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The Psychosocial Functioning of HIV+ and HIV− African American Recent Mothers

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African American HIV+ and HIV− recent mothers were compared on levels of psychosocial functioning. Participants included 82 HIV+ and 122 HIV− women. HIV risk behaviors, stressors, coping resources, close relationships, coping responses, and psychological distress were examined. There were fewer statistically significant differences than expected, indicating that psychosocial functioning was relatively well preserved for the HIV+ women. There were no statistically significant differences in social support, close relationships or psychological distress. Statistically significant differences indicated that HIV− women perceived greater control over present health and sexual behaviors than HIV+ women, although HIV+ women used more sexual protection than did the HIV− women. HIV+ women also used avoidant as well as support coping more than their HIV− counterparts. These differences were also apparent in a discriminant function analysis, implying that they are independent of each other. Implications of the findings for future efforts to address HIV/AIDS in this community are discussed.

KEY WORDS: African American women; psychosocial functioning; HIV risk behaviors; stress process.

INTRODUCTION

There is a strong sense of urgency about AIDS among African Americans (Kaiser Family Foundation, 1998). Over half of African Americans surveyed rated AIDS as the most urgent health problem facing the nation today. The recent history of HIV/AIDS has shown African Americans to be disproportionately affected. African Americans presently represent 30.3% of all reported HIV cases, even though African Americans comprise only 13% of the US population (CDC, 1999). African American women have been particularly impacted by HIV/AIDS.

African American women represent the highest percentage (57%) of all AIDS cases reported among women (CDC, 1999). When standardized to population size, the disproportionate impact of HIV/AIDS on these women is even more striking. The AIDS case rate per 100,000 population for African American women is 16 times that of white women, 61.9 cases per 100,000 (CDC, 1998).

Whereas new cases among white women appear to be leveling off, new cases among African American women are still on the rise (National Center for Health Statistics, 1999). In addition to this finding, heterosexual contact has surpassed injection drug use as the most common mode of HIV transmission among African American women, accounting for 38% of new cases (CDC, 1999).

Whereas much research has been conducted exploring the psychosocial functioning of other groups of HIV infected individuals, there is a dearth of research on African American HIV+ women who are not current drug abusers. This article compares HIV risk behaviors and psychosocial functioning in African American HIV+ women to African American HIV− women. Psychosocial functioning is measured using variables derived from the stress

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process model as described by Lazarus and Folkman (1984) and Pearlin *et al.* (1981). The conceptual domains examined—Stressors, Coping Resources, Close Relationships, Coping Responses, and Psychological Distress—are important for psychosocial adjustment and represent factors associated with psychological distress and well-being that may be amenable to intervention.

Stress Process Model

Stressors

Stressors are life events or daily interactions that are appraised as a threat, challenge, or potential harm (Lazarus and Folkman, 1984). This negative appraisal is important because it distinguishes stressors from the normal consequences of social life and its various developmental stages (Pearlin *et al.*, 1981). Certain HIV infected populations have been shown to have a higher stressor load. HIV+ homosexual men were shown to experience a greater number of stressful life events than did their HIV− counterparts (Blaney *et al.*, 1990; Nott and Vedhara, 1999).

In any sample of individuals, there will be significant heterogeneity in the actual stressors experienced. For this study, we selected a population with a frequently occurring major life event, the birth of a child, to make the sample more homogeneous. The infant caregiving role may involve significant stress, and need for adjustment for recent mothers (Amodei *et al.*, 1997; Hackl *et al.*, 1997).

Coping Resources

Coping resources measure an individual's capacity or ability to raise specific coping responses (Pearlin and Schooler, 1978; Ross and Mirowsky, 1989). Coping resources are either internal—dispositions or beliefs—or external—individuals, groups or, social institutions—on which individuals can depend for help. The term resource brings to mind income or wealth and these, indeed, may be resources on which individual's can draw to help deal with psychosocial difficulties (Thoits, 1995), however, the women in the current study are urban low-income African American women, and do not have considerable financial resources.

Perceived Control. Perceived control is an internal resource that is determined both by the objective characteristic of stressors experienced and the woman's perception of these stressors. The extent that stressors are perceived to be controllable may determine the choice of coping response (Goodkin *et al.*, 1992; Lazarus and Folkman, 1984).

Social Support. Social support is a resource external to the individual that involves relationships with other individuals or groups. Social support includes supportive interactions (Turner, 1981) and may include "instrumental, informational, and/or emotional assistance" (Thoits, 1995). Higher levels of social support have been related to better psychosocial functioning for both young recent mothers generally (Barratt *et al.*, 1996; Sacco and Macleod, 1990) and HIV infected recent mothers specifically (Sharts-Hopco *et al.*, 1996).

