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Psychosocial Predictors of AIDS Risk Behavior and Drug Use Behavior in Homeless and Drug Addicted Women of Color

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The present study examined a causal model consisting of personal and social resources, threat appraisal processes, coping styles, and barriers to risk reduction as predictors of general AIDS risk and specific drug use behaviors among homeless African American (N = 714) and Latina (N = 691) women. The model, which was based on a stress and coping framework, supported many of the hypothesized relationships. Active coping was associated with fewer general AIDS risk behaviors for both groups and less specific drug use behavior among African American women. Specific drug use behavior was predicted by high threat appraisal and avoidant coping for both groups. Ethnic differences and implications for intervention are discussed.

Key words: African American women, Latina women, HIV risk, vulnerable population

The number of women diagnosed with acquired immune deficiency syndrome (AIDS) is doubling every 1 to 2 years (Ickovics & Rodin, 1992). The overwhelming number of these women have been infected with the human immunodeficiency virus (HIV) directly or indirectly as a result of injection drug use with contaminated needles, crack use, and unprotected sexual activity (Khalsa, Kowalewski, Anglin, & Wang, 1992). African American and Latina women account for over 73% of AIDS cases in women (Centers for Disease Control [CDC], 1993). Unfortunately, little is known about the psychosocial and behavioral factors influencing the transmission of HIV in these women, the majority of whom are impoverished and socially disadvantaged (Ickovics & Rodin, 1992).

Few theory-based models have been tested to assess the psychosocial predictors of health seeking and coping behaviors of impoverished women of color at risk for AIDS. The purpose of this study was to examine a causal model of personal resources, threat appraisal processes, coping styles, and barriers to risk reduction as predictors of risk behavior among a group of high-risk women. This study represents a subsample of a larger study designed to study coping skills and health outcome of homeless and drug addicted women of color in Los Angeles (Nyamathi, 1991, 1992; Nyamathi, Wayment, & Dunkel-Schetter, 1993). Risk behavior was defined as (a) general AIDS risk behaviors such as multiple sex partners, injection-drug-using sex partners, and less condom use, and (b) specific risky drug use behaviors such as sharing needles.

Theoretical Perspective

The theoretical basis for the proposed hypothetical model includes key elements of the Comprehensive Health Seeking and Coping Paradigm (CHSCP; Nyamathi, 1989) and the Health Belief Model (Rosenstock, Strecher, & Becker, 1988).

The CHSCP has previously served as a conceptual framework to guide the assessment and implementation of strategies related to coping and health outcome of impoverished women of color. In this model, which has been adapted from the Lazarus and Folkman (1984) Stress and Coping Paradigm and the Schlotfeldt (1981) Health Seeking Paradigm, six components are predictors of risk behaviors. The first five components are personal resources, social resources, cognitive appraisal, coping behavior, and in the case of Latinas, the sociodemographic factor of acculturation to the Anglo culture. The sixth predictor is derived from the Health Belief Model (Rosenstock et al., 1988): barriers to condom use.

Personal resources include self-esteem and emotional disturbance. It is well known that impoverished homeless and drug abusing women report low self-esteem and a fair degree of emotional disturbance (Mondanaro, 1987; Wofsy, 1987). Researchers have found that women with higher self-esteem perceive fewer threats in their environment (Gass & Chang, 1989), cope more adaptively (Gutierres & Reich, 1988; Tucker, 1982), experience less emotional disturbance (Hobfoll, 1988; La Gory, Ritchey, & Mullis, 1990; Nyamathi, 1991), report greater condom use, and have significantly fewer higher risk behaviors (Nyamathi, 1991). Thus it was hypothesized that women with higher self-esteem would have less emotional disturbance and fewer perceived threats in their environment, would use more active coping and less avoidant coping, and would report less sexual and drug use behavior and fewer barriers to protective behaviors such as use of condoms. Moreover, as emotional distress has been found to be associated with higher level of threat appraisal and avoidant coping (Nyamathi, Wayment, et al., 1993) and higher rates of HIV risk behavior (Tucker, 1982; Nyamathi, 1992; Nyamathi, Wayment, et al., 1993), it was hypothesized that women with higher

emotional disturbance would report more threat appraisal, more barriers to condom use, more avoidant coping, and greater risky behavior.

Social resources, such as social support, provide another important dimension influencing health-seeking behaviors and health outcomes. Research has shown that women with higher self-esteem have more available social support (Hobfoll, 1988; Muhlenkamp & Sayles, 1986) because they are more effective in establishing supportive relationships and are more likely to perceive support whether it exists or not. Social support acts as a resource that provides encouragement to the recipient, and as such promotes health protection, a sense of belonging, and feelings of personal efficacy (Kobasa, Maddi, Puccetti, & Zola, 1985; Muhlenkamp & Sayles, 1986); reduced appraisal of threat (Gass & Chang, 1989); more adaptive coping (Gutierres & Reich, 1988); and less emotional disturbance (Hobfoll, 1988; La Gory et al., 1990). Thus, it was hypothesized that women with greater social support would have higher self-esteem, would use more active coping and less avoidant coping, and would report fewer risk behaviors, less perceived threat, fewer barriers to health-seeking behavior, and less emotional disturbance.

