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Personality Pathways to Unsafe Sex: Personality, Condom Use, and HIV Risk Behaviors

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Few studies have considered the importance of enduring personality characteristics in influencing health and HIV/AIDS risk behaviors. The current study examined relations between a comprehensive measure of personality, the Revised NEO Personality Inventory, and condom use and other HIV risk behaviors. The study sample consisted of 201 disadvantaged, primarily African American participants of an HIV risk reduction program in the Arkansas delta region. The sample was stratified into three risk groups. The low-risk group (n = 43) had 0% engaging in various risky sexual and substance use practices. Between 3% and 52% of the high-risk group (n = 62) engaged in these practices (e.g., shared needles, sex with partner who shoots drugs, received anal sex). The medium-risk group (n = 96) was intermediate. Results indicated that high Neuroticism, low Conscientiousness, and low Agreeableness are associated with HIV risk behaviors. Thus, high-risk behavior is associated with emotional distress, poor self-control, and hostile and antagonistic attitudes and behaviors. The high-risk group differed from the medium- and low-risk groups on the Neuroticism facet of Impulsiveness, indicating an inability to resist cravings and urges. The high-risk group also scored lower in Competence (i.e., feelings of

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self-efficacy), Self-Discipline (i.e., motivation to carry tasks through to completion), and Achievement Striving (i.e., aspiration levels). The current study, by identifying several personality traits that contribute to sexual risk behavior, raises important public health implications. Successful intervention in these AIDS-related behaviors may require interventions tailored to these basic tendencies. Such an approach may be a crucial element in attempts to lower HIV risk behavior.

Since the AIDS epidemic emerged as a public health crisis, a substantial body of research on this topic has been amassed. Aggelton, O'Reilly, Slutkin, and Davies (1994) observed that two main types of factors are known to influence HIV risk behaviors: individual attributes and attributes of the community or society. Most literature has focused on attitudes, perceived social norms, and self-efficacy as the primary determinants of HIV risk behaviors. But critical reviews have shown that these approaches leave much unexplained variance (Sacco & Rickman, 1996). According to Marks, Bingman, and Duval (1998), most of the HIV risk explanatory models (Theory of Reasoned Action, Theory of Planned Behaviors, Social Cognitive Theory, Health Beliefs Model, AIDS Risk Reduction Model, and Information–Motivation–Behavioral Skills Model) overemphasize the cognitive informational basis of behavior while excluding other potentially important categories of variables relevant to sexual risk in seropositive and seronegative persons. Marks et al. called attention to the affective states of patients (e.g., negative affect, depression dejection) that are associated with engaging in unsafe sex.

Failure to identify the important determinants of risk behavior may explain why few HIV risk reduction programs have been successful (Choi & Coates, 1994; Coates, 1990; Fisher & Fisher, 1992; Kelly, Murphy, Sikkema, & Kalichman, 1993), despite extensive efforts and considerable expenditure in their design and implementation. The development of more informed (and effective) intervention and prevention programs requires as complete an understanding of the determinants of risk behaviors as can be reasonably achieved (Fisher, Misovich, Kimble, & Weinstein, 1999). Given the emphasis on attributes of the individual in determining HIV risk behavior, relatively few studies have systematically investigated the role of personality characteristics as determinants of practices that place one at risk for contracting HIV (Pinkerton & Abramson, 1995).

In a recent *Psychological Bulletin* meta-analysis of the correlates of heterosexual condom use guided by an AIDS risk reduction model (Sheeran, Abraham, & Orbell, 1999), only three individual difference variables were considered (i.e., impulsivity, venturesomeness, and erotophilia–erotophobia), all of which were found to have small, nonsignificant effects on condom use. In a search of the literature on personality characteristics and HIV risk behaviors, we identified 17 studies. As Table 1 shows, much of the existing

literature examines a relatively small range of personality variables, and most of it has been conducted within gay and bisexual male samples and samples of college students. Little research has been conducted among those currently at the greatest risk for contracting HIV—low-income minority men and women (Haverkos, 1998).

