The Impact of Coping Strategies, Personal Relationships, and Emotional Distress on Health-Related Outcomes of Parents Living with HIV/AIDS

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What is This?
The impact of coping strategies, personal relationships, and emotional distress on health-related outcomes of parents living with HIV or AIDS

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ABSTRACT

This study examines the impact of emotional distress and social relationships on health-related outcomes of parents living with HIV or AIDS, as mediated by active and passive coping styles (N = 295; 81% female). Social relationships are exemplified by conflict with children and social support. Health-related outcomes include AIDS illness distress, healthcare satisfaction, and substance abuse. In a predictive latent variable model using cross-sectional data, social support was significantly associated with higher levels of active coping. Conflict with adolescent children and emotional distress were associated with passive coping styles. More active coping and less passive coping predicted greater health care satisfaction; active coping predicted less substance abuse. Emotional distress directly predicted distress over HIV or AIDS physical symptoms, and this relation was not mediated by coping style. Mothers reported more distress over symptoms and more health care satisfaction than fathers. Results indicate that interventions to enhance coping skills could lead to improved health-related outcomes for parents living with HIV or AIDS.

KEY WORDS: coping styles • health care satisfaction • parents with AIDS • social support • substance abuse

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This study investigates how personal relationships, as exemplified by the quality of social support and relationships with adolescent children, impact health-related characteristics of parents with HIV or AIDS. The specific health outcomes that were investigated include substance abuse, health care satisfaction, and physical symptoms. We test a model in which social support, emotional distress (as represented by depression and anxiety), and conflict with one’s adolescent children are expected to influence coping strategies of the parents; in turn, coping strategies are expected to influence the health-related outcomes. This model is important to test because finding that coping skills influence health-related outcomes among parents living with HIV or AIDS would indicate that interventions designed to enhance coping skills among parents would be worthwhile and should be implemented.

Given the spread of AIDS into the heterosexual community, it was inevitable that more parents would contract HIV or AIDS (Centers for Disease Control and Prevention [CDC], 1998; Wortley & Fleming, 1997). Currently, about 60% of HIV-infected women and 18% of HIV-infected men have children (Schuster et al., 2000); about 75% of people currently living with HIV are in the primary childbearing years of 25–44 years (CDC, 1998). The number of parents living with HIV or AIDS is, thus, substantial and growing, yet relatively few studies have explored the impact of psychological issues that may be especially relevant to this subgroup. Moreover, parents living with HIV or AIDS are usually minorities, poor, and female (CDC, 1998; Kneisl, 1993; Paige & Johnson, 1997; Schuster et al., 2000). Their marginalization by society in addition to their greater family responsibilities may possibly put parents at even greater risk for multiple sources of stress and ensuing poor health outcomes than individuals living with HIV or AIDS who do not have children and parenting responsibilities. Therefore, the goal of this study was to examine the impact of family-related stressors, social support, emotional distress, and coping strategies on health-related outcomes of parents living with HIV.

Outcomes of stress
In the general population, there is substantial empirical evidence that stress and poor social relationships decrease people’s adaptive functioning and are associated with negative health outcomes (e.g., Rowe, 1996; Sherbourne, Hays, & Wells, 1995; Taylor, Repetti, & Seeman, 1997). For example, a relationship between a poor or limited social network and depression has been well documented (Field, McCabe, & Schneiderman, 1985). Research more specifically focused on AIDS has demonstrated that more stress and less social support may accelerate the course of HIV or AIDS disease progression (Leserman et al., 1999). In contrast, higher amounts of actual or perceived social support have a buffering effect on adaptive functioning, in the sense that they often have beneficial effects on physical health and emotional well-being (Cohen & Wills, 1985; Wolf et al., 1991) and may positively alter the progression of disease among those with AIDS (Leserman, Perkins, & Evans, 1992). In addition, coping styles have been shown to
influence and mediate health-related outcomes and to be associated with social support (Nyamathi, Stein, & Brecht, 1995). Whether stress will lead to maladaptive functioning or poor health depends in large measure on how well an individual copes with the stress and the type of coping style he or she tends to employ (Nyamathi et al., 1995).

For all persons living with HIV or AIDS, learning of the illness can produce numerous stressors; suicidal thoughts, depression, guilt, and fear of social isolation are commonly associated with an HIV diagnosis (Goldie, Dematteo, & King, 1997). The social stigma that is still attached to HIV or AIDS often raises more concern about maintaining the secrecy of their health status than about obtaining needed health care and support services (Campbell, 1999). Moreover, such secrecy may increase their social isolation and affect their health (Cole, Kemeny, Taylor, Visscher, & Fahey, 1996).

**Family-related stressors**

In addition to HIV- or AIDS-related stressors shared by all individuals with HIV or AIDS, parents living with HIV or AIDS undoubtedly face additional stressors related to their parental roles. Parents living with HIV or AIDS report more persistent distress than non-parents living with HIV or AIDS (Cates, Graham, Boeglin, & Tielker, 1990); they report an array of intense emotions, including anger, grief, sadness, despair, multiple loss, uncertainty, and guilt (Goldie et al., 1997; Rotheram-Borus, Lightfoot, & Shen, 1999). Parents living with HIV or AIDS often have severely limited financial, social, and emotional support for raising their dependent children (Paige & Johnson, 1997; Rotheram-Borus, Murphy, Miller, & Drainin, 1997; Schuster et al., 2000). Parents may fear that their children and family will reject them on hearing of their illness (Havens, Mellins, & Pilowski, 1996), and many fear that their children will face social rejection and discrimination (Goldie et al., 1997). Furthermore, parents with HIV or AIDS often have difficulties caring for their children properly and often need to plan custody arrangements for their children in the event of their death or major disability that leaves them unable to care for their children.

