

Maternal HIV/AIDS and Depressive Symptoms Among Inner-City African American Youth: The Role of Maternal Depressive Symptoms, Mother–Child Relationship Quality, and Child Coping

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This study was designed to examine interactions between psychosocial risk (i.e., maternal depressive symptoms) and protective (i.e., child coping skills and mother–child relationship quality) correlates of depressive symptoms among inner-city African American children of mothers with and without HIV/AIDS. Two primary hypotheses were tested: (a) whether these correlates interact differently in HIV-infected and noninfected samples and (b) whether child coping skills and a positive mother–child relationship interact to protect children from developing depressive symptoms in the context of maternal HIV infection. Results indicated that (a) a positive mother–child relationship, but not child coping skills, was protective in the HIV-infected sample when maternal depressive symptoms were high and (b) the combination of a positive mother–child relationship and child coping skills was associated with the lowest level of child depressive symptoms in the HIV-infected sample. These findings highlight the differential importance of various risk and protective mechanisms for HIV-infected and noninfected African American samples and, as such, have preventative implications for children of HIV-infected women.

Keywords: maternal HIV, maternal AIDS, depressive symptoms, mother–child relationship, coping

African American children living in inner-city environments are exposed to myriad stressors, including poverty, overcrowding, neighborhood crime and violence, and drug use and dealing (see Leventhal & Brooks-Gunn, 2000, for a review). One stressor of increasing concern for low-income, inner-city African American children is maternal HIV/AIDS. This infection is the third leading cause of death for African American women 25–34 years of age (Centers for Disease Control & Prevention, 1999), many of whom are the primary, and often the only, caregiver for multiple children under the age of 18 (Schable et al., 1995). Accordingly, growing research attention has been devoted to the impact of maternal HIV/AIDS on child adjustment (e.g., Forehand et al., 2002).

Noninfected children of mothers with HIV/AIDS are at greater risk for psychosocial maladjustment, particularly internalizing problems, which include both symptoms of depression and anxiety, when compared with (noninfected) children of noninfected mothers (e.g., Forehand et al., 2002; Forsyth, Damour, Nagler, & Adnopo, 1996). In an attempt to prevent or ameliorate the risks

associated with maternal HIV/AIDS, researchers and clinicians have considered the development and implementation of prevention and intervention programs targeting these children (e.g., Rotheram-Borus et al., 2003). However, unlike other chronic maternal illnesses such as cancer, many mothers do not disclose their HIV status to their children because of the stigma associated with the illness in the African American community and the fear that their children will be adversely affected (Shaffer, Jones, Kotchick, Forehand, & the Family Health Project Research Group, 2001). Thus, in contrast to other family-based prevention and intervention programs, those programs targeting African American children whose mothers are infected with HIV/AIDS cannot necessarily discuss the mother's illness, the child's ability to cope with the illness, or its impact on the family.

An alternative to programs that directly address maternal HIV status are programs that universally target the psychosocial adjustment of African American children in one or both of the following ways: (a) teaching parents more effective parenting skills and (b) teaching children general cognitive and behavioral skills to strengthen their ability to cope with stressors in general rather than one stressor in particular. Determination of whether such programs are appropriate intervention strategies, however, depends on a better understanding of risk and protective factors associated with depressive symptoms among children of noninfected as well as HIV-infected mothers. If risk and protective variables operate similarly across groups, then prevention and intervention programs can be developed to target the needs of African American children more generally, regardless of maternal HIV/AIDS status. Alterna-

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tively, if these mechanisms operate differently in each group in terms of their impact on child depressive symptoms, then prevention and intervention programs should be more specifically targeted to the needs of children whose mothers have HIV/AIDS.