Nonetheless, existing research does provide some insights into the relations between personality characteristics and HIV risk behavior. Of Eysenck's three dimensions of personality, Psychoticism has consistently been related to sexual behavior, whereas evidence for the role of Extroversion and Neuroticism has been mixed, although associations have been found with other measures of Neuroticism (e.g., Ball & Schottenfeld, 1997) and related constructs (e.g., emotional control [Perkins, Lesserman, Murphy, & Evans, 1993]). Ball and Schottenfeld (1997), for example, found that the Neuroticism–Anxiety scale of the Zuckerman–Kuhlman Personality Questionnaire (ZKPQ) (Zuckerman, Kuhlman, Joireman, Teta, & Kraft, 1993) was the best predictor of sexual risk behaviors (e.g., having several sex partners, having sex for money, having more than one HIV test) among 92 pregnant or postpartum women in outpatient substance abuse treatment. A number of studies have also demonstrated relations between sensation seeking and related constructs (impulsivity, venturesomeness, and sexual sensation seeking) with a variety of sexual behaviors including number of partners and condom use, although such relations may be less strong among women than among men (see Fisher & Misovich, 1990; Horvath & Zuckerman, 1993). Kalichman and his colleagues (1994) have developed a measure of sexual sensation seeking, but whether or not it is a personality disposition or a form of risky sexual behavior is still in need of resolution. Engaging in high-risk sexual practices with multiple partners is, not surprisingly, a good predictor of sexual risk behavior in that it is arguably as much an index of HIV risk behavior as it is an affinity or a personality predisposition. A number of other personality variables may be plausibly hypothesized to be related to sexual risk behaviors and may warrant further consideration, but how does one choose among the myriad personality constructs available?

During the past 15 years, there has been growing interest in the Five-Factor Model (FFM) of personality, which specifies a hierarchical model of the broad dimensions and more specific traits that summarize the common variance across most personality traits (Digman, 1990; Wiggins, 1996). The dimensions of the FFM are Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. Several studies have used the FFM as a framework for investigating relations between personality and health behaviors (Booth-Kewley & Vickers, 1994; Marshall, Wortman, Vickers, Kusalas, & Hervig, 1994; McCrae & Stone, 1997), with Neuroti-

TABLE 1
Overview of Personality and HIV Sexual Risk Behavior Literature

Study	Sample	Personality measures	Risk measures	Findings
Sensation Seeking, Impulsivity, and Venturesomeness measures				
Fisher and Misovich (1990)	Gay men College students Nurses	Sensation Seeking	Number of partners	Sensation Seeking ~ Risky sexual behavior for gay men and college students (not for nurses)
Hernandez and Smith (1991)	447 unmarried college students	Sensation Seeking	Number of partners, condom use	Disinhibition and Boredom Susceptibility subscales ~ Sexual motivation, number of partners, and number of pickups
Horvath and Zuckerman (1993)	220 male and 227 female college students	Sensation Seeking, Impulsivity	Combination of several risky sexual behaviors	Sensation Seeking, Impulsivity ~ Risky sexual behaviors for men (not for women)
Clift et al. (1993)	531 heterosexual genito-urinary medicine patients	Impulsivity, Venturesomeness	Condom use	Venturesomeness and Impulsivity ~ Lack of condom use
Stein et al. (1994)	438 community women	Sensation Seeking, Social Conformity	Past risky HIV behaviors	Multiple-indicator latent variables used; Sensation Seeking and Social Conformity ~ Past risky HIV behaviors (Social Conformity the best predictor)
Kalichman et al. (1994)	106 gay men	Sexual Sensation Seeking, Nonsexual Experience Seeking, Sexual Self-Control	Unprotected anal intercourse, number of partners	Sexual Sensation Seeking ~ Unprotected anal intercourse and number of partners Sexual Self-Control ~ Unprotected anal intercourse and number of partners
Kalichman and Rompa (1995)	296 gay men 158 inner-city, low-income men and women	Sexual Sensation Seeking, Nonsexual Experience Seeking, Sexual Compulsivity	Unprotected intercourse, number of partners	Sexual Sensation Seeking, Nonsexual Experience Seeking, Sexual Compulsivity ~ Unprotected intercourse and number of partners (Sexual Sensation Seeking the best predictor)
Kalichman et al. (1996)	99 gay men	Sexual Sensation Seeking, Nonsexual Experience Seeking	Unprotected anal intercourse, number of partners	Sexual Sensation Seeking, Nonsexual Experience Seeking ~ Unprotected anal intercourse and number of partners