As a chronic and progressive disease, HIV and AIDS challenge not only the infected parent but also the adjustment of the entire family (Gonzalez, Steinglass, & Reiss, 1989; Rolland, 1988). Families with chronically ill parents are more strained than families without an ill parent (West, Sandler, Pillow, Baca, & Gersten, 1991) and parents with HIV or AIDS report greater distress than parents with other illnesses (Zayas & Romano, 1994). Persons with HIV or AIDS have identified help for family problems as a major unmet need. McShane, Bumbalo, and Patsdaughter (1994) reported that parents and siblings of people living with AIDS reported higher clinical levels of emotional distress than normative comparison groups. Furthermore, families affected by HIV or AIDS face an even greater number of stressors than families affected by other chronic illnesses due to the stigma associated with HIV and AIDS (Leary & Schreindorfer, 1998; Zayas & Romano, 1994). Unfortunately, stigmatization occurs even among family
members and loved ones, and, as suggested by attribution theory, may be enhanced if the person infected has acquired the disease through drug use and risky sexual behavior (e.g., Crandall, 1991; McDonell, 1993; Weiner, Perry, & Magnusson, 1988). Attribution theory posits that when the physical stigma is perceived as onset-controllable by the individual with the stigma, more anger is elicited from others.

Having a chronic, terminally ill family member negatively affects the parent–adolescent relationship (Rosenheim & Reicher, 1986). Children whose parents have HIV or AIDS are likely to experience difficulties due to unique issues surrounding the HIV or AIDS epidemic (Zayas & Romano, 1994). Relatively young children may need to take over roles normally performed by the parent (J.A. Stein, Riedel, & Rotheram-Borus, 1999). Parent’s substance use may lead to more frequent parent–adolescent conflict than the conflict experienced in other families with a chronically ill parent (Rotheram-Borus, Robin, Reid, & Dräim, 1998). Such conflict could lead to higher levels of distress and maladaptive health-related outcomes and coping strategies. Negative social interactions have been found to have an adverse effect on the mental and physical status of people with terminal illnesses (Lang, 2000; Siegel, Raveis, & Karus, 1994). Also, close personal relationships within the family assume more importance when individuals feel near to death (Lang, 2000), and, if close relationships are difficult and negative, more strain may lead to more adverse health outcomes. The current study sought to extend these findings and explore the relationship of emotional distress to health outcomes and behaviors among parents living with HIV or AIDS, and the possible ameliorating role of positive personal relationships.

Social support and positive personal relationships
Whereas negative relationships may affect the coping abilities of parents with HIV or AIDS adversely (Siegel et al., 1994), receiving positive social support may contribute to their well-being. Among terminally ill persons, high levels of social support have been found to contribute directly to improved mental and physical health and contribute indirectly as moderators of the deleterious effects of stressors (for a review, see Siegel et al., 1994), especially if support is from family members (Lang, 2000). Among persons living with HIV or AIDS, socially supportive environments have been shown to result in significantly more positive health behaviors such as safe sex, coping better with their illness, and more socializing (Frey, Query, Flint, & Adelman, 1998).

Research on terminally ill people, including gay HIV-positive men, has found positive outcomes associated with social support (Brook et al., 1997). High perceived social support has been associated with less depression, less anxiety, less psychic distress, more effective coping, fewer HIV symptoms, less suicidal ideation, greater self-reported improvements in health status, and better social adjustment (Green, 1994; Hays, Chauncey, & Tobey, 1990; Pakenham, Dadds, & Terry, 1994). However, other studies have found some social relationships to have deleterious influences on health outcomes.
(Miller, Kemeny, Taylor, Cole, & Visscher, 1997) or essentially no relation at all when examined in a longitudinal context (Siegel, Karus, & Raveis, 1997). However, few studies have focused specifically on the impact of social support and positive personal relationships on health-related outcomes of parents with HIV or AIDS (such as health care satisfaction, stress over AIDS-related symptoms, and substance abuse), and the mediating role of coping. Support from outside sources may be an especially vital resource for minimizing distress and coping difficulties among parents with HIV or AIDS. In addition, a positive coping style may depend on the perception that support is available (Ognibene & Collins, 1998); the perception and availability of social support also may affect the type of and impact of coping strategies employed by the parents, the topic we next examine.

**The impact of coping strategies**

How individuals cope while living with HIV or AIDS affects their emotional and physical well-being. Most coping research related to HIV and AIDS has been done among homosexual men; research focused on other affected subgroups with HIV, such as parents, is needed (Barbee, Derlega, Sherburne, & Grimshaw, 1998; Paige & Johnson, 1997; Rehm & Franck, 2000). Moreover, the additional stressors associated with parenting and family responsibilities may add to coping difficulties among HIV-infected parents.

