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Family Functioning and Motivation for Childbearing Among HIV-Infected Women at Increased Risk for Pregnancy

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This study examined family composition and functioning in a cohort of HIV-infected women of reproductive age living in the southern United States. Participants were predominantly single (82.2%), African American women (86.7%) with annual incomes of less than \$10,000 (65.5%), with a mean age of 31.2 years. Using the Family Apgar Scale as a measure of perceived family functioning, women reported that their families functioned moderately well. Multiple regression analysis showed that level of education, life satisfaction, and coping through avoidance and coping by seeking social support were positively associated with family functioning. In contrast, a history of interpersonal verbal violence and a history of drug use were negatively associated with family functioning. These six factors accounted for 26% of the variance. Study findings support the need for comprehensive nursing interventions that include addressing family issues if HIV-infected women are to be provided quality care.

HIV/AIDS is increasing rapidly among women of reproductive age (Centers for Disease Control and Prevention [CDC], 2000; Klirnsfeld,

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1998). The increase in cases of HIV/AIDS has been particularly dramatic among African American women living in the southern United States (CDC, 2000; Rosenberg & Biggar, 1998). For women of child-bearing age, a diagnosis of HIV infection not only represents a potential loss of health to a life threatening disease, but it may also alter their most intimate family and partner relationships. Furthermore, because HIV infection can be perinatally transmitted to a baby, a diagnosis of HIV disease may be an important factor in women's decisions to become pregnant and deliver a baby. Motivation for childbearing for women with HIV/AIDS is complex and can be influenced by intense emotional factors, powerful family influences, and social pressures that are often culturally based (Miller, 1994, 1995).

Despite the potential of transmitting HIV infection to a baby, research has shown that an HIV-seropositive status is not the decisive factor in a woman's decision to have a baby (Ahluwalia, DeVellis, & Thomas, 1998; Murphy, Mann, Keefe, & Rotheram-Borus, 1998; Sowell & Misener, 1997). Many women who are HIV infected continue to be motivated to have a baby even after their HIV diagnosis. In previous research examining HIV-infected women's motivation for childbearing, a woman's significant other (husbands and sex partners) and other family members have been identified as important in decisions related to childbearing. In fact, in a study of motivation for childbearing by Sowell, Phillips, and Misener (1999), more than one half of the women stated that having a baby would give them someone to love. Furthermore, women in that study identified the desire of a husband or partner as an important motivation for wanting a baby, and they reported that if they became sick or died, their family members would provide their babies with a good home (Sowell, Phillips, et al., 1999). That finding suggests the importance of family in women's lives and in their decisions to have a baby. For women who lacked the support of their family of origin or who felt rejected by their family, the desire for a loving family relationship motivated them to want to start a family of their own.

Family, as the basic unit of society, provides the framework in which individuals conduct their life activities such as establishing a sense of well-being and responding to stressors such as illness (Hawley & DeHaan, 1996; Walsh, 1996). For women with HIV/AIDS,

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family and family functioning might be expected to be paramount in how they respond to HIV/AIDS, including their motivation for childbearing. However, little is known concerning families and family functioning of HIV-infected women. Although HIV serostatus has been shown not to be the deciding factor in HIV-infected women's reproductive decision making (Ahluwalia et al., 1998; Sowell & Misener, 1997), it is unclear what effects family functioning exerts on HIV-infected women's motivation to have a baby. Therefore, the purpose of this study was to describe HIV-infected women's families and family functioning. In addition, the study sought to examine factors associated with positive family functioning and to test the relationship of family functioning and motivation for childbearing in these women.

BACKGROUND

Although the rate of persons progressing to AIDS in recent years has slowed, largely due to better treatment of HIV infection, the prevalence of AIDS continues to rise with approximately 320,000 persons living with AIDS at the end of 1999 (CDC, 2000). In addition, the annual rate of new HIV infections in the United States remains stable at approximately 40,000 new infections (CDC, 1998). Rising numbers of new HIV/AIDS cases are most often associated with drug use and heterosexual transmission, with these new cases occurring in both rural and urban settings. Women represent one of the fastest growing groups being diagnosed with HIV/AIDS. Over the past decade, the proportion of AIDS cases in adult and adolescent females of reproductive age (ages 13 to 49) has tripled (CDC, 2000). By June 2000, approximately 150,000 women between the ages of 13 and 49 had been reported as having HIV/AIDS. This number is acknowledged as being a significant undercount of women in light of the fact that only 36 states in the United States have confidential reporting of HIV infection.

African American women and their children represent a disproportionate number of cases of HIV/AIDS. Whereas African American women represent 13% of the U.S. population (Altman, 1999), they account for more than one half (57%) of women diagnosed with AIDS (CDC, 2000). This trend in cases of African American women continues to escalate, with 63% of the cases diagnosed in women between July 1999 and June 2000 being among African American women

(CDC, 2000). Likewise, 66% of pediatric AIDS cases diagnosed between July 1999 and June 2000 were among African American children. In addition, the number of HIV/AIDS cases has increased dramatically in the past decade in rural areas, especially in the southern region of the United States (CDC, 2000; Fordyce, Thomas, & Shum, 1997).

