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The Stress Moderating Role of Benefit Finding on Psychological Distress and Well-Being Among Women Living with HIV/AIDS

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Abstract

This study examines whether the perception of having experienced growth as a result of a stressful event, often termed benefit finding, moderates the effects of stress (both physical symptomatology and social conflict) on psychological distress and well-being. For this cross-sectional study, an ethnically diverse sample ($N=138$) of women living with HIV/AIDS completed a series of self-report measures. Hierarchical regression analysis demonstrated that physical symptoms, social conflict, and benefit finding were associated with psychological distress and positive affect, even after controlling for social support, locus of control, and demographic confounds. Significant interactions revealed that among women with a high number of HIV-related physical symptoms, benefit finding moderated the negative effects of physical symptoms on both depressive and anxious symptoms. Benefit finding was not found to moderate the effects of social conflict. These findings suggest a potential mechanism (i.e., stress buffering) by which benefit finding could promote psychological adjustment. Further, the finding that benefit finding only moderated the growth-inducing stressor (e.g., the illness), but not the effects of other stressors (e.g., social conflict), suggests possible limits to the stress-buffering role of benefit finding.

Keywords

stress-related growth; benefit finding; social support; social conflict; locus of control; depression; anxiety; positive affect; stress-buffering

INTRODUCTION

Although women comprise only 22% of those currently living with AIDS in the United States, in recent years they have accounted for 27% of new AIDS diagnoses and 30% of newly diagnosed HIV infections (CDC, 2005), foreshadowing a growing number of women living with HIV/AIDS in the coming years. Research has consistently documented that many of these women experience significant depression, anxiety, and low levels of positive affect. Two large multi-site studies provide the best evidence to date of the high prevalence of depressive symptoms among HIV-infected women. The HIV Epidemiology Research Study ($N = 765$; Ickovics et al., 2001) found that 77% of HIV-infected women reported intermittent or chronically high levels of depressive symptoms over time. In addition, the Women's Interagency HIV Study ($N = 1993$; Richardson et al., 2001) identified 58% of HIV-infected women as probable cases of clinical depression (e.g., CES-D scores ≥ 16). Smaller studies have documented a similar prevalence (56 - 61%) depressive symptoms (e.g., Catz, Gore-Felton, &

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McClure, 2002; Siegel, Karus, Raveis, & Hagen, 1998; Simoni & Cooperman, 2000; Updegraff, Taylor, Kemeny, & Wyatt, 2002). In contrast, only 21% of population-based community samples (age 18+) have been found to report this level of depressive symptoms (Radloff, 1977). Similar findings have been noted with anxiety and positive affect. For example, 29% of HIV positive women report clinically significant anxiety (Updegraff et al., 2002). Further, HIV-positive women report anxiety levels well above, and positive affect levels well below, the general population (Catz et al., 2002; Siegel et al., 1998). Given the high prevalence of depressive symptoms, anxious symptoms, and low levels of positive affect among women living with HIV/AIDS and the growing number of women who are living with HIV/AIDS, research is needed to identify factors which contribute to their psychological adjustment.

Despite the well documented adverse psychological impact of AIDS, there is growing evidence that many HIV-infected individuals may find benefits in or grow from their illness experience (e.g., Dunbar, Mueller, Medina, & Wolf, 1998; Milam, 2004; Schwartzberg, 1993; Siegel & Schrimshaw, 2000; Updegraff et al., 2002). The perception of such benefits, often termed 'benefit finding,' is prevalent, with 73 - 83% of HIV-infected individuals in different studies reporting at least one positive change or benefit from their illness (Dunbar et al., 1998; Schwartzberg, 1993; Siegel & Schrimshaw, 2000). These perceptions of benefits need not necessarily reflect a denial of the negative aspects of the illness, but rather individuals may simultaneously acknowledge both the adverse consequences and find benefits in the situation (Siegel & Schrimshaw, 2000). Indeed, Updegraff et al. (2002) found that HIV-infected women perceived significantly more positive changes than negative changes in their lives due to their illness. The different kinds of positive changes HIV-infected women have reported include spiritual growth, improved interpersonal relationships, improved views of themselves, greater life appreciation, and improved health behaviors (Siegel & Schrimshaw, 2000). Further, HIV-positive women report more benefit finding than HIV-positive men (Milam, 2004). Similar kinds and frequencies of perceived benefits have also been noted among various other patient and trauma populations (see Linley & Joseph, 2004 for review).

Although considerable research has focused on identifying the factors which promote positive changes or growth following stress and illness (e.g., Abraido-Lanza, Guier, & Colon, 1998; Collins, Taylor, & Skokan, 1990; Frazier, Tashiro, Berman, Steger, & Long, 2004; Manne, Ostroff, Winkel, Goldstein, Fox, & Grana, 2004; Park, Cohen, & Murch, 1996; Siegel, Schrimshaw, & Pretter, 2005; Tedeschi & Calhoun, 1996; see Linley & Joseph, 2004 for review), far less attention has been directed at understanding the potential adaptational consequences of perceiving benefits. A number of researchers have conceptualized the perception of benefits as a cognitive coping strategy in which individuals reappraise the stressor as one that is not entirely negative (i.e., it also resulted in benefits; Aldwin, 1994; Davis, Nolen-Hoeksema, & Larson, 1998; Lazarus & Folkman, 1984; Park & Folkman, 1997) and that this benefit finding can serve to promote or preserve psychological well-being. In addition, others (Affleck & Tennen, 1996; Tennen & Affleck, 1999) have argued that the active seeking of benefits or reminding oneself of benefits attained are also cognitive coping strategies. Similarly, the perception of benefits has also been conceptualized as part of the search for meaning (Taylor, 1983) or as a 'positive illusion' (Taylor & Brown, 1989). Regardless of whether conceptualized as a cognitive coping strategy or a defensive illusion, benefit finding may serve to facilitate or maintain psychological adjustment to stress and illness.