The highest incidence of illness and death among those infected with HIV occurs among persons who experience particularly high levels of stress after infection with HIV (Kneisl, 1993; Leserman et al., 1999). Recent research has also documented that life stressors not directly related to HIV or to the progression of the disease predict susceptibility to illness-related symptoms (Cole et al., 1996; Cole, Kemeny, & Taylor, 1997; Segerstrom, Taylor, Kemeny, Reed, & Visscher, 1996). Thus, ways of coping with stress should play a major role in determining the well-being of all infected individuals, including those parents who are experiencing additional stressors. Having resources for support and less emotional distress may lead to improvement in the ability to cope positively during the course of the illness; this improvement may, in turn, be associated with positive mental and behavioral outcomes.

This study investigated the mediating role of two coping styles: passive coping and active coping. A passive coping style is exemplified by a fatalistic and submissive style of addressing problems such as waiting and hoping problems will go away. Passive coping has been associated with negative affect such as anxiety and depression, as well as greater appraisal of perceived somatic symptoms (Nicassio, Radojevic, Schoenfeld-Smith, & Dwyer, 1995; Snow-Turek, Norris, & Tan, 1996; Vassend & Eskild, 1998; Vassend, Eskild, & Halvorsen, 1997). Passive coping is also associated with an inability to use available interpersonal relationships to receive social support (Eurêlins-Bontekoe, van der Slikke, & Verschuur, 1997).

In contrast, an active coping style, typified by a willingness to employ various realistic strategies to change a problem situation, is associated with less depression (Snow-Turek et al., 1996), less general distress (Hampson,
Glasgow, & Zeiss, 1996), and greater perceived social support (Wolf et al., 1991). In addition, using fewer active coping strategies has been associated with more AIDS risk behavior (Nyamathi et al., 1995; Robins, Dew, Kingsley, & Becker, 1997). Active coping styles have also been associated with decreased disease progression among homosexual men (Mulder, Antoni, Duivenvoorden, & Kauffmann, 1995), and fewer subjective somatic symptoms among HIV-infected men and women (Vassend et al., 1997).

Substantial sex differences have been found in some studies on coping strategies in normative samples (e.g., Haenninen & Aro, 1996; Hobfoll, Dunahoo, Ben-Porath, & Monnier, 1994; Houtman, 1990; Sigmon, Hotovy, & Trask, 1996; Solomon & Rothblum, 1986) and, thus, parent sex is included in the analyses as a predictor. Haenninen and Aro (1996) and Sigmon et al. (1996) reported that women use more dysfunctional ways of coping. In support of this finding, J. A. Stein and Nyamathi (1999) observed that men at high risk for AIDS reported using more positive coping strategies than high-risk women. Solomon and Rothblum (1986) also reported that women experience more distress than do men and that women are more negatively impacted by events that take place in the interpersonal domain. These authors concluded that women should be taught to use more active coping (Solomon & Rothblum, 1986).

Health-related outcomes

Health-related outcomes investigated in this study included distress over HIV or AIDS physical symptoms, substance abuse, and health care satisfaction. All of these outcomes are especially relevant and important to the health and well-being of individuals with HIV or AIDS. Physical symptoms are clearly important. In addition, substance abuse is a critical AIDS-related behavior especially in a population of parents with HIV or AIDS (Campbell, 1999). HIV infection among parents often stems from a history of substance abuse including the sharing of contaminated needles, or heterosexual transmission (Campbell, 1999). Many women with AIDS are injecting drug users (IDUs); about 72% of seropositive women have contracted HIV from heterosexual contact with IDUs (Bowen & Trotter, 1995). Female IDUs in fact have been found to have higher sero-incidence rates of AIDS than their male counterparts, most likely as a result of heterosexual transmission often with bisexual male partners (Nicolosi, Correa-Leite, Musicco, Molinari, & Lazzarin, 1992). After a diagnosis of HIV or AIDS, continued substance abuse is an adverse behavior for a multitude of reasons. For example, it lowers the immunity of the infected individual, and is also a vector to spread HIV further in the population through sharing of needles and syringes (Shoptaw, Stein & Rawson, 2000) and prostitution (Campbell, 1999).

Healthcare satisfaction is also an important variable to consider in assessing health-related outcomes among individuals with HIV or AIDS. Health care satisfaction is associated with treatment adherence among patients from a variety of contexts (Cameron, 1996; Hannay, Sunners, & Platts, 1997; Harris, Luft, Rudy, & Tierney, 1995), and also among individuals with HIV or AIDS (Mostashari, Riley, Selwyn, & Altice, 1998; Wright, 2000). In turn,
less adherence to treatment regimens can worsen HIV- or AIDS-related symptoms (M. D. Stein, Fleishman, Mor, & Dresser, 1993; Wright, 2000).