Women at the highest risk for HIV infection are more likely to be of reproductive age, live in poverty, and be associated with substance use activities—either using drugs or having a partner who uses drugs (CDC, 2000; Zierler, Witbeck, & Mayer, 1996). Often, HIV-infected women are caregivers for other family members with AIDS and/or single heads of households with dependent children (Persson, 1994; Sabo & Carwein, 1994; Sowell, Seals, et al., 1997). Already, these women are likely to be stigmatized due to race, poverty, and/or association with drug use. Women who are involved in drug use may be particularly isolated from caring relationships and be consumed by shame and disconnectedness (Kasl, 1990). A diagnosis of HIV infection can intensify this stigma and lead to rejection by family and friends. McCain and Gramling (1992) acknowledged that persons living with AIDS may suffer more stigmatization than any other group. In fact, Herek and Capitano (1993) have called AIDS an epidemic of stigma that can alter relationships with others. Stigma can emanate from family, friends, lovers, employers, and health care professionals, altering the stigmatized individual's ability to obtain needed emotional and tangible support, as well as undermining their ability to receive quality health care and maintain a sense of well-being (Leenerts, 1998; Link, Struening, Rahav, Phelan, & Nuttbrock, 1997). Furthermore, women may retreat from family and social networks to conceal their HIV infection to protect their families and significant others from the stigma of their illness (Sowell, Lowenstein, et al., 1997).

Despite advances in treatment that can decrease perinatal transmission of HIV (Connor et al., 1994), the potential for such transmission can further stigmatize or act as a barrier to social support and health care services for HIV-infected women who desire to have a baby. Yet, women's views of family and the importance of motherhood are often culturally based (Hogan & Kitagawa, 1985). In many women at risk for HIV infection, motherhood and having a baby are a primary source of self-expression as well as a sign of adulthood and independence (Bowser, 1992; Kurth, 1993). For these women, motiva-

tion for having a baby can be based in strong emotional factors and cultural beliefs.

Many rural, southern African American women have strong ties to their extended families. This extended family is often important in providing support in coping with adverse situations and solving life problems. In addition, family members can be an important source of advice in making important decisions such as seeking health care or having a baby (Gutman, 1976; Lock, 1990). However, HIV/AIDS is a severe distressor that can affect the well-being of the individual and the family (Demi, Bakeman, Sowell, Moneyham, & Seals, 1997; Fleishman & Fogel, 1994). Although Cox and Davis (1999) proposed that there is limited empirical research examining family problem solving, there has been considerable emphasis placed on the importance of problem solving within the context of family functioning. Demi, Moneyham, Sowell, and Cohen (1997) found that seeking/using social support was the most frequently identified coping strategy in a sample of 264 HIV-infected women in Georgia. Family and significant others were an important source of such support with many women seeking love, caring, and a feeling of emotional closeness from those important to them.

A large body of research suggests that social support benefits individual and family well-being and enhances coping in stressful situations (Dyson, 1997; Hadadian, 1994; Trivette & Dunst, 1992). For women with HIV/AIDS, obtaining support from family is dependent on their ability to be accepted within the family after disclosure of their HIV infection. It may be important to recognize that for women with HIV/AIDS, family members and other social networks may not be perceived as helpful but rather as a source of physical and emotional abuse. A large number of research studies have shown that women of reproductive age, especially those who become pregnant, can be at risk for intimate partner or family violence (Coker, Smith, McKeown, & King, 2000; O'Campo, Gielen, Faden, & Kass, 1995). Sowell, Seals, Moneyham, Guillory, and Mizuno (1999) reported that in a cohort of predominately poor, African American women with HIV/AIDS, violence was found to be higher than in other populations. The violence reported in their population was primarily at the hands of family including intimate partners and friends. In addition, Rothenberg and Paskey (1995) found that HIV-infected women often report fear of physical violence, emotional abuse, and abandonment related to disclosure of their HIV-seropositive status. This increased risk of violence and abandonment may be the result of dysfunctional

family relationships, the marginalized lives poor women have been forced to lead, or their association with drug use (He, McCoy, Stevens, & Stark, 1998). No matter the reason, those types of life circumstances decrease quality of life by denying women a safe environment where they can talk about their experiences and seek social support without fear of rejection or negative responses by family and others (Campbell, 1990; Nokes, 1995; Ward, 1993).

For the growing number of HIV-infected women living in the southern United States, there is limited knowledge concerning their families and living situations. These women potentially face the conflict of valuing strong ties to family while fearing rejection due to their HIV infection and HIV risk behaviors. This conflict may be stressful for women who more than ever need the advice and support of family to cope with HIV/AIDS. This study seeks to provide an initial understanding of the characteristics of HIV-infected women's families, women's perceptions of the functioning of their families, and how, if at all, these perceptions were related to their motivation for childbearing.

