addressing a number of persistent theoretical and methodological limitations found within this literature.

First, several studies have failed to test for mediation. In some instances this is due to the absence of a specific mental health outcome (e.g., Eckenrode,1983; Newcomb,1990). In other cases, mediation was not formally tested. Baron and Kenny's (1986; see also Kenny, Kashy, & Bolger, 1998) criteria require: 1) social resources and individual resources must be associated with one another, 2) both resources must be associated with psychological adjustment, and finally 3) the relation between social support and psychological adjustment must be eliminated or significantly reduced when the individual resource is included. Identical requirements would apply for the individual resource-mediation hypothesis, with social support eliminating or reducing the relation between individual resources and adjustment. Although much research has examined relations between social and individual resources, and (in the case of support mediation) individual resources and psychological adjustment, too often the requisite relation between

the social support and psychological adjustment was not established. Typically, this was because mediating relations between social and individual resources were not hypothesized *a priori*, but identified after the fact. As such, no efforts were made to formally test for mediation. Although other procedures than the Baron and Kenny (1986) approach exist for examining mediation, some are less restrictive (e.g., Shrout & Bolger, 2002; which do not require that the mediated variable is associated with the outcome) and others more restrictive (e.g., the MacArthur approach; see Kraemer, Kiernan, Essex, and Kupfer, 2008 for review; which among other differences requires longitudinal data to ensure correct causal ordering to establish mediation), often the existing literature does not formally test mediation by any of these approaches. The proposed study hypothesized these three relations *a priori*, and as such will examine the support-mediation and individual resource-mediation hypotheses with the criteria set by Baron and Kenny (1986). Although the MacArthur procedure for examining mediation provides a stronger and more rigorous evidence of the existence of mediation, the use of the MacArthur approach is not possible here given the cross-sectional nature of this study (Kraemer et al., 2008). Nevertheless, the Baron and Kenny (1986) criteria continue to be the most recognized and commonly used method for examining mediation, and will provide preliminary evidence on the existence of mediation in this sample. This will thereby provide a basis for future longitudinal research and the examination of mediation using the MacArthur approach. Regardless of the method used, by explicitly examining for mediation *a priori*, the current study provides a more rigorous investigation of these hypotheses.

A large number of studies have not hypothesized any specific relation between

individual and social resources, but rather such associations have been identified post-hoc. The failure to specify *a priori* hypotheses is problematic for several reasons. First, as noted above, when a specific mediating or moderating hypothesis is not proposed, analyses may not be conducted in a way that examines the hypothesis. For example, several studies using structural equation modeling have used composite or latent variables which have combined social and individual resources, or multiple individual resources, resulting in an inability to distinguish the effects of individual variables (e.g., Holahan & Moos, 1990;1991). Second, the failure to hypothesize specific mediating relations may account for several studies not investigating psychological adjustment outcomes as part of the relation between social and individual resources (e.g., Newcomb, 1990). Third, the continued examination of data beyond the original hypotheses (subsequently resulting in the identification of mediation or moderation) capitalizes on chance, such that significant findings may be detected only because repeated statistical tests were conducted. Finally, because of the post-hoc nature of these associations, the findings frequently are not considered in the context of other studies examining these three hypotheses. Therefore, the studies do not contribute to or build on the theoretical and empirical literature that has examined the relations between social and individual resources. The current study hypothesizes these three relations *a priori*, will conduct analyses to investigate these hypotheses, using the past literature to inform the current study, and the findings will be considered in light of earlier research.

A second major limitation to this literature has been the isolated examination of the support-mediation, individual resource-mediation, and support-moderation hypotheses.

Although these three hypothesized relations represent the range of potential relations between social and individual resources, with few exceptions, studies have examined only a single hypothesis without contrasting it with either of the other two potential hypotheses. The simultaneous examination of rival hypotheses is a cornerstone of scientific research. By examining each hypothesis within the same data set, meaningful comparisons can be made to determine which, if any, of the hypotheses are empirically viable. For example, in the only study that has examined all three hypothesized relations between social support and control, Bisconti and Bergeman (1999) found empirical evidence for the support-mediation and individual resource-mediating effects of control on depression, but not for the support-moderating effect. The current study will examine each of the three hypothesized relations between social and individual resources as they relate to psychological adjustment.

Few studies have examined both positive and negative social relationships as they relate to individual resources. Nearly all research has focused on supportive social resources, ignoring the potentially informative relation of negative or unsupportive social relationships. Furthermore, as with individual resources, research has not simultaneously examined both supportive and unsupportive relations as they relate to individual resources. The research that has examined the hypothesized relations between social conflict and individual resources has suggested that the relation of conflict to individual resources is consistent with the relations proposed for social support, albeit in the opposite direction (Druley & Townsend, 1998; Fleishman et al., 2000; Griffin et al., 2001; Manne & Glassman, 2000; Manne & Zautra, 1989). Indeed, if both supportive and negative social

relationships are found to have similar types of relations with individual resources (e.g., moderating), it would be even more convincing that social relationships in general (rather than just supportive) are important for understanding the role of individual resources. Furthermore, as considerable research has suggested that negative and unsupportive relationships have a stronger relation with psychological adjustment than social support (e.g., Ingram et al., 1999; Rook, 1984; 1998; Schrimshaw, 2002), their relation with individual resources may also be stronger. However, as a limited amount of research has examined the relation between negative social relations and individual resources, further research is greatly needed. This study examined both social supports and social conflicts as they relate to individual resources, allowing for the examination of whether social support and social conflict have a similar, albeit opposite, relation to individual resources (e.g., social support promotes self-esteem, and social conflict erodes self-esteem) or whether positive and negative social resources follow separate pathways to influence psychological adjustment.

Much of the past research in this area has also suffered from a narrow conceptualization of psychological adjustment. Specifically, most of the studies reviewed earlier (see Tables 1, 2, and 3) have examined the mediating and moderating relations with respect to negative psychological adjustment outcomes such as depressive symptoms, negative affect, emotional distress, and anxiety. However, psychological adjustment is broader than the absence of negative psychological symptoms. Rather, it also includes positive emotional states such as positive affect, joy, and happiness. Although positive and negative affective states are inversely correlated, they are theoretically and empirically

distinct (Manne & Schnoll, 2001; Veit & Ware, 1983). Further, some research has suggested that the mediating and moderation relations between social and individual resources may differ with negative affective outcomes and positive affective outcomes (i.e., Fleishman et al., 2000). This study extends the research in this area by examining the hypothesized relations in relation to several varied indicators of psychological adjustment including depression, anxiety, and positive affect.

Results from a number of studies examining the relation between social and individual resources have identified different effects between stressed and non-stressed samples (e.g., Cauce et al., 1992; Cummins, 1988; Holahan & Moos, 1990; 1991; Pearlin et al., 1981). This has direct implications for both the methods and analysis of future research. Future research must examine the role that stress levels play in these relations, by specifically assessing levels of stress (e.g., number of life events, severity of illness) or by including healthy or non-stressed individuals. Although studies of general population samples (e.g., college students) have routinely examined the role of stress in altering the associations between social and individual resources, studies using samples in which all members are experiencing stress (e.g., living with a chronic illness) have generally not examined the differences in the pattern of associations based on stress. However, such high stress samples could be used to examine whether the relations between social and individual resources differ by the highest stressed portion of the sample versus the more moderately stressed portion of the sample. This study examines the potential moderating role of HIV-related physical symptoms in order to compare how the relation between social and individual resources may differ between those who experience high levels of

objective stress and those who have lower levels of stress.

In the examination of the relation between social and individual resources on psychological adjustment, it is particularly crucial to eliminate potential overlap in the conceptualization and measurement of social resources, individual resources, and psychological adjustment. Measures of depressive symptoms (e.g., CES-D) contain items which assess self-esteem (e.g., feeling like a failure, self-blame), social support (e.g., feeling loved and wanted), and negative social relations (e.g., people were unfriendly, felt that people disliked me). This redundancy or conceptual overlap in item content will likely inflate the relations of social and individual resources with measures of depressive symptoms, confounding an examination of the main effects of social and individual resources on psychological adjustment. This can be even more problematic when examining the relations between social and individual resources on adjustment because of the redundancy of both social and individual resource measures with the psychological adjustment outcomes. Future research can avoid these measurement problems by removing confounded items from measures of psychological adjustment or ensuring that scales do not overlap. Although removing confounded items may compromise the original psychometric validity of the measures, the resulting new measures may have improved construct validity.

Finally, research in this area is limited by a reliance on predominantly White, educated, and economically advantaged samples. The absence of samples which adequately reflect an ethnically and economically diverse population limit the generalizability of this research. The proposed study will examine the hypothesized

relations within a economically disadvantaged and ethnically diverse sample of women living with HIV/AIDS. As such, it examined whether the hypothesized relations can be empirically demonstrated in more diverse populations.

METHOD

Participants

This study is a secondary data analysis of a sample of 146 women living with HIV/AIDS in New York City. The study was originally designed to examine potential ethnic/racial differences in the psychosocial adaptation to HIV disease and mastery of the various adaptive tasks confronted by women living with HIV/AIDS. The study differs from much past research in that it focuses on women's psychosocial adaptation (rather than their sexual risk behaviors), and because of its exclusive focus on women living with HIV/AIDS (rather than mixed gender samples or samples of gay/bisexual men).

Women were recruited in 1994 - 1996 through flyers placed in community-based organizations (CBOs) that serve HIV-infected individuals in the New York City metropolitan area, and through advertisements placed in local newspapers and in the newsletters of CBOs. Those interested in participating were directed to telephone the researchers for more information. Potential participants who called the study line were screened to determine their eligibility. Women were eligible for the study if they: 1) reported being HIV-infected; 2) resided in the New York City metropolitan area; 3) were 20 to 45 years of age; 4) if Latina, were Puerto Rican and had resided on the mainland United States for at least four years; if African American or White were native born and non-Hispanic; 5) completed an eighth-grade education; and 6) had not injected illegal drugs in the past six months. Restrictions on education and recent drug use were imposed because these may have affected the ability of the participants to provide accurate data. Consistent with the goals of the original study to examine differences among White,

African American, and Puerto Rican women, a quota sampling strategy was employed to obtain approximately equal number of women from all three racial/ethnic groups. The restriction to include only Hispanic women of Puerto Rican decent was made because Puerto Rican women represent the majority of HIV-infected Latinas in New York City (NYC Department of Health, 2001), and because inclusion of Latinas of other cultural backgrounds (e.g., Dominicans, Cubans) might introduce cultural variability that would make it difficult to make meaningful comparisons with women from other racial/ethnic groups. Similarly, exclusion of non-native-born White and Blacks (e.g., West Indians, Eastern Europeans) was made because these groups represent a very small segment of HIV-infected women in New York City and because their inclusion might introduce cultural variability such that meaningful between group comparisons could not be made.

The sample consists of 48 (33%) African American, 50 (34%) Puerto Rican, and 48 (33%) White women. They were classified as 28% asymptomatic, 29% symptomatic, and 43% with AIDS using criteria from the CDC (1992). The women were between 21 and 45 years of age, with a mean age of 35.6 years (SD = 5.6). A majority of the women had a high school education or less (62%). Thirty-six percent of the women reported annual household incomes below $10,000, 48% reported incomes between $10,000 and $19,999, and 26% reported incomes of $20,000 or more. The women were primarily single (45%), with 14% divorced, 12% widowed, 12% separated, and 17% married. However, 52% of the unmarried women reported having a steady partner or lover. Most of the women were mothers (73%), with 1 to 6 children (M = 2.4, SD = 1.2). Fifty-five percent reported injecting drug use since 1977 (suggesting they may have acquired HIV

through contaminated needles). The women had been diagnosed with HIV between four months and 11 years prior to the study, with a mean of over four years (M = 53.0 months, SD = 28.4, Skewness = 0.24).

Procedure

Eligible participants met with a trained female interviewer at the study's research offices. After completing informed consent, participants provided demographic and medical history information through an interviewer-administered questionnaire. During this meeting, they also completed a battery of self-administered measures that included standardized mental health and psychosocial measures. Meetings lasted approximately two hours. In two subsequent meetings, completed typically within one to two weeks after the initial interview, women participated in semi-structured focused interviews (Merton, Fiske, & Kendall, 1990) to gather qualitative data about their experiences of living with HIV/AIDS. Although Puerto Rican participants were given the option of completing the interview and measures in Spanish or English, none chose to complete the data collection in Spanish. Participants received $25 for each of the three interviews ($75 total) and were reimbursed for travel expenses, lunch, and babysitting expenses when necessary. Interviews were conducted between 1994 and 1996. This dissertation will use only the data from the standardized quantitative instruments completed at the initial meeting.

Measures

Number of HIV/AIDS-Related Physical Symptoms. Each participant responded to an interviewer administered list of 27 HIV-related physical symptoms (e.g., fatigue,

diarrhea), indicating whether they had experienced each for a total of two weeks or more within the past six months. A count of the number of symptoms endorsed was computed as the indicator of disease-related stress. The checklist of HIV-related symptoms employed has been widely used in previous research with HIV-infected men (e.g., Siegel, Raveis, & Karus, 1997) and women (e.g., Schrimshaw, 2002), and has been found to be highly correlated with depressive symptoms (r = .42, Siegel et al., 1997; r = .45, Siegel, Schrimshaw, & Pretter, 2005) and stage of HIV disease (r = .21, Siegel et al., 2003).

Perceived Availability of Social Support and Experiences of Social Conflict. Illness-related social support and social conflict were assessed using measures developed for a large prospective study of men at risk for AIDS (Lackner et al., 1993; O'Brien et al., 1993). Seven items were used to assess the extent to which participants believed they had access to emotional, practical, and informational support from someone in the past thirty days (e.g., 'Would someone be available to talk to you if you were upset, nervous, or depressed'). Participants responded on a four point Likert-type scale from 0 (*No*), 1 (*Probably No*), 2 (*Probably Yes*), and 3 (*Yes*). In other research with HIV-infected samples, this measure was found to have adequate internal consistency (α = .87, Lackner et al., 1993; α = 0.87, O'Brien et al., 1993) and to be associated with measures of poor psychological adjustment (longitudinal β = -.12, Lackner et al., 1993; longitudinal β = -.11, O'Brien et al., 1993). In the current sample, the 7 items were found to be internally consistent (α = .79) with all items having item-total correlations greater than .45. The mean was computed so that higher scores indicated greater perceptions of available support.

Negative aspects of social relationships were assessed using six items eliciting data on how often in the past thirty days the participants experienced various social conflicts with people in their personal life, including arguing with others, feeling disrespected, and others having 'gotten on your nerves.' Participants were asked to respond on a five point Likert-type scale from 1 (*Never*) to 5 (*All the Time*). Other research with HIV-infected samples has found this measure to have adequate internal consistency (α = .82, Lackner et al., 1993; α = .82, O'Brien et al., 1993) and to be associated with measures of psychological adjustment (longitudinal β = .18, Lackner et al., 1993; longitudinal β = .12, O'Brien et al., 1993). The 6 conflict items were internally consistent (α = .87) in the current sample, with all items having item-total correlations over .50. Construct validity was also demonstrated by the moderate negative correlation (r = -.46) between social support and social conflict found in this study. Although the moderately high negative correlation between social support and conflict demonstrates they are inversely related, it is not sufficiently high to suggest they are assessing the same construct. Rather, this correlation is consistent with the notion that the presence of conflict may erode support or may reduce the perception that once has sources of support (e.g., Lepore, 1992). The mean was computed with higher scores indicating more frequent experiences of social conflict.

Self-Esteem. The Rosenberg Self-Esteem Scale (Rosenberg, 1965) was used to measure participants' affective self-appraisal. This widely used measure contains ten items (e.g., "I feel I have a number of good qualities") which assess positive and negative self-evaluations on a four point scale ranging from 1 (*Strongly Agree*) to 4 (*Strongly*

Disagree). Other research with HIV-infected samples has found this measure to have adequate internal consistency (α = .86, Siegel et al., 2005; α = .80, Simoni, Martone, & Kerwin, 2002) and to be correlated with measures of poor psychological adjustment (r = -.63, Siegel et al., 2003; β = -.37; Simoni & Ortiz, 2003). In the current sample, all 10 items had item-total correlations greater than .50 and were internally consistent (α = .88). After reverse scoring the 5 positively worded items (so that higher scores now indicated greater self-esteem), the mean was computed such that higher scored indicated greater positive self-evaluations.

Health Locus of Control. The degree to which participants believed their health and illness were controllable (regardless of source of control) was assessed by the Health-Specific Locus of Control Questionnaire (HLC; Lau & Ware, 1981). Participants responded to the 30-item measure using a seven-point scale ranging from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). The HLC assesses health locus of control beliefs with factors of self-control, physician-control, and chance. The original HLC demonstrated internal consistency (α = .65 for internal control) and construct validity based on its association with other measures of perceived control (r = .73, Lau & Ware, 1981). However, in the current sample, the three HLC subscales were not internally consistent. Thus, a post-hoc principal components factor analysis with oblique rotation was conducted of the 30 item measure (sample-to-item ratio = 5:1), revealing an alternate factor structure. Oblique rotation was selected because the theoretical domains were not anticipated to be independent (i.e., individuals could endorse both internal control and physician control). Seventeen of the original 30 items were found to load on three factors,

with factor loadings .35 and higher, accounting for 34% of the variance (see Table 4).[1] Additional factors beyond those with the three largest eigenvalues factors were not conceptually meaningful. No items were found to double-load on another factor (below .35) and all were substantially below the primary factor. These three factors represented perceived control over health (without regard to either self-control or physician control), perceived health as uncontrollable (by either self or physician), and health due to chance/luck. The 7-item perceived control over health factor included both beliefs of self-control (e.g., "I have a lot of confidence in my ability to cure myself") and physician-control (e.g., "Recovery from illness requires good medical care"; $\alpha = .63$ in this sample). The 5-item perceived health as uncontrollable factor also included items that assessed beliefs that health is uncontrollable by either self (e.g., "There is little one can do to prevent illness") or physician (e.g., "Doctors can rarely do very much for people who are sick"; $\alpha = .62$). Finally, the 5-item perception that health is due to chance/luck factor included those items (e.g., "Whether or not people get well is a matter of chance") that were originally developed to load together ($\alpha = .64$). Consistent with the factor analysis that found them to be separate constructs, neither the perceived uncontrollability of health nor the health as due to chance factors were significantly correlated with perceived control

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[1] There is currently no consensus among psychologists as to what constitutes a adequately high (or inadequately low) factor loading, with only the suggestion that higher cut-off levels are superior to lower values (e.g., Comrey & Lee, 1992). The decision here was made to utilize the .35 (which is lower than more often observed .40 or .50 cut off values) because this cut-off value resulted in the best fit to the data. Specifically, for all three factors it included items which conceptually fit with the other items in that factor, while excluding items that did not conceptually hold.

over health (*r's* = -.12 and .00 respectively), and were only moderately correlated with each other (*r* = .24).

