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The Protective Role of the Family and Social Support Network in a Sample of HIV-Positive African American Women: Results of a Pilot Study

Michael Robbins and **José Szapocznik**
University of Miami School of Medicine

Manuel Tejeda
Barry University

Deanne Samuels, **Gail Ironson**, and **Michael Antoni**
University of Miami, University of Miami School of Medicine

Abstract

This study examined the role of family functioning and social support in protecting HIV-positive African American women from the adverse psychological consequences associated with deterioration in their CD4 cell count. Participants were 38 African American HIV-positive women who had recently given birth. Results demonstrated that changes in CD4 cell counts were inversely predictive of psychological distress and were moderated by family functioning and social support satisfaction. Women with good family functioning were less affected by changes in their CD4 cell counts, and women with poor family functioning were more emotionally responsive to changes in CD4 cell count. Unexpectedly, women from families where conflicts tended to be clearly laid out and discussed were also more responsive to both changes in CD4 cell counts. Interventions are recommended that increase a client's social support satisfaction, foster an adaptive level of connectedness to family, and enhance the family's range of conflict resolution styles.

Keywords

HIV; family; social support; African American

A recent article in *The New York Times* (B. Herbert, 2001) poignantly described the pervasive impact of HIV in the African American community. In particular, this article summarized two critical findings from the current research literature. First, AIDS is the leading cause of death for African Americans between the ages of 25 and 44. Second, more than 50% of all new HIV cases are among African Americans, even though African Americans represent just 13% of the U.S. population. These harsh facts are particularly acute in African American women, who represent one of the fastest growing HIV-infected populations in the United States, according to the Centers for Disease Control (CDC) (1994). Along with their Hispanic counterparts, Black women are overrepresented among HIV-positive women (CDC, 1994; Corea, 1992; Jenkins, Lamar, & Thompson-Crumble, 1993).

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In response to this growing epidemic, a base of research findings is beginning to emerge with HIV-positive women in general and HIV-positive African American women in particular (Demi, Bakeman, Sowell, Moneyham, & Seals, 1998; Faithful, 1997). Research is also beginning to examine the challenges encountered by HIV-positive mothers (Faithful, 1997).

The focus of this pilot study, which presents data on a sample of convenience selected from a larger prospective study, [1] was to expand the current research literature by identifying key variables in the social context of African American women that help them adjust to the stress associated with being HIV positive. More specifically, the purpose of this study was twofold: (a) to establish the relationship between average monthly change in CD4 cell count and psychological distress and (b) to determine if family functioning and social support moderated this relationship.

CD4 CELLS

CD4 cells, or helper T cells, are a particular type of lymphocyte (e.g., white blood cell), which play a key role in the functioning of the human immune system as they identify, attack, and destroy bacteria, germs, and other biological pathogens. Being a major target of the HIV virus, CD4 cells are penetrated and ultimately destroyed by the virus as it reproduces in the bloodstream. In this manner, the number of CD4 cells in the system decreases as the HIV virus progresses.

A CD4 cell count is a measure of the number of CD4 cells per cubic millimeter (mm^3) in a blood sample. The CD4 cell count is a quantitative indicator of the strength of the immune system at any given time and, if measured over time, it helps to estimate the advancement of the HIV virus and elaborate prognoses (Miller, Bor, Salt, & Murray, 1991; Perry, Fishman, Jacobsberg, & Frances, 1992). A typical CD4 cell count in a normal, relatively healthy adult ranges from 500 to 1,200 cells/mm^3. According to the criteria established by the CDC, individuals with a CD4 cell count below 200 cells/mm^3 are considered to have AIDS.

PSYCHOLOGICAL DISTRESS

The negative impact of emotional distress on immune function is well established (Antoni, August, LaPerriere, & Baggett, 1990; T. B. Herbert & Cohen, 1993; Ironson et al., 1994; Kemeny et al. 1995; Kiecolt-Glaser & Glaser, 1995). For example, Ironson et al. found that emotional distress predicted change in CD4 cell count and/or onset of symptoms. There is less research, however, on the converse relationship, that is, the effect of immune function on psychological distress. Thus, this study explored the relationship between one marker of disease progression, average monthly change in CD4 cell count, and psychological distress.