One salient risk factor and potential target for prevention programs is maternal depressive symptoms. A robust literature now documents the link between maternal depressive symptoms and child adjustment (for a review, see Goodman & Gotlib, 1999). More important, prior work with African American single mothers has suggested that they are at heightened risk for depressive symptoms (Barbee, 1992; Warren, 1994), which, in turn, potentially increases the risk for adjustment difficulties among their children (e.g., Jones, Forehand, & Neary, 2001). HIV infection further exacerbates women's risk for depressive symptoms, with low-income African American women with HIV/AIDS evidencing significantly higher levels of such symptoms than their demographically matched but noninfected counterparts (Jones, Beach, Forehand, & the Family Health Project Research Group, 2001). Building on the family transmission model of depressive symptoms, which suggests that depressive symptoms are transmitted from mother to child (Jones, Forehand, & Neary, 2001), depressive symptoms may be one particularly important domain of internalizing symptoms to examine among children in this group.

Beyond those factors that increase a child's risk for developing depressive symptoms, such as maternal depressive symptoms, several protective mechanisms have been identified. The quality of the mother-child relationship, specifically when characterized by greater warmth and support, has been associated with better child outcomes generally (for a review, see Basic Behavioral Science Task Force, 1996). Among children residing in high-risk circumstances, a warm and supportive mother-child relationship has been associated with resilience, buffering children from the negative effects of a range of psychosocial stressors (e.g., Masten, 2001). As one illustrative example, Armistead, Forehand, Brody, and Maguen (2002) found a significant association between warm and supportive parenting and lower levels of child problem behaviors in a sample of single-parent African American families.

A second protective factor that has been implicated in the prevention of depressive symptoms for children is their ability to actively cope with controllable and uncontrollable stressful situations. Through active coping strategies, such as problem solving, emotion regulation, and personal control, a child can maintain a problem-focused role in modifying stressful conditions and reducing negative emotions and cognitions (e.g., Compas, Langrock, Keller, Merchant & Copeland, 2001; Steele et al., 1999). Such coping strategies have been associated with fewer behavioral and emotional difficulties, especially internalizing problems (symptoms of depression and anxiety), among children (e.g., Langrock, Compas, Keller, Merchant, & Copeland, 2002; Steele et al., 1999).

The current study builds on the existing literature by examining psychosocial risk and protective correlates of depressive symptoms among inner-city African American children, 40% of whom have a mother with HIV/AIDS. This sample is particularly suited to an exploration of how risk (i.e., maternal depressive symptoms) and protective (i.e., child coping skills and mother-child relationship) factors interact within the two groups. In particular, do maternal depressive symptoms, child coping skills, and the quality of the mother-child relationship operate in similar or different ways for children whose mothers are and are not HIV infected?

We tested two hypotheses. First, we hypothesized that risk and protective variables would interact differently in the HIV-infected and noninfected samples. Specifically, we expected that, in the context of maternal depressive symptoms, either a warm mother-child relationship or an active child coping strategy would serve as more of a protective resource for children whose mothers were HIV infected than for children whose mothers were not infected. This hypothesis was based on the notion that maternal HIV infection itself serves as a stressor (Forehand et al., 2002) that is exacerbated by maternal depressive symptoms but buffered by a warm mother-child relationship and/or an active child coping style.

The second hypothesis examined the interactive role of the two protective factors, child coping skills and mother-child relationship, in buffering children from experiencing depressive symptoms in the context of maternal HIV infection. Specifically, we proposed that the combination of the two protective factors would buffer a child from experiencing depressive symptoms associated with maternal HIV infection.

Method

Overview

The current study is based on secondary analyses of data from the Family Health Project, a longitudinal investigation of the psychosocial functioning of low-income, inner-city African American women and their children (Family Health Project Research Group, 1998). The current analyses focus on the initial assessment when the sample size yielded adequate power to examine the proposed interactions.

Participants

Participants in the current study were 108 African American mothers (43 HIV infected and 65 noninfected) and their 9- to 11-year-old noninfected children. In an effort to examine those children who were at an age and developmental level to use coping skills in stressful situations (e.g., Forehand & Wierson, 1993; Ryan-Wenger, 1990), this subsample was selected from a larger sample of 241 children in which the children ranged in age from 6 to 11 years. The majority of participants lived in government housing projects characterized by overcrowding, high levels of poverty, and crime. Salient demographic characteristics for the sample were as follows: maternal education, 72% high school degree or less; average family income, \$718 monthly; mean child age, 10.12 years; child gender, 58% female and 42% male (see Table 1 for further information).