Coping. The 67-item revised Ways of Coping Questionnaire (WCQ; Folkman et al., 1986; Lazarus & Folkman, 1984) was used to assess the degree to which respondents used various cognitive and behavioral strategies to cope with a participant-nominated HIV-related stressor experienced in the past month. Although the written descriptions of each woman's nominated stressor was not coded for the full sample, a subset of 79 women were recently analyzed (Siegel & Schrimshaw, 2005). Women reported a wide range of HIV-related stressors with which they must cope, with the most frequent being family problems (28%; e.g., failure of others to accommodate the limitations it imposes), health care problems (20%; e.g., problems with accessing care and services), physical health problems (19%; e.g., physical symptoms and side effects), but fewer stigma or disclosure-related stressors (6%; e.g., HIV status being involuntarily disclosed). Although the WCQ measure was originally developed on young married couples with children and with older adults, the measure has subsequently been widely used among samples of HIV-infected men and women (e.g., Park, Folkman, & Bostrom, 2001; Siegel, Gluhoski, & Karus, 1997). Respondents indicated the extent to which they used each coping strategy on a four-point scale ranging from 0 (*Does not apply or not used*) to 3 (*Used a great deal*). Other research with HIV-infected samples have found most subscales of this measure of coping to have adequate internal consistency (α = .74 - .82 for three subscales, Park et al., 2001; α = .59 - .83 for eight subscales, Siegel, Gluhoski, et al., 1997), and found several subscales to be correlated with measures of psychological adjustment

(significant r's = .22 - .46, Siegel, Gluhoski et al., 1997).

Given the diversity of the current study sample and the unique stressors they confront, the factor structure of coping within this sample may differ from other samples included in past research. However, given the large number of items relative to the small sample size, a factor analysis of this entire measure would be inappropriate. Given the prominence and empirical strength of research using the approach-avoidant conceptualization of coping, both in general and within the HIV/AIDS context, and the recent admonition to avoid forming larger conceptual groupings of coping strategies (Skinner et al., 2003), the present study focused on the items which comprise subscales which best represent avoidant coping (i.e., items that comprise the Escape/Avoidance and Distancing subscales) and active coping (i.e., items that comprise the Planful Problem Solving and Support Seeking subscales). These four subscales which best represented these conceptual domains are comprised of 28 items, and these items were factor analyzed using principal components factor analysis with a oblique rotation. Oblique rotation was selected because the use of each coping strategy was not anticipated to be independent. Although subscales were selected to obtain a two-factor Active vs. Avoidant coping measure, this two-factor solution was not imposed on the data. Rather, the factor analysis was conducted to allow as many factors as needed to fit the data. Indeed, rather than a two-factor solution, the factor analysis revealed three factors with eigenvalues greater than 2.0 each of which was clearly interpretable. Examination of factors with smaller eigenvalues revealed factors that were not conceptually meaningful. The items and the factor loadings for these three coping factors are presented in Table 5. Although all factor

loadings were required to be .35 or higher (consistent with our use for the earlier measures), in fact all loadings were .50 and higher. No items were found to double-load on additional factors (< .35) and the secondary loadings were significantly smaller than their major factor (the smallest of which was .50). The first factor was comprised of 6 items that assessed various "Distancing/Avoidant" coping strategies (α = .74) that had originally been from the Escape/Avoidance and Distancing subscales. The second factor consisted of 6 items that from the Planful Problem Solving subscale that assessed various "Active/Problem Solving" coping strategies (α = .76). Finally, the third factor contained items from the Support Seeking Coping subscale that were initially thought to represent a form of active coping, but which emerged as independent from Active/Problem Solving. This factor contained 3 "Support Seeking Coping" items that assessed coping through seeking advice or support from others (α = .70). Despite selecting subscales to obtain a 2-factor solution, the empirical findings suggest a 3-factor solution best fits the current data. Furthermore, given that Lazarus and Folkman (1984) had originally theorized (and empirically found) support seeking coping to be distinct from planful problem solving, the decision was made to follow both the theoretical and empirical evidence and keep these two types of active coping separate. Consistent with the oblique rotation and past research (Folkman et al., 1986), all three coping subscales were positively correlated. Specifically, both Active/Problem Solving and Support Seeking were significantly correlated (r = .46) as would be expected based on the earlier conceptualization that these two subscales would both factor together. These two scales, however, were only moderately correlated with the Distancing/Avoidant subscale (r's = .22 and .21

respectively).

Positive and Negative Psychological Adjustment. The Depression, Anxiety, and Positive Affect subscales of the Mental Health Inventory (MHI; Veit & Ware, 1983) were used as indicators of psychological distress and psychological well-being. The MHI is a 38-item measure which has been widely used in medically ill populations, including men and women with HIV/AIDS (Siegel, Karus, Epstein, & Raveis, 1996; Siegel, Karus, Raveis, & Hagen, 1998). Respondents were asked to indicate the one answer which came closest to how they were feeling in the past thirty days. The response scale for the MHI varies by item, with most items using a six-point Likert-type response ranging from 1 (*All of the time*) to 6 (*None of the time*). The Depression subscale consists of four items (e.g., "How much of the time have you been low or very low in spirits"). The Anxiety subscale consists of nine items (e.g., "How much of the time have you felt tense or 'high strung'?"). The Positive Affect subscale consists of ten items (e.g., "How much of the time were you a happy person?"). Studies have confirmed, using both exploratory and confirmatory factor analysis, that the subscales of the MHI are separate and distinct aspects of mental health in both general and medically ill populations (Manne & Schnoll, 2001; Veit & Ware, 1983). Past research with HIV-infected samples has found this measure to have adequate internal consistency (α's = .87, .91, .92 respectively for each subscale, Siegel et al., 1996). In the current sample, all three subscales were found to be internally consistent (Depression α = .86, Anxiety α = .92, and Positive Affect α = .90) with all items demonstrating item-total correlations greater than .40 on each of their respective subscales. As would be expected, the three MHI subscales are correlated (r's = -.59 - .79).

The 2 item Social Ties subscale was not used because these items assess a similar construct as that assessed by the measure of social support used here. Likewise, the 9-item Behavioral/Emotional Control subscale was not used because several items assess constructs similar to the perceived control and self-esteem measures.

Data Analysis

Prior to the examination of the hypothesized associations, bivariate associations between the study variables and various demographic characteristics (e.g., race/ethnicity, disease stage, drug use history) were examined to identify potentially significant demographic covariates. These significant covariates were included as control variables in all multivariate analyses.

The examination of the three hypothesized relations between social and individual resources on psychological adjustment were conducted using a series of hierarchical regression equations.[2] The support-mediation hypothesis and the individual resource-mediation hypothesis, both of which hypothesize that mediation exists, were examined through a series of regression equations using a procedure outlined by Baron and Kenny (1986; see also Kenny et al., 1998 for an updated description of this procedure). As such, the support-mediation hypothesis examined the relation of social support and conflict to

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[2] The decision was made to not analyze the data using structural equation modeling (SEM) because the current study did not hypothesize any latent variables that would require SEM. Specifically, I did not hypothesize that the three individual resource variables should be combined into a single latent construct. Rather, the current study has specifically argued that these three individual resources may not all have the same type of association with social resources. Indeed, as I have argued earlier (see Advances over Past Research), by grouping multiple resources together in a single regression step or in a single latent variable, information is lost because it cannot be determined which resource has the mediational role, or whether it is the combination of multiple resources that is required.

all three individual resources (Step 1), the relation of support and conflict to psychological adjustment (Step 2), this was followed with the entry of each of the individual resources (Step 3) to determine whether the individual resources reduced or eliminated the association between social resources and psychological adjustment. The individual resource-mediation hypothesis were similarly examined, but with a different order of entry into the regression equation, such that social support and social conflict are examined as potential mediators of the relation between the individual resources and psychological adjustment.

The support-moderation hypothesis was examined by entering interaction terms between social resources and each individual resource into a hierarchical regression model, following the entry of the main effects of each social and individual resource. Prior to the computation of interaction terms, each social and individual resource variable was mean-centered as recommended by Cohen and Cohen (1983; see also Cohen, Cohen, West, & Aiken, 2003) in order to reduce multicollinearity. Because of the large number of independent variables, as well as multiple dependent variables, procedures recommenced by Cohen et al. (2003) were used to protect against potential Type I error in the multiple regression analyses. Specifically, it was required that the F test for the step of the regression model had to be statistically significant (i.e., a significant increase in R^2) prior to examining the significance of the individual *t*-tests for each variable within the step. All statistically significant ($p < .05$) interaction terms that accounted for a significant increase in explained variance were plotted. Specifically, the slope of the predicted regression lines (controlling for all control variables, main effects, and additional interaction terms) were

plotted using one standard deviation above the mean and one standard deviation below the mean as sample values.

The multiple regression analyses contain six independent variables (i.e., illness-related stressors, social support, social conflict, self-esteem, perceived control, and coping), plus three interaction terms (between social resources and each individual resource). A post-hoc statistical power analysis using GPOWER (Faul & Erdfelder, 1992) revealed that the regression analyses had sufficient statistical power (> .80) in this study's sample. Specifically, with a sample of 146 participants, the analyses had a statistical power of .80 or greater to detect effect sizes (f^2) of .11 or greater at $\alpha = .05$. Assuming a medium effect size ($f^2 = .15$) the analyses with the extant sample had a power = .93 at $\alpha = .05$. Analyses examining the potential role of stress, include additional two- and three-way interaction terms. With this sample, these analyses had a power of .77 for the interactions with self-esteem, .63 for interactions with perceived control, and .63 for interactions with coping to detect a medium ($f^2 = .15$) effect size at $\alpha = .05$. Due to very limited missing data, all multivariate analyses were conducted with 141 participants or more.

RESULTS

Bivariate Correlations

The sample means and standard deviations for the study variables, as well as the Pearson product moment correlations among these variables, are presented in Table 6. As expected both social support and social conflict were correlated with depressive symptoms, anxious symptoms, and positive affect. Similarly, each of the individual resources (e.g., self-esteem, and various domains of control and coping) was correlated with one or more of the psychological adjustment outcomes. The one exception was perceived control over health which was not significantly associated with any of the three psychological adjustment outcomes (although perceiving health as uncontrollable and as due to chance were significantly associated).

Contrary to expectations set forth by the mediational hypotheses, social support and social conflict were not significantly associated with most of the individual resource variable subscales. Nevertheless, self-esteem was significantly positively correlated with social support and inversely correlated with social conflict. Further, more social support was correlated with less perception of health as uncontrollable, and more social conflict was correlated with more distancing/avoidant coping.

Identification of Potential Covariates

The relations of various demographic and disease-related factors to all study variables were examined to identify potential covariates, including age, race/ethnicity, income (< $10,000 or not), education (high school graduate or not), disease stage (AIDS, Symptomatic, or Asymptomatic), time since HIV diagnosis, history of injecting drug use

(IDU), living arrangement (lives alone or not), and partner status (has steady partner or not). Time since diagnosis, IDU status, living arrangement, and partner status were all unrelated to any study variable. However, significant ($p < .05$) relations were found between several study variables and age, race/ethnicity, income, education, and disease stage, indicating a need to control for these potential covariates in all of the multivariate analyses.

Specifically, older age was significantly correlated with both greater social support ($r = .17$, $p < .05$) and less perception that health is due to luck or chance ($r = -.22$, $p < .01$).

Significant ($p < .05$) racial/ethnic differences were found among many of the study variables including depressive symptoms, $F(2,143) = 6.93$, anxious symptoms, $F(2,143) = 6.43$, positive affect, $F(2,143) = 8.15$, self-esteem, $F(2,143) = 8.79$, perceived control over health, $F(2,142) = 3.45$, perceived uncontrollability of health, $F(2,142) = 4.36$, distancing/avoidant coping, $F(2,139) = 9.23$, and active/problem solving coping, $F(2,139) = 5.90$. Post-hoc analyses using Tukey's HSD revealed that Puerto Rican women reported more depressive symptoms ($M = 3.20$, $SD = 0.90$), more anxious symptoms ($M = 3.32$, $SD = 0.92$), and less positive affect ($M = 3.26$, $SD = 0.95$) than African American women ($M = 2.52$, $SD = 0.95$; $M = 2.66$, $SD = 0.96$; $M = 3.96$, $SD = 0.89$, respectively). White women were also found to report more anxious symptoms ($M = 3.12$, $SD = 0.89$) and less positive affect ($M = 3.26$, $SD = 0.95$) than African American women ($M = 2.66$, $SD = 0.96$; $M = 3.96$, $SD = 0.89$, respectively). Puerto Rican women were found to have lower self-esteem ($M = 2.90$, $SD = 0.52$) than both White ($M = 3.16$, $SD = 0.58$) and

African American (*M* = 3.36, *SD* = 0.56) women, greater perceived control over health than White women (*M* = 5.47, *SD* = 0.79 vs. *M* = 5.04, *SD* = 0.91), and more perception that health is uncontrollable than White women (*M* = 3.35, *SD* = 1.01 vs. *M* = 2.73, *SD* = 1.12). White women were found to report less distancing/avoidant coping (*M* = 0.69, *SD* = .50) and less active/problem solving coping (*M* = 1.20, *SD* = 0.75) than either Puerto Rican (*M* = 1.18, *SD* = 0.73; *M* = 1.72, *SD* = 0.71) or African American women (*M* = 1.20, *SD* = 0.71; *M* = 1.57, *SD* = 0.81).

Significant differences were also noted by income and education. Women with household incomes less than $10,000 reported significantly more positive affect (*M* = 3.86, *SD* = 0.93) than women with higher incomes (*M* = 3.36, *SD* = 0.92), *F* (1,144) = 10.04, were more likely to view their health as uncontrollable (*M* = 3.31, *SD* = 1.04) relative to women with higher incomes (*M* = 2.93, *SD* = 1.08), *F* (1,143) = 4.09, and reported more use of support seeking coping (*M* = 2.17, *SD* = 0.82) than women with higher incomes (*M* = 1.78, *SD* = 0.82), *F* (1, 140) = 7.52. Similarly, women with less than a high school education perceived their health as more uncontrollable (*M* = 3.67, *SD* = 1.10) than women who had a high school education or more (*M* = 2.79, *SD* = 0.96), *F*(1, 143) = 23. 86, and used more distancing/avoidant coping (*M* = 1.31, *SD* = 0.90) than did women with more education (*M* = 0.90, *SD* = 0.67), *F*(1,140) = 10.93.

Finally, women's stage of HIV disease (i.e., classified as asymptomatic, symptomatic, or having AIDS based on criteria designated by the CDC) was found to be associated with their level of social support, *F* (2,143) = 3.37. Post-hoc tests using Tukey's HSD revealed that women with an AIDS diagnosis perceived themselves as

having more social support available (M = 3.50, SD = 0.45) than did women who were only symptomatic (M = 3.23, SD = 0.64), but neither group differed from asymptomatic women (M = 3.42, SD = 0.50).

Multivariate Analysis of the Support-Mediation Hypothesis

The support-mediation hypothesis posits that social support promotes psychological adjustment indirectly by facilitating greater individual resources (e.g., higher self-esteem, greater control, and more adaptive coping strategies). By contrast, social conflict is expected to diminish psychological adjustment by reducing individual resources. To conclude there is evidence for the support-mediation hypothesis would require that: 1) social resources are associated with psychological adjustment, 2) individual resources are associated with psychological adjustment, and 3) the inclusion of individual resources in the model mediates (i.e., eliminates or significantly reduces) the associated between social resources and psychological adjustment.

In order to evaluate the support-mediation hypothesis, a series of hierarchical linear regression equations were conducted in which demographic and disease-related controls (i.e., age, race/ethnicity, disease stage, income, education, and physical symptoms) were entered in the first step, followed by both social support and social conflict, and individual resource variables entered in the third step. To preserve statistical power, and be able to better interpret which of the various individual resources, if any, served as the mediator, only one set of individual resources was examined in each regression model (e.g., one model examined self-esteem, one examined the various control perceptions, and one examined the various coping strategies).

The regression models examining the support-mediating role of each of the individual resources are presented in Tables 7 (self-esteem), 8 (control perceptions), and 9 (coping strategies). As anticipated, social support was associated with several indicators of psychological adjustment, even after imposing controls. Specifically, social support was significantly associated with lower depressive symptoms (β = -.16) and greater positive affect (β = .18), but not with anxious symptoms. When included in the model, self-esteem was found to fully mediate the association between social support and depression (reduced to β = -.12, p = .08), but did not mediate the association of social support with positive affect (β = .15, p = .05). (See Figure 2 for a diagram of the support mediating role of self-esteem on depression.) The inclusion of perceptions of control over health (including control, uncontrollable, and chance perceptions) in the model did not alter the association between social support and either depressive symptoms (β = -.15) or positive affect (β = .17). Similarly, the inclusion of coping strategies in the model (including active/problem solving, distancing/avoidant, and support seeking coping) did not alter the associations between social support and depressive symptom (β = -.16) or social support and positive affect (β = .16). Thus, self-esteem was found to mediate the association of support for 1 or 3 outcomes (i.e., depression), whereas the control perception variables and the coping variables did not mediate the association of support and any of the three aspects of psychological adjustment. Thus, only 1 of 9 models finding evidence of the hypothesis.