Many studies have documented individuals' psychological distress reactions (e.g., anxiety, depression) to the notification of a diagnosis of HIV-1 seropositivity (Atkinson et al., 1988; Belkin, Fleishman, Stein, Piette, & Mor, 1992; Jacobsen, Perry, & Hirsch, 1990; Jacobsen, Perry, Hirsch, Scavuzzo, & Roberts, 1988; Ostrow et al., 1989; Perkins et al., 1994). In therapeutic discussions with HIV-positive African American women, we have observed that women report similar distress reactions to notification of a reduction in their CD4 levels. This reaction is not surprising because so many of these women also made statements suggesting that they believed that CD4 counts were the best indicator of how "sick" they were. Thus, a major focus of this study was to begin to establish an empirical link between average monthly change in CD4 cell count and psychological distress. It is important to note that average

[1]The study reported here is part of a larger study in which HIV-positive and HIV-negative African American women and their families were assessed for a broad range of psychosocial variables in an effort to characterize a population of inner-city African American HIV-positive women who had recently given birth to a child.

monthly changes in CD4 cell count are viewed in this study as a stress or rather than as a biological marker.

SOCIAL SUPPORT

Researchers and clinicians are increasingly recognizing the critical "protective" role of social support in people with HIV/AIDS. For example, persons with HIV/AIDS report fewer feelings of helplessness and depression if friends or relatives are available to discuss emotional and illness-related issues (Ostrow et al., 1989; Zich & Temoshok, 1987). It should be noted that most of this research has focused on social support with gay men. To date, the role of social support with HIV-positive women has received extensive clinical and anecdotal attention (Bor, Miller, Goldman, & Scher, 1993; Boyd-Franklin, Steiner, & Boland, 1995); however, more research is needed to examine the protective role of social support with HIV-positive women.

FAMILY FUNCTIONING

Family functioning is associated with a variety of positive and negative psychological outcomes in HIV-positive populations (Boyd-Franklin, 1989; Catania, Turner, Choi, & Coates, 1992; Mellins & Ehrhardt, 1994). Moreover, the family plays a central role among African Americans (Boyd-Franklin, 1989; Franklin, 1967). For example, the family has served as a critically important source of emotional and tangible support and refuge (Boyd-Franklin, 1989; McAdoo, 1997) for African Americans who have historically faced harsh social (e.g., slavery, racism, discrimination) and economic conditions (Franklin, 1967; Sudarkasa, 1997). Thus, it is reasonable to explore its putative stress-moderating relationship on psychological distress in HIV-positive African American women.

How families react to the stress of having an HIV-positive family member may influence the psychological, emotional, and behavioral adjustment of HIV-infected women. However, in a review of the recent literature (from 1990 through 1998) on PsycLit, only one study was found that examined family functioning as a moderator of distress and immune outcome in HIV-positive African American women (Demi et al., 1998).

In general, the clinical and research literature suggests that several family interaction patterns influence how persons with HIV cope with stressful events (e.g., Hobfoll & Spielberger, 1992). For HIV-positive African American women, the dimensions of family cohesion and conflict appear to be particularly salient because of the increased likelihood that persons with HIV are isolated from important sources of familial support and that relationships within the family are frequently nonsupportive (Amaro, 1990; Minkoff & DeHovitz, 1991).

Cohesion. HIV-positive African American women are frequently cut off from their family (e.g., Aleman, Kloser, Kreibick, Steiner, & Boyd-Franklin, 1995). They often withdraw from interacting with family members because they are hypersensitive to anticipated rejection from family members or because of the shame and anger expressed by family members (Bor et al., 1993; Faithful, 1997). For HIV-positive women of color, the family is not always supportive, and the women's fears of rejection are often based on the real statements and behaviors of family members (Amaro, 1990; Minkoff & DeHovitz, 1991). Thus, this study examined the extent to which highly cohesive family relationships buffer the relationship between average monthly change in CD4 count and psychological distress in a sample of HIV-positive African American women.

Conflict. As noted above, relationships within the family are often nonsupportive (Amaro, 1990; Minkoff & DeHovitz, 1991), and family members may take out their anger and frustration on the HIV-infected woman for many reasons (e.g., frustration resulting from stigmatization, woman's lifestyle, increased responsibility in helping her care for her children).

How the family attempts to resolve conflict is considered to influence how family members cope with the stress associated with HIV (e.g., Hobfoll & Speilberger, 1992; McCubbin & Patterson, 1982). This study focused on this relationship by examining the extent to which family conflict resolution styles buffer the relationship between average monthly change in CD4 count and psychological distress in a sample of HIV-positive African American women.

HYPOTHESES

Hypothesis 1: Average monthly change in CD4 cell count will inversely predict psychological distress (i.e., depression and anxiety).