Close Relationships

Close romantic and familial relationships are important potential sources of social support. The quality of these relationships may affect the extent to which romantic and familial relationships are effective sources of support, or generate conflict and are a source of stressors.

Coping Responses

Reported coping responses are defined in terms of actions or cognitions which the individual employs to address stressful events or problems. The choice of an appropriate coping response (Carver *et al.*, 1989; Lazarus *et al.*, 1984; Pearlin and Schooler, 1978) to stressors is believed to involve consideration of the level of resources available. In a study of coping responses of 287 HIV+ and HIV− male injection drug users, HIV− subjects reported being better able to cope with their situation in general than HIV+ subjects. Additionally, the development and use of early techniques of coping were associated with later psychological adjustment and emotional control (Brook *et al.*, 1997).

Psychological Distress

Psychological distress is the culmination of the stress process and results when stressors are stronger or more numerous than an individual's coping resources and coping responses can ameliorate. Blaney

et al. (1990) found that HIV+ gay men did not show significantly higher distress than did HIV− gay men, though there were a subset of HIV+ gay men who reported significant levels of distress. In a longitudinal study of IV drug users with a history of major depression, HIV+ drug users were at a considerable greater risk than HIV− drug users for future episodes of major or recurrent depression (Johnson *et al.*, 1999).

This Study

Whereas the literature is rich with knowledge about psychosocial functioning of HIV+ white, gay males, and drug users, very few studies have looked at this topic in HIV+ African American women, compared to their HIV− counterparts. How are these nondrug using women coping with life's stressful experiences *and* the burden of HIV infection? Is there a difference in psychosocial functioning by serostatus? This study attempts to fill the gaps in the existing knowledge about these vitally important issues by reporting on a comparison of HIV+ and HIV− African American women who have recently given birth.

METHOD

Sample

A total of 204 women participated in this study (82 HIV+, and 122 HIV−). All participants were third generation African American, and were recruited from clinics in a large urban hospital in the southeastern United States. To be eligible, mothers had to be at least 17 years of age (no upper age limit), know their HIV serostatus at the time of delivery, and have a family member willing to participate. HIV+ mothers had to have CD4 cell counts >200 and no symptoms by self-report. Homeless women were excluded. Having an address was necessary in devising a mechanism for accurate tracking of participants. Women with a psychiatric condition severe enough to cause hospitalization were also excluded because handling such severe conditions was beyond the scope of the study.

Participants were primarily young adults (mean age = 25.9 years, $SD = 6.0$) with an age range from 17 to 40 years. Median income was $6,544, 88% were unemployed, 84.2% received public assistance, and only 2% owned their homes. The households consisted largely of women who never married and were not living with a partner (62.6%). The median number of children was 2.8. At least 74% of the participants completed high school or its equivalent. The HIV+ women were mostly asymptomatic, with only 21.7% reporting any history of minor, non-AIDS defining symptoms. The mean CD4 cell count for HIV+ women was 532 cells ($SD = 256$).

Women were recruited from either waiting rooms during a routine medical visit or in their birthing rooms shortly after delivery. An interviewer explained the study, answered questions, and read and obtained informed consent. Eligible family members likewise signed consent forms after the study was fully explained to them. Because of the multiplicity of family members and the heterogeneity of relationships to the new mother, data here are from the woman's assessment only.

Procedure

Once the mother and her family agreed to participate, a data collection session was arranged. The assessment was conducted in the participant's home at 2 different times. The first assessment was conducted between 2 and 6 months postpartum. The second assessment was conducted approximately one year later. Data presented here are from the baseline interview. The interview took approximately 2 hr to complete and the women were compensated $25.00 per interview for their participation.

Measures

Measures were selected that characterized demographics and HIV risk behaviors to provide contextual information about the sample. The psychosocial functioning measures in this study were chosen because they are important components of the stress process: stressors, coping resources, relationships, coping responses, close relationships, and psychological distress.

HIV Risk Behaviors

Sexual Risk Behavior Assessment Schedule (Meyer-Bahlburg *et al.*, 1990). This 48-item questionnaire assessed sexual and intravenous drug use risk factors for HIV transmission. Items included in analyses were questions about (1) the number of sexual partners last year; (2) the number of sexual episodes last year; (3) amount of protected sexual activity (using a condom or dental dam in oral sex, using a condom in vaginal or anal sex); and (4) history of

intravenous drug use. This instrument has been widely used with African American populations.