METHOD

The data reported in this study were collected in the first of four interviews conducted in a 3-year longitudinal study examining reproductive decision making and factors influencing decisions to take AZT in a group of HIV-infected women at increased risk of pregnancy. The sample for the longitudinal study consisted of 322 women who were recruited from 12 health clinics and community-based organizations (CBOs) serving persons with HIV/AIDS in Georgia, North Carolina, and South Carolina. These clinics and CBOs provide a wide range of health care and social services including antibody testing, primary health care, case management, and support groups. The recruitment of potential participants from these three southern states was particularly appropriate due to the growing number of women of reproductive age being diagnosed with HIV infection in this geographic region of the United States. For the period from July 1998 to June 1999, South Carolina ranked 5th, Georgia 9th, and North Carolina 16th in the number of new cases of AIDS in the United States

(CDC, 1999). Women participating in the study were of reproductive age and sexually active by self-report.

Prior to the study, a series of focus groups was conducted with HIV-infected women of reproductive age in Georgia and South Carolina who were drawn from the same population as the sample for this study. Based on input provided by women participating in these focus groups, study methods were established, study variables were determined, and measures of study variables were refined or developed to assure validity, cultural appropriateness, and relevance of the instruments. When possible, input from the women was directly followed and the women's actual words were used in developing or refining study measures. Therefore, the study methods and data collection measures used in the study were designed specifically for use in this population to increase the meaningfulness of the results.

Sample

The sample for this report consisted of 275 women enrolled in the larger longitudinal study ($N = 322$) who responded to at least 80% of the items on the scales measuring the variables of interest in this analysis. Women were included in the larger study if they (a) verified HIV-seropositive status, (b) were 17 to 48 years of age, (c) were at risk for becoming pregnant (i.e., sexually active, no indwelling contraceptive device [e.g., IUD], or not sterilized), (d) were not currently pregnant, (e) had no evidence of dementia, and (f) were English speaking.

Demographically, the sample was predominantly single (82.2%), African American (86.7%) women with annual incomes less than \$10,000 (65.5%). The women ranged from 17 to 49 years of age with a mean age of 31.2 years. A majority (67.1%) of the women had completed high school with almost a third (29.7%) of them having some college or being college graduates. The largest number of women (61.1%) reported their current illness status as asymptomatic HIV disease. Approximately 40% of the women had been pregnant since becoming HIV infected. However, only 15 HIV-infected children were reported among all participants. Greater than a third (37%) of the women reported they wanted to have another baby even though they were HIV infected. Table 1 provides a more detailed overview of sociodemographic characteristics of the participants.

Table 1: Selected Characteristics of the Sample (N = 275)

<i>Characteristic</i>	<i>Number</i>	<i>Percentage</i>
Race		
African American	222	86.7
Other	34	13.3
Age (years)		
15-27	80	29.1
28-32	57	20.7
33-39	91	33.1
40-49	47	17.1
Marital status		
Partnered	55	17.8
Single	220	82.2
Education		
< High school	90	23.0
High school	102	37.4
Some college	60	22.0
College graduate	17	6.2
Graduate school	4	1.5
Religion		
Baptist	147	53.8
Other Protestant	80	29.3
Methodist/AME	24	8.8
Catholic	13	4.8
Other	9	3.3
Missing	2	
Employment status		
Unemployed	179	65.3
Part-time	88	32.1
Full-time	7	2.5
Annual household income		
< \$5,000	81	30.7
\$5,000-\$9,999	92	34.8
> \$10,000	91	35.3
Social services received		
Unemployment benefits	7	2.5
WIC	58	21
AFDC	62	22.5
SSI/SSDI	124	45.1
Food stamps	137	49.8
HIV+ status		
Asymptomatic	168	61.1
Symptomatic	70	25.5
AIDS	37	13.5

Table 1: Continued

<i>Characteristic</i>	<i>Number</i>	<i>Percentage</i>
Pregnancy since HIV+ diagnosis		
Yes	107	39.2
No	166	60.8
Currently sexually active		
Yes	189	68.7
No	86	31.3
Desire for another baby		
Yes	98	37
No	102	38.5
Unsure	65	24.5

Note: Number of women answering each question equals answer frequency totals. The percentages are based on the number of women answering the questions. AME = African Methodist Episcopal; WIC = Women, Infants, and Children; AFDC = Aid to Families With Dependent Children; SSI = supplemental security income; SSDI = social security disability income.

Procedure

At each data collection site, female research assistants recruited all women who potentially met study criteria. Potential participants were provided with an overview of the study and the requirements for participation. For women who expressed interest in the study, informed consent was obtained, and a brief screening questionnaire was used to ensure that women met the study inclusion criteria. Data were collected using a structured questionnaire that was read to the participants. Research assistants recorded women's responses verbatim on the questionnaire. Data collection interviews were conducted at one of the cooperating clinics or CBOs or at another mutually agreed upon site that provided both privacy and comfort for the participants. Women were paid \$40.00 at the end of the interview to reimburse them for their time and contributions to the study.