Hypothesis 2: Family functioning (i.e., cohesion and conflict resolution) will moderate the relationship between average monthly change in CD4 cell count and psychological distress. In particular, the relationship between average monthly change in CD4 cell count and psychological distress will be evident among women from families with "poor" family functioning and will not be present among women from families with "good" family functioning.

Hypothesis 3: Social support (i.e., satisfaction and network size) will moderate the relationship between average monthly change in CD4 cell count and psychological distress. In particular, the relationship between average monthly change in CD4 cell count and psychological distress will be evident among women with "low" social support, and will not be present among women from families with "high" social support.

METHOD

PARTICIPANTS

Participants were 38 third-generation African American HIV-positive women older than age 18 who had recently given birth (within 3 months of entry into study) and their families. The postpartum women were recruited from the medical clinics of a large, southeastern U.S. public hospital as part of a large prospective study (see Note [1]). Of the 112 HIV-positive women who were approached and determined to be eligible for the study, 82 agreed to participate, yielding a participation rate of 74%. Of the 82 women who consented to participate, 38 had two CD4 cell counts documented in their medical records that preceded our psychosocial assessment. The current study presents data on those 38 women.

The women were predominantly young adults (mean age = 26.9; *SD* = 5.6), unmarried or not living with a mate (72.5%), on welfare (80%), unemployed (88.7%), and with limited education, with 46.8% reporting completion of high school or the GED. The mean number of children was three, with a range from one to nine.

Each participant's family was identified using a semistructured interview (Greenwood, Hervis, Mitrani, Taylor, & Szapocznik, 1995). The woman and her family members were asked to participate in further assessments. Seventy-five percent of the family members identified by the interview participated in the family assessments. The average number of family members who participated in the assessment of family functioning was three. Table 1 presents the individuals who participated in the family assessment.

PROCEDURE

Participants and family members over age 17 signed informed consent forms after the study was fully explained to them. Minors ages 12 to 17 years provided signed assent forms. The assessment was conducted in two interviews. In the first interview, the assessor met alone with the woman to obtain demographic information and complete the social support questionnaire.

In the second interview (which occurred within 2 weeks of the first), the assessor met with both the woman and her family members. During the second interview, the woman completed the Structured Interview Guide for the Hamilton Anxiety and Depression Subscales (SIGH-AD) (Williams, 1988), and both the woman and her family members participated in a standardized family interaction task, that is, the Structural Family Systems Ratings (Szapocznik et al., 1991).

MEASURES

Measures assessed five sets of variables: demographics, average monthly change in CD4 cell count, social support, family functioning, and psychological distress.

Demographics. A 23-item questionnaire was used to obtain demographic information, including number of children and adults in the respondent's household, marital status, income, educational level, working status, and receipt of public assistance (Greenwood et al., 1994).

Average monthly change in CD4 cell count. Average monthly change in CD4 cell count was used as an indicator of disease progression (Miller et al., 1991; Perry et al., 1992). CD4 cell counts were obtained directly from participant's medical records (permission to view medical records was obtained through written informed consent). Medical records were reviewed to identify the two CD4 cell counts that preceded the first interview. To calculate the average monthly change in CD4 cell count, the difference between the two CD4 cell counts was obtained (the earlier count subtracted from the latter). The difference was divided by the number of months separating the two time points. Whether there was improvement or decline in their CD4 counts, any change in CD4 cell count was viewed as a psychological marker or "critical stimulus" in the woman's life. Thus, improvements may be associated with decreases in distress, whereas deterioration may be associated with an increase in distress.

The mean CD4 count for the first time point in the medical record was 507.82 cells/mm^3(*SD* = 276.54), with a range of 112 to 1,208. The mean CD4 count for the second time point documented in the medical record was 485 cells/mm^3 (*SD* = 285.95), with a range of 115 to 1,677. The mean for the change scores (Time Point 2 to Time Point 1) was 4.19 (*SD* = 50.33), with a range of –129.11 to 173.5. The average length of time between Time Point 1 and Time Point 2 was 10.56 months (*SD* = 13.62 months). The average length of time between Time Point 2 and the assessment for this study was 4.7 months (*SD* = 3.6 months).

Social support. The size and quality of the women's social relationships were assessed using the two subscales of the Social Support Questionnaire six-item version (SSQ6) (Sarason, Shearin, & Pierce, 1987). The first subscale, Social Network Size, assesses the number of persons in the participant's network that provide her with support on a regular basis. The second subscale, Social Support Satisfaction, measures the participant's satisfaction with the social support that she receives. In this sample, Cronbach's alpha for the Social Support Satisfaction was .67.