In this study, *threat appraisal* is defined more personally as degree of threat over losing self-respect, being considered useless, having insufficient money, and being involved in illegal activities (Nyamathi, Wayment, et al., 1993). Researchers have demonstrated that persons who perceive fewer threats in their environment and who cope more adaptively experience lower levels of emotional distress (Fawzy et al., 1990; Namir, Wolcott, Fawzy, & Alumbaugh, 1987) and engage in less risky behaviors (Nyamathi, Wayment, et al., 1993). The impact of threat appraisal on barriers to condom use is likewise of interest in this study. Thus, it was further hypothesized that women with greater threat appraisal would report more barriers to condom use, more avoidant coping, and greater risk behavior.

Coping responses are defined as the cognitive and behavioral efforts to manage internal or external demands seen as taxing or exceeding the resources of the person (Lazarus & Folkman, 1984). These responses can be described as active or adaptive coping behaviors that manage problems or avoidant behaviors that ease the emotional distress experienced. Research has outlined the relationship between personal resources and adaptive coping (Gutierres & Reich, 1988; Tucker, 1982) and of adaptive coping with lower levels of risky behavior (Nyamathi, Leake, Flaskerud, Lewis, & Bennett, 1993) and emotional distress (Fawzy et al., 1990; Namir et al., 1987).

Recent testing of the CHSCP with a subsample of 749 African American women was performed with structural equation modeling (Nyamathi, Wayment, et al., 1993). In this study, 45% of the variance in emotional distress was explained by the model, with self-esteem and avoidant coping being the strongest predictors, and threat appraisal also contributing significantly. However, only 10% of the variance in risk behavior was explained, with emotional distress being the strongest predictor. Because only a small amount of variance in risk behavior was explained, the model was reconfigured with various risk behaviors conceptualized as outcomes, and emotional distress, renamed *emotional disturbance*, hypoth-

esized as a predictor. The current study differs from this previous study in that it investigates ethnic differences among both African American and Latina women, and it examines a full latent variable model with emotional disturbance as a predictor rather than outcome variable. Further, for better understanding of the factors influencing health and risky behaviors, additional variables were added to this more elaborate model. These variables, which incorporate constructs of the Health Belief Model, include perceived susceptibility to AIDS and perceived barriers to condom use.

Thus, based on empirical evidence and the theoretical perspectives of the CHSCP and Health Belief Models, specific relationships among 9 variables (10 for Latinas) were hypothesized and tested within a causal model of latent constructs. These variables consisted of self-esteem (a personal resource), emotional disturbance, social support (a social resource), threat appraisal, perceived barriers to condom use, coping behaviors, acculturation, and health outcome as measured by General AIDS Risk Behavior and Specific Drug Use Behavior. Although causality cannot be decisively determined due to the cross-sectional nature of the data, the specific hypotheses based on the theory and review of the literature are given below.

1. The personal resource of self-esteem and social resources are associated with less emotional disturbance and predict less threat appraisal and fewer perceived barriers to condom use. Self-esteem and social resources are positively related to each other.

2. The personal resource of self-esteem and social resources predict more active coping, less avoidant coping, less general AIDS risk behavior, and less specific drug use behavior.

3. Emotional disturbance predicts more threat appraisal, more barriers to condom use, more avoidant coping, and greater general AIDS risk and specific drug use behavior.

4. Greater threat appraisal will be associated with more barriers to condom use, more avoidant coping, and greater general AIDS risk and specific drug use behavior.

5. Coping style is associated with risk behavior. In particular, active coping predicts less general AIDS risk and specific drug use behavior, whereas avoidant coping has the opposite effect.

Method

Subjects

Baseline assessments were conducted among a set of African American women and Latinas selected for participation in a large-scale longitudinal research project on AIDS prevention and education. They were recruited through the directors of homeless shelters and drug recovery programs and were paid $5 to participate in a 60-min face-to-face interview (available in both Spanish and English). Subjects were assured of confidentiality and were interviewed by one of six trained African American and Latina nurses and outreach workers. Interviewers and respondents were matched by race. The eligibility criteria were age between 18 and 69 years and identification as a drug user, a sexual partner of an injection drug user, a prostitute, or a homeless individual housed in a shelter or a one-room occupancy building. Ninety-two percent of the women who met study criteria participated in the study. A total of 691 Latinas and 2,019 African American women were available for the latent variable analyses. The disparity in numbers between the ethnic groups initially entering the

study was due to the greater number of African American nurses and outreach workers trained as interviewers and to the smaller number of homeless shelters that house Latinas.

Preliminary comparisons showed substantive differences between the ethnic groups on the AIDS risk behaviors that were the focus of this research project. Therefore, it appeared prudent to analyze the groups separately, especially because the outreach component was designed to be culturally sensitive and to differ depending on the ethnicity of the recipient. In addition, the contribution of acculturation level to the variables under study among the Latinas could be assessed if the ethnic groups were studied individually. Because the two groups varied greatly in size, a random set of African American women was selected using a random number generation program (random set N = 714) in order to make the chi-square degrees of freedom ratios more comparable between the two groups when testing the path models. A validation sample was also derived randomly from the remainder of the African American women not included in the original random set (validation N = 791) to test the feasibility and reliability of the parameters and the fit of the final path model developed for the African American women.