Instruments

Sociodemographic characteristics. Demographic and selected social characteristics of participants were measured using a questionnaire designed specifically for the study. Participants were asked to provide standard demographic data including their age, race, education,

partnership status, religious preference, personal employment status, employment status of others living in the household, and income. Also, participants were asked their total number of children, number of pregnancies and children since being diagnosed with HIV infection, and number of children who were HIV infected. In addition, participants were asked to report their own HIV status (asymptomatic HIV, symptomatic HIV, or AIDS) and if any family members or friends were HIV infected or had died as a result of AIDS. Stage of illness was confirmed using reported CD4 cell counts and symptoms reported in other parts of the survey questionnaire. AIDS classification was a CD4 cell count below 200 cells per mm³ (CDC, 1992). Furthermore, women were asked to indicate how helpful specific groups of family members were in providing tangible support (i.e., money, transportation, baby-sitting or child care, preparing meals, or helping with housework) and emotional support (i.e., love, comfort, and affection) since they had been diagnosed with HIV/AIDS.

Family Apgar Scale (FAS). Perceived family functioning was measured with the FAS. Smilkstein's (1978, 1981; Smilkstein, Ashworth, & Montano, 1982) five-item scale measures satisfaction with family functioning. The concepts of adaptation, partnership, growth, affection, and resolve are measured on a 3-point ordinal scale. The FAS has been correlated with previously validated instruments, with the Pless-Satterwhite Family Index ($r = .80$), and with estimates of family functioning made by psychotherapists ($r = .64$), suggesting the validity of the FAS. For this study, the scale was revised to a 4-point scale ranging from *always* (4) to *hardly ever* (1) to make it consistent with other study measures. A higher score indicates better family functioning.

Desire to have a baby. Desire to have a baby was measured with a single item that asked women if they wanted another baby. Responses for the item were no = 1, unsure = 2, and yes = 3. Desire to have a baby in this study was operationalized as an internal emotional force, whereas motivation for childbearing was operationalized as a variety of internal and external factors that influence a woman's motivation to have a child. Desire to have a baby and motivation for childbearing showed only a moderate degree of correlation ($r = .28, p = .00$).

Motivation for childbearing. Motivation for childbearing was measured using a 13-item scale developed in the formative phase of the

larger longitudinal study using information obtained in focus groups with HIV-infected women, supporting the validity of this scale (Sowell, Phillips, et al., 1999). Participants were instructed to indicate on a 4-point ordinal scale (*strongly agree* to *strongly disagree*) how closely they agreed with a series of statements concerning their potential motivation for having a baby. Scale items included statements such as, "A baby would be a positive influence in my life right now" and "My husband or partner wants a baby." A higher score indicates a greater motivation to have a baby.

Experience of violence. O'Campo and colleagues (1995) described three types of violence: (a) incidences of psychological violence such as being yelled at, humiliated, or made to feel worthless; (b) physical violence such as being punched or kicked, tied up, or threatened with a weapon; and (c) sexual violence such as being forced to have sex or perform sexual acts against the woman's will. The eight-item scale used by Sowell, Seals, and colleagues (1999) was developed to measure these types of violence after diagnosis of HIV. In their study, the researchers reported a reliability coefficient of .74 for the subscale to measure physical violence and .82 for the subscale to measure emotional violence. The reliability coefficient for sexual violence was not reported. The items were modified and refined by women participating in a focus group study (Sowell & Misener, 1997) to help ensure face validity and cultural appropriateness. Each item was scored on a 4-point scale measuring the frequency of violence from *never* (1) to *more than five times* (4). Summation of the two items related to verbal abuse yielded a total verbal violence score after HIV diagnosis. Likewise, three items related to physical violence and three items related to sexual violence were summed to provide a physical violence and sexual violence score.

Drug history. History of drug use was measured by nine items asking if the woman had used drugs, ranging from tobacco and alcohol to marijuana, cocaine, heroin, or other substances. Women were asked if they had ever used these drugs and if they had used these drugs in the past 30 days. Responses to "ever used" and "used in the past 30 days" were combined to measure drug history. A higher score indicates that the woman had a history of greater use.

Coping. Coping was measured using a 54-item scale developed and tested in a population of HIV-infected women in a 3-year longitudinal

study of the effect of HIV on women and their families (Demi, Moneyham, et al., 1997; Moneyham et al., 1998). Methods of coping measured by the scale included (a) avoidance coping, (b) seeking social support, (c) using spiritual activities, (d) managing the illness, and (e) focusing on others. Participants indicated on a 4-point response scale (*never, rarely, often, and always*) how frequently in the past 3 months they used specific approaches or ways to cope with having HIV infection.