Stressors

Life Experiences Survey (Sarason *et al.*, 1978). This scale assessed the presence of major life stressors within the prior year. To reduce subject burden, a 10-item modified version was used in our study. The original 47-item questionnaire was administered to a pilot sample of 47 HIV+ and 61 HIV− African American women (Hinkle, 1991). The 10 most often endorsed items became our modified version. Participants listed the occurrence of events, and rated them for desirability. Negative life events were determined by the number of negatively rated events endorsed.

Hassles (DeLongis *et al.*, 1988). The Hassles Scale was designed to assess daily hassles occurring during the past 30 days. We modified the scale for relevance to the population being investigated, resulting in a 64-item instrument. Two items from the original 53-item scale were omitted because in prior work they had been found to be rarely endorsed by the population – contraception (Item #28) and eating at home (Item #49). In addition, 13 items were added – your ex-spouse, your lover, your ex-lover, health and well being of your lover, your neighbors, enough money for health care, someone else's smoking, someone else's drinking, someone else's drug or medication use, your mental abilities, your children's future, social and support services, and transportation. The scale used in this study was the count of hassles, rather than the impact of hassles to avoid confounding with measures of distress. Cronbach's alpha for the hassles scale was .80 for this sample.

Ranking of Problems. This descriptive instrument was developed at the Center for Family Studies (Greenwood *et al.*, 1995). All of the participants were asked to list their 5 biggest problems. The women's responses were recorded into a one or two sentence text field. These responses were then organized into 38 short descriptive categories. To assess reliability of this coding system, 70 of the assessments were reclassified from the original text field. The kappa statistic for interrater reliability was .85. The five most frequently reported problems are presented here.

Coping Resources

Perceived Control Questionnaire (Hinkle and Antoni, 1991). Perceived control of life stressors was measured with 12 items assessing the respondent's perceptions of personal control over certain life events (e.g., health of the respondent and her children, source of money, sexual behaviors, etc.). Cronbach's alpha for this sample was .70.

Social Support Questionnaire (Sarason *et al.*, 1987). The short form of the Social Support Questionnaire, SSQ6, was used in this study. It is a 6-item questionnaire that used a structured approach to identify social network membership. It was used to determine the number of people in the respondent's support network and satisfaction with that network. The Cronbach's alpha coefficients for this sample were .80 and .79 for number and satisfaction respectively.

Close Relationships

Quality of Relationship Inventory (Pierce *et al.*, 1991). This 39-item questionnaire measured the respondent's quality of relationships with her significant other, if she had one. Items assessed the perceived availability of social support from this relationship, the extent to which the relationship was viewed as being positive, important, secure, and finally, the extent to which the relationship was a source of conflict and ambivalence. The Cronbach's alpha for this sample was .90 for the total score.

Parental Bonding Instrument—Mother Form and Father Form (Parker *et al.*, 1979). The Parental Bonding Instrument, a 25-item measure, was designed to tap the respondent's perceptions of parental bonding and attachment during the respondent's first 6 years of life. The measure yielded 2 subscales of parental bonding—parental care and parental overprotection. Cronbach's alpha for this sample were as follows: parental bonding, father care = .90; parental bonding, father overprotection = .72; parental bonding, mother care = .90; and parental bonding, mother overprotection = .77.

Coping Responses

Coping responses were measured using a shortened version of the COPE (Carver *et al.*, 1989). This 38-item questionnaire consisted of statements to which respondents rated, on a 4-point Likert scale, the extent to which they engaged in the stated activity (e.g., I've been arguing with people around me, I've been looking for something good in what's happening, etc.). The instructions for this administration requested the respondent to respond with respect to

how they were coping with the stress of the newborn and the newborn's effect on them. A confirmatory factor analysis on the current sample based on prior investigations with this and the parent scale (Blaney *et al.*, 1997; Feaster *et al.*, 1998) showed three factors to adequately characterize the majority of the coping behaviors.

Active Coping (Cronbach's $\alpha = .74$). This included items that measured taking action, planning, positive reframing, and acceptance.

Support Coping (Cronbach's $\alpha = .80$). This included indicators of seeking emotional support, seeking instrumental support, talking with friend or therapist, and seeking comfort from religion.

Avoidant Coping (Cronbach's $\alpha = .86$). This included indicators of behavioral disengagement and self-distraction, denial, self-blame, ventilation, stoicism, yearning for the past, suppression of feelings and thoughts, and arguing. It should be noted that the components of "avoidant coping" have not always been shown to be maladaptive. In fact, Antoni *et al.* (1990), Greenwood *et al.* (1996), and Mulder *et al.* (1999) found "avoidant coping" scores to be related to good outcomes, whereas numerous others found "avoidant coping" scores to be related to poor outcomes (Blaney *et al.*, 1997; Commerford *et al.*, 1994; Feaster *et al.*, 1999; Fukunishi *et al.*, 1996; Kurdek and Siesky, 1990; Remien *et al.*, 1992; Rosengard and Folkman, 1997).