Analysis of demographic characteristics of the entire sample revealed the African American women reported a mean age of 33, with a range of 17 to 63 years. The majority were Protestant (75%), unemployed (91%), and single (53%) or widowed, and 33% were separated or divorced. Mean years of education completed was 12 years. Risky behaviors reported by the African American women included use of injection drugs (11%), use of non-injection drugs (70%), having sex for money or drugs (50%), and a history of sexually transmitted diseases (STDs; 47%).

More acculturated Latinas as indicated by their score above the median on the Acculturation Scale (Marin, Sabogal, Marin, Otero-Sabogal, & Perez-Stable, 1987) reported a mean age of 32 (range 18 to 75 years) and were primarily Catholic (70%), unemployed (79%), and single (24%), widowed, separated, or divorced (29%). Mean years of education completed was 11 years. Risky behaviors included using injection drugs (34%), using non-injection drugs (34%), having sex for money or drugs (29%), and a history of STDs (25%). Lower acculturated Latinas were approximately 31 years of age (range 17 to 75 years), Catholic (72%), unemployed (88%), and more likely to be married (42%). Mean years of education completed was 7 years. Fewer reported risky behaviors in terms of injection drug use (2%), non-injection drug use (8%), having sex for money or drugs (10%), or having STDs (14%). Furthermore, differences were apparent between ethnic groups. African American women were more likely to report a history of STDs, use non-injection drugs, and have multiple partners than Latina women. Higher acculturated Latinas were more likely to be injection drug users as compared with African American and lower acculturated Latinas. On the other hand, lower acculturated Latinas were more likely to be married and to be less educated than the other women. Finally, lower and higher acculturated Latinas were more likely to be employed and Catholic as compared with African American women.

Measures

Multiple-indicator latent variables or factors were used in this study. Measures used to construct the latent variables are described below. Content validity of the scales and measures used in the interviews was previously established through review and consensus of a 12-member panel experienced in the areas of AIDS, ethnic/racial diversity, and coping (for more details see Nyamathi, Wayment, et al., 1993). Before the measurement model (CFA) and path models were tested with structural modeling, preliminary exploratory factor analyses were conducted to determine the optimum configuration for each latent construct. Items that were potential confounds between constructs

were eliminated as described below. Alpha coefficients for constructs are reported in Table 1.

Self-Esteem. The Self-Esteem latent construct was developed using responses to the Coopersmith (1967) Self-Esteem Inventory (SEI). The inventory was modified slightly to make it more understandable for this population (Nyamathi, Wayment, et al., 1993). For instance, responses were coded *true* and *false* rather than *like me* and *unlike me*. To avoid overlaps between constructs, we deleted four items related to the participants' perception of their family's social support and regard for them (e.g., "Your family or friends usually think about your feelings"). Because we wanted all constructs to be latent factors with multiple indicators and factor analysis reported only one eigenvalue greater than one (eigenvalue 4.0), inventory items were combined randomly to create four composite indicators (Bentler & Wu, 1993). These indicators were labeled as Self 1, Self 2, Self 3, and Self 4.

Social Resources. A social resources construct was indicated by the subjects' rating of three attributes of each type of social support: availability (e.g., "Is there someone you can talk to or someone who will listen to you?"), use of such support (e.g., "How often did you actually use this support during the last six months?"), and quality of the support (e.g., "How effective was the support?"). There were seven types of social support items for each attribute; these were summed to create the three indicators.

Emotional Disturbance. A latent variable of emotional disturbance during the previous 6 months was indicated by mean scores on three multiple-item scales with 5-point Likert responses: the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977), the Somatization Scale of the Somatic Complaint List (SCL-90-R; Derogatis & Cleary, 1977), and the Profile of Mood States (POMS; McNair, Lorr, & Droppleman, 1981). Two items were dropped from the original 20-item CES-D: one that was highly confounded with social support, and another that greatly overlapped with self-esteem. In addition to the original 16-item subscale of the SCL-90-R, 4 items were added: loss of appetite, gastrointestinal problems, fatigue, and insomnia.

Threat Appraisal. A variable reflecting generalized threat appraisal or perception was developed for this model. Twenty-two items in the Inventory of Current Concerns (ICC; Weisman, Worden, & Sobel, 1980) and 7 items from the primary appraisal instrument of Folkman, Lazarus, Dunkel-Schetter, DeLongis, and Gruen (1986) were factor analyzed. Eight items that involved broad personal concerns of the women (not involving children or other family members) emerged as highly correlated with each other (e.g., upset about being very lonely, losing hope in the future). These 8 items were summed randomly to create three generalized composite threat indicators, Threat 1, Threat 2, and Threat 3.