Social conflict was associated with greater depressive symptoms (β = .44), more anxious symptoms (β = .48), and lower positive affect (β = -.35). The inclusion of self-

esteem into the model did not significantly alter the strong associations between social conflict and depressive symptoms (β = .36), anxious symptoms (β = .42), or positive affect (β = -.28). Similarly, the inclusion of the three control perception variables did not alter the association between social conflict and depressive symptoms (β = .42), anxious symptoms (β = .48), or positive affect (β = -.34). Finally, the inclusion of the three coping strategy variables also did not mediate the strong associations between social conflict and depressive symptoms (β = .45), anxious symptoms (β = .45), or positive affect (β = -.42). In fact, the association between social conflict and positive affect became stronger (from β = -.35 to β = -.42) with the inclusion of coping strategies, suggesting a type of suppression effect. Specifically, this suggests that by accounting for coping strategies (which are within an individual's control) as well as any associated measurement error, the resulting unexplained variance (i.e., positive affect that is not under the individual's behavioral control) is largely due to external sources such as experiences of social conflict. Overall, none of the individual resources were found to mediate the association between social conflict and each of the three adjustment outcomes (i.e., 0 of 9 models examined).

Multivariate Analysis of the Individual Resource-Mediation Hypothesis

The individual resource-mediation hypothesis posits that individual resources of self-esteem, perceived control, and coping strategies have their benefits on psychological adjustment by promoting greater social support and/or lower social conflict. Evidence for the individual resource-mediation hypothesis would require: 1) the individual resources being associated with psychological adjustment, 2) the social resources being associated with psychological adjustment, and 3) the inclusion of social resources in the model

mediating (i.e., significantly reducing or eliminating) the association between the individual resources and psychological adjustment.

The evaluation of the individual resource-mediation hypothesis was conducted using a similar procedure as that used to examined the support-mediation hypothesis. Again, in order to preserve statistical power and to better interpret which variables serve as a mediator, only one set of individual resources was examined in each regression model (e.g., one for self-esteem, one for control perceptions, and one for coping strategies).

The regression models examining the support-promoting role of self-esteem are presented in Table 10. Counter to the hypothesis, social resources were not found to mediate the association of self-esteem and psychological adjustment. As anticipated self-esteem was significantly associated with depressive symptoms ($\beta = -.45$), anxious symptoms ($\beta = -.38$), and positive affect ($\beta = .39$), even after imposing controls. However, contrary to the individual resource-mediation hypothesis, the addition of social support and social conflict neither fully mediated nor substantially reduced the association between self-esteem and depressive symptoms ($\beta = -.31$), anxious symptoms ($\beta = -.23$), or positive affect ($\beta = .27$).

The regression models examining the support-promoting role of control perceptions are presented in Table 11. Contrary to expectations, perceptions of control over health, lack of control over health, and health as due to chance were generally not significantly associated with psychological adjustment. However, the perception that health is due to chance was significantly associated with greater depressive symptoms ($\beta = .21$). Yet in contrast to the individual resource-mediation hypothesis, the addition of

social support and social conflict to the model did not significantly alter or reduce the association between chance control perceptions and depressive symptoms (β = .17).

Finally, the regression models examining the support-promoting role of coping strategies are presented in Table 12. Counter to the hypothesis, the coping strategies of distancing/avoidant coping, active/problem solving coping, and support seeking coping were largely unrelated to each of the three indicators of psychological adjustment. However, active/problem solving coping was significantly associated with higher levels of anxious symptoms (β = .21). This association was reduced to marginally significant (β = .15, p = .06) with the addition of social support and social conflict.

In summary, neither social support nor social conflict were found to mediate the role of self esteem (0 of 3 tested), control perceptions (0 of 3 tests), or coping strategies (0 of 3) on any of the three psychological adjustment outcomes.

Multivariate Analysis of the Support-Moderation Hypothesis

The support-moderation hypothesis posits that social support is not universally beneficial for psychological adjustment and that social conflict does not have universally negative effects on psychological adjustment. Rather, this hypothesis proposes that the degree to which social support and social conflict influence mental health depends on the level of individual resources. Empirical demonstration of the support moderation hypothesis would be evidenced by a significant interaction between social support and one of the individual resources, or a significant interaction between social conflict and one of the individual resources. This interaction may take one of two forms. First, social support may have beneficial effects only for those who possess individual resources, such that

individual resources are necessary to make use of social support. Alternatively, social support may have beneficial effects only for those who do not possess individual resources, such that social support may compensate for the absence of individual resources. Similar patterns may exist for social conflict, in which social conflict only has negative effects in the absence of positive individual resources, or only in the presence of negative individual resources (e.g., viewing health as uncontrollable, or distancing/avoidant coping).

In order to evaluate the support moderation hypothesis, a new set of hierarchical linear regression equations were conducted to predict each of the three indicators of psychological adjustment. In these models, demographic and illness-related variables were included as controls in the first step. Next, the main effects for social support, social conflict, and one of the three groups of individual resources (e.g., one model with self-esteem, one with the various control perceptions, and one with the various coping strategies) were entered in the second step. The statistical interaction terms between social support and the individual resources were entered in the third step, with the interaction terms between social conflict and individual resources entered in the fourth step. The social support interactions and social conflict interaction were entered on separate steps of the model so as to obtain separate tests of significance (i.e., explained variance, F test), thereby allowing for an independent evaluation their significance and contribution to the model. To protect against potential Type I error, the F test for the step of the regression model had to be statistically significant (i.e., a significant increase in R^2) prior to examining the significance of the individual *t*-tests for each variable within the

step.

Moderating Role of Self-Esteem. The results of the hierarchical regression model examining the support moderating role of self-esteem is presented in Table 13. The potential moderating role of self-esteem was not supported. Neither the social support by self-esteem interaction, nor the social conflict by self-esteem interaction was significantly associated with depressive symptoms, anxious symptoms, or positive affect.

Moderating Role of Control Perceptions. The results of the hierarchical regression model examining the support moderating role of control perceptions is presented in Table 14. A potential moderating role of control perceptions was found for social conflict, but not social support. Specifically, the interaction of social conflict with the perception that health is uncontrollable was significant, as was the interaction between social conflict and the perception that health is due to luck or chance. Together these two interactions explained an additional 4% of variance in the model, $F(3,125) = 3.30$, $p < .05$.

A plot of the regression slopes predicted by the social conflict by the perception that health is uncontrollable interaction on depressive symptoms is presented in Figure 2. It reveals that the association between social conflict and depressive symptoms was weaker for those women who viewed their health as uncontrollable than for women who did not view their health as uncontrollable. Whereas low levels of social conflict were associated with lower levels of depressive symptoms, regardless of how uncontrollable women viewed their health, women with high levels of social conflict were predicted to have higher levels of depressive symptoms, particularly those women who also viewed

their health as more uncontrollable.

A plot of the regression slopes predicted by the significant interaction between social conflict and the perception that health is due to chance on depressive symptoms is presented in Figure 3. Similar to the previous interaction, inspection of these regression slopes reveals that social conflict has a strong association with more depressive symptoms, but that this association was primarily for those women who viewed their health as due to luck or chance. Women who had low levels of social conflict, women who did not view their health as due to chance, and women who were low in both were predicted to have the lowest levels of depressive symptoms. Women who had both high levels of social conflict and viewed their health as due to chance were found to have the highest levels of depressive symptoms.

Moderating Role of Coping Strategies. The results of the hierarchical regression model examining the support moderating role of coping strategies are presented in Table 15. The potential moderating role of coping strategies was found for both social support and social conflict. The interaction between social support and distancing/avoidant coping was significantly associated with positive affect. Similarly, the interaction between social support and support seeking coping was significantly associated with positive affect. These two interactions together explained an additional 5% of the variance of positive affect, $F(3,125) = 3.72$, $p < .01$. In addition, the interaction between social conflict and distancing/avoidant coping was also significantly associated with positive affect, accounting for an additional 3% of explained variance in positive affect, $F(3,122) = 2.14$, $p < .10$.

A plot of the regression slopes predicted by the social support by distancing/avoidant coping interaction on positive affect is presented in Figure 4. Examination of this figure reveals that social support is strongly associated with positive affect, but only for those women who are also high on distancing/avoidant coping. Women who were high on both social support and distancing/avoidant coping were had the highest levels of positive affect, whereas women with only high levels of social support, or high levels of distancing/avoidant coping, or those who had neither all had similarly lower levels of positive affect.

A plot of the regression slopes predicted by the social support by support seeking coping interaction on positive affect is presented in Figure 5. This figure reveals a similar pattern as noted above. Specifically, social support was strongly associated with positive affect, but only for those women who were also high on support seeking coping. Women who were high on both social support and support seeking coping reported the highest levels of positive affect, whereas women with only high levels of social support, high levels of support seeking coping, or who had neither had similarly low levels of positive affect.

Finally, a plot of the regression slopes predicted by the social conflict by distancing/avoidant interaction on positive affect is presented in Figure 6. Inspection of this figure shows that there was a strong negative association between social conflict and positive affect, but that this association was stronger for those with low levels of distancing/avoidant coping. Whereas women with low levels of social conflict were predicted to have high levels of positive affect regardless of their level of

distancing/avoidant coping, women with high levels of conflict were predicted to have even lower levels of positive affect if they also had low levels of distancing/avoidant coping.

Is Stress a Necessary Condition for Support Moderation?

As noted earlier, the severity of the stressor (in this case physical symptoms of HIV/AIDS) may complicate the relation between social and individual resources (Pearlin et al., 1981; Sandler & Lakey, 1982). Specifically, it has been suggested that support moderation would only exist within the context of significant levels of stress. If the support moderation hypothesis existed only under conditions of high stress, this would be evidenced by a significant three-way interaction between stress, social resources, and individual resources. To examine this potential role of stress, the hierarchical regression analyses for stress-moderation were re-analyzed with the addition of these hypothesized three-way interactions. As before, separate regression models were run for each psychological adjustment outcome, as well as for each of the three individual resources. All possible two-way interactions were controlled for prior to the inclusion of the three-way interactions for both social support and social conflict (Cohen & Cohen, 1983).

The hypothesis regarding the potentially necessary condition of stress for support moderation was largely unsupported. A total of 42 three-way interactions were conducted (three outcomes by seven individual resource variables by two social resource variables). Of these, only one (2% of those examined) was significant: the interaction among social support, self-esteem, and physical symptoms on positive affect. Three others (7%) were marginally significant and/or the R^2 did not significantly change (i.e., did not account for

additional variance) with the addition of the interaction terms. Taken together, these findings suggest that the 1 significant interaction was likely due to chance alone (expected in 5% of all tests) and did not provide evidence that stress altered the support-moderating role of individual resources.

DISCUSSION

Despite over three decades of research on social relationships and various individual resources as they relate to the psychological adaptation to stress and illness, little research has considered the interplay between social relationships and individual resources. This study sought to examine four competing hypothesized relations between social relationships and individual resources among a sample of women living with HIV/AIDS. Although the findings provided some evidence of the interplay between social relationships and individual resources, the findings supported some of the hypotheses but not others.

Support-Mediation Hypothesis

The support-mediation hypothesis was not strongly supported. Specifically, the association between social relationships and psychological adjustment was not found to be mediated by control perceptions or coping strategies. This finding contradicts research by Pearlin et al (1981) and others (e.g., Bisconti & Bergeman, 1999; Major et al., 1990) in which found social support to have beneficial effects by promoting greater perceptions of control (and related constructs). It also failed to replicate Manne's (2000) finding that social conflict erodes control perceptions. My findings also contradict Thoits (1986) who argued that social support would serve as "coping assistance" such that support would facilitate more adaptive coping strategies. Indeed, considerable past research has found evidence that coping mediates the effects of both social support and social conflict (e.g., Fleishman et al., 2000; Holahan et al., 1995; 1997; Manne & Zautra, 1989).

One potential reason for the failure to identify support mediation roles of control

and coping may be that this sample was not experiencing sufficient stress. Indeed, Pearlin et al. (1981) found that the mastery mediated the effects of social support only for those who were under high stress. Although this sample was currently living with HIV/AIDS, experienced high levels of physical symptomatology (M = 11.6 symptoms, SD = 6.6), and was experiencing substantial levels of psychological distress, it may be that these women had, in the time since diagnosis (M = 4.4 years post diagnosis, SD = 2.3; range = 4 months - 11 years), accommodated well to their illness. Alternatively, the fact that the factor structure for the control and coping measures were found to differ in this sample from their original factor structure, may suggest that these measures were not assessing the same contructs and raises construct validity concerns in this sample.

Nevertheless there was some evidence for the support-mediating role of self-esteem. Specifically, the inclusion of self-esteem was found to fully mediate the association between social support and depressive symptoms. This finding supports the hypothesis that social support may promote greater self-esteem, and thereby reduce levels of depressive symptoms. This finding is consistent with the early findings of Pearlin et al. (1981); however, other studies have failed to identify a support mediating role of self-esteem (Druley & Townsend, 1998). This finding, if consistently replicated, has important theoretical implications for our understanding of social support. Specifically, it suggests that the beneficial role of social support may not be through changing the appraisal of the stressor (i.e.., I can handle this because I have others to support me), but rather that its benefits may be by promoting an improved sense of self (i.e., I am a person of value in part because I have others who support me). Further, it suggests that some past findings of a

direct association between social support and psychological adjustment may be spurious because self-esteem was not included. In addition, it may explain why social support has an inconsistent association with psychological adjustment, especially when self-esteem is also included in the model. Of interest, however, is why self-esteem was found to mediate the role of social support on depressive symptoms, but not on positive affect. (Social support was not significantly associated with anxiety, and therefore there was no association to mediate). The existence of mediation with depressive symptoms but not positive affect suggests that social support has an association independent of that of self-esteem on positive affect and suggests that supportive social relationships may be more closely associated with positive affective states than negative affective states. Furthermore, it should be noted, that the current study failed to find evidence that self-esteem mediated the role of social conflict, which has been found elsewhere (Druley & Townsend, 1998). Taken together, the extent to which self-esteem mediates the effects of social relationships remains unclear, indicating that further research that examines the support-mediation hypothesis on various indicators of psychological adjustment is needed.

Individual Resource-Mediation Hypothesis

Consistent with much of the literature that has examined the individual resource-mediation hypothesis (e.g., Aspinwall & Taylor, 1992; Bisconti & Bergeman, 1999; Frazier et al., 2000), the current study found no evidence that the associations of self-esteem, perceptions of control over health, or coping strategies with indicators of psychological adjustment were mediated by either social support or social conflict. Thus, the association between individual resources and psychological adjustment is not due to

their ability to promote greater social support or reduce the level of social conflict. These finding therefore fail to substantiate the individual resource-mediation hypothesis and the related personality-dependent view of social relationships among HIV-positive women. Such findings call into question the degree to which social relationships - both positive and negative - are dependent on more individual-level characteristics like personality.

Support-Moderation Hypothesis

The most consistent and substantial evidence was found for the support-moderation hypothesis. Evidence of this hypothesis, which suggests that there is an interaction between social relationships and individual resources on psychological adjustment, was identified for two of the three different control perceptions and two of the three different coping strategies. Further, both social support and social conflict were found to be moderated.

Support-Moderating Role of Coping: Specifically, the association between social support and positive affect was found to be moderated by both support seeking coping and distancing/avoidant coping. These two interaction terms revealed a very similar pattern, suggesting that social support alone and that coping alone are not sufficient to understand which women experience higher levels of positive affect. Rather, only those women who have both high levels of support and coping (either support seeking or distancing/avoidant) report high levels of positive affect. Thus, rather than compensating for one another, it appears that social support and coping have a multiplicative effect such that having both is better than having only one or neither of these resources.

Given that there has been exceptionally little research on the potential support

moderating role of coping, the findings that two forms of coping moderated the association of social support and positive affect are a notable addition to our understanding of the role of social support and coping on psychological adjustment. However, it should be noted that the interactions observed here contradict those of another study that examined the interaction of support by avoidant coping (Jacobsen et al., 2002). Whereas the current study found that high levels of support and distancing/avoidant coping were associated with the highest levels of positive affect, Jacobsen et al. (2002) found that avoidant coping was associated with higher levels of PTSD symptoms for bone marrow transplant patients who were low in social support. Social support has been found to play a similarly protective role against avoidant coping in other studies of cancer patients as well (Devine et al., 2003). These disparate findings may be due to the major differences in the two populations (e.g., cancer patients, HIV-positive women) including both large demographic and/or illness-related differences, or due to differences in the assessment of distancing/avoidant coping. Further, the two samples may be experiencing very different stressors. Whereas the cancer samples were all undergoing highly stressful treatments (i.e., experimental treatments, bone marrow transplants) which might have been perceived as controllable and time-limited, the women in the current sample experienced a number uncontrollable stressors including daily fluctuations in their health, as well as poverty and racism that were largely outside their control. As such, in the face of these uncontrollable stressors, it is possible that the use of avoidant coping was beneficial. These differences in the interactions found in cancer studies and this HIV study may also be due to the different outcomes examined.

Specifically, whereas the cancer studies examined general distress and PTSD symptoms as outcomes, the current study found an interaction with positive affect. As such, one could speculate that having both support but yet avoiding the stressor, while not helpful to prevent distress, could serve to maintain a positive illusion regarding the situation and therefore preserve positive emotions. Given these discrepancies and the dearth of research in this area, future research is needed.