Psychological Distress

Perceived Stress Scale (Cohen *et al.*, 1983). The Perceived Stress Scale, a 14-item scale, was designed to measure the degree to which situations in the respondent's life were appraised as stressful (i.e., perceived stress). Items were designed to tap the degree to which the women found their lives unpredictable, uncontrollable, and overloaded. The Cronbach's alpha coefficient for total perceived stress was .72 for this sample.

Structured Interview Guide for the Hamilton Anxiety and Depression Subscales (Williams, 1988). The SIGH-AD, a semistructured interview for obtaining symptoms of anxiety and depression in the 7 days prior to administration of the interview was used. The SIGH-AD combines the 14-item Hamilton Anxiety Rating Scale (Hamilton, 1959) and the 17-item Hamilton Rating Scale for Depression (Hamilton, 1960). The Cronbach's alpha for anxiety and depression in this sample, were .83 and .77, respectively.

Statistical Analyses

Demographic variables were compared across HIV serostatus using Student's t tests for continuous variables and χ^2 tests for categorical measures. Multivariate analyses of variance (MANOVA) within conceptual domain were performed to test for difference in mean levels by HIV serostatus. Significant multivariate effects were followed by t tests on the individual measures within a domain. Finally, a discriminate function analysis was performed to determine both whether each of the sexual risk behavior measures and the stress process measures were independently related to HIV serostatus controlling for the other predictors. The variables in the close relationships category were not included in a multivariate test because of the structural patterns of missing data (if a participant did not have a romantic partner, father figure or mother figure, the measures were not administered). For these measures, individual tests with a Bonferroni correction are employed.

Measures were grouped by conceptual domain. The stress process measures were divided into five distinct categories: (1) HIV risk behaviors with 4 measures; (2) stressors with 2 measures (the top 5 problems are presented in a descriptive analysis and not a part of the testing); (3) coping resources with 3 measures; (4) The social relationships category containing 8 measures requiring a p-value of less than .0063 (univariate analysis with a Bonferroni correction is included here because of the structural missing data described earlier); (5) coping responses category containing 3 measures; and (6) psychological distress category with 3 measures.

RESULTS

Demographic characteristics are reported in Table I. Tests of HIV related differences showed that the women in our study did not differ significantly by serostatus on demographic characteristics.

HIV Comparisons by Domain

HIV Risk Behavior

The sexual risk behavior measure demonstrated significant differences by HIV status, $F(4, 194) = 6.21$, $p < .0001$; Table II. HIV+ women used more sexual protection than did their HIV-counterparts, $t(197) = 4.03$, $p < .0001$. In addition, more of the

Table I. Demographics

	Total	Status	
		HIV+	HIV−
Number of subjects	204	82	122
Age of subjects	25.936 (6.009)	26.605 (5.598)	25.492 (6.250)
Modal level of education	High School	High School	High School
Median income	$6,544	$7,080	$6,000
Median number of children	2	3	2
% of subjects employed	11.8	11.1	12.3
% of subjects receiving public assistance	84.2	86.4	82.8

HIV+ women had a history of IV drug use than the HIV− women, $\chi^2(n = 198) = 6.38$, $p = .012$. HIV positive women tended to have more sexual partners in the prior year, though this difference was not statistically significant, $t(197) = 4.03$, $p < .10$. There was no difference in the number of sexual episodes last year, $t(197) = 0.08$, $p < .93$.

Stress Process

Components of the stress process were grouped conceptually for analyses. These included stressors (hassles and negative life events) in Table III, coping resources (social support and perceived control) in Table IV, close relationships (quality of relationship and parental bonding) in Table V, coping responses in Table VI, and psychological distress (perceived stress, anxiety, and depression) in Table VII.

The multivariate test of stressors as measured by negative life events and hassles was not significant, $F(2, 198) = 0.15$, $p < .87$; Table III. Results of the Ranking of Problems, demonstrated that money was the most frequently mentioned problem among both HIV+ (15.0%) and HIV− (14.8%) urban African American women who had recently given birth to a child. This is not surprising considering that the women are overwhelmingly very poor. Again, not surprisingly, HIV concerns ranked second among HIV+ women, whereas health concerns of any kind were not reported as a major problem by HIV− women. Employment, personal relationships, transportation, and housing were the next most frequent responses on both lists, suggesting that daily problems in living were of concern to both groups.