The empirical studies that have examined the relationship of benefit finding and adaptation to stress and illness have yielded somewhat inconsistent results. A number have found that benefit finding is cross-sectionally associated with lower levels of distress (Katz, Flasher, Cacciapaglia, & Nelson, 2001; Updegraff et al., 2002) or longitudinally associated with decreased distress over time (Carver & Antoni, 2004; Davis et al., 1998; Frazier, Conlon, &

Glaser, 2001; Milam, 2004).¹ Other studies, however, have failed to identify a significant relationship between benefit finding and distress either cross-sectionally (Cordova et al., 2001; Lehman et al., 1993; Park & Fenster, 2004) or over time (Danoff-Burg & Revenson, 2005; Sears, Stanton, & Danoff-Burg, 2003; Tennen, Affleck, Urrows, Higgins, & Mendola, 1992). Inconsistencies have also been within individual studies. For example, benefit finding has been longitudinally associated with more positive outcomes (e.g., positive affect), but not associated with negative outcomes (e.g., negative affect) among multiple sclerosis (MS) patients (Pakenham, 2005). In contrast, Carver and Antoni (2004) found that benefit finding was longitudinally associated with lower levels of negative affect and depression, but were unrelated to positive affect among breast cancer patients. Further inconsistency is demonstrated by a cross-sectional study that found benefit finding was correlated with higher levels of anxiety and anger but not depression among MS patients (Mohr et al., 2001). These inconsistent findings do not appear to be due to differences in the methods of assessing benefit finding (e.g., yes/no assessments from coded interview texts, counts of the number of benefits within texts, standardized measures using summated rating scales), given that each method has yielded significant and nonsignificant findings.

One potential explanation for the absence of significant relationships in several studies may be that the relationship between benefit finding and psychological distress may be contingent upon the severity of the illness or stressor. For example, high levels of benefit finding may be beneficial only for those with severe illness (i.e., high stress), but have little consequence for those with less illness severity (e.g., a stress-buffering effect). Indeed, if benefit finding moderated the effects of stress on psychological distress, then nonsignificant main effects could be expected (see Baron & Kenny, 1986 for further elaboration). Only five studies, also yielding inconsistent findings, were identified which have examined the potential moderating role of benefit finding on psychological distress. Two longitudinal studies, one of arthritis patients (Tennen et al., 1992) and one of breast cancer patients (Carver & Antoni, 2004) failed to find a significant interaction between benefit finding and disease characteristics (i.e., pain, disease stage) on subsequent affective outcomes. Three other studies have found significant interactions between benefit finding and stress or illness. However, the pattern of these interactions were dramatically different. An interaction between the perception of benefits and a greater severity of stressor exposure was found to longitudinally predict *improved* psychological adjustment over time among disaster survivors (McMillen, Smith, & Fisher, 1997). Similarly, an interaction between benefit finding (in family relationships) and greater perceived stressfulness of MS was longitudinally associated with lower levels of distress (Pakenham, 2005). In contrast, a study of breast cancer patients found that the interaction between high levels of benefit finding and more severe disease stage was longitudinally associated with *poorer* mental health and *higher* negative affect over time (Tomich & Helgeson, 2004).

These inconsistent findings and the small number of studies that have examined the moderating role of benefit finding suggest the need for greater research in this area. In addition, much of the research on benefit finding is limited by samples that lack ethnic/racial diversity. The current study seeks to address these limitations by examining the potential direct and moderating effects of benefit finding on psychological distress and well-being among an ethnically diverse sample of women living with HIV/AIDS. Consistent with the conceptualization of benefit finding as a cognitive coping strategy, we hypothesize that benefit finding will moderate the association between stressors and psychological distress. Further, in order to examine whether benefit finding moderates the effects of stress in general or only

¹Additional studies (e.g., Affleck, Tennen, Croog, & Levine, 1987; Bower, Kemeny, Taylor, & Fahey, 1998; Cruess et al., 2000) have identified an association between benefit finding and physical health (e.g., mortality, immune function) but are not reviewed here because of the present study's focus on psychological adjustment.

moderates the effects of just the growth-initiating stressor (i.e., HIV), we examine two types of stressors: one HIV-specific (i.e., physical symptoms) and another prevalent but not HIV-specific social stressor (i.e., social conflict). Finally, because benefit finding is just one of many psychosocial resources which promote psychological adjustment (and because these resources may also promote benefit finding itself), the current study examines whether benefit finding is associated with adjustment even after controlling for other individual (i.e., perceptions of health control) and social (e.g., social support) resources.

METHOD

Participants

A sample of 138 HIV-infected women participated in a study that examined their psychosocial adaptation to living with HIV/AIDS. Women were recruited via flyers posted in community-based organizations (CBOs) that serve HIV-infected individuals, through announcements placed in the newsletters of these CBOs, through advertisements in local newspapers, and in some instances through referrals from other participants. Potential participants were asked to contact the researchers using a telephone number provided. When they called, women were screened for eligibility. Women were eligible to participate if they: 1) reported being HIV-infected; 2) resided in the New York City metropolitan area; 3) were age 20 - 50; 4) were African American or White, they must be born in the US and non-Hispanic, or if they were Latina, they must be Puerto Rican and resided in the US for at least 4 years; 5) completed an eighth grade education; and 6) had not injected drugs in the past 6 months. In an effort to accrue similar numbers of African American, Puerto Rican, and White women, sampling quotas were imposed. Within each racial/ethnic group, cases were further sampled to achieve similar distributions of disease stage (i.e., asymptomatic, symptomatic, AIDS).

Procedure

All participants met with a female clinical interviewer for three sessions. Written informed consent was obtained at the outset of the first meeting. Afterwards, they completed a battery of self-administered psychosocial measures. The interviewer then administered a questionnaire that elicited standardized demographic and medical history information. At subsequent meetings, women participated in a semi-structured interview to illicit qualitative data regarding the experience of living with HIV/AIDS. The data presented in this report were collected as part of this first data collection session. Participants received a total of \$75 for completing the study, as well as reimbursed for lunch, travel and, when necessary, babysitting expenses.