Specific eligibility criteria for the Family Health Project were as follows. Mothers ranged in age from 18 to 45 years, had to report no intravenous drug use for at least 6 months before the first assessment, and had to have at least one biological child in the 6- to 11-year-old age range. To study mothers who were at a relatively advanced stage of illness, the HIV/AIDS sample was limited to those mothers with a CD4 count under 600 ($M = 280$, range = 1 to 586).

Participants in the maternal HIV/AIDS sample were recruited through the primary public health clinic in New Orleans (93%), as well as from private physicians' offices (7%), over a 2-year period.

Table 1
Means, Standard Deviations, and Correlations for Demographic, Independent, and Dependent Variables

Variable	<i>M</i> (<i>SD</i>) or %	1	2	3	4	5	6	7	8	9	10
1. Child age (in years)	10.12 (0.78)	—	.08	.10	-.11	-.09	.02	-.08	.05	-.11	-.09
2. Child gender (% female)	58	—	—	.10	.03	-.04	.15	.08	.15	-.03	.05
3. Mother age (in years)	34.00 (5.50)	—	—	—	.04	-.07	-.05	.06	.05	.15	-.10
4. Mother education	2.03 (1.04)	—	—	—	—	.14	.17	-.03	-.06	.05	-.01
5. Family income (total per month; in dollars)	718 (476)	—	—	—	—	—	-.06	-.18	.02	.06	.03
6. HIV status (% infected)	40	—	—	—	—	—	—	.16	-.10	-.07	.18
7. Mother depressive symptoms	2.42 (3.21)	—	—	—	—	—	—	—	-.04	-.12	.01
8. Child coping skills	12.42 (4.64)	—	—	—	—	—	—	—	—	.24*	-.01
9. Mother-child relationship	9.19 (1.40)	—	—	—	—	—	—	—	—	—	-.40**
10. Child depressive symptoms	8.62 (6.83)	—	—	—	—	—	—	—	—	—	—

Note. For mother education, 1 = less than 9th grade, 2 = less than 12th grade, 3 = high school degree, 4 = some college or college degree.
* $p > .05$. ** $p > .01$.

During well visits, a project staff member approached mothers who appeared to meet study inclusion requirements, explained the study, confirmed eligibility, and scheduled a baseline assessment session.

A stratified random comparison sample of noninfected mothers was drawn from the same ZIP code areas in which the maternal HIV/AIDS sample resided. This sample, stratified on the basis of the school attended by the child, was recruited through five of the six public schools serving the targeted ZIP code areas. Recruitment occurred in two waves spanning 2 school years, with an equal number of participants recruited each year. In each of the two waves, letters describing the study and inviting participants to participate were sent to the homes of 30 African American mothers at each school. School personnel were asked to randomly select families to receive letters. In each wave, the first 15 mothers at each school to return a reply card constituted the sample. Mothers in this group identified themselves as noninfected in the first interview.

For the maternal HIV/AIDS sample, 95% of the mother-child dyads who were approached agreed to and did participate in each of two scheduled interviews. For the noninfected sample, 94% of the mother-child dyads returned the reply card indicating an interest in participating. Of the mother-child dyads selected for participation on the basis of the order in which they returned their cards, 100% participated in an initial (sociological) interview and 99% of these participated in the subsequent psychological interview.

Interviewers and Interviewer Training

As a function of the administration of two different types of interviews to each participant (i.e., sociological and psychological), two sets of interviewers were used. The first set consisted of five individuals (i.e., two PhD medical sociologists, one licensed social worker, and two graduate students in public health), all with extensive experience working with inner-city African American women. The second set of interviewers consisted of nine clinical psychology doctoral candidate graduate students and two doctoral-level licensed clinical psychologists, all with extensive experience in interviewing and assessing adults' individual and interpersonal psychosocial functioning. All interviewers were thoroughly trained in the use of their respective instruments during the pilot phases of

the project. Interviewer training ensured cross-interviewer reliability and enhanced sensitivity to cultural and socioeconomic status differences.