The finding that social support and coping (both distancing and support seeking) in combination were found to be associated with greater positive affect has important theoretical implications for our understanding of social support and coping. It suggests that theories of social support and coping, while independent of one another, may need to be integrated. The plot of the interactions suggest that these women may need to both perceive support as available and seek to obtain that support (i.e., actually go and talk to someone about the stressor) in order to experience positive affect. Merely perceiving support as available, without the wherewithal to make use of it, may be insufficient to affect psychological outcomes. Similarly, seeking support (i.e., actually talking with someone) may be impossible when one does not perceive support as available, if indeed the perception of support as unavailable is accurate. Similarly, these findings suggest that perceiving support as available may be insufficient if women are not also able to sufficiently distance themselves from the immediate emotional effects of the stressful situation. Perhaps, support and distancing work together, such that distancing allows women to temporarily avoid the negative effects of the stressor, until such time as they can mobilize support to more effectively address the stressor.

These findings have important implications for developing interventions for HIV-positive women as well as other populations for whom support and coping interventions may be utilized. They suggest that interventions designed to promote greater social support (e.g., peer support groups) may be ineffective if they do not promote more adaptive coping strategies as well. Likewise, interventions (e.g., CBT interventions, stress-management interventions) which focus on promoting effective coping strategies, but do not explicitly work to promote more supportive social relationships (or remove barriers to obtaining greater support), may also not be as effective as those that include support-promoting elements. Future research examining the effectiveness of support-promoting interventions, coping-promoting interventions, and interventions that seek to promote both support and coping would be valuable.

Conflict-Moderating Role of Coping: Distancing/avoidant coping was also found to moderate the association between social conflict and positive affect. However, this interaction between social conflict and coping was very different than that of social support and coping. Whereas social support and coping were not found to influence positive affect alone, but only in combination, here, social conflict was found to be negatively associated with positive affect for both those high and low in distancing/avoidant coping. However, the association between social conflict and positive affect was stronger for those women lower in distancing/avoidant coping. In contrast, there was no difference between women high or low in distancing/avoidant coping in the absence of social conflict. As such, this pattern resembles a stress-buffering interaction, such that high levels of distancing/avoidant coping were found to partially buffer the

negative effects of social conflict.

This moderating relation between social conflict and distancing/avoidant coping has interesting theoretical import for our understanding of social conflict. The finding of a stress-buffering interaction between social conflict and distancing/avoidant coping suggests that social conflict may not be best described as the inverse of supportive social relationships, as done here. Rather, it may be that social conflict would be better described as a social stressor; given that its association appears to be buffered by distancing coping as might other more traditional stressors. This finding provides further insight into possible mechanisms by which coping is associated with psychological adjustment – that of stress-buffering. Here, it appears that being able to distance oneself or avoid thinking about their HIV-related stressors (i.e., the HIV-related stressor that women nominated as part of the WOC and with which they were coping) allows women to mitigate, the negative effects of social conflict. As such, this finding suggests that interventions are needed to help address and reduce the social conflict experienced by women living with HIV/AIDS, rather than attempting to help them cope with it more effectively. Coping, even when high, was only partly effective, whereas the absence of social conflict was associated with the highest levels of positive affect.

Conflict-Moderating Role of Control Perceptions: Various perceptions of control over health (or more specifically, the lack of control) were found to moderate the association between social conflict and depressive symptoms. Specifically, perceiving health as due to chance and perceiving health as uncontrollable were both found to moderate the association between social conflict and depressive symptoms. However, the

pattern of the two interactions differed. The interaction between viewing health as due to chance revealed that social conflict was associated with higher depression, but that this was primarily only for women who highly endorsed the view that health was due to chance. In contrast, women who experience high levels of conflict but viewed their health as not due to chance had only slightly higher levels of depression than women with low levels of conflict. Thus, depressive symptoms were not due to conflict or chance perceptions alone, but to high levels of both conflict and chance. Thus, viewing health as due to chance is not in itself problematic, but it appears to aggravate or amplify the negative effects of social conflict. As such, this finding resembles a stress-amplification effect.

As noted earlier, this hypothesized pattern of stress amplifications suggests that social conflict may be better understood as a stressor in the lives of these women, rather than a type of negative social relationship that is the opposite of social support. Further, this finding has important clinical implications. Interventions designed to promote greater perception of control over one's health and lower perception that health is due to chance may not be effective for all women. Rather, these findings suggest that such interventions may only reduce depressive symptoms for women high in social conflict. Even then, interventions aimed at reducing chance perceptions, no matter how effectively they reduce these perceptions, would not be expected to reduce depressive symptoms to levels as low as those of women with low levels of social conflict. Thus, interventions aimed at reducing the level of social conflict in women's lives may be more effective than interventions designed to increase perceptions of control.

Viewing health as uncontrollable was also found to moderate the association between social conflict and depressive symptoms. However, the pattern of this interaction was quite different from that of viewing health as due to chance. Here, viewing health as uncontrollable was found to partially protect against the negative effects of social conflict. Specifically, whereas social conflict was associated with greater depressive symptoms, this association was the strongest for women who were low in their perceptions of health as uncontrollable. Indeed, whereas women low in viewing health as uncontrollable were found to have the lowest levels of depressive symptoms under conditions of low social conflict, under conditions of high social conflict, they were found to have the highest levels of depressive symptoms. In contrast, women who were high in perceiving their health as uncontrollable were found to be more moderate in their levels of depressive symptoms under conditions of both high and low social conflict.

Although perceptions of health as uncontrollable and perceptions of health as due to chance are independent factors, their conceptual similarity raises the question of why these two control perceptions were found to have such different moderating relationships with social conflict and depression. Although it is conceptually clear why the perception that health is due to chance is associated with greater depressive symptoms (under conditions of social conflict), it is unclear why the perception that health is uncontrollable was associated with somewhat lower levels of depressive symptoms (under conditions of social conflict). Conceptually both of these perceptions would be expected to be associated with poorer psychological adjustment. Such counter-intuitive findings suggest the possibility that the latter is a possibly spurious association. Alternatively,

however, given the inevitable declines in health experienced by HIV-positive women, perceiving health as uncontrollable may serve a beneficial function if it allows women to reduce self-blame for declines in their health. This potential reduction in self-blame may explain the lower levels of depressive symptoms found here. In contrast, the perception that health is due to chance may be associated with poorer psychological adjustment because such a perception may promote a feeling of helplessness and that efforts to cope are irrelevant.

It is notable that the support-moderating effects of coping strategies were identified only as they related to positive affect (not depressive or anxious symptoms), whereas the support moderating effects of control perceptions were identified only as they related to depressive symptoms. The reasons for this are unclear. The type of social relationship being moderated does not appear to explain this difference, as control perceptions were found to only moderate the effects of social conflict, coping was associated with both support and conflict. Similarly, there were no differential patterns in the associations between social relationships and the different outcomes, given that social conflict was consistently associated with all three outcomes (not just depression or positive affect), and social support was inconsistently associated with psychological adjustment. Future research examining the support moderation effects of control and coping on multiple indicators of psychological distress and well-being are needed to determine if this pattern is spurious or what factors may account for this different pattern of outcomes.

Is Stress a Necessary Condition?

Contrary to the hypothesis that the support moderating role of individual resources is dependent on the presence of a high level of stress, only 1 of 42 possible stress by social resources by individual resources interactions was found to be significant, suggesting a chance finding. The failure to identify evidence of the stress-dependent hypothesis contradicts earlier studies (Pearlin et al., 1981; Sandler & Lakey, 1982) that have found such significant interactions. There may be two reasons why the present study failed to identify stress as a necessary condition for support moderation. First, the relatively small sample available here provided a power of .77 for the interactions with self-esteem, .63 for interactions with perceived control, and .63 for interactions with coping to detect a medium (.15) effect size at $p < .05$. Compared to the standard of .80, these regression models may have been underpowered to detect interactions with more modest effect sizes. Given this limitation, future studies with larger samples of HIV-positive women should be undertaken to examine this hypothesis. An alternative reason for the failure to detect significant three-way interactions may be the high level of stress experienced by the current sample. Indeed, HIV-related physical symptoms were a nearly universal stressor reported by nearly all of the women: 98% of the women reported at least 1 ongoing physical symptom and over 50% of the sample reported 11 or more symptoms. Furthermore, the women in this sample experienced a number of other stressors, both HIV-related and otherwise, including stigmatization, poverty, and caregiving burdens. Although many additional stressors (or proxies for them) were assessed and controlled for in these analyses (e.g., low income, poor education, race/ethnicity, social conflict), they were not included in the stress measure used to examine whether stress alters these

associations. Given the universality of multiple stressors these women experience, it is possible that a "low stress" condition may not have been possible in this sample. This suggests that nearly all women in the sample experienced sufficient stress to allow for the support-moderating role of individual resources to have been present. As such, one would expect significant two-way interactions (i.e., social by individual resource interactions such as those found here) rather than significant three-way interactions. Future studies with samples that include greater numbers of asymptomatic women (i.e., HIV-positive but with few if any symptoms of AIDS) or using alternative assessments of stress (e.g., experiences of discrimination) are needed to examine this hypothesis.

Implications for Clinical Intervention

Despite the academic importance of understanding the interplay between social relationships and individual resources, the true importance of understanding these relations is that it provides the theoretical and empirical foundation to understand the psychological adjustment of women living with HIV/AIDS and how best to design and implement interventions to promote psychological adjustment among this population. As such, the current findings have a number of important clinical implications.

Overall, the current study reinforces the importance of addressing multiple social and individual resources when designing and implementing interventions for women living with HIV/AIDS, and potentially other chronic disease populations. Specifically, social support, social conflict, self-esteem, control perceptions, and coping strategies were all associated with psychological adjustment. Although many of these associations were indirect or conditional, this in no way reduces their importance. Indeed, this research, by

examining the mediating and moderating relations between these social and individual resources, provides additional information for clinical intervention that would not have been obtained by a study examining main effects alone. If this study had focused on main effects alone, it would have concluded that it was essentially self-esteem and social conflict that were most critical for intervention. However, the indirect effects of social support and the moderating role of control perceptions and coping strategies would have been lost, potentially resulting in interventions and clinical care that are less than maximally effective.

Specifically, the study finding of a support-mediation role of self-esteem suggests that interventions to address depressive symptoms among HIV-positive women should not target self-esteem alone. While potentially beneficial, may be less than maximally effective, because this research suggests that social support serves to promote greater self-esteem. Thus, interventions that work to promote social support (in addition to directly working to promote self-esteem) may be more effective in promoting self-esteem (and reducing depression) because such combined interventions promote self-esteem both directly and indirectly. Indeed, promoting both self-esteem and social support together may not only enhance the effectiveness of the intervention, but also may prevent relapse because targeting social support as well serves to provide a supportive social context that can continue to maintain self-esteem. Conversely, these findings suggest that interventions that only seek to provide supportive relationships, a confidant to share emotions, or practical supportive assistance may also be less than maximally effective. As self-esteem was found to mediate the role of these supportive relationships on depressive symptoms,

social support alone may not be effective. Rather, these findings suggest that it is by promoting self-esteem directly, as well as indirectly through the provision of social support, that depressive symptoms may be most effectively reduced among HIV-positive women.

Likewise, the multiple significant moderational relations identified in this research also argue that interventions to address the psychological adjustment of HIV-positive women need to target multiple areas for intervention. Although many interventions have been designed that promote more effective coping strategies, these findings suggest that the promotion of coping alone may not be maximally effective. Indeed, the current study found that having high levels of coping alone were not associated with optimal psychological adjustment. Rather, having both high levels of social support and coping were necessary (and that neither support alone, nor coping alone were any more effective than having neither). As such, only interventions that serve to promote both greater supportive relationships in conjunction with promoting effective coping strategies would be expected to be maximally effective in promoting the psychological adjustment of women living with HIV/AIDS.

Finally, the current research found that women who experienced high levels of social conflict in their lives also reported poorer psychological adjustment. Clearly, this demonstrates the need to address the social conflicts that exist in the lives of HIV-positive women. However, the significant moderational findings provide additional information about which women are most at risk from social conflict and thereby provides information on how to most effectively target interventions to reduce social conflict. Although all

women who experienced high levels of social conflict were at risk for higher levels of depressive symptoms, these finding also suggest that this is especially true for women who view their health as uncontrollable or view their health as due to chance. Indeed, it was women who experienced both conflict and a lack of perceived control over health who were most at risk. This suggests that inventions may seek to focus their intervention efforts on these women who are experiencing both conflict and a lack of control. Further, it suggests that interventions to reduce depressive symptoms among HIV-positive women should not address not only the social conflict in their lives, but should also work to increase the level of perceived control these women have regarding their health. By addressing their control perceptions as well, interventions may serve to also reduce the negative impact of social conflict more effectively.

Suggestions for Future Research

Although the current study sought to improve upon and extend the past research examining the relations between social and individual resources, the current study findings and the limited amount of research in this area suggest the need for further research.

The current study found evidence for both the support-mediation and the support-moderating hypotheses. Specifically, it was found that various social and individual resources were associated with one another, serving both mediating and moderating functions. As such, these findings argue that future research should seek to move beyond a simple main effects model for understanding psychological adjustment. Rather, theory and research needs to strive to model the complexities of the potential interrelations between social and individual resources. Examining only the main effects may identify the

most proximal factors associated with psychological adjustment and may provide a clean, parsimonious, and simplified understanding of psychological adjustment. However, failing to look beyond a main effects model leaves the field with a limited understanding of the complex pattern of indirect and conditional effects that are revealed when more complex mediational and moderational hypotheses are examined.

Consistent with this, further research is needed on the potential mediating role of individual resources in understanding the relation between social support and psychological adjustment. The current study found that this relation is indirect, with social support serving to promote a higher level of self-esteem, which in turn is associated with fewer depressive symptoms. Clearly this indirect model provides a far greater understanding of the relation between social support and depression that does a main effects model. Indeed, such indirect findings have important theoretical and clinical importance. Although the current study found that self-esteem, but not control perceptions nor coping strategies, served a support-mediating role, numerous past research reviewed earlier have found that control and coping can serve such a mediating role. As such, research is needed to examine all three of these individual resources, as well as others, so that there is an empirical base on which to build a scientific consensus as to which of these individual resources, or under which conditions, these individual resources mediate the association between social support and psychological adjustment.

Although the greatest evidence was found for the support-moderating hypothesis, the lack of consistent pattern of findings does suggest the need for further research into this hypothesis. Specifically, the current study found a number of significant moderating

relations between two different social resources, two forms of control perceptions, and three different coping strategies. However, the pattern of these moderational findings suggest multiple different patterns of moderation. While some individual resources were found to have a synergistic effect with social resources such that both were required for optimal psychological adjustment, other moderating findings suggested that a stress-buffering pattern, such that high levels of individual resources protected against problematic social relationships. Some of these different patterns of moderation contradicted past research. As such, further research to identify potential reasons (in the sample, in the types of stressors experienced, in the measurement) for these discrepancies is greatly needed to reach a greater consensus about the moderating relations between social and individual resources.

In contrast, no evidence of the individual resource-mediation hypothesis was found. This absence of significant findings is consistent with much of the earlier research on the mediating role of individual resources. Taken together, this suggests that future research into this hypothesis may lead to little empirical support. However, given the exceptionally limited amount of research examining this hypothesis, future research may wish to continue to examine this hypothesis as a rival hypothesis to the support-mediation hypothesis as did this study. Although the current study and much of the past research in the individual resource-mediation hypothesis has failed to identify social support or social conflict as a mediator of self-esteem, control perceptions, or coping strategies, there is theoretical reasons to hypothesize other individual resources as potentially mediated through social resources, such as attachment, religiosity, or dispositional optimism. The

potential individual-resource mediating role of social support on these, and other, individual resources have not been frequently examined and therefore may warrant future research.

Future research should continue to examine not only the important mediational and moderational relations examined here, but should also continue to examine the role of stress in these relations. Although the current research found that stress did not alter the relations examined here, there is a significant body of research that repeatedly suggests that stress does play a role. Several lines of research into the role of stress would be beneficial. Much of the current research (including this study) are conducted in samples that are universally high in stress. Although future research examining the role that variations in the level of stress experienced among high stress samples will be beneficial, additional work using stressed and non-stressed samples (e.g., ill samples and healthy controls) is also important. The current study and many others have defined stress as illness severity. However, many other social, economic, and individual stressors exist and the role of these alternative stressors may be equally important to examine to determine if these hypotheses extend beyond the illness context.

In addition to further work on the hypotheses examined here, the current study has also argued and implemented several important advances that should be considered in undertaking future research in this area. Although they were reviewed earlier (see Advances of the Current Research Over Past Research), I will briefly mention a few here. First, of critical importance in future research is the rigorous examination of mediation using established criteria. To the extent possible, the more rigorous MacArthur rules

(Kraemer et al., 2008), provided longitudinal data are available. Second, future research should examine the three hypotheses examined here as rival hypotheses so that evidence for each hypothesis can be compared. Third, to the extent possible, multiple forms of social resources, individual resources, and psychological adjustment outcomes should be utilized. Such comparisons between the mediating and moderating roles of both positive and negative social relationships, between multiple forms of individual resources, and on multiple positive and negative adjustment outcomes are likely to provide a far greater understanding of conditions under which these hypotheses are supported and conditions under which they are not supported. Finally, the current study examined these hypotheses in an sample that was very different ethnically and economically from much of the past work in this area. Future research should continue to examine these hypotheses in new and different populations to further test the boundaries and the generalizability of these hypothesized relations.

Limitations

Several limitations of the current study must be acknowledged. Future research should seek to address these possible limitations to the extent possible. First, as the study is cross-sectional, it cannot determine the causal order between social relationships and individual resources. Thus, the determination of whether social relationships mediate individual resources, or whether individual resources mediate social relationships is based on strength of the associations, rather than causal ordering. Although the use of model fit indices from structural modeling of these data might provide further evidence of which hypothesis best fits the data, the cross-sectional nature of the data would continue to limit

the conclusions that could be drawn. However, the fact that neither of the mediating hypotheses were strongly supported renders this unnecessary. Further longitudinal research, although unable to prove causality, is needed to better examine these causal ordering issues. However, the current cross-sectional findings provide doubt about whether larger scale longitudinal and structural modeling studies would be fruitful, given that the strength of these cross-sectional associations would generally be expected to be of greater magnitude contemporaneously than longitudinally.