Measures

Psychological Distress and Well-Being—The Depression, Anxiety, and Positive Affect subscales of the Mental Health Inventory (MHI; Viet & Ware, 1983) were used to assess psychological adjustment. The MHI is a 38-item measure of both psychological distress and well-being, which has been widely used in medically ill populations (Kornblith et al., 2001; Manne & Glassman, 2000; Siegel et al., 1998). The response scale for the MHI varies by item, with most using a six-point Likert-type response ranging from 1 (*All of the time*) to 6 (*None of the time*). Respondents are asked to indicate which came closest to how they felt during the past thirty days. The Depression subscale consists of four items (e.g., how much of the time have you been low or very low in spirits) which assess frequency of depressive symptoms ($\alpha = .84$). The Anxiety subscale consists of nine items (e.g., how much of the time have you felt tense or 'high strung'?) which assess the frequency of anxious symptoms ($\alpha = .89$). The Positive Affect subscale consists of ten items (e.g., how much of the time were you a happy person?) which assess the frequency of various positive emotions ($\alpha = .92$). Scores for each subscale were computed by summing the items, such that higher scores indicated higher levels of depressive symptoms, anxious symptoms, and positive affect, respectively.

Number of HIV-related Physical Symptoms—A checklist of 27 HIV-related symptoms (e.g., fatigue, diarrhea, night sweats) assessed the number of symptoms each participant had experienced in the past six months for a period of two weeks or more due to either HIV disease itself or the side effects of antiretroviral treatment. It does not contain emotional symptoms (e.g., sadness, anxiety). This checklist has been used in a number of previous studies with HIV-infected individuals (Siegel, Karus, & Raveis, 1997; Schrimshaw, 2002). A count of the number of symptoms was computed.

Perceived Social Support and Social Conflict—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) and have been previously used with HIV-infected women (Schrimshaw, 2002). Seven items were used to assess the extent to which participants believed they had access to emotional, practical, and informational support 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 ranging from 0 (*No*), 1 (*Probably No*), 2 (*Probably Yes*), and 3 (*Yes*). Negative aspects of social relationships were assessed using six items in which participants reported how often in the past thirty days they had experienced various social conflicts, 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*). Scores for both measures were computed by summing the items, such that higher scores indicate higher levels of support or conflict, respectively ($\alpha = .87$ for support, $.87$ for conflict).

Health Locus of Control—The 30-item Health-Specific Locus-of-Control Questionnaire (HLC; Lau & Ware, 1981) was used to assess health locus of control beliefs with factors of self-control, physician-control, and chance using a seven point response scale ranging from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). However, a principal components factor analysis of the measure on the current study data identified a different structure, with factors of perceived controllability of health (by self and physician), perceived uncontrollability of health (by self and physician), and health is due to chance. The current study used the seven item perceived control over health factor (e.g., I have a lot of confidence in my ability to cure myself once I get sick) and the three item chance factor (e.g., Whether or not people get well is often a matter of chance). Given the conceptual uncertainty of how perceived uncontrollability differed from perceived controllability, the perceived uncontrollability factor was not used in the current study. The mean item scores were computed, with higher scores indicating greater perceptions of control over health ($\alpha = .66$) or greater perceptions that health is due to chance ($\alpha = .56$).

Benefit Finding—The extent to which participants found benefits in their illness experience was assessed using a modified version of the Psychological Thriving Scale (Abraido-Lanza et al., 1998). This 24-item measure is largely comprised of items from the Stress-Related Growth Scale (Park et al., 1996) which were modified based on qualitative data from chronically ill Latinas in New York City (Abraido-Lanza et al., 1998). The investigators further modified the scale for the current study based on qualitative work on perceived benefits among HIV-infected women (Siegel & Schrimshaw, 2000). Because it has been previously used and validated among an urban ethnic minority women in New York City, it was considered most appropriate measure, of those available at that time, for the current study. This measure assesses various benefits identified in the literature on benefit finding, including greater appreciation of family and friends, greater personal strength, greater religious faith, greater empathy, more positive world view, greater patience, a greater appreciation of life, and improved health behaviors. Participants were asked to indicate the degree to which they experienced each benefit as a result of their illness using a 5-point response scale ranging from 0 (*this has not happened to me*) to

4 (*a great deal*). Consistent with the original use of this measure (Abraido-Lanza et al., 1998), an exploratory principal components factor analysis with oblique rotation on the current study sample identified four factors with eigenvalues greater than one. An examination of the scree plot suggested one major factor (Eigenvalue = 11.15) and three lesser factors with eigenvalues less than two. However, as in earlier research, the items did not load on these factors in a conceptually meaningful way. Further, the four factors were highly correlated ($r > .40$) and the full measure demonstrated exceptional internal consistency ($\alpha = .95$). Indeed, when a single factor was imposed in a second factor analysis, all items loaded on this single factor with factor loadings greater than .45. Based on this, and other recent psychometric work with this measure demonstrating a single factor solution (Joseph, Linley, & Harris, 2005), benefit finding was computed as a unitary construct. The mean of the 24 items was computed, with higher scores indicating more perceived benefits.

Data Analysis

Potential demographic and medical covariates were examined for their bivariate association with all other independent variables, as well as the three dependent variables, using Pearson correlations or ANOVA (and post-hoc analysis using Tukey's HSD). The bivariate correlations between the independent variables and the dependent variables were examined using Pearson correlations as well as partial correlations which examined the same associations after controlling for the previously identified demographic covariates. The examination of the potential moderating role of benefit finding (not to be confused with the potential mediating role, see Baron & Kenny, 1986 for elaboration of this distinction) was guided by the conceptual and statistical work on statistical interaction effects as the appropriate test of moderation (e.g., Aiken & West, 1991; Baron & Kenny, 1986; Cohen & Cohen, 1983). Multivariate associations between a common set of independent variables on each of the three dependent variables were examined using a series of hierarchical linear regression equations. Regression models were specified such that demographic controls were entered on the first step, followed by three sets of main effects (i.e., stressors, psychosocial resources, and benefit finding), and the interaction terms entered last. Variables were mean centered prior to the computation of interaction terms to reduce multicollinearity (Cohen & Cohen, 1983). Interaction terms which resulted in significant increase in explained variance (ΔR^2) had the slope of the predicted regression lines plotted using one SD above the mean and one SD below the mean as sample values. As recommended by Aiken and West (1991), post-hoc analyses were conducted to determine that the slopes of the regression were significantly different from zero and from each other. Because the study includes a number of independent variables as well as multiple dependent variables, we employed procedures described by Cohen and Cohen (1983) to control for Type I error in the hierarchical linear regression analyses. Specifically, we required that the F test for the each individual step of the hierarchical regression be statistically significant (i.e., a significant increase in R^2), prior to examining the significance of the individual t tests.