The data for the current study were from the psychological interview. The interviewers were all European American, and 73% of them were women. Preliminary examination of the data suggested no differences on the basis of interviewer gender. Interviewers were aware of mothers' HIV status but were not aware of the specific hypotheses of the current study. Each individual interviewed an approximately equal number of HIV-infected and noninfected mothers and their children.

Measures

Selection of culturally sensitive and appropriate instruments consisted of several steps. These included selecting constructs, discussing the constructs within focus groups, selecting and pilot testing measures with a group of African American mothers, and verifying the major constructs to be assessed with two more focus groups of African American mothers living in New Orleans. These latter two groups also provided information regarding recruitment and attrition issues (e.g., which interviewer characteristics were important, how participants could be made most comfortable; for more information, see Family Health Project Research Group, 1998).

Demographic information. The following demographic information was obtained from the mothers and children: age of child and mother in years and months; education of mother (1 = less than 9th grade; 2 = less than 12th grade; 3 = high school degree; 4 = some college or college degree); average family income from all sources received monthly (in dollars); and gender of child (1 = male; 2 = female).

Maternal HIV status. A diagnosis of maternal HIV/AIDS was confirmed via medical chart review and Centers for Disease Control and Prevention (CDC, 1992) staging procedures, the standard at the time of data collection, yielding 54%, 21%, and 25% classified as asymptomatic, symptomatic, and AIDS-diagnosed, respectively. Average time since diagnosis was 3.1 years ($SD = 2.1$).

Maternal depressive symptoms. The Depression subscale of the Brief Symptom Inventory (BSI; Derogatis & Spencer, 1982) was administered. The BSI is a 53-item inventory that was devel-

oped as a global measure of psychological symptomatology. Adequate reliability and validity data have been presented by the investigators who developed the scale (e.g., Derogatis, Rickels, & Rock, 1976) as well as by other researchers (e.g., Morlan & Tan, 1998). The internal consistency and test-retest reliability of the Depression subscale have been shown to be sufficient and to have adequate discriminant and convergent validity (e.g., Morlan & Tan, 1998). Each item was rated on a 4-point scale ranging from 0 (*not at all*) to 3 (*extremely*). This scale represented a modification of the standard BSI, on which individuals rate the items on a 5-point scale. The modification resulted from a focus group testing that suggested that, with oral administration of the instrument, a 4-point rating scale was easier to complete than a 5-point scale. Additional modifications included minor word and format changes to increase simplicity of verbal administration and comprehensibility. A mean score across items (range = 0–4) was calculated. The alpha coefficient for the current sample was .85.

Mother-child relationship quality. Child report on the short form of the Interaction Behavior Questionnaire (IBQ; Prinz, Foster, Kent, & O'Leary, 1979) was used to assess warmth and support in the mother-child relationship. This form consists of the 20 items that have the highest phi coefficients and the highest item-to-total correlations with the 75 items in the original IBQ. The short form correlates .96 with the longer version. The items, which may be endorsed as true or false, include "You enjoy spending time with your mother" and "You think you and your mother get along well with each other." Prinz et al. reported adequate internal consistency and discriminant validity. A confirmatory factor analysis indicated that 14 of the 20 items loaded on a single construct at .40 or above; accordingly, only these 14 items were examined in the primary analyses. The alpha coefficient for these 14 items was .71. Scores can range from 0 to 14, and after reverse scoring, higher scores indicate greater warmth and support in the mother-child relationship.

Child coping skills. Children's report of their own coping skills was assessed via seven items from the Schoolager's Coping Strategies Inventory (Ryan-Wenger, 1990). This measure was designed to assess coping skills in children between the ages of 9 and 12. Items assessing active behavior (e.g., "Draw, write, or read something") or emotion-focused coping (e.g., "Talk to yourself") were selected. The alpha coefficient was .62. Scores can range from 0 to 21, with higher scores indicating better, or more active, coping.