Barriers to Condom Use. A list of 14 reasons for not using a condom with her main sex partner (not a client) was presented to the participants. Factor analysis indicated that there were three reliable factors. (A fourth factor consisting of two items indicating that either she or her partner wanted a child was not used in the barriers construct.) The first factor was dislike of condoms by either the woman or her partner. These two responses were summed to create an indicator called *don't like.* The second factor consisted of three items indicating denial of the need to use a condom (e.g., "You feel you can't get AIDS from your partner"). The three responses were summed to create an indicator, *deny need.* The third factor included 7 items that suggested social and educational deficiencies and lifestyle difficulties and hardships. For example, this factor included fear of getting beaten up by the partner, not knowing how to use condoms, and inability to discuss condoms with the partner. We labeled this factor *powerless.*

Coping. A 30-item version of the Jalowiec Coping Scale (JCS; Jalowiec & Powers, 1981) assessed coping strategies used by the participant to "get one's life together" in the last 6 months rated on a 5-point Likert scale (*never* to *always*). Two of the five resultant factors

Table 1

Factor Loadings of Final Confirmatory Factor Analysis Model, Summary Statistics, and Coefficient Alphas for Latinas (N = 691) and African American Women (N = 714)

| | Factor loadings* | | Summary statistics | | | |
| | | | Latinas | | African Americans | |
Latent or manifest variable	Latinas	African Americans	M	SD	M	SD
Self-Esteem (α = .79, .78)						
Self 1	.66	.70	1.52	.28	1.55	.24
Self 2	.68	.61	1.51	.26	1.45	.25
Self 3	.82	.72	1.50	.30	1.42	.30
Self 4	.58	.63	1.61	.26	1.63	.26
Social Resources (α = .87, .86)						
Available support	.91	.92	1.66	.37	1.70	.35
Use support	.98	.96	3.03	1.35	3.15	1.32
Quality of support	.97	.96	2.92	1.29	3.08	1.28
Emotional Disturbance (α = .85, .78)						
CES-D	.85	.78	2.74	.72	3.03	.71
SCL-90	.67	.61	1.91	.75	1.96	.76
POMS	.89	.84	2.49	.83	2.71	.91
Threat Appraisal (α = .73, .74)						
Threat 1	.70	.74	2.34	1.24	3.13	1.40
Threat 2	.66	.71	2.92	1.08	3.11	1.09
Threat 3	.70	.71	2.84	1.04	3.07	1.12
Barriers to Condom Use (α = .62, .58)						
Don't like	.47	.50	2.72	.85	2.60	.77
Deny need	.73	.68	4.03	1.27	4.23	1.19
Powerless	.67	.69	8.18	1.71	9.02	1.94
Active Coping (α = .81, .75)						
Control	.80	.64	3.80	1.07	4.20	1.02
Find out	.86	.77	3.81	1.11	4.06	1.12
Find meaning	.54	.50	3.57	1.12	3.75	1.19
Think of a way	.57	.45	3.59	1.08	3.86	1.09
Avoidant Coping (α = .65, .63)						
Laugh it off	.43	.35	2.46	1.27	2.86	1.29
Put out of mind	.35	.52	3.02	1.18	3.12	1.30
Daydream	.56	.56	2.87	1.29	3.17	1.23
Sleep	.53	.56	2.76	1.20	3.04	1.31
Go away	.54	.44	2.50	1.25	2.86	1.31
General AIDS Risk Behavior (α = .60, .59)						
AIDS Risk 1	.61	.48	1.76	.62	1.79	.61
AIDS Risk 2	.53	.38	2.14	1.01	2.42	1.10
Less condom use	.22	.64	3.56	.96	3.86	1.10
Number sex partners	.52	.71	.37	.35	.57	.54
Partner uses IV drugs	.52	.55	1.22	.37	1.15	.31
Specific Drug Use Behavior (α = .66, .48)						
Drug use	.94	1.00	1.09	1.56	2.06	1.56
IV drug use	.71	.45	.34	.75	.17	.55
Sharing needles	.56	.31	1.13	.34	1.06	.24
Acculturation	—	—	2.98	1.43	—	—

Note. Alpha coefficients are for Latinas and African Americans, respectively. CES-D = Center for Epidemiological Studies Depression Scale (Radloff, 1975, 1977); SCL-90 = Somatization Scale of the Somatic Complaint List (Derogatis & Cleary, 1977); POMS = Profile of Mood States (McNair, Loor, & Dropplemen, 1981).

*All factor loadings significant, $p \leq .001$.

were hypothesized to reflect active coping and avoidant coping. Active Coping was indicated by four questionnaire items: "Try to have some control over the problem," "Find out more about the problem so you can handle it better," "Try to find meaning in the problem," and "Think of different ways to handle the problem." Avoidant Coping was indicated by five items: "Laugh it off," "Try to put the problem out of your mind," "Daydream," "Go to sleep," and "Go away."

General AIDS Risk Behavior. Five items associated with AIDS risk were used as indicators of risky behavior. One item was an assessment on a 1–4 scale by the women of their chances of contracting the AIDS virus (AIDS Risk 1). A second was how often they thought about the possibility of becoming infected with the AIDS virus (1–4 scale, AIDS Risk 2). Another indicator, less condom use, was a scaled variable based on responses to three questions about sex without a condom in

the last 6 months, sex without a condom with a special partner, and sex without a condom with others. A fourth indicator was the number of sex partners the women had in the last 6 months. Because the raw scores for this variable varied widely and because qualitatively and psychologically there was a greater difference between 0 and 10 than there would be between 90 and 100, we used the log of the response for this item. The fifth item was whether, in the last 6 months, her sex partner(s) used injection drugs.