**Hypotheses**
The following hypotheses were explored (Figure 1 depicts the hypothesized model in a schematic fashion). First, we hypothesized that more social support, less emotional distress, and less conflict between parents with HIV or AIDS and their adolescent children will predict less distress over physical symptoms, greater health care satisfaction, and less substance abuse as mediated through more active coping strategies and less passive coping strategies. Second, we hypothesized that more active coping strategies will predict less distress over HIV or AIDS symptoms for these parents, as well as greater health care satisfaction and less substance abuse, and that a passive coping style will predict greater distress over HIV or AIDS symptoms, less health care satisfaction, and more substance abuse. Sex of the parent was included because sex differences have been observed in some studies on coping strategies as reported earlier.

**Methods**

**Participants**
From August 1993 to March 1995, the Division of AIDS Services received notification of all persons diagnosed with AIDS in New York City with financial
need. A list of 429 eligible parents was identified who met the following criteria: at least one adolescent child aged 11–18 years, the approval of the clinical social worker serving the case, and no obvious mental retardation or psychiatric problems, as determined by interviewer observations. Thirty-two other parents were evaluated as ineligible for participation by their social worker because of their extreme physical incapacity or severe mental instability. Among the 429 eligible parents, 65 (15%) were untraceable. Among the 364 eligible and traceable, 46 (11%) refused to participate and 13 (3%) were either evaluated by interviewers as being too ill to participate or were in jail. Therefore, among the 364 who were eligible and traceable, 305 (84%) were successfully recruited, which is 71% of the original sample of 429 parents. The final sample for the current study consisted of 295 parents due to the elimination of 10 parents who were missing data on the items used in this study.

The ethnic composition was predominately minority: 45% Hispanic, 34% African American, 4% White, and 17% from other ethnic groups. The 238 mothers in this sample (81% of the sample) ranged in age from 25 to 60 (M = 37 years, SD = 5.3); the 57 fathers (19% of the sample) ranged in age from 27 to 70 (M = 38 years, SD = 5.6). Eighty-six percent of the parents lived in an apartment or house that they owned or rented, and 94% of the parents lived with their child(ren) at the time of assessment. Forty-three (15%) had one child, 86 (30%) had two children, 78 (27%) had three children, 40 (14%) had four children, and 38 (14%) had five or more children. Most parents (55%) were high school graduates. There were no couples in this data set.

Procedures
Once informed consent was obtained, parents were interviewed individually by African American or Latino interviewers who had 40 hours of intensive training in assessment of parents living with HIV or AIDS. The interview assessed a broad range of psychosocial, behavioral, and illness-related factors and generally took about two to three hours to complete. The questionnaire was accessible on laptop computers that the interviewers used during the interview. The data were entered directly onto the computers.

Measures
Multiple-indicator latent variables were created from the measured variables described below. In some cases, preliminary exploratory factor analyses determined the most reliable configuration for the latent variables.

Social support. Parents were asked to list the most important people in their life. A latent variable of social support was indicated by responses to the following three questions for each person listed: ‘How supportive is [important person] about your illness?’ ‘How often do you see [important person]?,’ and ‘How often have you discussed your illness with [important person]?’ The items were rescaled to take into account the differences and variations in the number of supportive persons that were reported by the parents and to assess the quality of that support simultaneously. For the first question, a 5-point response scale was originally employed and ranged from 1 (very supportive) to 5 (very unsupportive). A score of 1 was given if participants endorsed 1 (very supportive) or 2 (mostly supportive). All other responses received a score of 0. For each important person named, a score of 1 or 0 was designated and then all scores were summed. Rescaling accounted for the fact that some people reported
practically no support at all but what was reported was of high quality, whereas other reported more support that, however, was at best, mediocre. For the latter two questions, a 5-point response scale also was employed that ranged from 1 (1–3 times a week) to 5 (not at all). The responses to these questions were scored similarly to those of the first question, except a score of 1 was given if participants endorsed 1 (1–3 times a week) or 2 (4–7 times a week). The three composite indicators were labeled as Receive Support, See Important Person, and Talk about Illness, respectively.

**Emotional distress.** Mean scores on three established subscales of the Brief Symptom Inventory (BSI; Derogatis, 1993) were used to measure distress during the past week. A 5-point response scale ranging from 0 (not at all distressing) to 4 (extremely distressing) measured general anxiety (6 items; α = .85), phobic anxiety (5 items; α = .82), and depression (6 items; α = .84).

**Conflict with adolescent children.** Four items assessed whether the parents argued/fought with their adolescent children about household responsibilities, friends, trouble at school, and grades and achievement at school. A 5-point response scale was employed that ranged from 1 (never) to 5 (always).

**Active and passive coping.** The 76-item Coping with Illness Questionnaire (Murphy, Rotheram-Borus, & Marelich, in press), which uses items from the Dealing with Illness scale (Namir, Wolcott, Fawzy, & Alumbaugh, 1987), was administered. A 5-point response scale was employed that ranged from 1 (never) to 5 (always). The full scale has seven factors. The two coping factors used in the present study encompass Active and Passive Coping styles; they are labeled ‘positive action’ and ‘passive problem solving’ in Murphy et al. (in press).

Other coping factors in the scale were not used in the current study due to conceptual overlaps with the other factors in our analyses. For instance, items on a negative coping scale dealt with self-destructive escape behaviors including drug use and we wanted to avoid an overlap when predicting the behavioral outcome variable of drug use. Another scale encompassed social support and we did not want an overlap with our Social Support factor.