Next, the sample size was modest, which may have limited the statistical power to detect the associations examined here, particularly when examining of the three-way interactions (as noted earlier). Further the sample was a convenience sample, therefore these findings may not be representative of the true population of HIV-positive women in New York City. Indeed, the sample, which is comprised of primarily poor, ethnic minority women living with HIV/AIDS may have experienced any number of additional stressors beyond their illness. As such, the ability of the current study to find associations with psychological adjustment may have been limited by the multiple stressors in their lives. Although this suggests that the null findings may have been a result of the unique sample, it also suggests that the findings that were identified, despite the multiple stressors experienced by this sample, may be particularly robust. Finally, important medical treatment advances that have dramatically improved the morbidity and mortality of HIV/AIDS have become the standard of care since data collection was completed for this study. Although research has documented that the psychological adjustment of the sample used in the current study is not significantly different from more contemporary cohorts of

HIV-positive women who have access to these newer medications (Siegel, Karus, & Dean, 2004), it is unclear to what extent access to these newer medications might alter the associations between social relationships and individual resources. Clearly, perceptions of control over health might have changed with the advent of these new medications. Future research on more contemporary cohorts is needed to determine whether the associations identified here have changed since the advent of more effective medications.

Despite these limitations, the current study provides a number of advances over past research into the possible mediating and moderation associations between social relationships and individual resources. First, the current study examined several of the possible mediational and moderation associations in a single data set, thereby providing a comparison of several alternative hypotheses. The current study also examines both positive and negative aspects of social relationships, multiple individual resources (including both positive and negative resources), and positive and negative psychological adjustment outcomes. As such, it provides a more complete examination of the support-mediation, individual resource-mediation, and support moderation hypotheses than past research. Further, unlike most past research, the current study examines these hypotheses within a primarily ethnic-minority female population, thereby providing critical information on the extent to which these hypotheses generalize outside primarily well-educated White samples.

TABLE 1.
Literature examining the support-mediating role of self-esteem, control, and coping

AUTHORS (YEAR)	HYPOTHESIS	OUTCOME	SAMPLE	DESIGN	RESULTS
Pearlin et al. (1981)	Social support → Self-esteem Social support → Mastery	Depression	1106 adults (ages 18-65) from Chicago	Longitudinal	Both self-esteem and mastery were found to mediate the association between social support and depression, but only for those with stress (job loss).
Newcomb (1990)	Social support → Self-esteem Self-esteem → Social support	None	277 male and 570 female high school students	Longitudinal	Mediation was not tested due to the absence of a psychological adjustment outcome. Self-esteem was found to be longitudinally related to aspects of social support, and social support was found to be associated with subsequent self-esteem.

Table 1 continued.

Druley & Townsend (1998)	Social support → Self-esteem Social conflict → Self-esteem	Depression	90 arthritis patients (under age 50) and 90 matched healthy controls	Cross-sectional	Self-esteem mediated the effects of social conflict on depression. Social support had direct effects on depression (i.e., no mediation).
DuBois et al. (2002)	Social support → Self-esteem	Internal-izing and External-izing Symptoms	350 early adolescents (age 10-15)	Longitudinal	Self-esteem at Time 3 was found to fully mediate the association between both social support from friends and from adults at Time 1 and both internalizing and externalizing symptoms at Time 4. These findings held using both child self-reports and parental reports.
Symister & Friend (2003)	Social support → Self-esteem Social conflict → Self-esteem	Depression	86 end-stage renal disease patients	Both cross-sectional and longitudinal (three months later)	Self-esteem was found to partially mediate the association between social support and depression at Time 1, but not longitudinally. Self-esteem did not mediate the association between problematic support and depression either cross-sectionally or longitudinally.

Table 1 continued.

Abe (2004)	Social support → Self-esteem	Anxiety, Depression	161 Japanese and 165 U.S. college students	Cross-sectional	The association between social support and both anxiety and depression were fully mediated by self-esteem in both the U.S. and Japanese samples.
Abraido-Lanza (2004).	Social support → Self-esteem Social support → Self-efficacy	Psycho-logical distress, and well-being	98 Latinas with arthritis	Cross-sectional	The association of tangible and emotional support on psychological distress and well-being were not mediated by either self-esteem or self-efficacy.
Bovier et al. (2004).	Social support → Self-esteem Social support → Mastery	Mental health	1257 university students in Geneva	Cross-sectional	The association between confidant support and mental health subscale of the SF-12 was no longer significant after the addition of both self-esteem and mastery, suggesting that either self-esteem or mastery (or both in combination) fully mediated the association.

Table 1 continued.

Simoni et al. (2005).	Social support → Self-esteem Social support → Mastery	Depression	373 women living with HIV/AIDS in New York City	Cross-sectional	A latent construct that combined self-esteem and mastery was found to fully mediate the association between social support and depressive symptoms.
Yang (2006)	Social support → Self-esteem Social support → Mastery	Change in Depression	Random sample of 1149 persons 65 years and older in North Carolina	Longitudinal (6 year follow-up)	Self-esteem and mastery at Time 1 entered together were found to fully mediate the association between support satisfaction at Time 1 and changes in depression six years later. The association of perceived support available was partially mediated.
Major et al. (1990)	Social support → Self-efficacy	Psycho-logical adjustment (depression, mood, and negative con-sequences combined)	283 women undergoing an abortion	Cross-sectional	The relation between social support from three different sources (friends, family, and partner) and psychological adjustment was mediated by self-efficacy.

Table 1 continued.

Martire et al. (1998).	Social support → Mastery	Depression	258 married working mothers who care for an elderly parent	Cross-sectional	Social support from a role-specific person was associated with increased mastery in that role, which in turn was associated with lower depression (e.g., support from spouse facilitates mastery as wife, support from boss facilitates mastery as employee, etc). Mastery fully mediated association between support and depression.
Bisconti & Bergeman (1999)	Social support → Control Control → Social support Support X Control	Depression	Study 1: 232 older adults (65+); Study 2: 268 older adults (65+)	Cross-sectional	Perceived control mediated the effects of friend support and family support on depression in Study 1, but only partly mediated the effect of these supports in Study 2. Control partly mediated the effects of perceived support in both Study 1 and Study 2. There was no evidence for support serving as a mediator of control or for a control by support interaction.

Table 1 continued.

Bullers (2000)	Social support → Control Social Conflict → Control	Depression	488 adults selected by random digit dialing in North Carolina county	Cross-sectional	Perceived control was found to partially mediate the association of both emotional support and demanding social ties on depression. Instrumental support and number of social ties were neither mediated nor associated with depression. This model held for both men and women.
Manne & Glassman (2000)	Social Conflict → Control Social Conflict → Self-efficacy Social Conflict → Coping	Psychological distress (latent construct of anxiety and depression)	191 married cancer patients	Cross-sectional	Both efficacy and avoidance coping mediated the effect of negative spouse behaviors on psychological distress. Negative behaviors predicted less control, but control did not predict distress after controlling for efficacy and coping.

Table 1 continued.

Morris & Long (2002)	Social support → Control Support X Control	Depression (change over 1 month)	Study 1: 205 female clerical workers; Study 2: 207 female clerical workers	Longitudinal	Neither general social support, nor work specific support was associated with changes in depression over one month in Study 1 or 2. Therefore, control perceptions did not mediate this association. However, control perceptions were found to moderate the association of work support on changes in depression in both Study 1 and 2. In Study 1, among those with high work support control was not associated with changes in depression, but with those with low work support low control was associated with increased depression. However, a different pattern was found in study 2, where among those with high work support, low control was associated with increased depression, but control was not associated with changes in depression among those with low work support.

Table 1 continued.

Saltzman & Holahan (2002)	Social support → Self-efficacy Social support → Coping	Depression and Change in Depression (over 5 weeks)	300 college students	Longitudinal	In predicting both depression at Time 2 and change in depression between Time 1 and 2, neither self-efficacy nor the percentage of students who used approach (versus avoidant) coping were found to fulfill the mediation criteria of Baron & Kenny (1983). Rather a mediational chain was identified in which the association of social support and changes in depression were fully mediated by self-efficacy, and the association between self-efficacy and depression was fully mediated by approach coping. Thus the inclusion of both self-efficacy and approach coping mediated the role of social support.

Table 1 continued.

Lincoln et al. (2003).	Social support → Control Social conflict → Control	Psycho-logical distress	Nationally representati ve survey of 4552 noninstituti on-alized individuals aged 15-54	Cross-sectional	Racial differences were noted in the pattern of associations. For African Americans, personal control mediated the association between social conflict and psychological distress, but social support was found to have direct effects on distress. For whites, personal control mediated the association between social support and distress, but social conflict had direct effects on distress.
Thompson & Prottas (2005)	Social support → Control	Distress, job satisfaction, and life satisfaction	Nationally representati ve sample of 2810 non-self-employed adult workers	Cross-sectional	Perceived control was found to significantly mediate the association of both coworker support and supervisor support on all three outcomes (distress, job satisfaction, and life satisfaction).

Table 1 continued.

Creed & Bartrum (2008)	Social support → Control Support X Control	Psycho-logical distress (general)	214 unemployed adults in Australia	Cross-sectional	Social support was not associated with distress, either before or after the inclusion of mastery, suggesting no mediation. No evidence was found of support by mastery interaction.
Manne & Zautra (1989)	Social support → Coping Social conflict → Coping	Psycho-logical Adjustment (composite of distress and positive affect)	103 women with rheumatoid arthritis	Cross-sectional	Participants with higher levels of spouse criticism (conflict) engaged in more maladaptive coping (wishful thinking). Maladaptive coping mediated the effects of spouse criticism on poorer psychological adjustment. Perceived support from spouse was associated with more adaptive coping (information seeking and cognitive restructuring). Adaptive coping mediated the effects of spouse support on better psychological adjustment.

Table 1 continued.

Ross & Mirowsky (1989)	Social support → Coping Social support X Control	Depression	A probability sample of 809 Illinois adults	Cross-sectional	Social support was unrelated to coping (problem solving). A significant social support by perceived control interaction was found to predict depression, such that either support or control may substitute for one another, and those with low levels of both support and control have the highest levels of depression.
Holahan & Moos (1990)	Social support → Coping	Depression	405 randomly selected adults from San Francisco area	Longitudinal (1 year follow-up; see also Holahan & Moos, 1991)	The percentage of approach coping at time 2 fully mediated the effect of a time 1 latant variable of psychosocial resources (family support, easygoingness, and self-confidence) on depression one year later among those under high stress (2+ negative life events), but direct effects remain for those with low stress.

Table 1 continued.

Holahan & Moos (1991)	Social support → Coping	Depression	254 randomly selected adults in San Francisco area	Longitudinal (4 year follow-up of sample from Holahan & Moos, 1990)	The percentage of approach coping mediated the effect of a latant variable of psychosocial resources (family support, easygoingness, and self-confidence) on depression four years later among those under high stress (2+ negative life events), but not those in low stress.
Valentiner et al. (1994)	Social support → Coping	Psycho-logical Adjustment (latent construct of depression, anxiety, self-worth, and happiness)	175 freshmen college students	Longitudinal (2 year follow-up)	The percentage of approach coping was found to mediate the effects of parental support on subsequent psychological adjustment only for those students who viewed their stress as controllable. For those who viewed their stress as uncontrollable, parental support had a direct positive effect on subsequent adjustment and coping was unrelated.

Table 1 continued.

Holahan et al. (1995).	Social support → Coping	Depression	396 late-middle age adults with cardiac illness and 219 healthy controls	Prospective Longitudinal (1 year follow-up)	Coping did not mediate the effects of social support (from work, family, and network) on depressive symptoms a year later. The hypothesis was not examined among the healthy controls.
Holahan et al. (1997)	Social support → Coping Social conflict → Coping	Depression	183 cardiac patients	Prospective Longitudinal (4 year follow-up of sample from Holahan et al., 1995)	Both social support and social stress were related to subsequent percentage of approach coping four years later, which in turn mediated these effects on fewer depressive symptoms.

Table 1 continued.

Ingledew et al. (1997)	Social support → Coping	Psycho-logical symptoms	109 psychiatric workers facing job loss	Longitudinal	Perceived social support was found to be associated with more emotion-focused coping (support seeking) cross-sectionally. Avoidant coping tended to increase with stress levels, except for those with higher levels of social support. Both emotion-focused and avoidant coping were associated with psychological adjustment, but actual tests of mediation were not conducted. No such findings were found longitudinally.
Lepore & Helgeson (1998).	Social conflict → Coping	Mental Health	178 prostate cancer survivors	Cross-sectional	Avoiding thoughts about cancer was found to fully mediate the association between social constraints from family and mental health. However, the association between social constraints from a spouse and mental health was not mediated by avoidance.

Table 1 continued.

Fleishman et al. (2000)	Social support → Coping Social conflict → Coping	Positive mood, Negative mood	140 HIV-infected individuals	Cross-sectional	The relation of social conflict to positive mood was mediated by coping variables. Social conflict was associated with negative mood even after the addition of coping variables (partial mediation). Social support was unrelated to positive or negative mood.
Frazier et al. (2000).	Social support → Coping Coping → Social support	Psycho-logical symptoms (latent construct of depression, anxiety, and hostility)	209 renal transplant patients	Longitudinal	In structural models, neither received or enacted social supports were related to subsequent cognitive restructuring coping or social withdrawal coping. Similarly, neither coping measure was associated with subsequent social support. However, both received support and coping were associated with better adjustment.
Cordova et al. (2001).	Social conflict → Coping	Depression	70 breast cancer survivors	Cross-sectional	The association of social constraints on depression was not mediated by coping through avoidance.

Table 1 continued.

Devine et al. (2003).	Social support → Coping Social support X Coping	Psycho-logical distress	53 cancer patients receiving experimenta l treatment	Longitudinal (pre-, post-treatment)	Avoidant/intrusive thoughts at Time 2 were found to fully mediate the association between social support at Time 1 and subsequent psychological distress. In addition, a significant support by avoidance interaction was found. Such that there was little association between avoidance and distress for those patients with high support, but for those with low support as avoidance increases so does distress.
Dunkley et al. (2003).	Social support → Coping	Positive affect	163 university students	Longitudinal Daily Diary	Problem focused coping did not mediate the association between social support and positive affect. Specifically, social support was not associated with problem focused coping, but both were associated with greater positive affect.

Table 1 continued.

Manne et al. (2003).	Social conflict → Coping	Psycho-logical distress	140 women with recent breast cancer surgery who where married or cohabitating	Cross-sectional	Avoidant coping fully mediated the association between unsuppportive spouse behaviors and psychological distress, but only for those women low in social support. Among women with high support, unsupportive spouse behaviors had a direct association with distress.
Crean (2004)	Social support → Coping Social conflict → Coping	Psycho-logical symptoms (latent construct of internal and external symptoms)	304 Latino middle school students	Cross-sectional	The percentage of coping that was approach (rather than avoidant) was found to partially mediate the associations of both social support and social conflict with psychological distress.

Table 1 continued.

Heckman et al. (2004).	Social support → Coping Social conflict → Coping	Psycho-logical Distress (latent construct of depression and anxiety)	329 HIV-positive men and women from non-urban areas	Cross-sectional	Social conflict (rejection by family) was not associated with active coping, avoidant coping, or distress. Social support was associated with both more active coping and less avoidant coping. Avoidant coping was found to partially mediate the association between social support and distress.
Karlsen et al. (2004).	Social support → Coping Social conflict → Coping	Anxiety, Depression, Positive Well-Being	534 Norwegian diabetes patients	Cross-sectional	Emotion-focused coping and coping through self-blame (but not problem-focused coping) were found to partially mediate the association of all three types of social resources (family support, health care provider support, and unsupportive family behaviors) on all three indicators of adjustment (anxiety, depression, and well-being).

Table 1 continued.

Prado et al. (2004).	Social support → Coping	Psycho-logical distress	252 HIV-positive African American mothers	Cross-sectional	Both active coping and avoidant coping were found to fully mediate the association between social support and psychological distress.
Schnur et al. (2004).	Social conflict → Coping	General Psycho-logical distress	60 women with a family history of breast cancer	Longitudinal (1 month follow-up)	The association between social constraints at Time 1 and general distress at Time 2 was fully mediated by avoidant thoughts at Time 2.
Shen et al. (2004).	Social support → Coping	Depression	142 patients in cardiac rehabilitatio n	Cross-sectional (for Depression as outcome)	Neither negative nor positive coping were found to mediate the association between social support and depression. Social support was associated with more positive coping, but positive coping was not associated with depression.
Manne et al. (2005).	Social conflict → Coping	Psycho-logical distress	219 women with early stage breast cancer	Longitudinal	The association between patient reports of their partner's unsupportive behavior and subsequent distress was partially mediated by the use of avoidant coping.

Table 1 continued.

Holahan et al. (2006).	Social support → Coping	Depression	132 cardiovascular patients	Cross-sectional	The percentage of coping that was approach coping (relative to avoidant coping) partially mediated the association between social support and depressive symptoms. This model held for both Hispanic and non-Hispanic patients and with male and female patients.
Oxlad & Wade (2006).	Social support → Coping	Depression and PTSD symptoms	119 coronary artery bypass patients	Cross-sectional	The association between social support and depression was not mediated by avoidant, support seeking, positive appraisal, or information seeking coping. Social support was not significantly associated with PTSD symptoms, so no mediation was possible.
Boehmer et al. (2007).	Social support → Coping	Emotional well-being	175 cancer patients	Longitudinal (1 month and 6 months post-surgery)	The association between received social support and emotional well-being was not mediated by either active or meaning-focused coping. All three had direct effects.