The mulivariate test of coping resources was significant, $F(3, 197) = 3.04$, $p < .03$; Table IV. Examining the individual measures, there was greater perceived control over present health and sexual behaviors among the HIV− women than among the HIV+ women, $t(199) = 4.03$, $p = .0001$. However, neither social support count, $t(199) = 0.08$, $p < .94$, nor social support satisfaction, $t(199) = 0.18$, $p < .86$, showed significant differences by HIV serostatus.

The relationship measures demonstrated no significant differences by serostatus (Table V). The number of women reporting having a significant other, $\chi^2(n = 204) = 0.04$, $p < .84$, a mother figure, $\chi^2(n = 204) = 2.10$, $p < .15$, and a father figure, $\chi^2(n = 204) = 0.31$, $p < .58$, while growing up, were not significantly different by HIV serostatus. For the women reporting these relationship, neither were the quality of relationship inventory, $t(117) = 0.64$, $p < .52$, parental bonding to mother figure, Care: $t(198) = 0.09$, $p < .35$; Overprotection: $t(198) = 0.77$, $p < .44$, and parental bonding to father figure, Care: $t(198) = 1.72$, $p < .09$; Overprotection: $t(198) = 0.02$, $p < .82$, significantly different by serostatus.

The multivariate test of coping responses was significant, $F(3, 198) = 4.03$, $p < .008$; Table VI.

Table II. Risk Behavior Measures

	Total	Status		*t* test	*p*-value (2-tailed)
		HIV+	HIV−		
Sexual Risk Behavior Assessment Schedule					
Sexual protection	9.24 (3.17)	10.32 (3.51)	8.54 (2.71)	−4.03	.0001
History of IV drug use	3.6%	8.1%	.8%	6.38	.012
Number of sexual partners last year	1.63 (2.02)	1.92 (2.72)	1.44 (1.35)	−1.66	.10
Number of sexual episodes last year	123.00 (192.08)	124.38 (151.86)	122.09 (215.19)	−0.08	.93

Note. Values in parenthesis are *SD*s. Multivariate HIV effect: $F(4, 194) = 6.21$; $p < .0001$.

Table III. Stressors

		Status			
	Total	HIV+	HIV−	*t* test	*p*-value (2-tailed)
Hassles[a]	21.80 (11.15)	21.46 (11.14)	22.02 (11.21)	—	—
Negative Life Events[a]	1.94 (1.56)	1.88 (1.55)	1.98 (1.57)	—	—
Ranking of Problems[b]					
Money problems		15.0%	14.8%		
HIV concerns		12.6%	[c]		
Employment		8.2%	11.6%		
Personal relationships		7.1%	10.1%		
Transportation		[c]	8.1%		
Housing		7.1%	7.7%		

Note. Values in parenthesis indicate *SD*s. Multivariate HIV effect: $F(2, 198) = 0.15$; $p < .87$. Dashes indicate test was not run because multivariate test was not significant.

[a]The count of Hassles and Negative Life Events was used as opposed to the intensity.

[b]Percent of Subjects Ranking Problem Among the Top 5 Problems in their Lives (not included in multivariate test).

[c]HIV concerns was not in the Top 5 Ranked Problems of HIV− women and Transportation was not in the Top 5 Ranked problems of HIV+ women.

Avoidant coping, in particular, was used more often by the HIV+ women, $t(200) = 2.44$, $p < .016$. Support coping also demonstrated greater use among HIV+ women, $t(200) = 02.67$, $p < .008$. There was no difference in the use of active coping, $t(200) = 0.27$, $p < .79$.

The multivariate test for psychological distress used a self report measure, the Perceived Stress Scale (Cohen *et al.*, 1983), and two clinical measures, the Hamilton Anxiety Rating Scale (Hamilton, 1959) and the Hamilton Scale for Depression (Hamilton, 1960). The multivariate test for psychological distress was not significant, $F(3, 139) = 0.29$, $p < .84$; Table VII.

Discriminate Function Analysis

A discriminate function was estimated to determine if the variables as a group significantly differed by HIV serostatus. The discriminate function analysis creates a linear combination of the individual variables that will optimally predict group membership. If this function is a significant prediction of group membership, it also implies that the variables as a group are significantly different across HIV serostatus. The discriminate function also differs from the multivariate and simple comparisons because it considers the impact of all variables jointly. Importance of the discriminate function is conditional on all other variables in the model, and thus the importance of individual variables may differ from the simple tests.