Child depressive symptoms. Child report of depressive symptoms was assessed by the Child Depression Inventory (CDI; Kovacs, 1981). The CDI consists of 27 items rated on a 3-point scale ranging from 0 (e.g., *You are sad once in a while*) to 1 (e.g., *You are sad many times*) to 2 (e.g., *You are sad all the time*). Adequate reliability and validity data with samples similar to the one participating in this study have been reported (e.g., Fitzpatrick, 1993), and standardization data are available for children and adolescents ranging from 7 to 17 years old. The alpha coefficient for the current sample was .83. Scores may range from 0 to 54, with higher scores indicating greater depressive symptoms.

Procedure

Each mother-child dyad in the noninfected sample was assessed at the child's school, and each mother-child dyad in the maternal

HIV/AIDS sample was assessed in a medical setting. When necessary, a taxicab was provided for transportation. On arrival at the assessment, the mother read and signed a consent form on behalf of herself as well as her child, and both were reassured of confidentiality. Subsequently, the mother and child were separated, and each individual was privately administered the sociological interview. The interview lasted approximately 1 hr. Participants received \$50 as compensation for participating.

A second interview, the psychological assessment component, followed the sociological interview within 2 days to 2 weeks. The purpose of this interview, from which data for the current study were drawn, was to assess the psychological functioning of the participating mother and child. The mother and child were separated, and each individual was privately administered the interview. The psychological interview lasted approximately 2 hr and the participant again received \$50 as compensation for participating.

Within each assessment session for both the maternal HIV/AIDS-infected and noninfected samples, all measures were administered verbally. In addition, cue cards were used in the psychological interview. These cue cards contained the descriptors (e.g., "not true," "sometimes true," "often true"), their corresponding numeric values (e.g., 0, 1, or 2), and pictorial representations of the descriptors (e.g., thermometers with various portions shaded).

Results

Preliminary Analyses

Preliminary analyses were conducted to examine the descriptive statistics for the demographic and major study variables as well as the correlations among these variables. The analyses are presented in Table 1. The correlation analyses indicated that the demographic variables were not associated with the dependent variable, and therefore they were not included in the primary analyses. Correlations between each independent variable and the dependent variable indicate that the mother-child relationship was associated with child depressive symptoms ($r = -.40, p < .01$) and that the association between maternal HIV status and child depressive symptoms approached the traditional significance level ($r = .18, p < .06$). When mothers were HIV infected and as the mother-child relationship became more negative, children reported higher levels of depressive symptoms. Child coping skills and maternal depressive symptoms were not related to child depressive symptoms; however, both variables were retained in the primary analyses as we were interested in the interactive effects of child coping skills and maternal depressive symptoms with maternal HIV status and the mother-child relationship.

Primary Analyses

Hierarchical multiple regression analysis was used to examine the research questions. Maternal HIV status and maternal depressive symptoms, the proposed stressors, were entered in Block 1. Mother-child relationship quality and child coping skills, the proposed protective variables, were entered in Block 2. The six two-way interaction terms among HIV status, maternal depressive symptoms, and the two protective variables were entered in Block 3: Maternal HIV Status \times Mother-Child Relationship Quality; Maternal HIV Status \times Child Coping Skills; Maternal HIV Sta-

tus × Maternal Depressive Symptoms; Maternal Depressive Symptoms × Mother–Child Relationship Quality; Maternal Depressive Symptoms × Child Coping Skills; and Child Coping Skills × Mother–Child Relationship Quality. In Block 4, three three-way interaction terms were entered: Maternal HIV Status × Maternal Depressive Symptoms × Mother–Child Relationship Quality; Maternal HIV Status × Maternal Depressive Symptoms × Child Coping Skills; and Maternal HIV Status × Mother–Child Relationship Quality × Child Coping Skills.

The three-way interaction terms were the primary interest in the study as they allowed tests of our two hypotheses. The first two interactions examined whether each of the protective variables buffered children from maternal depressive symptoms in the same way in the HIV-infected and noninfected samples. The third interaction examined how the two protective factors in combination buffered children from the stress of maternal HIV infection. The four-way interaction was not entered because power analyses indicated that the sample size was not adequate for testing a four-way interaction. As per the recommendations of Aiken and West (1991), continuous variables were centered before creating the interaction terms to reduce multicollinearity.