TABLE 2.
Literature examining the individual resource mediating role of social support and social conflict

AUTHORS (YEAR)	HYPOTHESIS	OUTCOME	SAMPLE	DESIGN	RESULTS
Ritter et al. (2000)	Self-esteem → Social support	Postpartum depression	191 inner-city pregnant women	Longitudinal	In a structural model, self-esteem was positively associated with social support, which, in turn, was associated with subsequent postpartum depression.
Newcomb (1990)	Social support → Self-esteem Self-esteem → Social support	None	277 male and 570 female high school students	Longitudinal	Mediation was not tested due to the absence of a psychological adjustment outcome. Self-esteem was found to be longitudinally related to aspects of social support, and social support was associated with subsequent self-esteem.
Eckenrode (1983)	Control → Social support	None	308 mothers from a neighborhood health center	Cross-sectional	Internal locus of control was significantly related to the mobilization of support. However, no distress outcome was assessed; therefore mediation was not tested.

Table 2 continued.

Aspinwall & Taylor (1992)	Control → Social support Self-esteem → Social support Coping → Social support	Adjustment to college	672 college freshmen	Longitudinal	In a structural model, seeking social support (coping) was associated with greater social support at a later time, which was associated with adjustment to college. Active and avoidant coping were unrelated to social support. Desire for control (but not locus of control) was associated with more support cross-sectionally, which was associated with subsequent social support, which was associated with adjustment to college. Self-esteem and locus of control were unrelated to social support.

Table 2 continued.

Bisconti & Bergeman (1999)	Social support → Control Control → Social support Social support X Control	Depression	Study 1: 232 older adults (65+); Study 2: 268 older adults (65+)	Cross-sectional	Perceived control mediated the effects of friend support and family support on depression in Study 1, but only partly mediated the effect of these supports in Study 2. Control partly mediated the effects of perceived support in both Study 1 and Study 2. There was no support for support serving as a mediator of control or for a control by support interaction.
Thompson et al. (2002).	Control → Social support	Suicide attempt	200 African American women with history of domestic violence in past year	Cross-sectional	The association between self-efficacy in dealing with their abuse and suicide attempt was fully mediated by social support from family and by social support from friends.

Table 2 continued.

Silver et al. (1990)	Coping → Social support	None	80 college students	Experiment	Differences in coping (independent variable) presented by a (confederate) cancer patient influenced levels of students reported attraction to, distress with, and desires for future interaction with the cancer patient. However, mediation could not be tested because the cancer patient was a confederate (therefore distress is irrelevant) and support was assessed as intention to provide support.
Frazier et al. (2000).	Social support → Coping Coping → Social support	Psycho-logical symptoms (latent construct of depression, anxiety, and hostility	209 renal transplant patients	Longitudinal	In structural models, neither received nor enacted social supports were related to subsequent cognitive restructuring coping or social withdrawal coping. Similarly, neither coping measure was associated with subsequent social support. However, both received support and coping were associated with better adjustment.

Table 2 continued.

Norberg et al. (2006).	Coping → Social support	Anxiety	184 parents of children who had completed cancer treatment in Sweden	Cross-sectional	Parent's level of perceived social support was found to fully mediate the association between support seeking coping and parent's levels of anxiety. Similar pattern found in both mothers and fathers.
Buenaver et al. (2007)	Coping → Social support Coping → Social conflict	Depression	1356 pain patients	Cross-sectional	Social conflict, but not social support, was found to partially mediate the association between coping through catastrophizing and depression.

TABLE 3.
Literature examining the support-moderating role of self-esteem, control, and coping

AUTHORS (YEAR)	HYPOTHESIS	OUTCOME	SAMPLE	DESIGN	RESULTS
Hobfoll & Leiberman (1987)	Social support X Self-esteem	Depression	99 women who gave birth with or without comp-lications	Longitudinal (3-month follow-up)	Significant interaction between spouse intimacy and self-esteem at Time 1 but not Time 2. Women with both low levels of intimacy and esteem were significantly more depressed than women with high levels of intimacy, esteem, or both. No differences were found between women with or without complications.

Table 3 continued.

Van Baarsen (2002)	Social support X Self-esteem	Emotional loneliness, Social loneliness	101 older (55+) widows and widowers	Longitudinal	Significant interactions. Widow(er)s with high self-esteem benefitted more from having a confidant than those with low self-esteem. This effect was found for both social loneliness (1.5 years after partners death) and emotional loneliness (2.5 years after). However, received support from the social network benefitted widow(er)s with low self-esteem more than those with high self-esteem (on social loneliness 2.5 years after partner's death).
Sandler & Lakey (1982)	Social support X Control	Depression, Anxiety	93 college students	Cross-sectional	Social support was found to buffer the negative effects of negative events on both depression and anxiety for individuals high in internal locus-of-control but not for those low in internal control.

Table 3 continued.

Lefcourt et al. (1984).	Social support X Control	Total mood disturbance	99 subjects (58 men, 41 women, no further description)	Cross-sectional	A significant negative life events by social support interaction on mood disturbance was found for individuals high in internal locus-of-control, but not in those low in internal control.
Cummins (1988)	Social support X Control	Psychiatric distress symptoms	112 business school students	Cross-sectional	A significant stress (daily hassles) by received social support (stress-buffering) interaction on psychological distress was found for individuals high in internal locus-of-control, but not those low in internal locus of control.
Hobfoll & Lerman (1988)	Social support X Mastery	Emotional distress (anxiety and depression combined)	107 Israeli mothers of healthy or ill children	Longitudinal	Significant interaction. Mothers high in mastery were less distressed at a later time and benefitted more from both general social support and intimacy with friend than women with lower levels of mastery.

Table 3 continued.

Ross & Mirowsky (1989)	Social support X Control Social support → Coping	Depression	A probability sample of 809 Illinois adults	Cross-sectional	A significant social support by perceived control interaction was found to predict depression, such that either support or control may substitute for one another, and those with low levels of both support and control have the highest levels of depression. Social support was unrelated to coping (problem solving).
Cauce et al. (1992)	Social support X Control	School competence, General competence, Anxiety	120 private, middle-school students	Cross-sectional	A significant three-way interaction was found, in that school support buffered the effects of negative events on school competence better for students with an internal locus-of-control. No interactions were noted for anxiety or general competence or with other sources of support (peers or family).

Table 3 continued.

Bisconti & Bergeman (1999)	Social support → Control Control → Social support Social support X Control	Depression	Study 1: 232 older adults (65+); Study 2: 268 older adults (65+)	Cross-sectional	Perceived control mediated the effects of friend support and family support on depression in Study 1, but only partly mediated the effect of these supports in Study 2. Control partly mediated the effects of perceived support in both Study 1 and Study 2. There was no support for support serving as a mediator of control or for a control by support interaction.

Table 3 continued.

Morris & Long (2002)	Social support → Control Support X Control	Depression (change over 1 month)	Study 1: 205 female clerical workers; Study 2: 207 female clerical workers	Longitudinal	Neither general social support, nor work specific support was associated with changes in depression over one month in Study 1 or 2. Therefore, control perceptions did not mediate this association. However, control perceptions were found to moderate the association of work support on changes in depression in both Study 1 and 2. In Study 1, among those with high work support control was not associated with changes in depression, but with those with low work support low control was associated with increased depression. However, a different pattern was found in study 2, where among those with high work support, low control was associated with increased depression, but control was not associated with changes in depression among those with low work support.

Table 3 continued.

Verhoeven et al. (2003).	Support X Control	Emotional exhaustion, job satisfaction	2796 secondary school teachers from 13 European countries	Cross-sectional	The interaction between social support and perceived control were nonsignificant on all outcomes among both male and female teachers. Similarly, a three-way, stress by support, by control interaction was also nonsignificant.
Stetz et al. (2006).	Support X Efficacy	Emotional well-being, job satisfaction	96 U.S. military police officers	Longitudinal (3 month follow-up)	A significant 3 way interaction between stress, support, and self-efficacy was found to predict both psychological well-being and job satisfaction. Specifically, stress had little association with either well-being or job satisfaction for officers with high self-efficacy and high support (from either supervisor or co-workers).
Creed & Bartrum (2008)	Social support → Control Support X Control	Psycho-logical distress (general)	214 unemployed adults in Australia	Cross-sectional	Social support was not associated with distress, either before or after the inclusion of mastery, suggesting no mediation. No evidence was found of support by mastery interaction.

Table 3 continued.

Jacobsen et al. (2002)	Social support X Coping	Post-traumatic Stress Symptoms	70 cancer patients receiving bone marrow transplant	Prospective Longitudinal	A significant interaction between social support and avoidant coping predicted subsequent symptoms of post-traumatic stress even after controlling for psychological distress. Patients who were high in pre-transplant avoidant coping and low in social support reported more symptom severity.
Griffin et al. (2001)	Social conflict X Coping	Negative affect	42 men and women with rheumatoid arthritis	Longitudinal (9-month follow-up)	Punishing responses (e.g., gets angry) to the patient's pain from a support provider interacted with coping (venting negative emotions) to predict changes in negative affect. Patients who experienced social conflict and who vented their negative emotions were found to have the highest increase in negative affect.

Table 3 continued.

Devine et al. (2003).	Social support → Coping Social support X Coping	Psycho-logical distress	53 cancer patients receiving experimenta l treatment	Longitudinal (pre-, post-treatment)	Avoidant/intrusive thoughts at Time 2 were found to fully mediate the association between social support at Time 1 and subsequent psychological distress. In addition, a significant support by avoidance interaction was found. Such that there was little association between avoidance and distress for those patients with high support, but for those with low support as avoidance increases so does distress.
Shimazu et al. (2005).	Social support X Coping	Psycho-logical distress	726 Japanese male non-managemen t workers	Cross-sectional	A significant interaction was found between active coping and co-worker support (but not supervisor support). Specifically, when both active coping and coworker support was high, psychological distress was lowest. Workers with only high active coping, only high support, or neither experienced similar levels of distress.

Table 4.

Reduced Factor Analysis of the Health-Specific Locus of Control Questionnaire.

	Factor Loadings		
	Factor 1: Health as Uncontrollable	Factor 2: Health as Controllable	Factor 3: Health as Due to Luck/Chance
Doctors can rarely do very much for people who are sick	**.51**	.16	-.00
Healthwise, there isn't much you can do for yourself when you get sick	**.44**	.22	-.32
Doctors can do very little to prevent illness	**.62**	.00	-.01
Doctors relieve or cure only a few of the medical problems their patients have	**.54**	-.00	-.00
There is little one can do to prevent illness	**.65**	-.01	-.10
Anyone can learn a few basic health principles that can go a long way in preventing illness	-.15	**.37**	-.27
I have a lot of confidence in my ability to cure myself once I get sick	-.17	**.39**	-.01
In the long run, people who take care of themselves stay health and get well quickly	.00	**.57**	-.01
Most sick people are helped a great deal when they go to a doctor	-.33	**.73**	-.15
Seeing a doctor for regular check-ups is a key factor in staying healthy	-.15	**.35**	-.15
Doctors can almost always help their patients feel better	-.21	**.71**	-.16

Whether or not people get well is often a matter of chance	.34	.01	**.58**
People who n ever get sick are just plain lucky	.21	-.19	**.52**
Good health is largely a matter of fortune	.31	-.16	**.65**
Staying well has little or nothing to do with chance (R)	.24	-.19	**.61**
Recovery from illness has nothing to do with luck (R)	.00	-.23	**.58**
Eigenvalues	3.00	2.50	2.27
Explained Variance	13.6%	11.4%	8.6%

Note: (R) indicated recoded item.

Table 5.

Reduced Factor Analysis of the Selected Ways of Coping Questionnaire Subscales.

	Factor Loadings		
	Factor 1: Distancing / Avoidant	Factor 2: Active / Problem Solving	Factor 3: Support Seeking
Turned to work to take my mind off things	**.58**	.05	.30
Went on as if nothing had happened	**.66**	-.09	-.04
Tried to forget the whole thing	**.71**	-.08	-.14
I didn't let it get to me	**.62**	.22	.08
I made light of the situation	**.72**	.10	.06
I refused to believe it had happened	**.59**	.15	.11
I got professional help	-.11	**.50**	.32
I made a plan of action and followed it	-.03	**.69**	.26
I talked to someone who could do something about the problem	-.02	**.60**	.31
I changed something so that things would turn out okay	.26	**.72**	.00
I knew what had to be done	.15	**.80**	.02
I asked advice from a relative or friend whom I respected	.21	.00	**.79**
I talked to someone about how I was feeling	.05	.22	**.74**
I talked to someone to find out more about the situation	.02	.21	**.73**
Eigenvalues	5.56	2.78	2.04
Explained Variance	26.5%	16.9%	9.2%

Table 6.

Means, Standard Deviations, and Pearson Correlations among the Study Variables (N = 146).

	M	*SD*	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Depressive Symptoms	2.85	0.94	–											
2. Anxious Symptoms	3.04	0.96	.79*	–										
3. Positive Affect	3.54	0.95	-.70*	-.59*	–									
4. Available Social Support	3.40	0.53	-.40*	-.32*	.35*	–								
5. Social Conflict	2.82	0.81	.61*	.59*	-51*	-.46*	–							
6. Self-Esteem	3.14	0.58	-.56*	-.48*	.50*	.28*	-.42*	–						
7. Health Controllable	5.30	0.87	-.05	-.03	.12	-.01	-.09	.10	–					
8. Health Uncontrollable	3.07	1.08	.18*	.16†	-.15†	-.18*	.13	-.12	-.12	–				
9. Health Due to Chance	3.11	1.27	.16†	.09	-.01	-.09	.08	-.20*	.00	.24*	–			
10. Distancing/Avoidant Coping	1.02	0.69	.18*	.15†	.09	-.11	.22*	-.11	-.05	.20*	.15†	–		
11. Active/Problem Solving Coping	1.50	0.78	.03	.18*	.14†	-.07	.14	.03	.17*	.12	.07	.22*	–	
12. Support Seeking Coping	1.92	0.84	-.03	.04	.17*	.04	.08	.15†	.02	-.10	.09	.21*	.46*	–

Note: All variables have skew and kurtosis < 1.0.
* $p < .05$
† $p < .10$

Table 7. Hierarchical Regression Examining the Support-Mediating Role of Self-Esteem among Women Living with HIV/AIDS (N = 141-146).

	Depressive Symptoms		Anxious Symptoms		Positive Affect	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Independent Variables	β	β	β	β	β	β
Step 1: Demographic Controls						
Age	.01	-.01	-.03	-.04	-.08	-.06
African American (vs. White)	-.12	-.07	-.17*	-.13+	.22**	.18*
Puerto Rican (vs. White)	.07	.03	-.00	-.03	.00	.04
AIDS (vs. Asymptomatic)	.03	.05	.03	.04	.04	.03
Symptomatic (vs. Asymptomatic)	.03	.06	-.01	.01	-.00	-.03
Income < $10,000 (vs. less)	.035	.03	.10	.10	-.21**	-.20**
High School Graduate (vs. less)	-.05	-.03	-.07	-.05	.04	.03
Number of HIV-related Physical Symptoms	.16*	.11	.10	.07	-.12	-.07
Step 2: Main Effects						
Availability of Social Support	-.16*	-.12+	-.08	-.05	.18*	.15*
Social Conflict	.44**	.36**	.48**	.42**	-.35**	-.28**
Step 3: Mediator						
Self-Esteem		-.31**		-.23**		.27**

ΔR^2 for Step 1:	.23**	.20**	.23**
ΔR^2 for Step 2:	.23**	.21**	.17**
ΔR^2 for Step 3:	.07**	.04**	.05**
Model R^2:	.52**	.45**	.46**

Note: Model 1 includes the main effects of socials resources. Model 2 includes the main effects of social resources after controlling for self-esteem.

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

Table 8. Hierarchical Regression Examining the Support-Mediating Role of Control Perceptions among Women Living with HIV/AIDS (N = 141-146).

	Depressive Symptoms		Anxious Symptoms		Positive Affect	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Independent Variables	β	β	β	β	β	β
Step 1: Demographic Controls						
Age	.01	.04	-.03	-.01	-.08	-.08
African American (vs. White)	-.12	-.13+	-.17*	-.19*	.22**	.23**
Puerto Rican (vs. White)	.07	.07	-.00	-.02	.00	.01
AIDS (vs. Asymptomatic)	.03	.06	.03	.04	.04	.04
Symptomatic (vs. Asymptomatic)	.03	.05	-.01	-.00	-.00	-.00
Income < $10,000 (vs. less)	.04	.06	.10	.12+	-.21**	-.22**
High School Graduate (vs. less)	-.05	-.03	-.07	-.05	.04	.00
Number of HIV-related Physical Symptoms	.16*	.18*	.10	.11	-.12	-.13
Step 2: Main Effects						
Availability of Social Support	-.16*	-.15*	-.08	-.06	.18*	.17*
Social Conflict	.44**	.42**	.48**	.48**	-.35**	-.34**
Step 3: Mediators						
Health is Controllable		-.01		.05		.04

Health is Uncontrollable	.03	.07	-.10
Health is due to Chance/Luck	.19*	.08	-.03
ΔR^2 for Step 1:	.23**	.20**	.23**
ΔR^2 for Step 2:	.23**	.21**	.17**
ΔR^2 for Step 3:	.03+	.01	.01
Model R^2:	.48**	.43**	.42**

Note: Model 1 includes the main effects of socials resources. Model 2 includes the main effects of social resources after controlling for control perceptions.
** $p < .01$ * $p < .05$ + $p < .10$

Table 9. Hierarchical Regression Examining the Support-Mediating Role of Coping Strategies among Women Living with HIV/AIDS (N = 141-146).