Because the relationship measures were only collected for women who had the particular measurement, indicators of whether the relationship existed (e.g., yes/no significant other relationship) were included in the analysis, but not the measures of relationship quality (which were not available for cases without that particular relationship). Because the SIGH-AD and the perceived stress scale were added to the assessment battery later in the study, there were substantial missing data for these measures and the analysis was done with and without these variables.

Results are presented in Table VIII. In both specifications, with all variables, $\chi^2(18) = 31.852$, $n = 140$, $p < .023$, and excluding both the SIGH-AD and perceived stress variables $\chi^2(15) = 46.618$, $n = 197$, $p < .0001$ the discriminate function was statistically

Table IV. Coping Resources

		Status			
	Total	HIV+	HIV−	*t* test	*p*-value (2-tailed)
Perceived Control	39.36 (6.63)	37.74 (6.26)	40.44 (6.67)	2.89	.004
Social Support					
Number of people	10.23 (5.73)	10.27 (6.13)	10.21 (5.47)	−0.08	.94
Satisfaction	32.79 (4.89)	32.86 (5.18)	32.74 (4.71)	−0.18	.86

Note. Values in parenthesis are *SD*s. Multivariate HIV effect: $F(3, 197) = 3.04$; $p < .03$.

Table V. Close Relationships[a]

	Total	Status		*t* test	*p*-value (2-tailed)
		HIV+	HIV−		
Current Relationships					
% with a relationship[b]	57.6%	56.8%	58.2%	−0.04	.84
Quality of Relationship Inventory	115.87 (11.72)	116.72 (11.84)	115.31 (11.70)	−0.64	.52
Past Relationships Parental					
Bonding Instrument – Mother					
% with a mother or mother figure[b]	98.0%	96.3%	99.2%	2.10	.15
Care	26.37 (8.57)	27.08 (8.68)	25.92 (8.50)	−0.09	.35
Overprotection	17.64 (7.86)	18.18 (7.81)	17.30 (7.90)	−0.77	.44
Parental Bonding Instrument – Father					
% with a father or father figure[b]	28.1%	25.9%	29.5%	0.31	.58
Care	25.77 (9.33)	27.35 (8.90)	24.66 (9.51)	−1.72	.09
Overprotection	17.57 (17.57)	17.40 (7.50)	17.69 (7.44)	0.02	.82

Note. Values in parenthesis indicate *SD*s.

[a] Because of structural missing data patterns, a multivariate test is not conducted, a Bonferroni correction would require significance at .0063 to be significant at the .05 level. Sample sizes were 118, 199, and 147 for the Quality of Relationship Inventory, Parental Binding Instrument – Mother, and Parental Bonding Instrument-Father, respectively.

[b] The test for these variables is a chi-square statistic.

significant, thus showing this set of variables as a whole to be significantly related to HIV serostatus. The two specifications showed similar results regarding which variables were important for this discrimination. The absolute size of the standardized discriminate function coefficients as well as the correlation of the particular variable with the discriminate function can be used to gauge a particular variable's importance. Perceived control was negatively associated with being HIV+, whereas avoidant coping, support coping, having a mother figure while growing up, using more sexual protection, and a history of IV drug use were all positively related to being HIV+. These results match those found in the univariate results. Hassles, which had a relatively large weight in the discriminate function had a much smaller correlation with the value of the discriminate function (the weighted sum of all the predictors), and thus was not as important to the discrimination between groups as variables with larger correlations with the value of the discriminate function. This is consistent with Hassles not showing a significant mean difference by HIV status in the multivariate tests mentioned earlier. Having a current relationship was negatively related to HIV serostatus only in the smaller sample that included the SIGH-AD variables.

DISCUSSION

We sought to describe how the psychosocial functioning of HIV+ recent mothers differed from their HIV− counterparts. Our goal was to assess differences in psychosocial functioning in an effort to identify manifestations of the added burdens of HIV infection. What are the implications of these findings?

HIV Risk Behaviors

One unexpected finding was that HIV+ women were more likely to engage in safer sex than their HIV− counterparts. However, the level of unsafe sexual activity within both of these populations remains

Table VI. Coping Responses

	Total	Status		*t* test	*p*-value (2-tailed)
		HIV+	HIV−		
Cope Factors					
Active coping	24.95 (5.26)	25.08 (5.13)	24.87 (5.36)	−0.27	.786
Avoidant coping	31.19 (9.83)	33.25 (8.88)	29.84 (10.22)	−2.44	.016
Support coping	21.24 (5.79)	22.56 (5.47)	20.38 (5.85)	−2.67	.008

Note. Values in parenthesis are *SD*s. Multivariate HIV effect: $F(3, 198) = 4.03$; $p < .008$.