RESULTS

Sample Characteristics

The demographic and illness-related characteristics of the sample are presented in Table 1. Women were between 22 and 48 years of age ($M = 37.6$ years). The sample was comprised of approximately equal numbers of African American, Puerto Rican, and White women. Two-thirds reported a high school education or less and half reported incomes less than \$10,000. Nearly one third of the women reported a history of injecting drug use and over half had been diagnosed with AIDS. On average, women had been living with HIV/AIDS for over seven years and had a self-reported CD4 cell count of 327. Approximately a third of the sample were currently taking antiretroviral therapy containing protease inhibitors and a third had in the past

but were no longer taking protease inhibitors. The sample means and standard deviations of the psychosocial variables are presented in Table 2.

Demographic Covariates

Prior to the examination of stressors, psychosocial resources, and benefit finding as predictors of psychological distress and well-being, we examined race/ethnicity, education, income, age, injecting drug use (IDU) history, self-reported CD4 cell count, and antiretroviral treatment as potential covariates. Several significant relations were identified, indicating the need to control for race/ethnicity, income, and drug use history. Age, education (high school graduate or more vs. less than a high school education), self-reported CD4 cell count, and use of antiretroviral treatment were not significantly correlated with any of the study variables and so were not included in subsequent analyses.

In bivariate associations, race/ethnicity was found to be significantly associated with perceived control over health, $F(2,134) = 4.02, p < .05$, perceptions that health is due to chance, $F(2, 134) = 6.37, p < .01$, and positive affect, $F(2, 135) = 5.54, p < .01$. Post-hoc analyses revealed that Puerto Rican women perceived themselves as having greater control over their illness ($M = 5.56, SD = 0.83$) than White women ($M = 4.95, SD = 0.99$). Further, Puerto Rican ($M = 3.55, SD = 1.46$) and African American women ($M = 3.55, SD = 1.61$) were more likely to view their health as due to chance than White women ($M = 2.56, SD = 1.20$). Finally, African American women reported higher levels of positive affect ($M = 40.23, SD = 10.14$) than either Puerto Rican ($M = 35.17, SD = 10.63$) or White women ($M = 33.76, SD = 8.71$). There were no significant ethnic/racial differences on measures of social support, social conflict, physical symptoms, benefit finding, anxious symptoms or depressive symptoms.

Bivariate comparisons between women with household incomes less than \$10,000 and those with higher incomes revealed differences on social support, $F(1, 136) = 11.40, p < .01$, perception of health due to chance, $F(1, 135) = 7.72, p < .01$, and the number of physical symptoms, $F(1, 136) = 7.83, p < .01$. Lower income women reported less social support ($M = 22.35, SD = 4.89$) than women with higher incomes ($M = 24.83, SD = 3.61$). Women with lower incomes were more likely to view their health as due to chance ($M = 3.62, SD = 1.60$) than those with higher incomes ($M = 2.91, SD = 1.32$). Finally, women with lower incomes reported more physical symptoms ($M = 12.03, SD = 6.25$) than women with higher incomes ($M = 9.14, SD = 5.85$). There were no significant income differences in reported levels of social conflict, perceived control, benefit finding, anxious or depressive symptoms, or positive affect.

Finally, women with an IDU history (since 1977) reported significantly lower levels of positive affect ($M = 33.95, SD = 10.75$) than women with no history of drug use ($M = 37.94, SD = 9.86$), $F(1, 136) = 4.51, p < .05$. History of IDU was not significantly associated with social support, social conflict, perceived control, chance perceptions, physical symptoms, benefit finding, anxious or depressive symptoms.

Bivariate Associations

Pearson correlation coefficients and partial correlations (which control for race/ethnicity, income, and history of injection drug use) are presented in Table 2. Nearly identical results were found in both the bivariate and partial correlations. Higher levels of social conflict and more HIV-related physical symptoms were each correlated with more depressive and anxious symptoms and less positive affect. Higher levels of social support and benefit finding were correlated with fewer depressive symptoms, fewer anxious symptoms, and greater positive affect. Finally, a greater perception that health is due to chance was correlated with more depressive symptoms and anxious symptoms, but not positive affect. Perceptions of control over health were not significantly correlated with indicators of psychological adjustment.

Multivariate Associations

A series of three hierarchical regression models were used to examine the psychosocial factors associated with depressive symptoms, anxious symptoms and positive affect. Results of these models are presented in Table 3. Controls for potential demographic confounds (i.e., race/ethnicity, income, and history of IDU) were imposed in step 1 of all regression models. Although only marginally significant ($p < .10$), Puerto Rican women were found to report more depressive symptoms than White women. Similarly, African American women reported significantly more positive affect than White women. Women with incomes under \$10,000 were found to report significantly more anxious symptoms than those women with higher incomes.

Physical and social stressors, entered as the second step of the model, were both strongly associated with psychological adjustment. More physical symptoms was significantly associated with more depressive symptoms and more anxious symptoms, but was not with positive affect. Greater social conflict was associated with more depressive and anxious symptoms, and with less positive affect.

The psychosocial resources of social support and locus of control, entered as the third step in the model, were inconsistently related to psychological adjustment. Higher levels of social support were associated with more positive affect. A greater perception of control over health (either internal or external) was unrelated to psychological adjustment; however, greater perceptions that health is due to chance was significantly associated with greater anxious symptoms and was marginally associated with greater depressive symptoms.

After controlling for all other psychosocial and demographic characteristics, benefit finding was entered as the fourth step of the regression model. Benefit finding was found to be significantly associated with psychological adjustment even after imposing controls for demographic factors, stressors, and other psychosocial resources. Greater perception of benefits was associated with fewer depressive symptoms and more positive affect, but was not significantly associated with anxious symptoms.