Life satisfaction. The 28-item Life Satisfaction Scale measures on a 10-step Cantril's Ladder (Cantril, 1965) where the participant is at present, was 1 year ago, will be 1 year from now, and would be if she were not HIV positive. The domains of (a) physical health, (b) relationship with family and friends, (c) mental health or emotional state, (d) financial state (money situation), (e) spiritual well-being, (f) peace of mind, and (g) overall satisfaction with life are measured. The participants were asked to mark where on the ladder they are for each domain and for each time. A higher score indicates a greater life satisfaction.

Table 2 lists the instruments used in this study. In addition, it provides the number of items, potential and actual range, mean, standard deviation, and reliabilities for each instrument used in these analyses.

Data Analysis

The sample and selected family characteristics were described using frequencies and percentages. Bivariate correlations were performed among selected variables that have been suggested by the literature as potentially influencing family functioning and motivation for childbearing. First, variables that showed statistically significant relationships at the $p = .05$ level with family functioning were entered into a multiple regression model (history of drug use, history of verbal violence, education, avoidance coping, coping by seeking social support, coping by managing the illness, coping by focusing on others, coping by positive thinking, coping by information seeking, life satisfaction, and motivation for childbearing). Next, variables that were significantly related to motivation for childbearing (family functioning; avoidance coping; coping by seeking social support, by focusing on others, and by positive thinking; life satisfaction; age; and desire to have a baby) were tested using a second multiple regression model.

Table 2: Description of Study Research Instruments

<i>Instrument</i>	<i>Number of Items</i>	<i>Potential Range</i>	<i>Actual Range</i>	<i>M</i>	<i>SD</i>	<i>α</i>
Family Apgar	5	5-20	5-20	13.4	5.1	.86
Experience of violence	8	8-32	8-32	11.4	4.4	.74
Verbal violence	2	2-8				
Drug history	9	8-16	8-16	10.5	1.9	.80
Education	5	3-20	3-20	12.1	2.1	NA
Total coping	54	54-216	54-207	160.0	19.3	.90
Coping						
Avoidance	12	12-48	12-47	29.0	6.4	.77
Seeking social support	12	12-48	12-48	32.3	7.0	.82
Spiritual activities	7	7-28	7-28	22.6	4.1	.84
Managing illness	9	9-36	9-36	30.0	4.5	.78
Focusing on others	4	4-16	4-16	13.0	2.2	.66
Positive thinking	3	3-12	3-12	10.1	1.9	.74
Information seeking	5	5-20	5-20	16.5	3.1	.81
Life satisfaction	28	81-280	81-280	209.6	37.0	.88
Motivation for childbearing	13	13-52	13-49	31.6	7.0	.84

RESULTS

The women in this study reported a moderate level of family functioning. The mean score for family functioning was 13.4 ($SD = 5.1$) out of a possible maximum score of 20. The most frequent family unit consisted of a single woman living alone (20%) or with dependent children (38.9%) in an apartment (40.7%). One hundred forty-four (68.2% of women with children) had dependent children living at home, whereas 67 women (31.8%) reported having dependent children living with friends or relatives. Only 49 women (17.7%) were living with a husband or male partner. Of those women reporting having male partners either living with them or separately from them, 99 (15%) women reported that their partners were also HIV infected, resulting in a need for women in some cases to give care to their partners. Consequently, 168 (68.6%) of the women reported being the major wage earners in the household. Husbands or partners were identified as the major wage earners by only 12.3% of the women. Thirty-seven women (15.1%) reported that a parent or other family member was the major wage earner in their households. In addition, 143 women reported having had a family member or close friend die with AIDS, and 99 women reported currently having a family member with HIV/

Table 3: Level of Tangible and Emotional Support Provided by Family Members

Relative	Tangible Support						Emotional Support					
	Not at All Helpful		A Little Helpful		Very Helpful		Not at All Helpful		A Little Helpful		Very Helpful	
	n	%	n	%	n	%	n	%	n	%	n	%
Mother	28	13.5	40	19.2	140	67.3	21	8.6	29	11.9	131	53.7
Father	35	24.1	37	25.5	73	50.3	30	14.0	17	7.91	67	31.3
Husband/ partner	28	14.1	54	27.3	116	58.6	21	8.2	41	16.0	129	50.2
Children	19	10.1	44	23.3	126	66.7	10	4.6	23	10.6	105	48.2
Other relatives/ kin	39	16.0	88	36.1	117	48.0	24	11.0	68	31.2	112	51.4
Sex partner(s)	21	13.2	49	30.8	89	56.0	20	7.9	39	15.5	91	36.1

Note: The frequency and percentages presented in this table are based on the total number of women who responded to the specific item.

AIDS. As shown in Table 3, women reported that they received the greatest tangible support such as money, transportation, child care, and help with housework from their mothers and children, respectively. Likewise, it shows that the women identified their mothers as providing them with the greatest level of emotional support. The second largest number of women indicated that they obtained the greatest level of emotional support from their husbands or partners.