Maternal HIV status approached traditional levels of significance ($\beta = 0.18, p < .06$) in Block 1, indicating that children of mothers with HIV had higher levels of depressive symptoms than did those of noninfected mothers, whereas the association of maternal depressive symptoms with child depressive symptoms was not significant ($\beta = -0.02, ns$). In Block 2, there was a significant association between mother–child relationship and child depressive symptoms ($\beta = -0.43, p < .01$); as the mother–child relationship increased in quality, child depressive symptoms decreased. The association of child coping with child depressive symptoms was not significant ($\beta = 0.13, ns$). With the exception of the Maternal HIV Status × Mother–Child Relationship Quality interaction, which approached significance ($\beta = 0.55, p < .06$), none of the two-way interactions were significant or approached significance ($p > .10$ in all cases). The borderline two-way interaction was further qualified by a significant three-way interaction and, therefore, was not explicated.

Turning to the three-way interactions used to examine our hypotheses, two of the three interactions were significant: Maternal HIV Status × Maternal Depressive Symptoms × Mother–Child Relationship Quality ($\beta = 1.83, p < .01$), and Maternal HIV Status × Mother–Child Relationship Quality × Child Coping Skills ($\beta = 0.87, p < .05$). The three-way interactions were initially examined by conducting separate regressions for the non-infected and HIV-infected samples. The Maternal Depressive Symptoms × Mother–Child Relationship Quality interaction was significant in the HIV-infected sample ($\beta = -0.55, p < .05$) and in the noninfected sample ($\beta = 0.32, p < .01$). The interactions were explicated as recommended by Aiken and West (1991) using Preacher, Curran, and Bauer’s (2004) Web-based calculator. Different trends emerged for children depending on their mother’s HIV status (see Figure 1). A positive mother–child relationship (high IBQ) was protective when maternal depressive symptoms were low in noninfected families (top) and, of importance for the hypothesis we tested, when maternal depressive symptoms were high in families in which mothers were HIV-infected (bottom).

Turning to the Maternal HIV Status × Mother–Child Relationship Quality × Child Coping Skills interaction, the Mother–Child

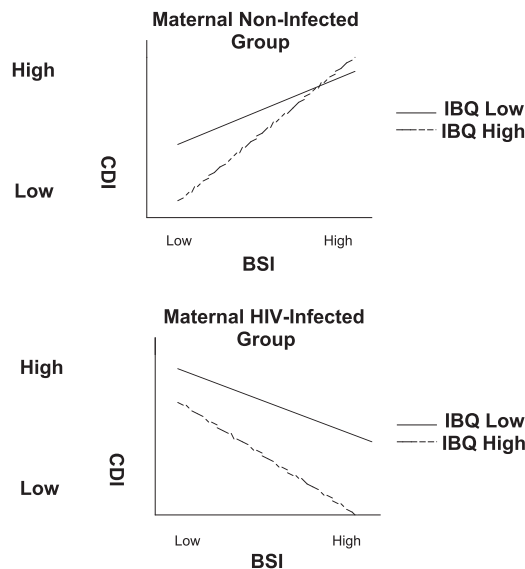


Figure 1. Maternal Depressive Symptoms (Brief Symptoms Inventory [BSI] Depression subscale) × Mother–Child Relationship Quality (Interaction Behavior Questionnaire, or IBQ) interaction, with child depressive symptoms (Child Depression Inventory, or CDI) serving as the outcome variable in families without and with maternal HIV infection.

Relationship Quality × Child Coping Skills interaction was significant in the sample of mothers with HIV infection ($\beta = 0.51, p < .05$), but not in the noninfected sample ($\beta = -0.01, ns$). As indicated in Figure 2, in the HIV-infected sample, a combination of a positive mother–child relationship quality and higher child coping skills was associated with the lowest level of child depressive symptoms and a combination of poor mother–child relationship quality and lower child coping skills was associated with the highest levels of child depressive symptoms.