Specific Drug Use Behavior. Three indicators associated with each woman's own drug use were used for this construct. One indicator, drug use, was a sum of responses to use of nine categories of drugs: heroin or other narcotics, cocaine, amphetamines, hallucinogens, other barbiturates, nitrite or other inhalants, marijuana, designer drugs, and alcohol. Another indicator, injection drug use, was the sum of responses to items assessing injection ("mainlining") of heroin, cocaine, amphetamines, hallucinogens, and other drugs. The third indicator was the response (yes/no) to whether she was sharing needles or other equipment with others including her partner.

Acculturation Level. For the Latinas, the mean value on a 12-item acculturation scale reflecting language preference and country of origin of most of her friends was used as an indicator of acculturation level (Marin et al., 1987). Scores ranged from 1 to 5 (language questions: 1 = *Spanish only,* 5 = *English only*; friend questions: 1 = *all from my native country,* 5 = *all from this country*); a higher mean score was interpreted as greater acculturation.

Analyses

All latent variable analyses were performed using the EQS structural equations modeling program (Bentler, 1992). In order to specify a predictive model with correlated cross-sectional data, we used the technique of covariance structure modeling with latent variables. This technique allows one to evaluate causal hypotheses with correlational nonexperimental data. The causal hypothesis can be rejected statistically but it cannot be unequivocally proven. This is especially the case with cross-sectional data because some alternate models might also be plausible (MacCallum, Wegener, Uchino, & Fabrigar, 1993). However, to the extent that the proposed model fits the empirical data and can be appropriately supported or justified theoretically, stronger conclusions can be drawn than can be considered in most nonexperimental research (Bentler & Stein, 1992).

We evaluated the closeness of the hypothetical model to the empirical data through goodness-of-fit indices including chi-square/degrees of freedom ratios, and the comparative fit index (CFI), which ranges from 0 to 1. A chi-square value no more than twice the degrees of freedom in the model generally indicates a plausible model. The CFI is based on the improvement in fit of the hypothesized model over a model of complete independence or uncorrelatedness among the measured variables and adjusts for sample size (Bentler, 1990, 1992). Values of 0.9 or higher are desirable and indicate that 90% or more of the covariation in the data is able to be reproduced by the hypothesized model (Bentler & Stein, 1992).

Confirmatory factor analyses. Initial confirmatory factor analyses (CFA) were performed with each hypothesized latent construct predicting its manifest indicators. All latent constructs were intercorrelated without any imputation of causality among them. This analysis tested the adequacy of the factor structure (measurement model) and assessed associations among the nine latent variables. In the CFA for the Latinas, the manifest variable of acculturation level was correlated with each latent variable. In addition, the factor structure and relationships among the latent variables for the two ethnic groups (excluding acculturation) were compared with multiple group analyses.

Path model. Once a well-fitting CFA model was developed for each group, a predictive path model was explored in which Self-Esteem, Social Resources, and Emotional Disturbance were intercor-

related background factors that were hypothesized to predict Threat Appraisal, Barriers to Condom Use, Active Coping, Avoidant Coping, General AIDS Risk Behavior, and Specific Drug Use Behavior. In turn, Threat Appraisal was conceptualized as a mediating variable that predicted Barriers to Condom Use, Active and Avoidant Coping, and the AIDS and Specific Drug Use Behaviors. In turn, Barriers to Condom Use, Active Coping, and Avoidant Coping were conceived as further predictors of the outcomes of AIDS risk and Specific Drug Use Behavior. For the Latinas, the manifest indicator of acculturation level was a further covariate with the three predictor constructs and another predictor of the mediating and outcome latent variables. Nonsignificant paths and covariances were dropped gradually following the procedure of MacCallum (1986), until a final model emerged with all remaining paths having parameter estimate/standard error ratios of at least 2:1, which corresponds to a *z* score of 2.00. We did not want to capitalize on marginally significant paths in samples of such a large size. Modification indexes from the Lagrange Multiplier test (LM test; Chou & Bentler, 1990) were examined to see if any additional paths or covariances between error residuals should be included. These were only included if they were plausible theoretically.

Results

Confirmatory Factor Analysis

Table 1 presents the factor loadings for the final CFA model for the two ethnic groups. The factor loadings were similar across the groups for most of the latent constructs, although multiple group analyses revealed some substantive differences between the groups (see details below), and the good fit indices indicated that the hypothesized factor structure was feasible for both groups. In addition, all manifest variables loaded significantly ($p < .001$) on their hypothesized latent factors. Table 2 presents the correlations among the latent variables.