Table VII. Psychological Distress

		Status			
	Total	HIV+	HIV−	*t* test	*p*-value (2-tailed)
Perceived Stress	24.20 (8.39)	24.16 (7.26)	24.23 (9.25)	—	—
SIGH-AD					
Anxiety	6.08 (6.78)	6.60 (6.81)	5.64 (6.75)	—	—
Depression	6.01 (5.30)	6.07 (5.05)	5.97 (5.54)	—	—

Note. Values in parenthesis are *SD*s. Multivariate HIV effect: $F(3, 139) = 0.29$; $p < .84$. Dashes indicate test was not run because multivariate test was not significant.

unacceptably high. The higher level of safer sex in the HIV+ women reflects the capacity for lifestyle change. Because many of these women also turned away from a drug lifestyle it suggests the question of whether broad lifestyle change is required in this population to bring about safer sex. Additional research is needed on the trajectories of HIV+ and HIV− women who move from risky to safer sexual behaviors.

Stressors

We purposely selected women who had recently given birth to attempt to control for the inherent heterogeneity in the types of stressors experienced and indeed there was no significant difference in stressors by HIV status. This appears to indicate that HIV does not increase the number of stressors experienced in the first year postpartum. However,

Table VIII. Standardized Canonical Discriminate Function Coefficients and Correlations with Function

	Excluding SIGH-AD & perceived stress[a]		With all predictors (reduced sample)[b]	
	Function coefficients	Correlation with function	Function coefficients	Correlation with function
Sexual risk behaviors				
Sexual protection	.628[c]	.536[a]	.656[a]	.539[a]
History of IV drug use	.417[c]	.330[a]	.306[a]	.287[a]
# of Sexual partners last year	−.120	.218[a]	−.071	.276[a]
# of sexual episodes last year	.049	.011	−.015	−.160
Stressors				
Hassles	−.358[c]	−.068	−.492[a]	−.164
Negative life events	−.120	−.077	−.042	−.125
Resources				
Perceived control	−.538[c]	−.350[a]	−.470[a]	−.366[a]
Social support-number	.059	.029	−.032	−.064
Social support-satisfaction	−.018	.059	.114	.107
Close relationships				
% with current relationship	−.120	−.011	.298[a]	.321[a]
% with mother figure	.221[a]	.235[a]	.233[a]	.168
% with father figure	.009	−.089	−.098	−.195[a]
Coping responses				
Active coping	−.135	.072	−.157	.013
Avoidant coping	.277[a]	.330[a]	.248[a]	.185[a]
Support/comfort coping	.510[a]	.382[a]	.323[a]	.285[a]
Distress				
Perceived stress	—	—	.003	−.051
Anxiety (SIGH-AD)	—	—	.144	.081
Depression (SIGH-AD)	—	—	−.146	−.023

[a] $\chi^2 = 46.618$; $df = 15$; $p = .0001$; $n = 197$.
[b] $\chi^2 = 31.852$; $df = 18$; $p = .023$; $n = 140$.
[c] Significant at below the .05 level using fisher's z-transformation for correlation coefficients.

at-risk African American women do experience a heavy stress load (Carroll, 1998; McAdoo, 1995), perhaps in part because of their social location – urban, low-income, and multiple minority status. Both HIV+ and HIV− women ranked money the number one problem (stressor). This translates to approximately 15% of our sample population endorsing finances as a greater concern than HIV. Whereas this may at first appear to be small, we offer an analogy of disease. If 15% of a sample population of children in an inner city had asthma which was being considerably exacerbated by air pollution, would we not consider air pollution a serious problem to be addressed by health officials? For low-income African American women economics is a major obstacle in daily life, and consequently it is also an obstacle to health care. Therefore, promoting interventions at a micro level (e.g., economic counseling) or macro level (e.g., bringing jobs into the inner city) would be helpful for a significant portion of this population. For these women, care for HIV and other health problems is hindered by a lack of economic resources. This lack of economic resources creates difficulty accessing medical care, both because of its cost, and also associated costs such as transportation and child day care when going to the doctor. More indirectly, lack of money, as a stressor, may affect the immune system and physical health (Goodkin and Visser, 2000; Robbins *et al.*, 2000).