	Depressive Symptoms		Anxious Symptoms		Positive Affect	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Independent Variables	β	β	β	β	β	β
Step 1: Demographic Controls						
Age	.01	.02	-.03	-.01	-.08	-.06
African American (vs. White)	-.12	-.13	-.17*	-.22*	.22**	.13
Puerto Rican (vs. White)	.07	.08	-.00	-.05	.00	-.09
AIDS (vs. Asymptomatic)	.03	.04	.03	-.00	.04	-.00
Symptomatic (vs. Asymptomatic)	.03	.02	-.01	-.02	-.00	-.00
Income < $10,000 (vs. less)	.04	.02	.10	.12	-.21**	-.17*
High School Graduate (vs. less)	-.05	-.02	-.07	-.07	.04	.03
Number of HIV-related Physical Symptoms	.16*	.15+	.10	.11	-.12	-.11
Step 2: Main Effects						
Availability of Social Support	-.16*	-.16*	-.08	-.08	.18*	.16*
Social Conflict	.44*	.45**	.48**	.45**	-.35**	-.42**
Step 3: Mediators						
Distancing/Avoidant Coping		.08		.05		.14+

Active/Problem Solving Coping	-.05	.15+	.13+
Support Seeking Coping	-.06	-.04	.08
ΔR^2 for Step 1:	.23**	.20**	.23**
ΔR^2 for Step 2:	.23**	.21**	.17**
ΔR^2 for Step 3:	.01	.02	.05**
Model R^2:	.46**	.43**	.46**

Note: Model 1 includes the main effects of socials resources. Model 2 includes the main effects of social resources after controlling for coping strategies.
** $p < .01$ * $p < .05$ + $p < .10$

Table 10. Hierarchical Regression Examining the Self-Esteem Mediating Role of Social Resources among Women Living with HIV/AIDS (N = 141-146).

	Depressive Symptoms		Anxious Symptoms		Positive Affect	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Independent Variables	β	β	β	β	β	β
Step 1: Demographic Controls						
Age	-.09	-.01	-.12	-.04	.01	-.06
African American (vs. White)	-.07	-.07	-.15+	-.13	.18*	.18*
Puerto Rican (vs. White)	-.00	.03	-.08	-.03	.06	.04
AIDS (vs. Asymptomatic)	.01	.05	.00	.04	.06	.03
Symptomatic (vs. Asymptomatic)	.09	.06	.04	.01	-.06	-.03
Income < $10,000 (vs. less)	.03	.03	.10	.10	-.21**	-.20**
High School Graduate (vs. less)	-.06	-.03	-.08	-.05	.05	.03
Number of HIV-related Physical Symptoms	.24**	.11	.21*	.07	-.17*	-.07
Step 2: Main Effects						
Self-Esteem	-.45**	-.31**	-.38**	-.23**	.39**	.27**
Step 3: Mediators						
Availability of Social Support		-.12+		-.05		.15*
Social Conflict		.36**		.42**		-.28**

ΔR^2 for Step 1:	.23**	.20**	.23**
ΔR^2 for Step 2:	.17**	.11**	.13**
ΔR^2 for Step 3:	.13**	.14**	.10**
Model R^2:	.52**	.45**	.46**

Note: Model 1 includes the main effects of self-esteem. Model 2 includes the main effects of social resources after controlling for social resources.

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

Table 11. Hierarchical Regression Examining the Control Perceptions Mediating Role of Social Resources among Women Living with HIV/AIDS (N = 141-146).

	Depressive Symptoms		Anxious Symptoms		Positive Affect	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Independent Variables	β	β	β	β	β	β
Step 1: Demographic Controls						
Age	-.06	.04	-.10	-.01	.01	-.08
African American (vs. White)	-.16+	-.13+	-.23*	-.19*	.24**	.23**
Puerto Rican (vs. White)	.06	.07	-.05	-.02	.02	.01
AIDS (vs. Asymptomatic)	.00	.06	-.02	.04	.09	.04
Symptomatic (vs. Asymptomatic)	.08	.05	.01	-.00	-.02	-.00
Income < $10,000 (vs. less)	.07	.06	.13	.12+	-.23**	-.22**
High School Graduate (vs. less)	-.05	-.03	-.07	-.05	.02	.00
Number of HIV-related Physical Symptoms	.38**	.18*	.32**	.11	-.29**	-.13
Step 2: Main Effects						
Health is Controllable	-.05	-.01	.00	.05	.07	.04
Health is Uncontrollable	.08	.03	.11	.07	-.15+	-.10
Health due to Chance/Luck	.21*	.17*	.12	.08	-.06	-.03
Step 3: Mediators						

Availability of Social Support	-.15*	-.06	.17*
Social Conflict	.42**	.48**	-.34**
ΔR^2 for Step 1:	.23**	.20**	.23**
ΔR^2 for Step 2:	.05*	.03	.03
ΔR^2 for Step 3:	.20**	.20**	.15**
Model R^2:	.48**	.43**	.42**

Note: Model 1 includes the main effects of control perceptions. Model 2 includes the main effects of social resources after controlling for social resources.
** $p < .01$ * $p < .05$ + $p < .10$

Table 12. Hierarchical Regression Examining the Coping Strategies Mediating Role of Social Resources among Women Living with HIV/AIDS (N = 141-146).

	Depressive Symptoms		Anxious Symptoms		Positive Affect	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Independent Variables	β	β	β	β	β	β
Step 1: Demographic Controls						
Age	-.07	.02	-.09	-.01	.02	-.06
African American (vs. White)	-.19+	-.13	-.29*	-.22*	.19*	.13
Puerto Rican (vs. White)	.02	.08	-.12	-.05	-.04	-.09
AIDS (vs. Asymptomatic)	-.04	.04	-.08	-.00	.08	-.00
Symptomatic (vs. Asymptomatic)	.04	.02	-.01	-.02	-.02	-.00
Income < $10,000 (vs. less)	.04	.02	.14+	.12	-.19*	-.17*
High School Graduate (vs. less)	-.07	-.02	-.11	-.07	.08	.03
Number of HIV-related Physical Symptoms	.35**	.15+	.29**	.11	-.30**	-.11
Step 2: Main Effects						
Distancing/Avoidant Coping	.15+	.08	.12	.05	.08	.14+
Active/Problem Solving Coping	.01	-.05	.21*	.15+	.07	.13+
Support Seeking Coping	-.05	-.06	-.03	-.04	.07	.08
Step 3: Mediators						

Availability of Social Support	-.16*	-.08	.16*
Social Conflict	.45**	.45**	-.42**
ΔR^2 for Step 1:	.23**	.20**	.23**
ΔR^2 for Step 2:	.02	.05*	.02
ΔR^2 for Step 3:	.22**	.18**	.20**
Model R^2:	.46**	.43**	.46**

Note: Model 1 includes the main effects of coping strategies. Model 2 includes the main effects of social resources after controlling for social resources.
** $p < .01$ * $p < .05$ + $p < .10$

Table 13. Hierarchical Regression Examining the Support-Moderating Role of Self-Esteem Among Women Living with HIV/AIDS (N = 141-146).

	Depressive Symptoms				Anxious Symptoms				Positive Affect			
Independent Variables	B	β	R^2	ΔR^2	B	β	R^2	ΔR^2	B	β	R^2	ΔR^2
Step 1: Demographic Controls			.23**	.23**			.20**	.20**			.23**	.23**
Age	-.00	-.01			-.01	-.05			-.01	-.07		
African American (vs. White)	-.16	-.08			-.28	-.14+			.34	.17*		
Puerto Rican (vs. White)	.07	.03			-.07	-.03			.06	.03		
AIDS (vs. Asymptomatic)	.13	.07			.10	.05			.11	.06		
Symptomatic (vs. Asymptomatic)	.15	.08			.04	.02			-.03	-.02		
Income < $10,000 (vs. less)	.04	.02			.20	.10			-.39	-.20**		
High School Graduate (vs. less)	-.06	-.03			-.11	-.06			.04	.02		
Number of HIV-related Physical Symptoms	.02	.11			.01	.07			-.01	-.08		
Step 2: Main Effects			.52**	.29**			.45**	.25**			.46**	.22**

Availability of Social Support	-.24	-.14+			-.11	-.06			.21	.12		
Social Conflict	.42	.36**			.49	.41**			-.34	-.29**		
Self-Esteem	-.47	-.29**			-.35	-.21**			.49	.30**		
Step 3: Support Interactions			.52**	.00			.45**	.00			.47**	.02
Support X Self-Esteem	-.04	-.01			-.19	-.06			-.45	-.13+		
Step 4: Conflict Interactions			.52**	.00			.45**	.00			.47**	.00
Conflict X Self-Esteem	-.15	-.07			-.10	-.05			-.23	-.11		

** p < .01 * p < .05 + p < .10

Table 14. Hierarchical Regression Examining the Support-Moderating Role of Control Perceptions Among Women Living with HIV/AIDS (N = 141-146).

	Depressive Symptoms				Anxious Symptoms				Positive Affect			
Independent Variables	B	β	R^2	ΔR^2	B	β	R^2	ΔR^2	B	β	R^2	ΔR^2
Step 1: Demographic Controls			.23**	.23**			.20**	.20**			.23**	.23**
Age	.01	.05			.00	.01			-.01	-.09		
African American (vs. White)	-.33	-.17*			-.46	-.23**			.50	.25**		
Puerto Rican (vs. White)	.11	.06			-.08	-.04			.02	.01		
AIDS (vs. Asymptomatic)	.13	.07			.06	.03			.05	.03		
Symptomatic (vs. Asymptomatic)	.21	.11			.05	.03			-.10	-.05		
Income < $10,000 (vs. less)	.09	.05			.25	.13+			-.41	-.21**		
High School Graduate (vs. less)	-.09	-.05			-.12	-.06			.02	.01		
Number of HIV-related Physical Symptoms	.03	.20**			.02	.13			-.02	-.12		
Step 2: Main Effects			.48**	.26**			.43**	.23**			.42**	.18**

Availability of Social Support	-.31	-.18*			-.11	-.06			.33	.19*		
Social Conflict	.47	.41**			.57	.48**			-.41	-.35**		
Health is Controllable	-.03	-.03			.05	.04			.06	.06		
Health is Uncontrollable	.01	.01			.06	.07			-.07	-.08		
Health due to Chance/Luck	.16	.21**			.09	.12			-.04	-.05		
Step 3: Support Interactions			.49**	.01			.44**	.01			.42**	.00
Support X Control	-.13	-.06			-.00	-.00			.14	.06		
Support X Uncontrol	-.03	-.02			-.05	-.03			-.04	-.00		
Support X Chance	.17	.14+			.15	.11			-.04	-.03		
Step 4: Conflict Interactions			.53**	.04*			.46**	.02			.45**	.02
Conflict X Control	-.10	-.07			-.10	-.07			.13	.10		
Conflict X Uncontrol	-.22	-.20*			-.20	-.18			.18	.16		
Conflict X Chance	.21	.20*			.08	.08			-.14	-.13		

** $p < .01$ * $p < .05$ † $p < .10$

Table 15. Hierarchical Regression Examining the Support-Moderating Role of Coping Strategies Among Women Living with HIV/AIDS (N = 141-146).

	Depressive Symptoms				Anxious Symptoms				Positive Affect			
Independent Variables	B	β	R^2	ΔR^2	B	β	R^2	ΔR^2	B	β	R^2	ΔR^2
Step 1: Demographic Controls			.23**	.23**			.20**	.20**			.23**	.23**
Age	.01	.03			-.00	-.02			-.01	-.05		
African American (vs. White)	-.18	-.09			-.39	-.19*			.23	.12		
Puerto Rican (vs. White)	.24	.12			-.07	-.04			-.28	-.14		
AIDS (vs. Asymptomatic)	.04	.02			.00	.00			.00	.00		
Symptomatic (vs. Asymptomatic)	-.01	-.00			-.05	-.03			.03	.01		
Income < $10,000 (vs. less)	.03	.01			.24	.12			-.41	-.21**		
High School Graduate (vs. less)	.02	.01			-.10	-.05			.01	.00		
Number of HIV-related Physical Symptoms	.02	.11			.01	.09			-.01	-.06		
Step 2: Main Effects			.46**	.23**			.43**	.23**			.46**	.22**

Availability of Social Support	-.23	-.13			-.13	-.07			.20	.11		
Social Conflict	.59	.50**			.56	.47**			-.61	-.52**		
Distancing/Avoidant Coping	.13	.10			.08	.06			.13	.10		
Active/Problem Solving Coping	-.03	-.03			.19	.15+			.13	.11		
Support Seeking Coping	-.13	-.11			-.08	-.07			.15	.13+		
Step 3: Support Interactions			.48**	.02			.44**	.01			.50**	.05*
Support X Distancing/Avoidant	-.23	-.09			-.10	-.04			.48	.18*		
Support X Active/Problem Solving	-.13	-.06			.00	.00			-.34	-.16+		
Support X Support Seeking	-.21	-.11			-.27	-.14			.33	.17*		
Step 4: Conflict Interactions			.49**	.01			.45**	.01			.53**	.03+
Conflict X Distancing/Avoidant	-.13	-.09			-.07	-.05			.26	.18*		

Conflict X Active/Problem Solving	-.17	-.12	-.03	-.02	.15	.10
Conflict X Support Seeking	.06	.05	-.09	-.07	-.04	-.03

** $p < .01$ * $p < .05$ † $p < .10$

Figure 1. Four hypothesized relationships between social and individual resources.

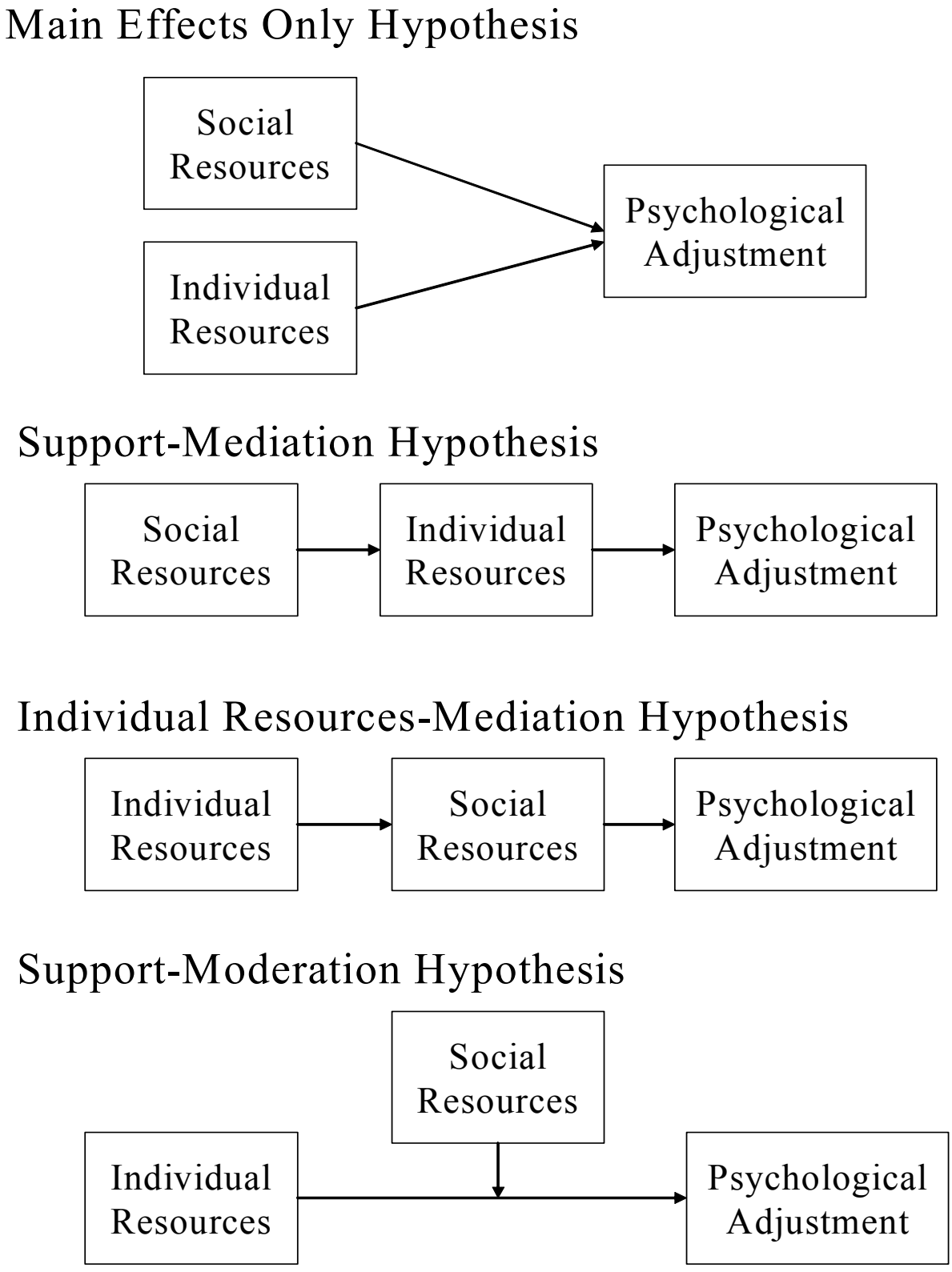


Figure 2. Self-esteem mediates the relationship between social support and positive affect.