Stress Moderation Effects of Benefit Finding

In order to examine the potential stress-moderating effects of benefit finding, two interaction terms were computed: 1) benefit finding by physical symptoms, and 2) benefit finding by social conflict. All variables were mean centered prior to computing the interaction terms (Cohen & Cohen, 1983). Interaction terms were entered into the fifth step of the hierarchical regression model (see Table 3). The interaction between benefit finding and physical symptoms significantly predicted both depressive symptoms, $\Delta R^2 = .02$, F change (1, 124) = 4.99, $p < .05$, and anxious symptoms, $\Delta R^2 = .03$, F change (1, 124) = 5.53, $p < .05$. The interaction between benefit finding and social conflict was nonsignificant. The complete model, including demographic controls, main effects for stress, psychosocial resources, and benefit finding, and the interaction terms, was found to explain 58% of the variance in depressive symptoms, F (12, 123) = 14.35, $p < .001$, 44% of the variance in anxious symptoms, F (12, 123) = 8.19, $p < .001$, and 62% of the variance in positive affect, F (12, 123) = 16.97, $p < .001$.

The plot of the regression lines from the significant interaction between benefit finding and HIV-related physical symptoms on depressive symptoms is presented in Figure 1. The plot demonstrates a classic stressor-moderating effect of benefit finding on depression. Post-hoc tests of the plotted regression slopes (following procedures outlined by Aiken and West, 1991) found that the regression slope for women with low levels of benefit finding significantly differed from that of women with high levels of benefit finding, t (12, 122) = -1.98, $p < .05$. Specifically, there was a significant positive slope among women with low levels of benefit

finding, $t(12,122) = 3.23, p < .01$, but among women with high levels of benefit finding, the slope did not differ from zero, $t(12,122) = 0.59, p > .10$. This suggests that for women with low levels of benefit finding, depression was found to increase as their number of HIV-related physical symptoms increased. However, for women with high levels of benefit finding, the levels of depressive symptoms were not associated with physical symptoms. Only when women reported high level of physical symptoms but low levels of benefit finding were depressive symptoms predicted to be above the sample mean.

The plot of the regression slopes for the significant interaction between benefit finding and HIV-related physical symptoms on anxious symptoms is presented in Figure 2. This interaction also suggests, although somewhat less strongly, a stressor-moderating effect for benefit finding on anxious symptoms. Post-hoc tests of the regression slopes demonstrated that the slope was significantly greater among women with low levels of benefit finding than among women with high levels of benefit finding, $t(2, 122) = -2.13, p < .05$. However, it also demonstrated that both slopes were significantly greater than zero, $t(2,122) = 3.97, p < .01$ among women with low levels of benefit finding, and $t(12, 122) = 2.27, p < .05$ among women with high levels of benefit finding. This suggests that for women with low levels of benefit finding, more HIV-related physical symptoms were associated with more anxious symptoms. However, among women with high levels of benefit finding, the association between physical symptoms and anxiety was not as strong, suggesting that higher levels of benefit finding were protective against the negative effects of physical symptoms on anxious symptoms. Anxious symptoms above the sample mean were only predicted among women who reported high levels of physical symptoms and low levels of benefit finding.

DISCUSSION

Despite the widespread interest and examination of perceptions of growth and benefits from traumatic stressful events, few studies have examined the potential stressor moderating role of these growth perceptions on psychological adjustment to stress and illness. As hypothesized, this study found benefit finding to have both main and moderating effects on the distress and well-being of women living with HIV/AIDS, suggesting that it may serve as a protective psychosocial resource. Specifically, with regard to main effects, higher benefit finding was associated with fewer depressive and anxious symptoms and greater positive affect. Significant interaction terms suggest this association is especially true for those with high numbers of HIV-related physical symptoms. Specifically, among women who perceived few benefits, high levels of physical symptoms were associated with greater depressive symptoms and anxious symptoms. However, for women who reported greater benefit finding, physical symptoms were either unrelated or weakly related to depressive and anxious symptoms.

The finding that, as hypothesized, benefit finding was associated with lower levels of depressive and anxious symptoms for women with high levels of physical symptoms reflects a classic stress-buffering effect in which a psychosocial resource (in this case benefit finding) protects individuals in high stressor conditions from the negative effects of the stressor, but has little or no protective effect for those in low stress circumstances (because there are no negative stressor effects to protect against). As such, these data suggest that benefit finding can serve as an important protective resource above and beyond the protection offered by social support and control perceptions (which were controlled for here). This finding is consistent with a theoretical conceptualization of benefit finding as both a cognitive coping strategy and as a indication of meaning making (Davis et al., 1998; Park & Folkman, 1997; Taylor, 1983), both of which have been hypothesized to have stress-buffering properties. Yet, to date, only one previous study has identified a similar moderating effect for benefit finding (McMillen et al., 1997) and the present study is the first to identify such an interaction among chronically ill individuals. As such, these findings not only contribute important information on the role

of benefit finding in psychological adjustment to chronic stressors, but also provide information on the mechanism (stress-buffering) by which benefit finding has these beneficial effects.

Also of interest was the finding that although social conflict was an additional stress for many women and was associated with more depressive and anxious symptoms and less positive affect, benefit finding did *not* moderate the effects of social conflict. This suggests that the potential protective effects of benefit finding may not generalize across all stressors experienced. Previous studies that have examined the moderating effects of benefit finding have focused on the severity of the illness/stressor in which individuals perceived benefits (e.g., McMillen et al., 1997; Tomich & Helgeson, 2004). However, no other studies have examined the moderating role of benefit finding on other stressors – not related to the growth experience. The finding that benefit finding does not moderate these other forms of stress not specific to the illness (i.e., social conflict) provides further information about the mechanism by which benefit finding has its effect on adjustment. Specifically, these findings suggest that benefit finding is only effective in reducing the effects of stressors for which benefits are also perceived, not stress in general. Thus, for individuals with multiple stressors (such as women living with HIV/AIDS) benefit finding may not help improve psychological adjustment, because other resources may be needed to address the burden imposed by other stressors in their lives (e.g., conflict, poverty).