Discussion

This study examined whether risk (maternal depressive symptoms) and protective (mother–child relationship quality and child

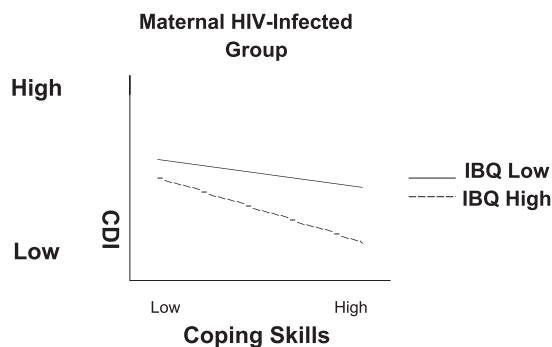


Figure 2. Mother–Child Relationship Quality (Interaction Behavior Questionnaire, or IBQ) × Child Coping Skills (Schoolager’s Coping Strategies Inventory) interaction with child depressive symptoms (Child Depression Inventory, or CDI) serving as the outcome variable in families with maternal HIV infection.

coping skills) factors operated similarly or differently among inner-city African American children depending on the HIV/AIDS status of their mothers. Consistent with the proposed hypotheses, a significant three-way interaction was obtained among maternal HIV/AIDS status, maternal depressive symptoms, and mother-child relationship quality. Of interest, a warm and supportive mother-child relationship was protective when maternal depressive symptoms were low in noninfected families. That is, children of noninfected mothers evidenced the lowest levels of depressive symptoms when the mother-child relationship was characterized by a high degree of warmth and mothers evidenced relatively low levels of depressive symptoms. This finding is consistent with past research that has suggested that children in general evidence better outcomes if they have more positive relationships with parents who are themselves well adjusted (e.g., for reviews, see Basic Behavioral Science Task Force, 1996).

In contrast to the findings when mothers were not infected, a warm and supportive mother-child relationship was associated with fewer depressive symptoms among children whose mothers were infected with HIV/AIDS when maternal depressive symptoms were high. There are several possible explanations for these findings. First, mothers who are both HIV infected and depressed may seek out family and community support for their parenting. This support may lead to lower levels of child depressive symptoms through two avenues: (a) directly, by a second adult providing support and appropriate parenting for the child, and (b) indirectly, by improving the mother-child relationship, which in turn leads to lower levels of child depressive symptoms. Second, both the mother-child relationship and child depressive symptoms were reported by the child. When a mother both is HIV-infected and has elevated depressive symptoms, her child may attempt to protect her from further stress by minimizing reported problems in their relationship or negative aspects of her affect or mood. In essence, the findings may have resulted from biased reporting by the child. Although confirmation of these explanations is beyond the scope of the current study, future studies should attempt to replicate the current findings and examine the proposed explanations.

In contrast to the proposed hypotheses, child coping skills did not serve as a protective variable in the context of the two stressors examined: maternal HIV infection and maternal depressive symptoms. One explanation for this finding is that the internal consistency of the coping skills measure was relatively low (.62), suggesting that the instrument may not have been the best indicator of coping for the current sample. In addition, the majority of child coping instruments, including the one used in the present study, ask children and adolescents to report the methods they use generally to cope with stressors; little attention is paid, however, to the characteristics of the stressor(s) that are the focus of the coping response (Connor-Smith, Compas, Wadsworth, Thomsen, & Saltzman, 2000). Because children and adolescents report significant differences in the use of coping strategies depending on the specific stressor identified (Fields & Prinz, 1997) and because no pattern of coping responses is assumed to be universally helpful or detrimental across stressors (Connor-Smith et al., 2000), our use of a global coping measure may not have been sensitive enough to detect the coping responses that would protect children in the context of these two particular stressors.

Of course, the aforementioned explanation of the null findings should be interpreted cautiously because a three-way Maternal

HIV/AIDS \times Mother-Child Relationship Quality \times Child Coping Skills interaction was obtained. Maternal HIV infection has been associated with child depressive symptoms in multiple studies (Forehand et al., 2002; Forsyth et al., 1996), suggesting that the infection or changes in mothers' behaviors associated with the infection is a stressor for children. Consistent with the stress-buffering hypothesis (Cohen & Wills, 1985), children can be protected from this stressor, but in this case not by a single buffer; rather, the combination of two variables, a positive mother-child relationship and child coping skills, is associated with lower levels of depressive symptoms. However, as children of noninfected mothers in this study also likely experienced stress from living in a high-risk inner-city environment, our interpretation of the findings implies that the stress-buffering effects by these two variables only apply to a specific stressor: maternal HIV infection. Future research could explore more complex models that examine whether buffers like maternal warmth apply to some types of stress (e.g., maternal HIV infection) but not others (e.g., violent communities).