Items from the Active coping dimension indicated the degree to which the parents used active coping strategies in the past three months (e.g., ‘Decided to get your life more together than it was in the past,’ ‘Began solving problems you had avoided before’). Because there were 10 items in the scale, we combined the items randomly to create three composite indicators using the means of the items; this is a standard practice to keep the number of parameters in the model to a manageable size. These composite indicators were labeled as Active 1 (coefficient α = .77), Active 2 (α = .71), and Active 3 (α = .68). Passive coping, which reflected a fatalistic coping style, was indicated by three separate items. Examples of items include ‘went over the situation again and again in your mind,’ and ‘thought about you could have done things differently.’ These individual items are labeled Passive 1, Passive 2, and Passive 3 (α = .77).

**Distress over HIV or AIDS symptoms.** Five measured indicators were created from 23 items assessing distress over various HIV or AIDS symptoms (Rotheram-Borus & Stein, 1999). Twenty-three items would have been too many indicators for one latent variable. These indicators were formed by factor
analyzing a 23-item questionnaire (Hein, Dell, Futterman, Rotheram-Borus, & Shaffer, 1995) that assessed the amount of distress experienced over various HIV or AIDS-related symptoms using a 6-point scale ranging from 1 (not at all) to 6 (extremely). The 5 indicators were (i) HIV or AIDS-related symptoms, which included the mean response to three items: ‘hair loss,’ ‘weight loss greater than 10 pounds,’ and ‘loss of appetite’ (coefficient $\alpha = .62$); (ii) Eye, nose, and throat problems including four items, such as ‘dry and painful mouth, trouble swallowing’ ($\alpha = .71$); (iii) Lung disorders was the mean response to five items, such as ‘chest pain or tightness’ ($\alpha = .70$); (iv) Pain was the mean response to four items, such as ‘pain, numbness, or tingling in hands or feet’ ($\alpha = .82$); (v) Weakness was the mean response to four items, such as ‘feeling dizzy or lightheaded’ ($\alpha = .78$).

**Health care satisfaction.** Five items were used for a latent variable representing health care satisfaction. The five questions were: (i) ‘How would you describe your doctor’s or health care provider’s attitude toward you?’; (ii) ‘How would you rate your level of satisfaction with your doctor or health care provider?’; (iii) ‘How would you rate your doctor’s or health care provider’s knowledge of HIV and AIDS?’; (iv) ‘When you see your doctor or health care provider, does he or she devote enough time to your treatment?’; and (v) ‘How comfortable are you with asking questions of your doctor or health care provider?’ Five-point response scales were used for the items, with higher scores indicating greater health care satisfaction.

**Substance abuse.** Four items were used for this latent variable: (i) Alcohol frequency, the number of times they had any alcoholic beverage in the past 3 months; (ii) cocaine frequency, the number of times they had used cocaine in the past 3 months; (iii) crack frequency, the number of times they had used crack in the past 3 months; and (iv) heroin frequency, the number of times they had used heroin in the past 3 months.

**Sex.** Sex of the parent was also included in the model. Sex was coded as 1 (male) or 2 (female).

**Analyses**

The analyses of the data were performed using the EQS structural equations modeling (SEM) program (Bentler, 1995). Latent variables were employed because they allow evaluation of ‘causal’ hypotheses with correlational non-experimental data; these analyses also provide information about mediated or indirect effects (Bentler, 1995). Goodness-of-fit of the models was evaluated with Satorra-Bentler robust fit statistics: the Satorra-Bentler $\chi^2 (S-B \chi^2)$ and the Robust Comparative Fit Index (RCFI). The S-B $\chi^2$ was used because the data were multivariately kurtose (normalized estimate = 41.08; Bentler & Dudgeon, 1996). The RCFI, which ranges from 0 to 1, reports the improvement in fit of the hypothesized model over a model of complete independence or lack of relationship among the measured variables, and adjusts for sample size. RCFI values greater than .95 are desirable and indicate that 95% or more of the covariation in the data is reproduced by the hypothesized model (Hu & Bentler, 1999). We also report the root mean square errors of approximation (RMSEAs) to indicate the size of the residuals. RMSEA values less than or equal to .06 indicate a relatively good fit between the hypothesized model and the observed data (Hu & Bentler, 1999).
Confirmatory factor analysis. An initial confirmatory factor analysis (CFA) was performed with each latent construct predicting its hypothesized measured indicators. All latent constructs and the single-item variable of sex were correlated without any assumption of causality among them. This analysis tested the plausibility of the measurement model and provided the correlations (covariances) among the latent variables.

Path model. Once the CFA model was confirmed, a predictive mediated model was tested in which parent sex, social support, emotional distress, and conflict with adolescent children were used to predict active and passive coping styles. In turn, the two coping indicators were used to predict distress over HIV or AIDS symptoms, health care satisfaction, and substance abuse. This fully mediated model was then compared with a chi-square difference test to the CFA model that included all possible relationships among the latent variables. To test further whether mediation was occurring, we examined the significance of the predictive paths leading to the three outcomes. If mediators lose their significance with the addition of the direct paths, then it means that mediation is not occurring. Nonsignificant covariances and predictive paths among the constructs were dropped gradually until only significant paths and covariances remained. Indirect effects were also examined.