One finding, that HIV-positive women report high levels of depressive symptoms, yet nearly all also report at least some benefit finding or growth may seem counter-intuitive. Yet our data substantiate, these two conditions, though negatively correlated, can co-exist. Indeed, in our previous qualitative work, we have found that HIV-positive women who reported benefits did not deny the existence of negative aspects of the illness (Siegel & Schrimshaw, 2000) suggesting that the negative impact of the illness (e.g., depression) can co-exist with benefit finding. The findings from this study suggest several reasons for this. First, benefit finding appears to be a significant cognitive coping strategy that serves to help women feel less victimized by their illness, and as such, the perception of benefits may be mobilized in response to depression. Further, by effectively coping with the depression, women may grow and perceive themselves as having benefitted from the experience. In addition, just because benefit finding buffered the effects of HIV-related symptoms, does not mean that other stressors (e.g., social conflict) do not exist. The finding that benefit finding does not buffer the effects of other stressors suggests that the negative outcomes of these other stressors may continue to be present. Finally, the finding of significant stress moderating role demonstrates that not all women will benefit from finding benefits. Indeed, although nearly all women reported benefits, and most reported high levels, this moderating effect shows that the perception of one, two, or a few benefits may not be sufficient to buffer the negative effects of HIV symptoms. Rather, it is women who reported the highest levels of benefit finding (i.e., one standard deviation above an already high mean) who were found to experience stress buffering. Thus, these findings suggest that high levels of benefit finding may be required.

The finding that benefit finding had a stress-moderating effect on depressive and anxious symptoms, but a direct effect on positive affect is also interesting, although the reasons for this discrepancy are unclear. One possible reason is that because positive affect is not merely the absence of negative affect, they would be expected to be predicted by different factors. Indeed, this study provides evidence of this. Another reason benefit finding had only a main effect on positive affect may be because HIV-related symptoms were unrelated to positive affect (whereas they were associated with both depression and anxiety). As such, benefit finding may not have buffered the negative effects of HIV symptoms because there were no negative effects to buffer. Future research examining this issue by examining the associations of benefit finding on positive as well as negative affect.

One of the strengths of the current study, unlike most prior investigations of benefit finding, is the ethnic/racial diversity of this sample, which provides greater confidence that the findings are not limited to a particular ethnic/racial group. Indeed, of potential interest is the finding of significant ethnic/racial differences in positive affect, with African American women reporting higher levels than either Puerto Rican women (in bivariate analyses) and White women (in both bivariate and multivariate analyses). Indeed, these findings are consistent with previous research which has found that HIV-positive African American women report greater positive affect (Siegel et al., 1998), less negative affect (Siegel et al., 1998), and more benefit finding (Milam, 2004; Siegel et al., 2005) than women of other ethnicities. Reasons for these higher levels of psychological well-being among HIV-positive African American women are unclear given the additional burdens of poverty and racism they may experience. It is possible that African American women may have other resources, not assessed here (e.g., religiosity), that may serve to promote these high rates of positive affect. However, it should be noted that the higher levels of positive affect reported by African American women here is not an artifact of greater benefit finding, because the role of race/ethnicity was still significant after controlling for benefit finding in the regression analyses. Future research with a larger sample of women than available here would be useful to determine potential reasons (including benefit finding) explain the ethnic/racial differences in positive affect found here.

These findings have a number of implications for the clinical application to promote adjustment among HIV-positive women, as well as for interventions designed to promote benefit finding. The finding that benefit finding is associated with both lower psychological distress and greater positive affect lend further support that benefit finding may serve as an important psychological resource that may be promoted in interventions among HIV-positive women. Clinical intervention to facilitate benefit finding – either through cognitive behavioral therapy (Antoni et al., 2001; Cruess et al., 2000) or through expressive writing (Danoff-Burg, Agee, Romanoff, Kremer, & Strosberg, In press; Stanton et al., 2002) – has already proved effective in other patient populations and may be extended to HIV-positive women. Further, as suggested earlier, this study provides insight into a potential mechanism by which interventions to promote benefit finding may have their effects -- i.e., by buffering the negative effects of the illness. However, these study findings also suggest that interventions to promote benefit finding may not be universally beneficial for psychological adjustment. Specifically, these moderating findings suggest that benefit finding may be most beneficial for those with higher levels of HIV symptoms (e.g., more severe disease). Further, as noted earlier, the perception of a few benefits may be insufficient to buffer stress. Rather, interventions may need to promote high levels of benefit finding in order to buffer stress. Thus, while interventions may promote finding benefits, these benefits may translate into improved mental health for only specific subgroups of women. Further, the finding that benefit finding does not buffer the negative effects of other stressors suggest that interventions to promote benefit finding will not ameliorate distress from other causes (e.g., poverty, conflict). Future intervention research may wish to examine potential differential effects of benefit finding interventions on psychological distress.

Potential limitations of the study must be acknowledged. First, is its cross-sectional design. Without longitudinal data it is impossible to determine the temporal ordering of the variables. Thus, we cannot determine whether the benefit finding promoted greater psychological adjustment, or whether psychological adjustment in fact promoted benefit finding. Future longitudinal research which examines the moderating role of benefit finding on subsequent psychological adjustment is greatly needed. Second, the research on benefit finding is limited by the use of self-report data. As a result, it cannot be determined whether the perceived benefits reported reflect actual changes/growth or whether they are a ‘positive illusion’ or cognitive coping strategy. Given the largely internal nature of many kinds of benefit finding, independent corroboration is not always possible. However, given the importance of subjective perceptions rather than objective realities (e.g., perceived versus received social support) for psychological

adjustment, the veracity of these perceptions may be irrelevant to their effect on psychological adjustment. The study is limited by the non-randomly selected sample. By imposing quotas on the ethnic/racial composition of the sample, we achieved a more diverse sample, but it also resulted in a sample that may not generalize to the true population. Finally, these findings may not generalize to other subgroups of women living with HIV/AIDS (e.g., non-urban women, other Latina groups, etc.).