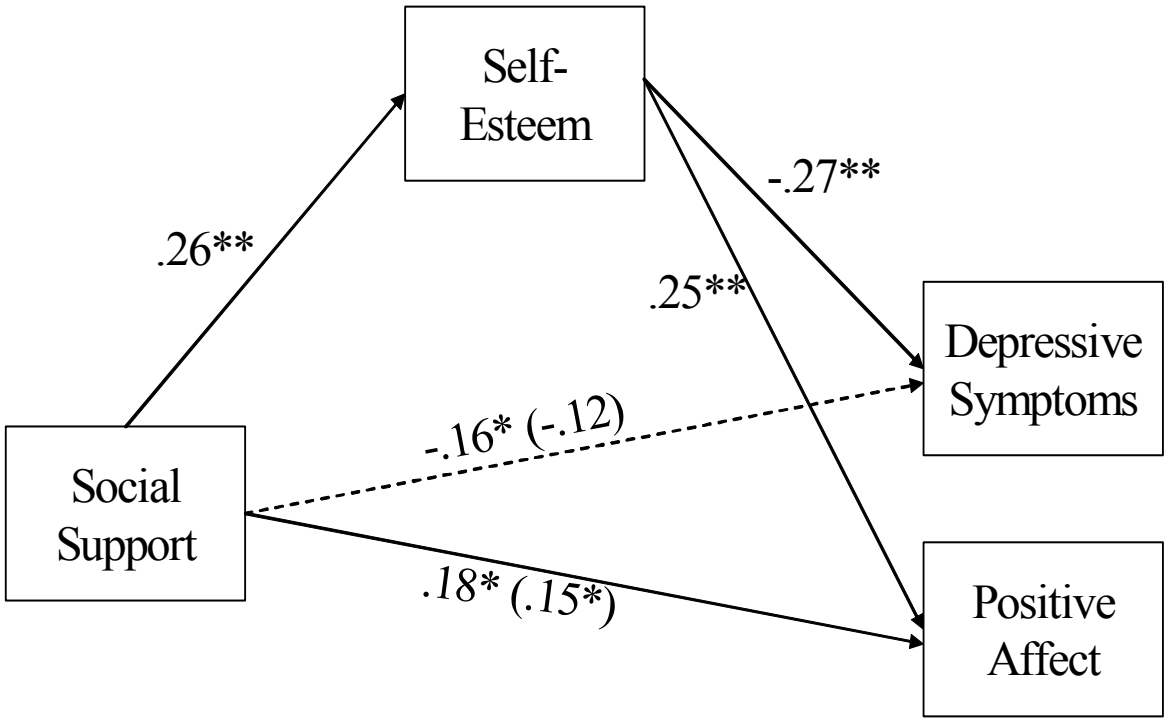


Figure 3. Perceptions that health is uncontrollable moderate the relationship between social conflict and depressive symptoms.

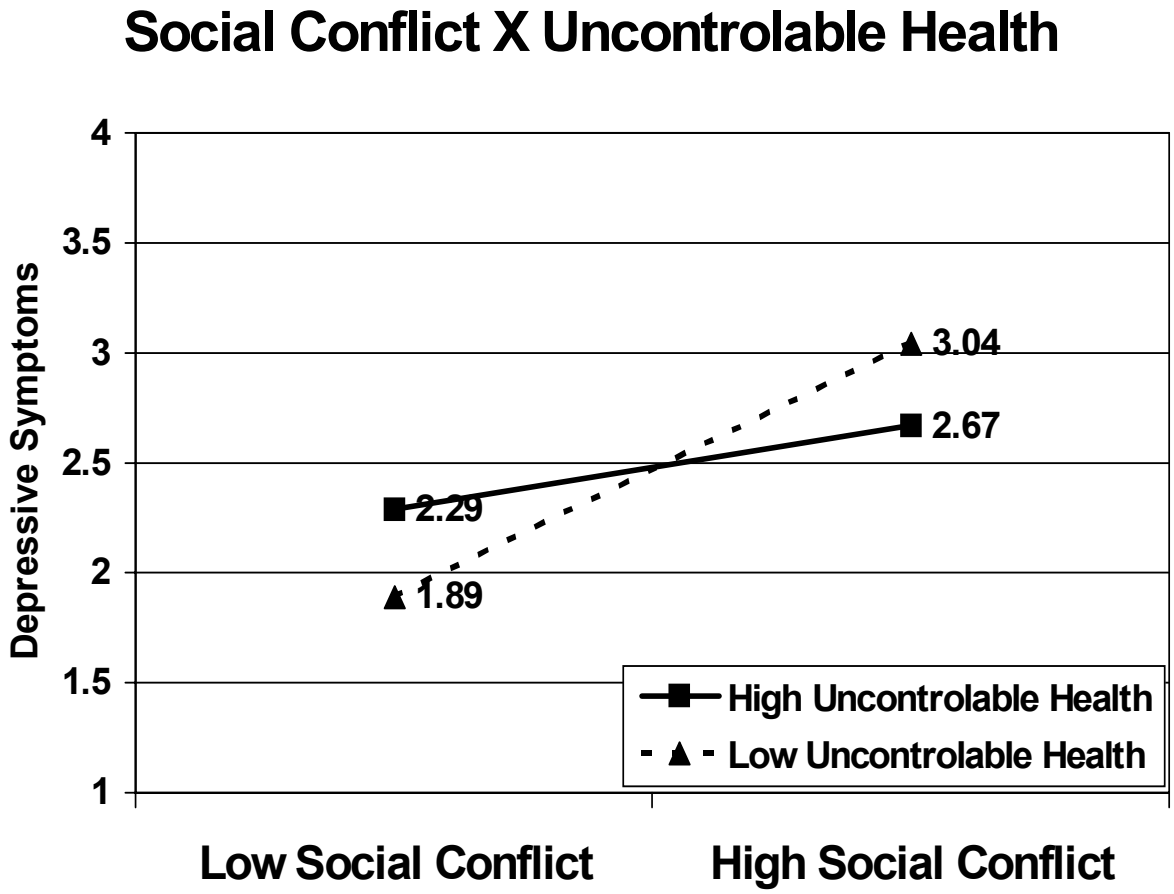


Figure 4. Perceptions that health is due to chance moderate the relationship between social conflict and depressive symptoms.

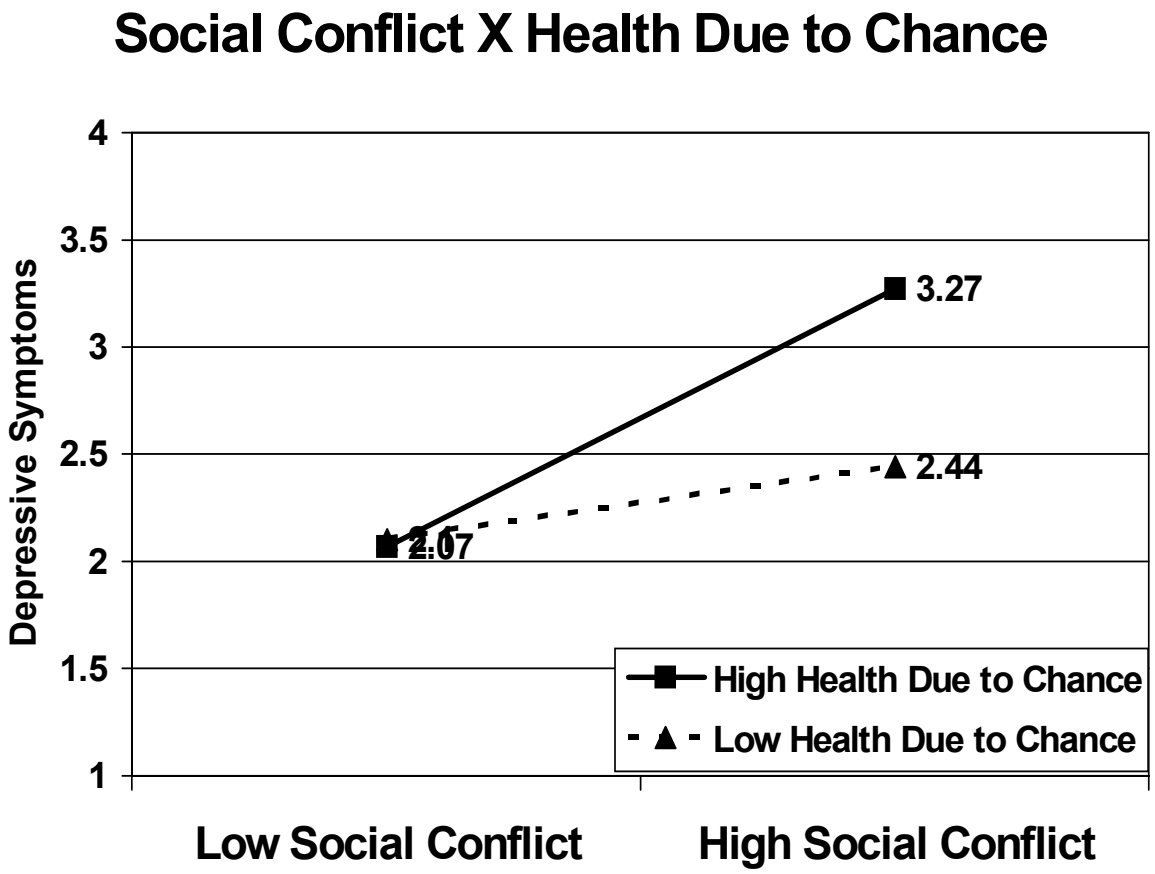


Figure 5. Distancing/Avoidant coping moderates the relationship between social support and positive affect.

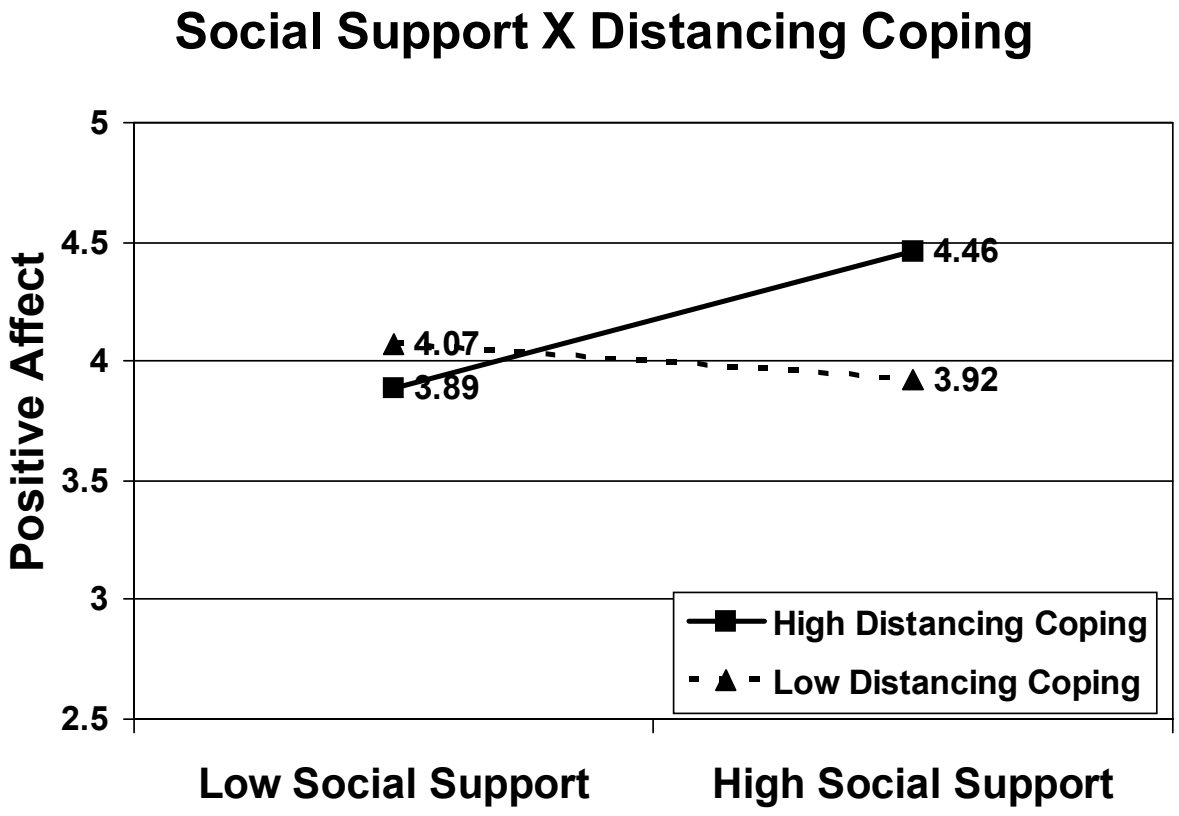


Figure 6. Support seeking coping moderates the relationship between social support and positive affect.

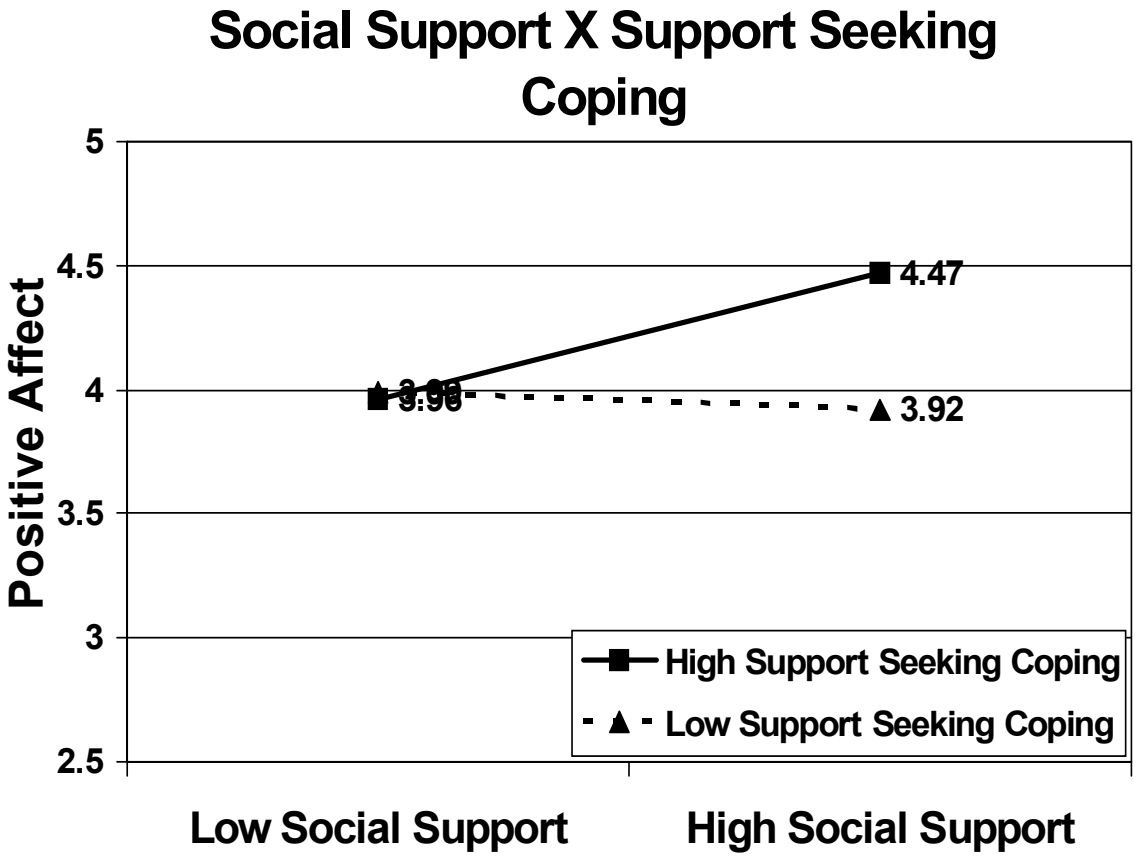
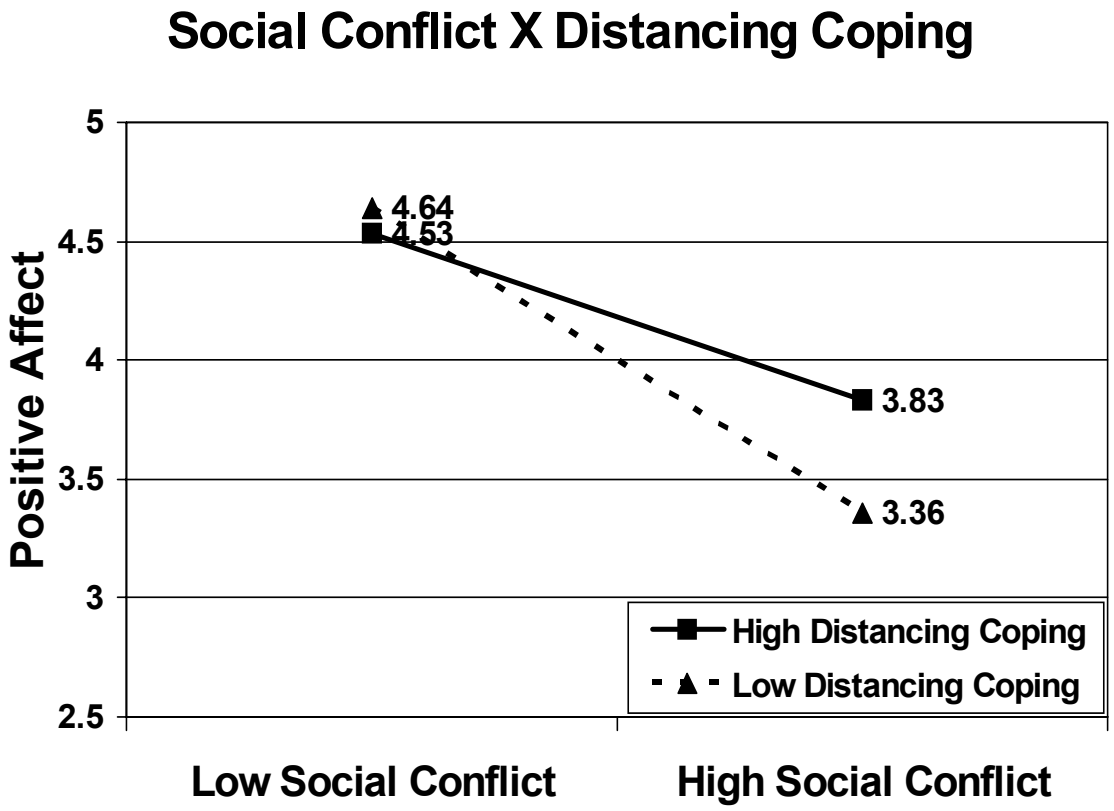


Figure 7. Distancing/Avoidant coping moderates the relationship between social conflict and positive affect.



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