Latinas' CFA. The initial CFA, with all covariances between constructs included had the fit indices: $\chi^2(483, N = 691) = 1,703.92$, CFI = .88, indicating a fit not as good as desired. After the addition of seven theoretically defensible covariances between error residuals and one complex factor loading based on suggestions from the LM test, the chi-square value decreased substantially and the CFI improved considerably, $\chi^2(475, N = 691) = 1,080.46$, CFI = .94. The chi-square/degrees of freedom ratio was very close to the 2:1 criterion and the CFI was well over .90. The complex factor loading allowed less condom use to load on Barriers to Condom Use as well as its initially hypothesized latent factor of General AIDS Risk Behavior.

African American women's CFA. The initial CFA, performed with the randomly selected set of African American women, was the same initial model that was hypothesized for the Latinas, except that acculturation was not included as an additional covariate with the latent factors. Results showed only a moderate fit, $\chi^2(459, N = 714) = 1,325.96$, CFI = .90. With the addition of six correlated error residuals and the same complex factor loading that was added for the Latina women (less condom use on Barriers to Condom Use), the fit improved substantially: $\chi^2(452, N = 714) = 851.20$, CFI = .96. The CFI was quite high and the chi-square/degrees of freedom ratio was less than 2:1. The randomly derived validation subsample ($N = 731$) was also tested with the final factor

Table 2

Correlations Among Latent Variables for Latinas (N = 691) and African American Women (N = 714)

Latent variable	1	2	3	4	5	6	7	8	9
1. Self-Esteem	—	.29***	-.78***	-.51***	-.30***	.24***	-.40***	-.39***	-.20***
2. Social Resources	.34***	—	-.26***	-.07*	-.04	.23***	-.08*	-.11**	-.10**
3. Emotional Disturbance	-.76***	-.33***	—	.73***	.28***	-.14**	.51***	.44***	.13**
4. Threat Appraisal	-.58***	-.21***	.83***	—	.31***	.05	.41***	.46***	.11**
5. Barries to Condom Use	-.06	.12**	.11*	.23***	—	-.08	.14**	.74***	.08*
6. Active Coping	.19***	.30***	-.03	.09*	.16***	—	.05	-.20***	-.15***
7. Avoidant Coping	-.30***	.04	.41***	.36***	.05	.27	—	.22***	.02
8. General AIDS Risk Behavior	-.43***	-.11**	.52***	.55***	.39***	-.02	.23***	—	.20***
9. Specific Drug Use Behavior	-.23***	.05	.29***	.36***	.13**	.14***	.29***	.52***	—
10. Acculturation[a]	-.05	.24***	.15***	.14***	.19***	.31***	.28***	.31***	.42***

Note. Latinas below diagonal, African American women above diagonal.

[a] Latinas only.

$*p \leq .05.$ $**p \leq .01.$ $***p \leq .001.$

model in order to be sure that we were not capitalizing on chance relationships in the data that generated the significant supplementary correlated error residuals. The fit indices were also good for the validation subsample, $\chi^2(452, N = 731) = 923.08$, CFI = .95, and the supplementary covariances and the complex factor loading added for the final model were equally significant in the validation sample.

Multiple group comparisons. The initial factor structures (measurement model) of the two ethnic groups were compared with a multiple group comparison analysis. The chi-square difference between a model with the factor loadings constrained to equality between the groups and a nonconstrained model was 270.91, with 33 degrees of freedom. This is a significant difference and indicates that the factor structures were not comparable in all respects across the groups. The LM test reported that six factor loadings were contributing in particular to the significant difference between the two factor structures. These included all three indicators on the specific Drug Use Behavior factor (drug use, injection drug use, and sharing needles), less condom use and number of sex partners on the General AIDS Risk Behavior factor, and "Try to have control over the problem" on the Active Coping factor. When the constraints on these indicators were dropped, the chi-square/degrees of freedom ratio for the chi-square difference improved considerably, although it was still significant (90.75, df = 27). We concluded that there were important behavioral differences between the two groups, especially on the risky AIDS and drug use behavioral measures. These results provided further justification for the separate analyses by ethnic group.

Path Analysis

Latinas. The fit of the final path model for Latinas is quite good, $\chi^2(492, N = 691) = 1,013.16$, CFI = .95. Figure 1 presents the final path model with all significant paths and covariances included (for readability, manifest indicators are not depicted).

In the model for Latinas, Self-Esteem and Social Resources were positively related and both were negatively related to Emotional Disturbance. Threat Appraisal was directly predicted solely by greater Emotional Disturbance. Barriers to

Condom Use was predicted by greater Social Resources, greater Threat Appraisal, and greater Acculturation Level. Active Coping was predicted by greater Self-Esteem, greater Social Resources, greater Threat Appraisal, and higher Acculturation Level. Avoidant Coping was predicted by greater Social Resources, greater Emotional Disturbance, and higher Acculturation Level.

General AIDS Risk Behavior among Latinas was predicted by greater Barriers to Condom Use, less Self-Esteem, greater Threat Appraisal, less Active Coping, and higher Acculturation Level. Specific Drug Use Behavior was predicted by Threat Appraisal, Avoidant Coping, and higher Acculturation Level. Specific Drug Use Behavior and General AIDS Risk Behavior were positively related.

African American women. The path model for the African American women is presented in Figure 2. The fit of the model is also quite good, with $\chi^2(469, N = 714) = 859.08$, CFI = .96.