Family functioning. Family functioning was assessed using the Structural Family Systems Ratings (SFSR) (Hervis, Szapocznik, Mitrani, Rio, & Kurtines, 1991; Szapocznik et al., 1991). Based on the theoretical work of Minuchin (1967, 1974) and Szapocznik (Szapocznik & Kurtines, 1989), the SFSR identifies specific dimensions of structural family functioning and pathology. Resonance assesses the degree of emotional and psychological connectedness between family members and includes codes for overinvolved and underinvolved family interactions. Conflict Resolution assesses the family's characteristic style of resolving conflicts and includes codes for denial, avoidance, diffusion, emergence without resolution, and emergence with resolution. A Total SFSR score is obtained by adding the scores from each

dimension assessed by the SFSR. In this study, Resonance was used to measure cohesion, and Conflict Resolution was used to measure the family's characteristic style of resolving conflict.

The standardized procedure for eliciting family interaction consists of the administration of the Wiltwick family tasks (e.g., Minuchin, 1978), which includes instructing the family to plan a menu, discuss likes and dislikes about each other, and discuss a recent family argument. Two experienced, trained raters observed videotapes of the family's performance on these tasks, recording specific categories of interaction on a rating form. These clinical ratings were then computed and scored to provide a scaling (5-point Likert-type scale) for each of the dimensions, ranging from 1 = *very maladaptive* to 5 = *highly functional*. The intraclass correlations were acceptable: .81 for Total SFSR, .78 for Resonance, .75 for Conflict Resolution. The internal consistency (Cronbach's alpha) was .85 for the Total SFSR score and .81 for Resonance. Scores for Conflict Resolution are based on categorical ordinal ratings of family member interactions (ranging from 1 = *denial* to 5 = *emergence with resolution*). The rank ordering for these categorical ordinal ratings is based on clinical theory (Hervis et al., 1991). As a result, Cronbach's alpha was not computed for the Conflict Resolution subscale.

Psychological distress. Psychological distress was assessed using the anxiety and depression scales from the SIGH-AD (Williams, 1988). The SIGH-AD is a semistructured interview procedure used for obtaining anxiety and depression scores, based on the Hamilton rating system. Symptoms of anxiety and depression in the 7 days prior to the interview are assessed. Participants receive a score on the anxiety subscale ranging from 0 to 14, with higher scores indicating more intensity of anxiety. This range excludes items deleted from interviews of HIV-positive individuals, based on the author's adaptation for this population (Williams, 1988); the deleted items are thought to be possible confounds with HIV symptoms. On the depression subscale, the possible scores range from 0 to 24, with higher scores indicating more intensity of depressive symptoms. The depression and anxiety subscales were highly correlated (.74); thus, we computed a composite score of psychological distress by summing the two scales. Cronbach's alpha for the composite score was .78.

DATA ANALYTIC STRATEGY

The data analytic strategy for Hypothesis 1 employed a simple least squares regression to examine the relationship between average monthly change in CD4 cell count and psychological distress. Hypotheses 2 and 3, which tested family functioning (i.e., cohesion and conflict resolution) and social support (i.e., size and satisfaction) as moderators of the relationship between average monthly CD4 cell change and psychological distress, required moderated regression procedures. Based on the suggestions of Cohen and Cohen (1983) and Podsakoff and colleagues (Podsakoff, Mackenzie, Ahearne, & Bommer, 1995), each moderator variable was dichotomized into high and low subgroups. Family functioning was dichotomized based on clinical cutoffs for the cohesion and conflict scales (cutoff = 3) and Total score (cutoff = 15). Social support was dichotomized into high and low subgroups based on a median split. It is important to note, however, that the median for Social Support Satisfaction was also the mode and highest possible response (6). As a result, there was a cluster of responses at the upper end of the rating scale, which resulted in an unequal number of subjects in the high and low subgroups. Regression analyses were then conducted in each of the high and low moderator conditions. Instead of looking for significant moderator terms, which is strongly influenced by sample size (Cohen & Cohen, 1983), a moderator effect was considered to be present if two a priori conditions were met: (a) The regression coefficient (standardized beta) was significant for one moderator condition and not significant in the other moderator condition, and (b) the regression coefficients between high and low moderators were significantly different from one another at an alpha of $p < .05$.