When examining all types of violence (verbal, physical, and sexual), it was shown that 100% of the women had experienced some type of violence both before and after HIV diagnosis. In examining physical and sexual violence only, it was found that 68% of the women reported having experienced physical and/or sexual violence at some point in their lives. Before HIV diagnosis, 65% of the women had experienced physical and/or sexual violence compared to 33% of the women who had experienced such violence after their HIV diagnosis. Physical and sexual violence before HIV diagnosis was significantly related to physical and sexual violence after HIV diagnosis ($\rho = 0.47$, $p = .0001$).

One hundred participants (36.6%) reported they had used alcohol or drugs in the past 30 days, suggesting current usage. Of those women reporting current alcohol/drug use in the past 30 days,

89 women (89%) reported using alcohol, whereas 44 women (44%) had used marijuana and 17 (17%) had used cocaine.

To examine factors associated with positive family functioning, bivariate correlations were performed among selected socio-demographic variables and family functioning using Pearson's r (see Table 4). Variables that were significantly positively related to family functioning at the $p = .05$ level of significance were education, seeking social support, managing the illness, positive thinking, focusing on others, information seeking, and life satisfaction. Variables that were significantly negatively related to family functioning were history of drug use, history of verbal violence, and avoidance coping. These variables were entered into a linear multiple regression model with family functioning as the dependent variable. Variables that retained significant relationships with family functioning were history of drug use, history of verbal violence since diagnosis, education, life satisfaction, avoidance coping, and coping by seeking social support (see Figure 1 for beta weights and p values).

Pearson's correlations were used to examine the relationships between family functioning and motivation for childbearing. A statistically significant relationship was found between family functioning and motivation for childbearing ($r = .12, p = .04$). To further determine factors influencing motivation for childbearing, bivariate correlations were performed between the sociodemographic factors and motivation for childbearing. Variables that were significantly positively related to motivation for childbearing were family functioning, desire to have a baby, avoidance coping, seeking social support, focusing on others, positive thinking, information seeking, and life satisfaction. The only variable that was significantly negatively related to motivation for childbearing was age (see Table 4). These variables were entered into a linear multiple regression model using motivation for childbearing as the dependent variable. Variables that retained significance with motivation for childbearing were age and desire to have a baby (see Figure 2 for beta weights and p values).

DISCUSSION

Several limitations exist in this research. The participants in this study were predominantly African American women living in Georgia, North Carolina, and South Carolina who were currently receiving medical and/or social services. In addition, self-reports of family

Table 4: Bivariate Correlations of Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Family functioning	—														
2 History of drug use	-.19, .00	—													
3 History of verbal violence	-.29, .00	.20, .00	—												
4 Education	.13, .03	-.01, .81	.01, .86	—											
5 Coping: avoidance	-.13, .03	-.20, .00	.11, .06	-.14, .02	—										
6 Coping: seeking social support	.36, .00	.01, .91	-.10, .09	.05, .42	-.01, .84	—									
7 Coping: spiritual activities	.06, .29	-.08, .18	-.04, .54	.04, .48	.08, .18	.39, .00	—								
8 Coping: managing the illness	.16, .01	-.16, .01	-.13, .04	.10, .10	.03, .58	.42, .00	.64, .00	—							
9 Coping: focusing on others	.12, .05	.12, .05	-.04, .47	.05, .42	.09, .15	.31, .00	.55, .00	.57, .00	—						
10 Coping: positive thinking	.16, .01	.09, .15	-.13, .03	-.01, .86	.03, .68	.37, .00	.54, .00	.59, .00	.46, .00	—					
11 Coping: information seeking	.13, .04	-.13, .03	-.03, .59	.10, .10	.05, .00	.43, .00	.48, .00	.58, .00	.52, .00	.46, .00	—				
12 Life satisfaction	.30, .00	-.24, .00	-.30, .00	-.04, .50	.02, .75	.31, .00	.36, .00	.32, .00	.26, .00	.38, .00	.20, .00	—			
13 Age	.02, .69	.37, .00	.03, .58	.10, .09	-.16, .01	.13, .03	.03, .66	.02, .73	-.04, .56	-.03, .66	-.05, .38	.04, .48	—		
14 Stage of illness	.00, .25	.13, .03	.19, .00	.06, .36	.06, .31	-.03, .63	-.03, .64	-.03, .63	.06, .36	-.09, .04	.06, .28	-.20, .00	.13, .03	—	
15 Motivation for childbearing	.12, .04	-.11, .08	-.00, .96	.01, .92	.14, .02	.17, .01	.05, .38	.12, .06	.12, .05	.15, .02	.10, .08	.14, .02	-.17, .00	-.09, .13	—
16 Desire to have a baby	.02, .72	-.06, .32	.02, .81	-.04, .49	.09, .12	.03, .63	-.02, .75	-.06, .34	.03, .67	-.01, .83	.04, .56	-.04, .51	-.13, .03	-.04, .51	.28, .00