A comparison of the African American women (HIV+ and HIV−) in our study to other sample risk groups in the literature revealed interesting findings. Blaney *et al.* (1990) reported that HIV+ gay men had significantly higher negative life events than did HIV− gay men given the Life Experiences Survey, whereas our African American women showed no difference by HIV serostatus. Our ability to compare stress across studies is limited by our revision of the Life Experiences Survey. However, a more direct comparison of the current data with the Blaney *et al.* (1990) cohort (for which we have access to the raw data) showed that the HIV− African American women had significantly higher negative stressors than did the HIV+ gay men. Thus, HIV+ and HIV− African American women showed slightly more negative life events than HIV+ gay men, who have been shown to be elevated relative to HIV− gay men. When it comes to stressors, the conditions of being black in the inner city may overwhelm the usual stressors that accompany early HIV infection. Note that some of the differences between HIV+ gay men and African American women compared here may be related to the samples being collected several years apart, with the samples for gay men collected in the late 1980s and the African American Women in the early to mid-1990s when treatment options had already made the future somewhat less bleak for persons with HIV (though access to these new treatments remained an issue for African Americans).

Coping Resources, Close Relationships, and Coping Responses

Perceived Control

Perceived control was shown to be lower in the HIV+ group. However, there was no difference in social support or the quality of close relationships. This finding suggests the need for a way of empowering these women. Feeling that you have no control over what happens to you often encourages hopelessness and helplessness. Promoting partnership with health care providers as well as psychoeducational interventions to highlight controllable aspects of their disease would be helpful. Our team is currently testing family-based interventions which are intended, among other outcomes, to enhance the women's perceived control over their lives, social context, and health (Mitrani *et al.*, 2000; Nelson *et al.*, 2000).

Social Support

There were no significant differences by HIV status on social support count or satisfaction. There were also no indications of differential quality of close relationships. Although not shown in the self-report data collected, our clinical observation as part of interventions with similar samples revealed conflicting relationships between the women and their family members/significant others. Thus, although women could report that they could count on their significant others for important emotional and instrumental support, the low level of perceived control may have been associated with their inability to manage interpersonal conflict. Interventions that help the women to achieve a greater sense of mastery over their social support would be helpful. This is one of the targets in our family and social ecological interventions (Mitrani *et al.*, 2000).

Support Coping

HIV+ women did report utilizing more support coping. This indicates that whereas the amount of social support available was not different, the

HIV+ women chose to utilize social support more. Thus it might be that HIV+ women are compensating for their lower perceived control, in part, by utilizing more social support.

Avoidant Coping

The HIV+ women did use more avoidant coping than did the HIV− women. Prior research has shown that this can be adaptive, but normally only in the short run (Suls, 1985). Generally, avoidant coping is associated with higher levels of psychological distress (Blaney *et al.*, 1990; Clement and Schoennesson, 1998; Nyamathi *et al.*, 1993) and lower levels of psychological well-being (Domanico and Crawford, 2000; Kurdek and Siesky, 1990). Avoidant coping has been associated with poor medical adherence (Sherbourne *et al.*, 1992), and in HIV infection has also been specifically associated with lower quality of life (Swindells *et al.*, 1999). However, one recent report showed avoidant coping to be associated with less rapid progression of HIV in gay men (Mulder *et al.*, 1999).

Psychological Distress

HIV+ women did not differ from HIV− women in the level of distress. This may be in part because our sample of HIV women were asymptomatic with a "relatively" intact immune system. This may have caused their HIV status to be less distressing than if they would have been more seriously ill. Nevertheless, the women in our study (both HIV+ and HIV−) were significantly more anxious and depressed than a sample of HIV+ and HIV− gay men administered the SIGH-AD (Sahs *et al.*, 1994). We recognize, however, the limitations of comparing data obtained from different cultural groups.

Limitations

The current study has compared predominately HIV+ asymptomatic African American recent mothers to their HIV− counterparts. The findings here may be affected by the recent birth, and thus be less generalizable to the general population of African American women. The findings probably do not generalize to African American women with AIDS. In fact, a posthoc comparison in this sample of the 21 HIV+ women who were mildly symptomatic to the remaining HIV positive women showed that the mildly symptomatic women tended to have higher distress than did the asymptomatic women. A final point that needs to be made is that the sample size is relatively low, so only medium to large effects would be statistically significant.

CONCLUSION

Our findings demonstrated fewer significant differences between the two groups than expected, suggesting HIV infection alone may not adversely impact psychosocial functioning as much as we thought in African American asymptomatic women. There may be a need for interventions generally, in this population, regardless of HIV status to improve women's social and economic conditions. As well, for intervention aimed specifically at HIV, additional targeting may be necessary to reach the population most in need. The observed difference by HIV status would indicate that HIV interventions should target perceived control, social support, and support coping as well as avoidant coping in such a way as to increase women's more effective utilization of their support systems.

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