RESULTS

Table 2 presents the data for average monthly change in CD4 cell count and psychological distress for the total sample as well as for each moderator condition examined in Hypotheses 1 and 2. Results of logistic regression analyses reported in this section provide support for the hypothesis that changes in CD4 cell count are directly (and inversely) related to psychological distress. As expected, family functioning and social support moderated this relationship. That is, aspects of a woman's social ecology played an important role in protecting her from experiencing increased distress when an indicator of her health status (e.g., CD4 cell count) changed.

Hypothesis 1: Average monthly change in CD4 cell count predicts psychological distress (i.e., depression and anxiety).

A simple regression analysis was conducted to examine if average monthly change in CD4 cell count predicted psychological distress. Results reveal that average monthly change in CD4 cell count is inversely related to subsequent psychological distress, $F(1, 36) = 5.55$, $p = .02$, $R^2 = .13$, $\beta = -.37$. That is, decreases in CD4 cell count predicted higher levels of distress, and increases in CD4 cell count predicted lower levels of distress.

Hypothesis 2: Family functioning (i.e., cohesion and conflict resolution) moderates the relationship between average monthly change in CD4 cell count and psychological distress. In particular, the relationship between average monthly change in CD4 cell count and psychological distress will be evident among women from families with "poor" family functioning and will not be present among women from families with "good" family functioning.

Having established an inverse relationship between average monthly change in CD4 cell count and psychological distress, the next analyses were designed to identify variables that might moderate this relationship. Participants' family functioning was categorized as *good* or *poor* based on median splits for the Total SFSR score. A simple regression analysis was conducted with the good and poor groups separately, using average monthly change in CD4 cell count as the predictor variable and psychological distress as the dependent variable.

TOTAL SFSR

In families with good total family functioning, average monthly change in CD4 cell count did not predict psychological distress, $F(1, 18) = 1.78$, $p = .20$, $R^2 = .09$, $\beta = -.30$. In families with poor overall family functioning, however, average monthly change in CD4 cell count was a significant predictor of psychological distress, $F(1, 13) = 7.97$, $p = .01$, $R^2 = .38$, $\beta = -.62$. Moreover, the two regression coefficients were significantly different from one another, $z = 7.23$, $p < .00$. Thus, family functioning appears to moderate the relationship between average monthly change in CD4 cell count and psychological distress.

To examine the hypotheses that family cohesion and conflict resolution moderate the relationship between average monthly change in CD4 cell count and psychological distress, a separate median split categorized families into good or poor functioning on the Resonance (i.e., cohesion) and Conflict Resolution scales. A simple regression analysis was conducted separately for each scale with the corresponding good and poor groups, using average monthly change in CD4 cell count as the predictor variable and psychological distress as the dependent variable.

RESONANCE

In families with good resonance, there was no relationship between average monthly change in CD4 count and psychological distress, $F(1, 22) = .55$, $p = .47$, $R^2 = .02$, $\beta = -.16$. However, in families with poor resonance, average monthly change in CD4 count was a significant, inverse predictor of psychological distress, $F(1, 12) = 9.28$, $p = .01$, $R^2 = .44$, $\beta = -.66$. The two regression coefficients were significantly different from one another, $z = 8.78$, $p < .00$. Thus, in families with poor resonance, decreases in CD4 cell count predicted higher levels of distress, and increases in CD4 cell count predicted lower levels of distress.

CONFLICT RESOLUTION

In families with good conflict resolution style, average monthly change in CD4 cell count was a significant predictor of psychological distress, $F(1, 29) = .8.19$, $p = .01$, $R^2 = .22$, $\beta = -.47$. However, in families with poor conflict resolution style, average monthly change in CD4 cell count was not a significant predictor of psychological distress, $F(1,5) = .01$, $p = .94$, $R^2 = .00$, $\beta = -.03$. The two regression coefficients were significantly different from one another, $z = 5.41$, $p < .00$. These results were in the opposite direction predicted in Hypothesis 2.

Hypothesis 3: Social support (i.e., satisfaction and network size) moderates the relationship between average monthly change in CD4 cell count and psychological distress. In particular, the relationship between average monthly change in CD4 cell count and psychological distress will be evident among women with "low" social support, and will not be present among women from families with "high" social support.

Two aspects of social support were examined: Social Network Size and Social Support Satisfaction. Participants were categorized into two groups based on median splits for each social support variable. For Social Network Size, the two groups were labeled *small* and *large*, and for Social Support Satisfaction they were labeled *low* and *high*. Separate simple regression analyses were conducted with these groups for each social support variable, using average monthly change in CD4 cell count as the predictor variable and psychological distress as the dependent variable. The following section reports the results of regression analyses for each social support variable.