Self-Esteem and Social Resources were positively correlated as expected; both of these resources were negatively correlated with Emotional Disturbance. Threat Appraisal was predicted by greater Emotional Disturbance. There was no significant predictive path between Self-Esteem and Threat Appraisal, although they were highly correlated in the CFA. That relationship was mediated by Emotional Disturbance.

Barriers to Condom Use was predicted by less Self-Esteem and greater Threat Appraisal. Active Coping was predicted by greater Self-Esteem, greater Social Resources, and greater Threat Appraisal. Avoidant Coping on the other hand was significantly predicted only by greater Emotional Disturbance.

General AIDS Risk Behavior was predicted by greater Barriers to Condom Use, greater Threat Appraisal, and less Active Coping. Avoidant Coping was not a significant predictor of General AIDS Risk Behavior but did significantly predict more Specific Drug Use Behavior.

The final model was also tested with the validation sample for the African American women. The fit indices were good, $\chi^2 (469, N = 731) = 948.23$, CFI = .95. One predictive path that was significant for the original sample was not significant for the validation sample: the predictive path of Barriers to Condom Use on Specific Drug Use Behavior. Considering the
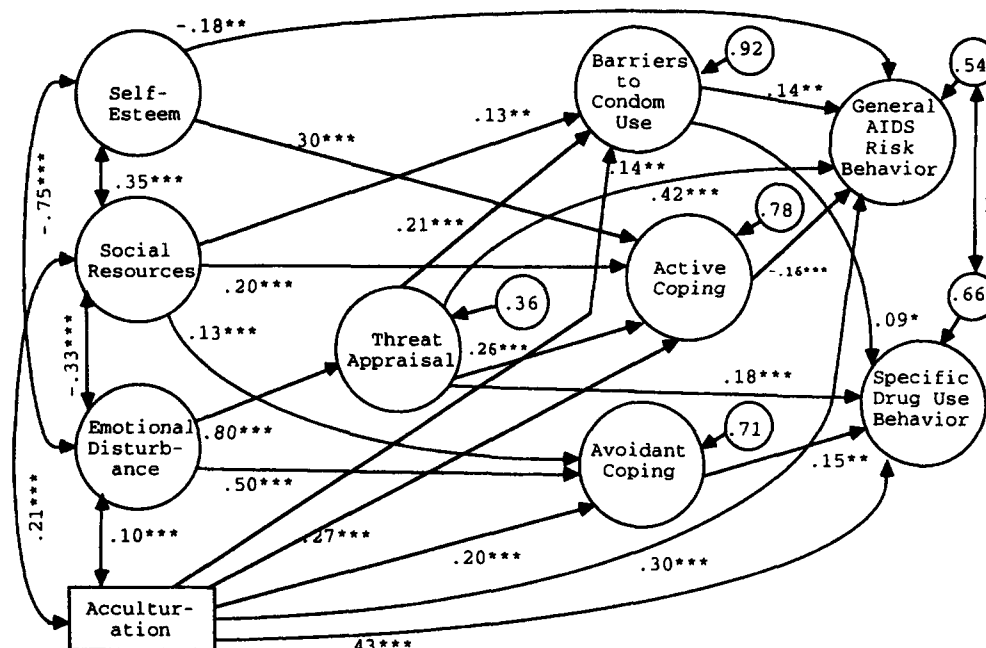
Figure 1. Final structural model and standardized estimates for Latinas. Large circles designate latent variables; rectangle represents single-indicator construct of acculturation; small circles indicate residual variances. Path coefficients are indicated with single-headed arrows; double-headed arrows represent correlations between constructs. *p < .05. **p < .01. ***p < .001.

large number of parameters estimated in the model, having only one discrepancy is not unsatisfactory or unexpected.

Discussion

The primary objective of this study was to evaluate the role of personal and social resources, threat appraisal processes, coping styles, and barriers to risk reduction as predictors of

AIDS risk and drug use behaviors in impoverished women at risk for AIDS. Our theoretical model of relationships among various psychosocial characteristics was effective in predicting risky AIDS behaviors among two high-risk groups of women. As predicted by the hypothesized model, self-esteem was associated with social resources, and self-esteem and social resources were inversely associated with emotional disturbance for both African American and Latina women. Greater
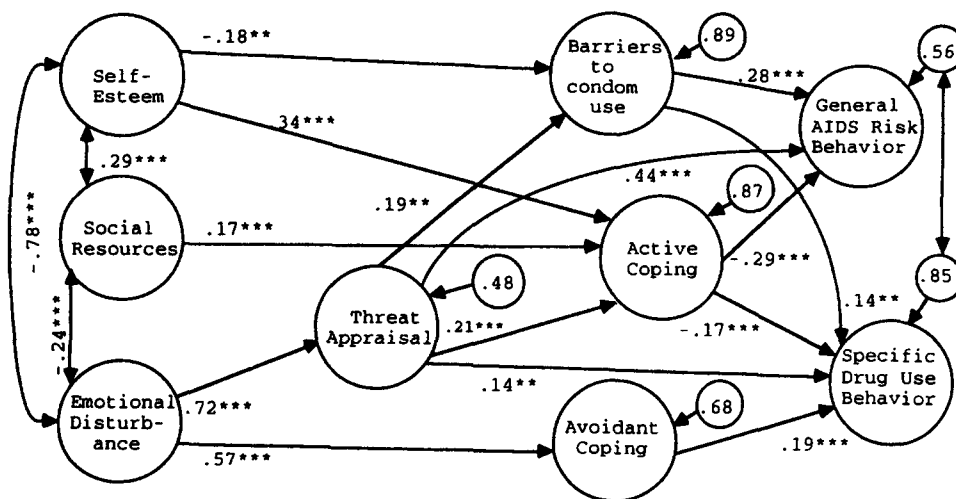