The current study was also limited by several measurement issues. First, unlike some other benefit finding research, our measure of benefit finding was not found to be multidimensional in this sample and therefore we were unable to examine whether different aspects of benefit finding may be differently related to psychological adjustment. Also, our measure of health locus of control was found to have a different factor structure in this sample from what it was originally designed to assess. The new factor structure of this locus of control measure resulted in relatively low internal consistency as well. This suggests that the measure may not be valid with this population. Finally, our stress measures (i.e., physical symptoms and social conflict) assessed the experience of these events and not participants' appraisals of these events as stressful as emphasized by a transactional model of stress and coping (Lazarus & Folkman, 1984). This may have introduced error into the measurement of stress (because not all women experiencing these stressors were negatively impacted by them because they didn't appraise the stressor as stressful) and may have reduced the association between stressor and distress.

Despite these limitations, the current study is one of very few which have examined the potential stress-moderating effects of benefit finding. As such, it provides important information on the potential mechanisms by which benefit finding has its beneficial effects and the conditions under which benefit finding may play a positive role in psychological adjustment.

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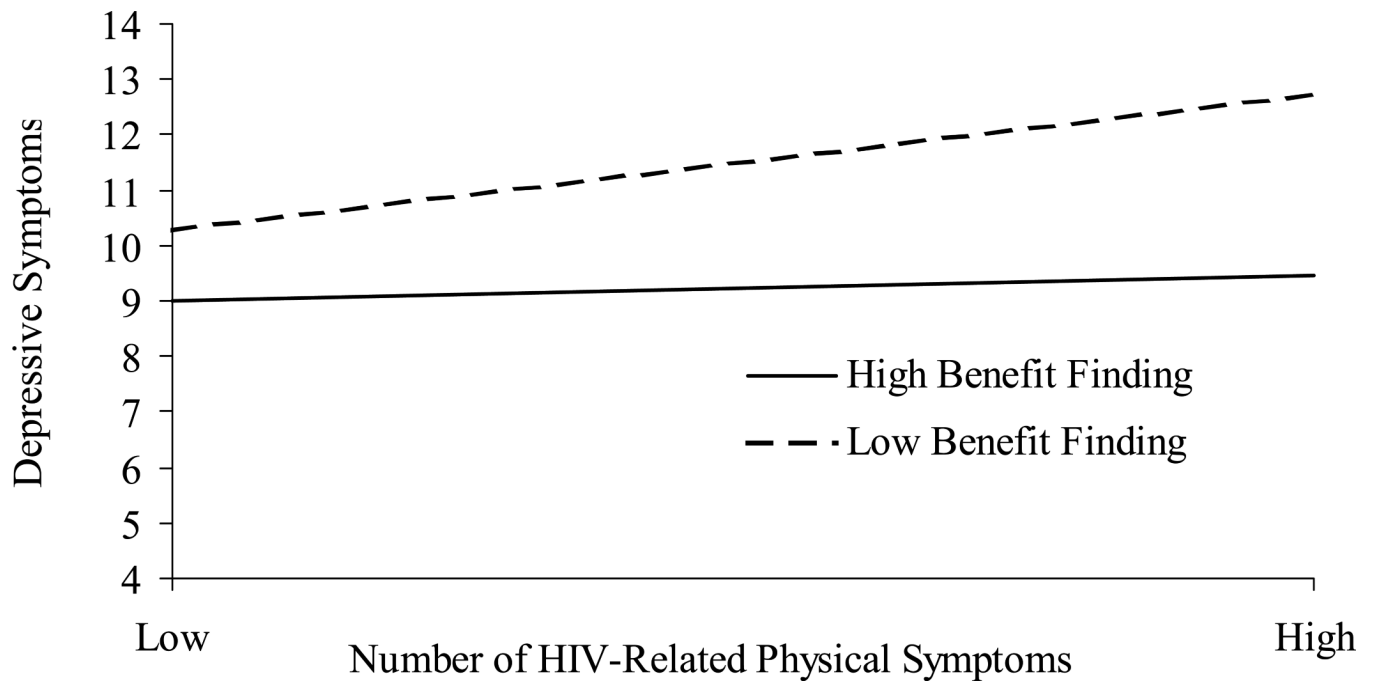


Figure 1. Interaction of benefit finding (± 1 SD) by HIV-related physical symptoms (± 1 SD) on depressive symptoms, controlling for all earlier variables.