There was no relationship between average monthly change in CD4 cell count and psychological distress in participants who reported large social networks, $F(1, 16) = 1.80$, $p = .20$, $R^2 = .10$, $\beta = -.32$, or small social networks, $F(1, 18) = 3.64$, $p = .07$, $R^2 = .17$, $\beta = -.41$. Although the two regression coefficients were significantly different from one another, $z = 1.67$, $p = .05$, the weak effect for small social networks argues against the role of network size as a moderator of the relationship between CD4 cell count and psychological distress.

Among participants with high Social Support Satisfaction, no relationship was observed between average monthly change in CD4 cell count and psychological distress, $F(1, 24) = 1.56$, $p = .22$, $R^2 = .06$, $\beta = -.25$. Among participants who reported low Social Support Satisfaction, average monthly change in CD4 cell count predicted increased psychological distress, $F(1, 10) = 5.17$, $p = .05$, $R^2 = .34$, $\beta = -.58$. The two regression coefficients were significantly different from one another, $z = 7.46$, $p < .00$. Thus, Social Support Satisfaction seems to moderate the relationship between average monthly change in CD4 cell count and psychological distress.

DISCUSSION

The relatively small sample size and the fact that this was a sample of convenience limits the confidence in making strong statements about generalizability. Considering this limitation, however, the results of this pilot study have important implications for understanding the psychosocial consequences of HIV infection in inner-city low-income African American

women. Consistent with the results of Ironson and colleagues (1994), these preliminary findings demonstrated that psychological distress was inversely related to average monthly change in CD4 cell count. It should be noted that most other studies in the literature have sought to predict CD4 cell change from psychological distress, whereas in this study CD4 cell change was viewed as a critical stimulus that preceded the measures of psychological distress collected during the postpartum period. Specifically, women with greater decreases in CD4 cell count showed more psychological distress, whereas those with greater increases in CD4 cell count showed less psychological distress.

It should be noted that this study does not provide definitive answers about the relationship between average monthly change in CD4 cell count and psychological distress. For example, in this study, it is not clear whether it was the women's knowledge of the change in CD4 count that influenced distress. It is also possible that the change in CD4 count influenced some unaccounted-for biological/physiological variable that in turn influenced psychological distress.

FAMILY FUNCTIONING AND SOCIAL SUPPORT AS MODERATERS

A second major finding of this study was that both family functioning and social support satisfaction moderated the relationship between average monthly change in CD4 count and psychological distress. With respect to family functioning, however, there was a complex relationship between specific aspects of family functioning, average monthly change in CD4 cell count, and psychological distress.

Family functioning—total. For women from families with poor family functioning, there was an inverse relationship between average monthly change in CD4 cell count and psychological distress. In particular, declines in CD4 cell count predicted higher levels of psychological distress, and increases in CD4 cell count predicted lower levels of psychological distress. One possible explanation for this pattern of results is that African American women with poor family functioning are more emotionally responsive to events such as changes in CD4 cell count. As a result, they may be more susceptible to be influenced by both positive and negative stimuli. Women from families with good total family functioning, however, may be less likely to be influenced by their CD4 count, whether the CD4 count is increasing or decreasing. It is possible that women from families with good family functioning benefit from having more stability in their lives, and, consequently, are less susceptible to change, whether it be positive or negative.

Family functioning—resonance. Similar to the findings for the Total SFSR score, findings among women in families with poor resonance showed a significant relationship between average monthly change in CD4 cell count and psychological distress. In particular, average monthly change in CD4 cell count was significantly and inversely related to psychological distress. No relationship between average monthly change in CD4 cell count and psychological distress was observed among women in families with good resonance. Thus, the same pattern that was observed for the Total score was observed for the Resonance scale. In families with poor resonance, decreases in CD4 cell count preceded greater levels of psychological distress, whereas increases in CD4 cell count preceded lower levels of psychological distress. As discussed above, women from families with poor family functioning, in this case resonance, appear to be more susceptible to being influenced by external stimuli—both positive and negative. This finding is consistent with the results of Demi et al. (1998), who demonstrated that family cohesion moderated the relationship between suicidal thoughts and number of HIV-related symptoms.