Strengths and Limitations

As with all research, the findings of this study must be interpreted in light of its limitations. First, this study was cross-sectional; therefore, conclusions regarding causality among the variables examined cannot be drawn. Second, the small sample size may have reduced power to detect significant interactions and precluded the examination of higher order (four-way) interactions. Third, all interviewers were European American and all participants were African American. This difference in ethnicity may limit generalization of the findings. Fourth, the HIV status of the noninfected group was not independently verified, which could have reduced group differences if some of the mothers in this group were, in fact, infected. Fifth, as already noted, the internal consistency (alpha coefficient) of the child coping skills measure was relatively low (.62).

Strengths of the study also merit attention. First, data were collected from both mothers and children, decreasing the likelihood that significant findings were due to a common reporter. Second, African American families are still relatively understudied in the child and family literatures. Even less attention has been devoted to understanding the role of maternal HIV/AIDS in this group, in spite of the growing rates of HIV/AIDS among African American women of childbearing age. Accordingly, this study examines an important issue in a relatively understudied population. Finally, by examining both the mother-child relationship and child coping skills, protective variables from both the family and the child were included and examined in combination.

Implications for Research and Prevention

Research. Our two explanations for the Maternal HIV Status \times Maternal Depressive Symptoms \times Mother-Child Relationship Quality interaction focused on support received by these mothers for their parenting and on children reporting both the relationship quality and their own depressive symptoms. Future research can address these two explanations by assessing the assistance received by mothers from other sources, such as family, friends, and neighbors, and by assessing either the mother-child

relationship or child depressive symptoms from a source other than the child.

Future research could also use a coping skills measure with stronger internal consistency that focuses on the specific stressors being examined. In addition, future research could address the other limitations of the current study by using longitudinal data, larger samples, a match of ethnicity of interviewer and participant, and verification of the HIV status of the noninfected group. Finally, one focus of the current study was on group differences based on mothers' HIV status. Future research could build on our findings by examining within-group variables unique to the HIV-infected group. For example, maternal disclosure of HIV infection and level of perceived stigma likely varied across mothers in this group. Once between-group differences have been demonstrated, an examination of how variables such as disclosure and stigma operate within a maternal HIV-infected group can lead to a better understanding of how children adjust to the stressor of having an ill mother and suggest prevention strategies specific to maternal HIV infection. For example, do children's coping skills operate similarly or differently when children have and have not been told about their mother's infection?

Prevention. Our findings suggest that the risk and resource factors we studied do operate differently in the families in which mothers are and are not HIV infected. Specifically, the mother-child relationship was a buffer when maternal depressive symptoms were elevated, but only when mothers were HIV infected. Furthermore, the combination of a better mother-child relationship and more active child coping skills was associated with fewer child depressive symptoms, but again only when mothers were HIV infected. These findings suggest that a family-based approach that targets children whose mothers are infected with HIV/AIDS could include enhancing the mother-child relationship (e.g., teaching attending, praising, and positive communication skills), promoting child coping skills (e.g., use of distraction, positive thinking, and acceptance) to handle uncontrollable stressors (e.g., maternal HIV infection), and ameliorating maternal depressive symptoms (e.g., through the scheduling of pleasant activities and completion of thought records). More important, none of these strategies necessarily require maternal disclosure of the mother's HIV/AIDS to her child; rather, for example, activities involving the child could be conducted with a more general focus, such as how to cope with a mother's depressive symptoms and her changes in parenting behavior that may occur over time. The aim of such a general approach would be to enhance overall parenting skills, coping skills, and child and maternal adjustment to help a child adjust to the short- and long-term consequences of maternal HIV infection.

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