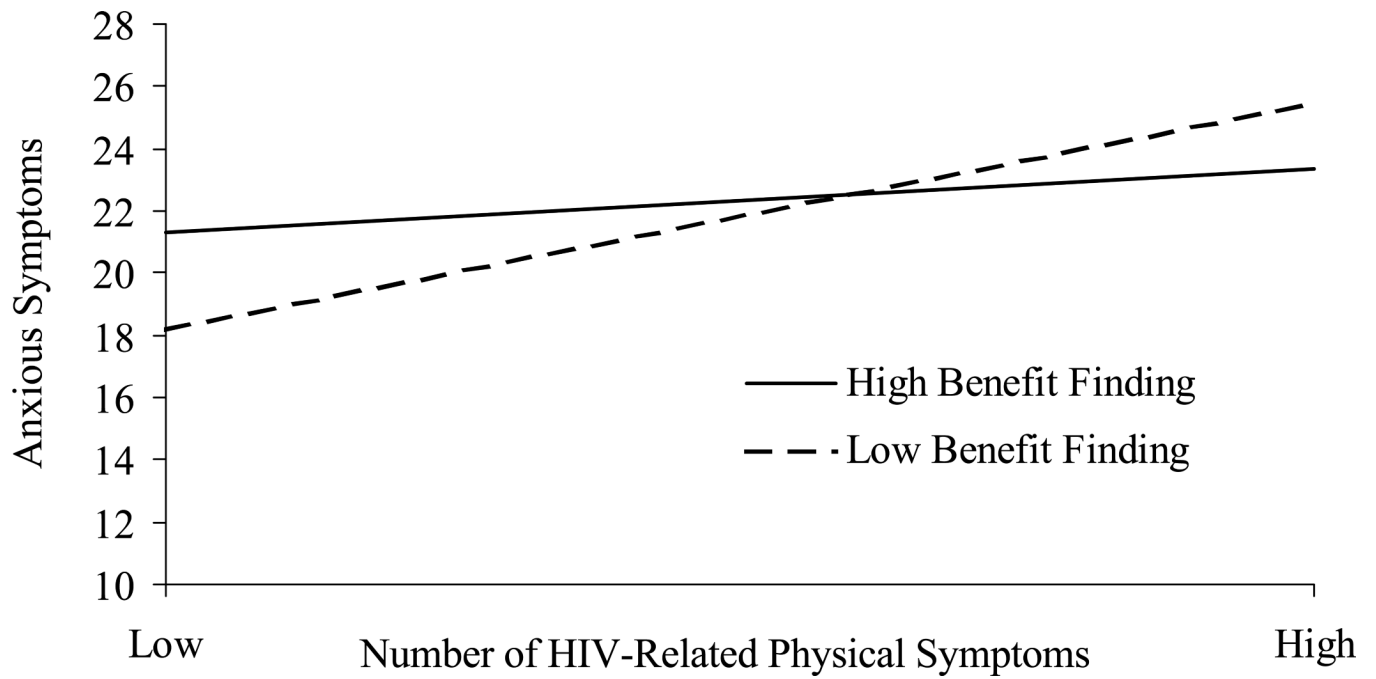


Figure 2. Interaction of benefit finding (± 1 SD) by HIV-related physical symptoms (± 1 SD) on anxious symptoms, controlling for all earlier variables.

Table 1

Demographic and Illness-related Characteristics (N = 138)

Characteristic	N	%	M	SD	Range
Age			37.6	5.2	22 - 48
Race/Ethnicity					
African American	53	38%			
Puerto Rican	47	34%			
White	38	28%			
Education					
> High School	47	34%			
High School or GED	40	29%			
Some College or Technical School	40	29%			
College Graduate	11	8%			
Income					
> \$10,000	72	52%			
\$10,000 - \$19,999	37	27%			
\$20,000 - \$34,999	15	11%			
\$35,000 or more	14	10%			
Marital Status					
Single	70	51%			
Married / Common Law	24	17%			
Separated / Divorced	35	25%			
Widowed	9	7%			
Parental Status					
Has Children	118	86%			
History of Injecting Drug Use	42	30%			
Disease Stage					
Asymptomatic	19	14%			
Symptomatic	49	36%			
AIDS	70	51%			
Antiretroviral Treatments					
Currently taking Protease Inhibitors	51	37%			

Characteristic	N	%	M	SD	Range
No longer taking Protease Inhibitors	41	30%			
Never used Protease Inhibitors	46	33%			
Most recent CD4 cell count (self-reported)			327.4	309.9	0 - 1530
Time Since HIV Diagnosis (in years)			7.3	4.0	0.33 - 17.8
Number of HIV-related Symptoms			10.6	6.2	0 - 23

Table 2
 Sample Means, Standard Deviations, Pearson Correlation Coefficients, and Partial Correlations

Variables	M	(SD)	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Depressive Symptoms	10.86	3.94	–	.74**	-.72**	.39**	.56**	-.55**	-.03	.25**	-.55**
2. Anxious Symptoms	25.61	8.36	.75**	–	-.50**	.42**	.53**	-.36**	-.01	.23**	-.25**
3. Positive Affect	36.72	10.27	-.70**	-.51**	–	-.32**	-.64**	.56**	.11	-.16	.58**
4. Number of HIV Symptoms	10.73	6.24	.39**	.42**	-.32**	–	.29**	-.34**	-.03	.04	-.14
5. Social Conflict	19.06	5.16	.58**	.54**	-.62**	.32**	–	-.38**	-.15	.13	-.42**
6. Perceived Social Support	23.41	4.55	-.55**	-.36**	.54**	-.40**	-.41**	–	.07	-.24**	.55**
7. Perceived Control over Health	5.26	1.01	-.02	-.01	.13	.01	-.13	.04	–	.32**	.20*
8. Health due to Luck/Chance	3.28	1.51	.26**	.22*	-.10	.09	.17*	-.27**	.32**	–	-.13
9. Benefit Finding	3.03	0.78	-.52**	-.24**	.58**	-.11	-.38**	.50**	.21*	-.08	–

Note: Pearson correlations are presented below the diagonal. Partial correlations controlling for race/ethnicity, income, and injecting drug use history are presented above the diagonal.

** p < .01

* p < .05

Table 3
Hierarchical Multiple Regression Predicting Psychological Adjustment among Women Living with HIV/AIDS (N = 138).

Independent Variables	Depressive Symptoms				Anxious Symptoms				Positive Affect			
	B	β	R ²	ΔR^2	B	β	R ²	ΔR^2	B	β	R ²	ΔR^2
Step 1: Demographic Controls			.06 [†]	.06 [†]			.06	.06			.09*	.09*
African American [†]	.34	.04			-2.37	-.14			5.89	.28**		
Puerto Rican [†]	1.12	.14 [†]			.52	.03			2.04	.09		
Income < \$10,000	.81	.10			2.65	.16*			-1.43	-.07		
History of Injecting Drug Use	.70	.08			.54	.03				-.03		
Step 2: Stressors			.41**	.35**			.39**	.34**			.49**	.40**
Number of HIV Symptoms	.12	.19**			.37	.28**			-.14	-.08		
Social Conflict	.26	.33**			.71	.43**			-.85	-.42**		
Step 3: Psychosocial Resources			.51**	.10**			.42**	.03			.58**	.09**
Perceived Available Support	-.11	-.12			-.02	-.01			.46	.20**		
Perceived Control Over Health	.13	.03			-.04	-.01			-.01	.00		
Health due to Chance/Luck	.33	.13 [†]			.98	.18*			-.09	-.01		
Step 4: Benefit Finding			.56**	.06**			.42**	.00			.62**	.04**
Benefit Finding	-1.49	-.29**			.35	.03			3.44	.26**		
Step 5: Interaction			.58**	.02*			.44**	.03*			.62**	.00
HIV Symptoms × Benefit	-.11	-.14*			-.28	-.17*			.08	.04		
Social Conflict × Benefit	-.05	-.05			-.11	-.05			.10	.04		

Note:

[†] White was the contrast ethnic/racial group.

** p < .01

* p < .05

[†] p < .10