What exactly does resonance mean? Good resonance involves a clear, yet flexible articulation of interpersonal boundaries within the family. In contrast, disturbances in resonance can take

the form of deviations on either side of "adaptive," that is, the form of either overinvolvement at one extreme or lack of connectedness at the other. To further understand the type of poor resonance in this sample, specific resonance items were examined to determine if there was a preponderance of overinvolvement or lack of connectedness that might account for the results. The results of these analyses revealed that the full range of disturbance patterns in resonance were represented in this sample, with no one pattern predominating. Some families were overinvolved, some were uninvolved, and some presented a combination of overinvolved and uninvolved relationships.

Family functioning—conflict resolution. Surprisingly, the pattern of results for the Conflict Resolution scale was in the opposite direction from that observed for the Total SFSR and Resonance scales. In particular, there was a significant relationship between average monthly change in CD4 cell count and psychological distress in women from families with good scores on the Conflict Resolution scale. No relationship was observed in women from families with poor scores on the Conflict Resolution scale.

To interpret the meaning of this finding, it is essential to understand the meaning of good and poor Conflict Resolution scores. The Conflict Resolution scale assesses the family's style of responding to differences of opinion (i.e., disagreements). The family is rated from 1 = *very poor functioning* to 5= *healthy, adaptive functioning*. Low scores indicate that the family's style of responding to differences tends to involve more denial or avoidance, whereas high scores indicate that the family tends to respond by engaging in discussions about the disagreement.

In this sample, women from families with good Conflict Resolution scale scores (e.g., emergence into conflict) demonstrated the same pattern that was observed among the women with poor Total and Resonance scores. That is, in this group, declines in CD4 cell count predicted more psychological distress, whereas increases in CD4 cell count predicted less psychological distress. Hence, a conflict resolution style where problems are clearly laid out and discussed seems to be adaptive when medical changes are in a desirable direction, but it may be related to distress when the changes are in an undesirable direction. In contrast, for women whose families tended to avoid and deny problems, medical changes do not appear to influence the woman's level of psychological distress. Thus, while women in these families do not experience the psychological benefits of positive medical changes, they seem to be "better defended" against negative changes in medical conditions. The conclusion is that denial and avoidance may be a better family coping strategy when medical deterioration is taking place but that conflict emergence and discussion may be a better family coping strategy when the woman's medical condition is improving. However, it should be noted that in our already small sample, there were only 7 women who were classified as having poor conflict resolution. Hence, given the very small size of this sample, the findings in this regard should only be considered suggestive and require further testing with larger samples.

Family functioning—conclusions. This study provides evidence that supports social and clinical theories about the important role of the family as a moderator of psychological distress with African American women. This study identified some areas of family functioning that appear to play a critical role in moderating distress. First, there needs to be a certain precision in the closeness and/or distance between family members. Excessive overinvolvement and excessive lack of connectedness are deleterious. In other words, there is a range of moderate closeness among family members that appears to have beneficial effects for the HIV-positive women in this study.

Similarly, considerable precision in conflict resolution style is needed to obtain the most desirable results in the woman's psychological adjustment. As has been argued elsewhere

(Szapocznik & COSSMHO, 1994; Szapocznik & Kurtines, 1989), contrary to popular belief, consistent handling of conflict through discussion and resolution of differences may be a mental health ideal but may not be the most adaptive manner to handle all conflict all of the time. Adaptive behavior requires that the family (and individuals within the family) have a broad range of conflict resolution styles and implement these styles strategically to meet changing contextual demands. It appears from these data that the strategic use of the whole range of conflict resolution styles may indeed be helpful in maintaining low psychological distress in women. Further research is needed to examine the relationship between changes in CD4 cell count, family functioning, and psychological distress over time to determine if this flexibility in family interactions is evident among women who report lower levels of psychological distress.

It is important to place the results of this study in the context of findings on intrapersonal coping in HIV-positive individuals. Specifically, a number of studies have found that denial, as an intrapersonal coping strategy, is related to worse psychosocial and/or immune outcomes (Antoni et al., 1990; Antoni, Schneiderman, Esterling, & Ironson, 1994; Commerford, Gular, Orr, & Reznikoff, 1994; Goodkin et al., 1992; Remien, Rabkin, Williams, & Katoff, 1992). However, the current study suggests that denial and avoidance within the family may serve as an important intrapersonal or family conflict coping strategy when CD4 cell counts are dropping.