Results

Confirmatory factor analysis
Fit indexes for the preliminary CFA model testing the adequacy of the initial measurement model were quite acceptable: S-B $\chi^2$ (399, $N = 295$) = 529.56, RCFI = .95, RMSEA = .034. No supplementary paths or covariances were added to this model. In addition, all measured variables loaded significantly ($p < .001$) on their hypothesized latent factors.

Table 1 presents the factor loadings of the measured variables on their hypothesized latent variables for the CFA model and the means and standard deviations of the measured variables. Table 2 presents the correlations between the latent variables and the measured variable of parent sex. Of particular note in the confirmatory model, passive coping was significantly associated with greater emotional distress, conflict with adolescent children, distress over HIV or AIDS symptoms, and active coping styles. (Validation studies of the coping questionnaire previously found that active and passive coping styles were positively associated in both adolescent and adult samples; Murphy et al., in press.) Active coping styles were significantly associated with more social support, greater health care satisfaction, and less substance abuse. Emotional distress was significantly associated with distress over HIV or AIDS symptoms and conflict with adolescent children. Substance abuse was associated with less health care satisfaction.

Path analysis
The initial fully mediated model had fit indexes that indicated a significant decrement in goodness-of-fit from the CFA model: S-B $\chi^2$ (411, $N = 295$) = 606.69, RCFI = .93, RMSEA = .04. This model did not include the 12 possible direct paths from the four predictors of coping style (sex, social support, emotional distress, and conflict with adolescent children) to the three outcomes.
### Table 1

Factor loadings of initial confirmatory factor analysis model and summary statistics \((N = 295)\)

<table>
<thead>
<tr>
<th>Latent or measured variable</th>
<th>Factor loadings*</th>
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<th>(SD)</th>
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<td></td>
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<td>.86</td>
<td>3.05</td>
<td>1.16</td>
</tr>
<tr>
<td>Active 3</td>
<td>.86</td>
<td>2.85</td>
<td>1.06</td>
</tr>
<tr>
<td>Passive Coping</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passive 1</td>
<td>.79</td>
<td>2.92</td>
<td>1.49</td>
</tr>
<tr>
<td>Passive 2</td>
<td>.68</td>
<td>3.17</td>
<td>1.53</td>
</tr>
<tr>
<td>Passive 3</td>
<td>.71</td>
<td>2.92</td>
<td>1.53</td>
</tr>
<tr>
<td>Distress over HIV or AIDS Symptoms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV- or AIDS-related symptoms</td>
<td>.67</td>
<td>2.62</td>
<td>1.23</td>
</tr>
<tr>
<td>Eye, nose, and throat problems</td>
<td>.73</td>
<td>2.58</td>
<td>1.24</td>
</tr>
<tr>
<td>Lung disorders</td>
<td>.70</td>
<td>2.60</td>
<td>1.13</td>
</tr>
<tr>
<td>Pain</td>
<td>.82</td>
<td>3.29</td>
<td>1.44</td>
</tr>
<tr>
<td>Weakness</td>
<td>.81</td>
<td>3.25</td>
<td>1.36</td>
</tr>
<tr>
<td>Health Care Satisfaction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude toward you</td>
<td>.78</td>
<td>4.35</td>
<td>1.02</td>
</tr>
<tr>
<td>Your level of satisfaction</td>
<td>.90</td>
<td>3.98</td>
<td>1.15</td>
</tr>
<tr>
<td>Knowledge of HIV and AIDS</td>
<td>.72</td>
<td>4.00</td>
<td>1.08</td>
</tr>
<tr>
<td>Devote enough time</td>
<td>.73</td>
<td>4.28</td>
<td>1.04</td>
</tr>
<tr>
<td>Comfortable asking questions</td>
<td>.55</td>
<td>4.31</td>
<td>1.05</td>
</tr>
<tr>
<td>Substance Abuse</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol frequency</td>
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<td>4.53</td>
<td>15.57</td>
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<tr>
<td>Cocaine frequency</td>
<td>.69</td>
<td>1.15</td>
<td>8.49</td>
</tr>
<tr>
<td>Crack frequency</td>
<td>.67</td>
<td>2.18</td>
<td>14.76</td>
</tr>
<tr>
<td>Heroin frequency</td>
<td>.29</td>
<td>1.66</td>
<td>11.79</td>
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</tbody>
</table>

*All factor loadings significant, \(p \leq .001\).

of distress over AIDS symptoms, health care satisfaction, and substance use. The chi-square difference between the fully mediated model and the CFA model indicated that the fully mediated model was not an adequate representation of the relationships among the variables \((\Delta \chi^2 = 77.13, N = 295), p < .001\). The LaGrange Multiplier (LM) test (Chou & Bentler, 1990), which
reports paths that can be added to a model to improve the fit, indicated that a
direct path from emotional distress to distress over HIV or AIDS symptoms was
required. After that one path was added, the fit improved significantly, S-B
\( \chi^2(410, N = 295) = 542.28 \), RCFI = .95, RMSEA = .033. The chi-square differ-
ence between this model and the CFA model was 12.72 (11, N = 295), which was
nonsignificant. We also found that sex of parent was not associated with coping
strategies, as can be foreseen in Table 2 from the small sizes of the correlations,
although mothers reported more distress over symptoms and more health care
satisfaction. These direct paths were also added to the mediated model for
further improvement in fit and for completeness, S-B \( \chi^2(408, N = 295) = 534.54 \),
RMSEA = .032, RCFI = .96.