Figure 2. Final structural model and standardized estimates for African Americans. Large circles designate latent variables; small circles indicate residual variances. Path coefficients are indicated with single-headed arrows; double-headed arrows represent correlations between constructs. **p < . 01. ***p < .001.

self-esteem and social resources also directly predicted active coping for both groups. Active coping was, in turn, associated with fewer general AIDS risk behaviors for both ethnic groups and less specific drug use behavior among the African American women. Among Latinas, self-esteem influenced general AIDS risk behavior directly and also indirectly through active coping. Social resources on the other hand, influenced AIDS risk behavior and drug use behavior indirectly through barriers to condom use, and for AIDS risk behavior, active and avoidant coping.

Neither self-esteem nor social resources significantly predicted threat appraisal in the women. Certainly one implication of this is that threat appraisal is more strongly associated with other more important factors such as emotional disturbance, which also had very strong and independent effects on risk behavior. Although causal implications are not possible because of the cross-sectional nature of the data, results may indicate that health care practitioners and social scientists should assist in reducing the emotional disturbance level of impoverished women. Lowered emotional disturbance may subsequently lessen threat appraisal and its association with adverse behaviors. Further research is warranted on this relationship.

The fact that lower self-esteem predicted more barriers to condom use among African American women, whereas social resources predicted barriers to condom use among Latinas points to important cultural differences that should guide educational and outreach efforts of practitioners and social scientists. These findings suggest the importance of a theoretical distinction between personal and social resource variables. These resources differed in function from each other and between the two ethnic groups. For instance, self-esteem enhancement to increase condom use may be an important intervention for impoverished African American women. However, our evidence suggests that social resources inhibit risky behaviors among African American women but predict more barriers to condom use among Latinas. This relationship may be understood from the traditional sociocultural and religious norms among Hispanics that forbid or strongly discourage use of condoms (Marin, 1989; Marin & Marin, 1992). Thus, culturally specific interventionists might consider including direct attention to reducing barriers to condom use among African Americans through self-esteem enhancement. Although little empirical research exists with impoverished women to compare these findings, Tashakkori and Thompson (1992) reported that self-esteem was associated with intentions to take precautions against contracting AIDS in young African American men in college. However, for Latinas, the need for family and community education may be necessary to encourage reduction of barriers to condom use. Moreover, as barriers to condom use were predicted by greater threat appraisal and higher acculturation, support is provided for interventions directed at higher acculturated women that target cognitive appraisal processes and enhance socially approved self-efficacy skills in risk reduction, rather than employing threat appeals (Jemmott, Jemmott, & Fong, 1992; Rippletoe & Rogers, 1987).

Moreover, the sexual partner's support for condom use was significantly related to increased condom-use intentions. Lon-

gitudinal studies are now warranted to study the impact of such interventions on actual condom use, particularly with objective measures such as new incidence of STDs, pregnancy, and HIV seropositivity.

The two types of coping styles also function quite differently from each other and relatively differently in the two groups. For the Latinas, more background factors such as acculturation and emotional disturbance predicted avoidant coping than for African Americans, and active coping predicted less general AIDS risk behavior and avoidant coping predicted more specific drug use behavior. For the African American women an active coping style predicted less AIDS risk and drug use behavior, and an avoidant style predicted more drug use. A previous intervention directed at coping enhancement has demonstrated improved coping responses (Nyamathi, Bennett, Leake, Lewis, & Flaskerud, 1993); designing culturally sensitive coping enhancement training may prove worthwhile.

The finding that drug use behavior was predicted by high threat appraisal and avoidant coping for both groups is supported by other researchers who report that impoverished women cope with stresses by using drugs (Hser, Anglin, & McGlothlin, 1987; Reed & Moise, 1987). However, higher acculturation was also a predictor for drug use and risky AIDS behavior among Latinas. Higher acculturation may be a mixed blessing for Latina women who may not yet have replaced traditional standards and values with those equal to what they have given up to become more Americanized. As our analyses suggest, higher acculturation, although positively associated with more active coping and greater social resources, is also associated with more drug use and more risky AIDS behaviors. Less acculturated Latinas may be more responsive to their societal proscriptions against the use of drugs and promiscuous behavior. This may be particularly the case during childbearing and childrearing phases of their lives. Thus, the impoverished and yet more acculturated Latinas and African Americans may be the ones to target for educational outreach about negative consequences of drug addiction on fetal and neonatal development (Madden, Payne, & Miller, 1986), parenting dysfunction, and loss of custody of their children (Jones & Lopez, 1990).

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