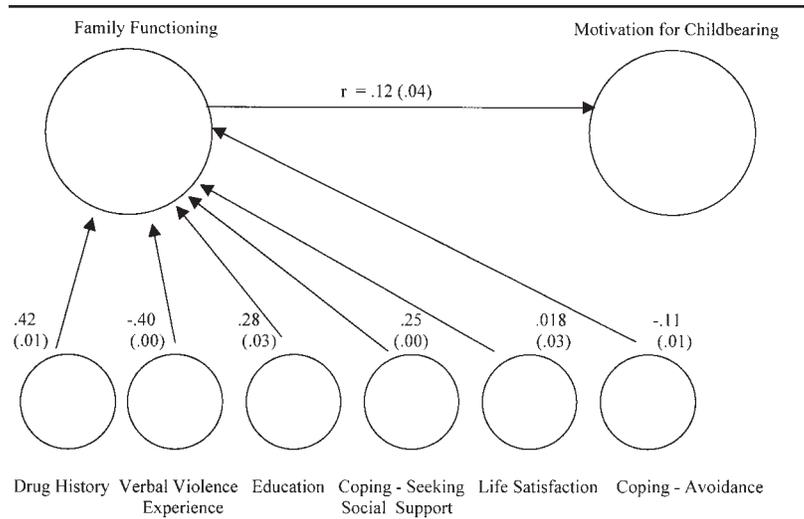


Figure 1: Regression Model of Family Functioning

Note: $\beta = (p < .05)$

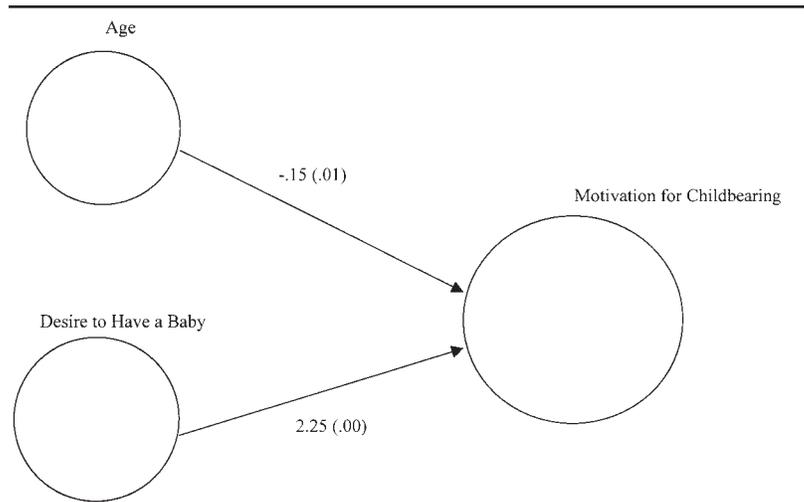


Figure 2: Regression Model of Motivation for Childbearing

Note: $\beta = (p < .05)$

structure and functioning were limited to those characterized by HIV-infected women living in the southeastern United States. Participants may not be representative of women who are not currently receiving health care or social services or who reside in other geographic regions of the United States; therefore, the findings of this study should be generalized with caution. Despite these limitations, the findings of this study provide important insights that can assist in understanding family functioning in a population in which infection is growing exponentially.

Consistent with previous reports of the demographic characteristics of women with HIV/AIDS (CDC, 2000; Zierler et al., 2000), the women in this study were predominantly poor, single African Americans with dependent children living in both urban and rural areas. The majority of the women had completed high school, and a number of them had attended college. Because many women of reproductive age are diagnosed with HIV infection during prenatal care, it was not surprising that approximately 40% of the women had been pregnant since HIV diagnosis. More important, 37% of the women reported wanting another baby, whereas an additional 24.5% were unsure or potentially desired to have a baby. These findings suggest the importance of health care professionals working with HIV-infected women assessing women's desire for another baby, as well as providing women with factual information concerning perinatal transmission and the need to be closely monitored if becoming pregnant. Nurses who have frequent contact with HIV-infected women may have a unique opportunity to assess women's motivation for childbearing and provide necessary health education concerning HIV infection and pregnancy that allows women to make informed decisions related to having a baby.

In examining women's family and living situations, it was found that most of the women headed their households and lived alone or with dependent children. Only 18% of the women lived with husbands or partners. Even when living with a partner, more than one third of the women with husbands or partners continued to be the primary family wage earners. A possible explanation for this finding is that of women with husbands or partners (either living with them or living separately), 15% stated their husbands or partners also had HIV/AIDS, requiring them to provide some level of care for the partner. This statistic is consistent with the findings of Hackl, Somlai, Kelly, and Kalichman (1997) who reported, in their study of women with HIV/AIDS, that often women are the caregivers for their hus-

bands and sex partners from whom they became infected. Although women in this study were adults, 15% of the women reported they lived at home with their parents who provided for the household. In further examining the families of women, it was clear that women and their families had been touched by HIV/AIDS. More than 50% of the women reported having a family member or friend die of AIDS. Furthermore, 35% of the women said they currently had another family member with HIV/AIDS. These findings support the dramatic effect HIV/AIDS is having on families and communities of color. HIV/AIDS is often another devastating problem that families and communities already experiencing high levels of poverty, substance use, and violence have to face (Zierler et al., 2000). Nursing interventions designed to support women with HIV/AIDS will need to be comprehensive and consider the family context in which women live. To provide care and support for women, there will often be a need to assess the family unit in which they live and provide/obtain services for other members of the family.