At this point, nonsignificant paths and covariances were dropped from the
model. The fit of the final trimmed path model was quite good, S-B \( \chi^2(423, N =
295) = 553.08 \), RMSEA = 0.032, RCFI = .95. Figure 2 presents the final path
model with all significant paths. Active coping strategies were predicted by
greater social support, whereas passive coping strategies were predicted by
greater emotional distress and more conflict with adolescent children. In turn,
more active coping strategies and less passive coping strategies predicted
greater health care satisfaction, and active coping strategies predicted less
substance abuse. In addition, there was a direct effect of emotional distress on
distress over HIV or AIDS symptoms not mediated through coping style, as
reported earlier. Once that path was added to the model, there was no signifi-
cant direct effect of either active or passive style of coping on distress over HIV
or AIDS symptoms. Until the addition of that path, passive coping strategies
significantly predicted distress over HIV or AIDS symptoms.

There were also significant indirect effects that were of interest in terms of
determining whether mediation was occurring in this model. Whether mediation
was occurring was questionable because some of the predictors were not
initially associated significantly with the outcomes in the CFA model (see Table
2). Health care satisfaction was indirectly affected by social support \((p < .05)\)
through active coping strategies, and by emotional distress \((p < .05)\) through
passive coping strategies. Furthermore, lower social support had a significant
indirect effect on substance abuse through active coping \((p < .05)\).

\begin{table}
\centering
\caption{Correlations between latent variables (N = 295)}
\begin{tabular}{lcccccccc}
\hline
Latent variable & 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 \\
\hline
6. Distress over HIV or AIDS Symptoms & .12* & .56*** & .11 & .05 & .21*** & — & — & — \\
7. Health Care Satisfaction & .05 & .05 & .08 & .19** & .05 & .05 & — & — \\
8. Substance Abuse & — & .10 & .04 & .03 & .25*** & .07 & .03 & .18** \\
9. Female Sex & .08 & .09 & .05 & — & .01 & .02 & .14* & .15* \\
\hline
\end{tabular}
\end{table}

\*p ≤ .05; \**p ≤ .01; \***p ≤ .001.
Discussion

This study examined possible mechanisms by which a parent’s personal and social relationships, exemplified by social support and conflict with adolescent children, along with emotional distress, might exert an influence on HIV or AIDS illness-related distress, health care satisfaction, and substance abuse. It was hypothesized that coping skills would be significant mediators between social support, emotional distress, and relations with one’s adolescent children, and distress over HIV or AIDS symptoms, health care satisfaction, and substance abuse. In addition, it was expected that coping styles would directly affect health-related outcomes. The following sections discuss the direct and indirect effects that were observed in our predictive model.

Direct effects on health-related outcomes

Coping styles had direct influences on two of the health-related outcomes in the model: health care satisfaction and substance abuse. Active coping directly predicted more health care satisfaction and less substance abuse, whereas passive coping predicted less health care satisfaction. Thus, an active coping style may be beneficial and a passive coping style may be counterproductive in negotiating and interacting with the health care system. These findings are especially noteworthy given that active and passive coping styles were positively correlated. The positive correlations...
probably reflect a response bias of endorsing a set of more socially acceptable coping behaviors such as active problem solving and ruminating about one's situation, rather than self-destructive escape and depressive withdrawal behaviors. As mentioned earlier, antisocial coping styles were not included in the present study to avoid an overlap with other constructs in the model. Less satisfaction with health care has been shown to lead to fewer health care visits, compliance, and treatments (Keith, 1998; Safran et al., 1998). In turn, less adherence to treatment regimens and continued substance use and abuse can exacerbate HIV or AIDS-related symptoms (M. D. Stein et al., 1993). Furthermore, the results also highlight the fact that attention needs to be paid to predictors of substance use among HIV-positive individuals. Continued substance abuse after a positive diagnosis of HIV or AIDS is a seriously dysfunctional behavior. Substance abuse is a personal health risk, lowers immunity, and also can spread HIV or AIDS to others through sharing of drug paraphernalia, risky sexual behavior while under the influence of drugs, or prostitution to support a drug habit (Campbell, 1999).

Although coping styles served as significant direct predictors and indirect linkages between some of the predictor and outcome variables, one major finding was that emotional distress, composed of depressive affect and anxiety, directly influenced distress over HIV or AIDS symptoms, without a mediating effect of coping style. This outcome supports the observation that general emotional distress symptoms, not directly or necessarily related to HIV or AIDS, predict greater HIV or AIDS related symptoms (Evans et al., 1997). In addition, our findings may further imply that greater general emotional distress exacerbates HIV-related physical symptoms and leads to a decline in physical status (e.g., Evans et al., 1997; Rowe, 1996). The direct relationship also suggests that parents living with HIV, who often report high levels of distress, may need to engage in clinical psychotherapeutic interventions or adopt stress-reduction methods that do much more than merely improve their coping skills to decrease their distress levels that in turn can exacerbate physical symptoms (e.g., Frego, 1995; Kelly, 1998).