Social support. Social support also appears to be an important moderator of the relationship between critical stimuli (such as change in CD4 cell count) and psychological distress. However, in this study, social support satisfaction—rather than social network size—moderated this relationship. In other words, it was the *quality* of the support rather than the *quantity* of the support that was important in moderating women's psychological distress reactions. Previous research has demonstrated similar findings in relation to perceived social support, social network size, and outcome measures. For example, Schaefer, Coyne, and Lazarus (1981) found that social network size was more weakly correlated with psychosocial and health outcomes than perceived social support. Similarly George, Blazer, Hughes, and Fowler (1989) reported that social network size was more weakly related to depression than subjective social support.

CONCLUSIONS

The results of this study demonstrate that changes in CD4 cell count can have a profound and negative impact on psychological distress among HIV-positive African American women. However, these results also suggest that the quality of relationships in the immediate social context may play an important role in protecting African American women. The results of this study provide some guidance for health and mental health practitioners who work closely with this population. In particular, these findings suggest that social interventions that are designed to target the families and social support networks of HIV-positive African American women may have a significant impact on the woman's emotional and psychological well-being. Consistent with the recommendations of Boyd-Franklin (1989), Shelton et al. (1993), and Szapocznik and Greenwood (1995), these results highlight the importance of designing multisystemic interventions that are specific to the significant role that family and social networks play in the lives of African American women. Interventions that focus on increasing the woman's satisfaction with her social support, foster an adaptive level of connectedness to family members, and enhance family members' flexibility in resolving conflict appear to be particularly promising. With reference to the latter, these results suggest that therapists should recognize that denial and avoidance may be as adaptive in some circumstances (CD4 cell drop) as conflict emergence and resolution are in others (CD4 cell increases). Therapists who routinely assess denial and avoidance as problematic aspects of family functioning may strip

the woman and her family of an important defense against the psychological and emotional consequences of HIV. Therapists should attempt to increase the family's repertoire of conflict resolution styles rather than always placing greater value on conflict emergence and resolution.

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TABLE 1

Individuals Who Participated in the Family Assessment

Relationship to Woman	*Number of Families in Which Individual Was Present*	*Percentage of Families in Which Individual Was Present*
Father of newborn	9	23.7
Child	30	78.9
Mother	15	39.5
Father	4	10.5
Aunt	2	5.3
Sister	3	7.9
Brother	2	5.3
Friend	3	7.9
Other (godfather, grandmother)	2	5.3

TABLE 2

Means and Standard Deviations for Average Monthly CD4 Cell Changes, Psychological Distress, Family Functioning, and Social Support

	CD4 Cell Count			*Structural Family Systems Ratings (SFSR)*			*Social Support*	
	Pre	***Post***	***Psychological Distress***	***Total***[a.]	***Resonance***	***Conflict Resolution***	***Size***	***Satisfa***
Full sample(*N* = 38)	507.82 (276.54)	485.00 (285.95)	10.05 (7.46)	16.97 (3.63)	2.73 (1.34)	3.13 (0.84)	2.63 (1.07)	5.56 (
Split samples								
Total SFSR[a.]								
Poor(*n* = 15)	498.33 (268.72)	477.87 (271.39)	7.80 (6.12)	13.53 (1.46)	—	—	—	–
Good(*n* = 20)	553.65 (284.99)	519.65 (307.20)	11.45 (8.22)	19.55 (2.37)	—	—	—	–
Resonance								
Poor(*n* = 14)	543.43 (269.13)	476.00 (262.19)	10.57 (6.45)	—	1.14 (0.36)	—	—	–
Good(*n* = 24)	487.04 (284.36)	490.25 (304.31)	9.75 (8.11)	—	3.67 (0.64)	—	—	–
Conflict resolution								
Poor(*n* = 7)	471.43 (333.79)	334.43 (189.25)	10.85 (9.35)	—	—	1.86 (0.34)	—	–
Good(*n* = 31)	516.03 (267.68)	519.00 (295.29)	9.87 (7.14)	—	—	3.42 (0.62)	—	–
Network size								
Poor(*n* = 20)	512.45 (246.76)	477.95 (284.51)	9.35 (7.02)	—	—	—	1.95 (0.33)	–
Good(*n* = 18)	502.67 (313.58)	492.83 (295.58)	10.83 (8.05)	—	—	—	3.38 (1.10)	–
Satisfaction								
Poor(*n* = 12)	585.00 (262.30)	491.83 (236.82)	10.00 (7.55)	—	—	—	—	4.65 (
Good(*n* = 26)	472.19 (280.59)	481.85 (310.33)	10.08 (7.57)	—	—	—	—	5.98 (

NOTE: Standard deviations are listed in parentheses.

[a.] The SFSR Total score for three families could not be calculated because the families could not be rated on one of the five SFSR dimensions.