Even though many of the women do not currently live in traditional families, most come from a cultural background and/or geographic region where family ties are strong. To better explain who the women's families were, we examined who provided them with emotional and tangible support. As might be expected, for these women, mothers were a primary source of both emotional and tangible support. Interestingly, second only to mothers, husbands and partners were reported as a primary source of emotional support, although they were not a primary source of tangible support. The level of tangible support the children provided to the women in this study and to their families underscores the central role children play in the lives of HIV-infected women. It has not been unusual in our previous research for women to identify their children as their major support and only family.

To examine family functioning, we used the FAS. Although this scale is short and only has one item to measure each of the five constructs of adaptation, partnership, growth, affection, and resolve, it has been found to be a reliable and internally consistent measure of family functioning that is easy to administer in traditional and non-traditional families (Smilkstein et al., 1982). Considering that women were most often living alone and without partners, they reported an unexpectedly high level of family functioning. The high evaluation of their family functioning may be based on their ability to gain adequate emotional and tangible support from their mothers, children,

and partners, or it may be partially a result of their frame of reference about how a family should function. Such expectations of family functioning may be based on their previous experiences and observations within their communities.

Russo, Denious, Keita, and Koss (1997) have found that women who experience domestic violence have lower self-esteem and withdraw from their support systems, including family. Unsurprisingly, in our study, a history of verbal violence since HIV diagnosis was negatively associated with family functioning. This finding underscores the importance of verbal abuse on a woman's perception of how well her family functions. Likewise, drug use is associated with lower self-esteem and withdrawal from support systems (Hicks, 1984). In fact, it may be that drug use actually is a more significant factor in deteriorating family and intimate relationships than HIV infection. It was not surprising that a history of verbal violence and drug use was negatively related to family functioning or that coping by seeking social support and life satisfaction were positively related to family functioning. The significant negative relationship between drug history, verbal violence, and family functioning found in this study supports the need for nurses to focus on family interventions that address drug use and abuse. Even when women report not living in a traditional family unit, there remains a need to consider the family unit as the women define it in efforts to provide health care and social services. It may be necessary for nurses and social service providers to develop partnerships that can assist women in leaving violent or abusive living situations in order for them to address issues with drugs and maintain their health (Moser, Sowell, & Phillips, 2001).

In looking at the various approaches to coping that an individual may use, coping by avoidance, seeking social support, managing the illness, focusing on others, positive thinking, focusing on the present, and information seeking were significantly related to family functioning. However, only avoidance coping and coping by seeking social support retained significance in the regression model. According to Demi, Moneyham, and colleagues (1997), avoidance coping consists of five strategies to avoid mentally dealing with HIV disease. Avoidance coping can range from passive avoidance (keeping busy) to active avoidance (avoiding all thoughts and reminders of HIV disease). This fact underscores the importance of coping strategies and social support in dealing with stressful situations such as HIV/AIDS (Leserman et al., 2000), especially social support within the context of the family. Interestingly, education was a factor that influenced family

functioning. The fact that the women in this study had a relatively high level of education may have contributed to the family functioning that was reported. Education was also significantly positively related to family functioning even though family income was not related to family functioning. This finding suggests a lack of relationship between education and income in this population.

In the initial examination of the relationship between family functioning and motivation for childbearing, a significant relationship between these two factors was found. This finding suggests the potential importance of family in reproductive decision making. However, when factors related to motivation for childbearing were examined in the regression model, family functioning was not retained. Only age and the woman's desire to have a baby retained significance. Younger women who had not started a family were more motivated to have a child, underscoring the importance they placed on motherhood (Sowell, Phillips, et al., 1999). Likewise, the relationship between desire and motivation to have a baby suggests the importance of complex emotional factors that influence motivation for childbearing. Further research needs to be conducted to identify emotional, social, and cultural factors that significantly influence an HIV-infected woman's desire to have a baby. Within clinical settings, these findings support that simply asking a woman if she desires to have another baby may provide a simple way of assessing her motivation for childbearing and her likelihood of becoming pregnant. In addition, this preliminary research suggests that additional research is needed to understand and predict how HIV/AIDS families function. With more in-depth study of these issues, a more complete and complex model of family functioning can be built. However, this work has implications for family nursing practice. The findings of this study underscore the need for interventions designed to strengthen family functioning in HIV-infected women. Interventions for strengthening family functioning include comprehensive family assessments and the development of family-focused health care interventions, linking women and their family members to community resources, and providing mental health services for women and family members that deal with substance abuse counseling and treatment, as well as assistance in coping with HIV/AIDS. The findings of the current study support that the provision of quality health care to women with HIV infection will be most successful if provided in the context of and considering the women's defined family unit or structure.

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