Emotional stress was measured in this study with subscales from the BSI, an instrument that has been widely used with numerous populations (Derogatis, 1993), and the measure of illness stress was designed to be specific to those with HIV or AIDS. However, at least a portion of the powerful relationship that was found between emotional distress and the stress that is specific to illness symptoms may be due to a tendency to respond similarly to instruments that measure distress and stress as well as an overlap between the two constructs, so some caution is warranted in interpreting these particular results.

**Indirect effects on health-related outcomes**

Social support only exerted a positive influence on the health-related outcomes indirectly through its impact on active coping strategies. Greater social support (as mediated through active coping strategies) had an indirect, positive effect on health care satisfaction and an indirect negative
effect on substance abuse. These findings partially contradict those of Siegel et al. (1994), who found that greater social support contributed both directly and indirectly to improved mental health among terminally ill persons, although the findings more closely support the later work of Siegel et al. (1997), who found essentially no relationship between changes in social support and subsequent changes in physical symptomatology in their study of gay males. However, the bivariate association between social support and more effective coping found in this sample supports previous research on personal and social relationships (Green, 1994; Nyamathi et al., 1995; Ogbine & Collins, 1998; J. A. Stein & Nyamathi, 2000). In addition, Walen and Lachman (2000) also found that social support was more highly related to psychological well-being than to health.

It had been hypothesized that a special problem unique to being a parent with HIV or AIDS would be negative effects on health-related outcomes due to or associated with impaired relationships with one's children. Personal and social relationships assume greater importance when individuals feel near to death (Lang, 2000). However, greater conflict with adolescent children did not have significant direct or indirect effects on the parents' health outcomes in our analyses. Rather, conflict with adolescents was only associated significantly with more emotional distress and more passive coping strategies that were associated, in turn, with health-related outcomes. Perhaps a more sensitive measure of the parent-adolescent relationship would have revealed a greater direct impact of family conflict on health-related outcomes.

Limitations
The current study had several limitations. First, the data were cross-sectional and, thus, limit the causal conclusions that can be drawn. Alternative models might be equally plausible because effects may flow in a direction opposite to those proposed by our hypothetical path model or may be mutually influential (MacCallum, Wegener, Uchino, & Fabrigar, 1993). For instance, coping styles may influence parents' relationships with their adolescent children and also may determine the parents' ability to obtain good quality social support. A longitudinal design that controls for pre-existing tendencies would be helpful in sorting out this issue (Siegel et al., 1997). Second, the sample consists principally of ethnic minority parents, which limits the generalizability of the findings to other ethnic groups and to people of higher economic status. However, these parents are representative of the majority of parents living with HIV or AIDS, including the fact that most were women. Third, the research findings were based on interview data only; objective measures of the parents' physical health and the progression of their HIV or AIDS illness would have provided greater generalizability and depth to the findings.

Future research and applications
This study has implications for those designing interventions for parents living with HIV or AIDS. The results indicate that improved coping skills can
lead to an increase in health care satisfaction perhaps by more engagement in the health care process, and less substance use, which can exacerbate illness symptoms. Passive coping was associated with less satisfaction with health care and was predicted by emotional distress and conflict with adolescents. As support for these findings, interventions with a focus on improvements in coping skills have shown successful health-related outcomes among persons with cancer (Fawzy et al., 1990) and minority women at high risk for AIDS (Folkman & Moskowitz, 2000; Nyamathi & Stein, 1997; J. A. Stein, Nyamathi, & Kington, 1997). Although we did not observe a powerful link between parent–adolescent conflict and health-related outcomes in this study, interventions that address anger management in parent–adolescent conflict have also proven to be useful in the past (Stern, 1999).

Our principal result that improved coping skills could lead to improved health-related outcomes surely would apply to individuals without children too. However, this study draws attention to a growing population of individuals that may have been hidden in the past, parents with AIDS. Emotional distress has been associated with more avoidant coping and increased risk behavior among people with HIV or AIDS who do not have children, but it must be recognized that parents living with HIV or AIDS may be facing more even more stressors than nonparents. Future research should focus further on other unique issues for parents with HIV or AIDS and determine how these issues impact their health. For example, studies that directly compare individuals in similar circumstances with and without children would contribute substantially to our knowledge base concerning the implications of having responsibilities towards minor children while living with HIV or AIDS. Also, the age of their minor children may be important as well; older children may be able to provide important assistance in the home and deal with younger siblings (J. A. Stein et al., 1999). Younger children may not understand health problems of the parents and require more care than the parents can give them. With specialized knowledge about parenting while infected with HIV or AIDS, it may also be determined how older children can best help their parents, and how such interventions may be designed that keep the best interests of the children in mind at the same time (e.g., J. A. Stein et al., 1999). Interventions that assist in prolonging their lives through improvements in their health status will keep them in their vital parenting roles as long as possible.

REFERENCES


Wolf, T. M., Balson, P. M., Morse, E. V., Simon, P., Gaumer, R. H., Dalle, P. W., & Williams, M. H. (1991). Relationship of coping style to affective state and perceived social support in