Multivariate models of personality structure				
McCown (1991)	86 (primarily gay) men	Eysenck Personality Questionnaire	Combined risky sexual behaviors	Psychoticism, Neuroticism, Extraversion ~ Risky sexual behaviors
McCown (1993)	109 gay or bisexual HIV+ men	Eysenck Personality Questionnaire	Combined risky sexual behaviors	Psychoticism ~ Risky sexual behaviors (Neuroticism and Extroversion not related to Unsafe Sexual Behavior)
Fontaine (1994)	64 sexually active young men	Eysenck Personality Questionnaire	Combined risky sexual behaviors	Psychoticism ~ Risky sexual behaviors (little or no correlation for Neuroticism, Extraversion, or Lie scale)
Wilson et al. (1992)	144 African men	Personality Research Form	Visiting prostitutes	Low achievement, low cognitive structure, low defendence, high exhibition, high impulsivity, high play ~ Visiting prostitutes
Seal and Agostinelli (1994)	185 college students	Multivariate Personality Questionnaire	Sociosexual orientation (including number of partners)	Low Control, Low Harm-Avoidance, and Low Self-Monitoring ~ Sociosexual orientation (willingness to engage in uncommitted sex)
Ball and Schottenfeld (1997)	92 pregnant/postpartum cocaine-abusing women	Zuckerman–Kuhlman Personality Questionnaire	Number of partners, prostitution	Neuroticism–Anxiety, Aggression–Hostility, and Impulsive Sensation Seeking ~ Number of partners and prostitution (Neuroticism–Anxiety the best predictor)
Other personality measures				
Taylor et al. (1992)	550 gay and bisexual men	Life Orientation Test (Optimism)	Combined risky sexual behaviors	No relation
Perkins et al. (1993)	53 HIV− gay men	Life Orientation Test Profile of Mood States Emotional Control	Combined risky sexual behaviors	Optimism and Profile of Mood States Anger ~ Risky sexual behaviors Emotional Control ~ Risky sexual behaviors
Hernandez and DiClemente (1992)	176 single male college students	Self-Control Ego Identity	Condom use	Self-Control and Identity Moratorium ~ Condom use

Note: "~" = is associated with.

cism and Conscientiousness emerging as the strongest predictors (Baile et al., 1984; Brickman, Yount, Blaney, & Rothberg, 1996).

Neuroticism reflects a general tendency to experience negative affects such as fear and sadness as well as impulsivity and vulnerability to stress. Studies have linked elevated levels of Neuroticism to involvement in alcohol use (Loukas, Krull, Chassin, & Carle, 2000; Martin & Sher, 1994) and risky sexual behaviors, where individuals high in Neuroticism are prone to engage in risky behaviors as a way to cope with aversive mood states (Cooper, Agocha, & Sheldon, 2000). Conscientiousness reflects the tendency of individuals to be capable, orderly, dutiful, and deliberate in their actions. High scores on this dimension have been linked to health promotion (Booth-Kewley & Vickers, 1994) and patient adherence to prescribed medical regimens (Christensen & Smith, 1995), while low scores have been related to poor motivation to limit alcohol consumption (Loukas et al., 2000) and increased sexual risk taking (Hoyle, Fejfar, & Miller, 2000). Furthermore, in addition to Neuroticism and Conscientiousness, the dimension of low Agreeableness or Antagonism has been related to risky health behaviors (Vollrath, Knoch, & Cassano, 1999) and substance use (Brooner, Herbst, Schmidt, Bigelow, & Costa, 1993). Agreeableness is primarily a dimension of interpersonal tendencies, and sexual risk behaviors involve interpersonal relationships. The cynicism, manipulativeness, and aggression of low-agreeable individuals are hypothesized to interfere with their socially altruistic behavior. Alternative five-factor models (e.g., the ZKPQ) combine low Agreeableness and low Conscientiousness into an impulsive sensation-seeking factor or ImpUSS (Zuckerman et al., 1993). Thus, we hypothesize that low Agreeableness and low Conscientiousness will be related to the behaviors that place individuals at risk for contracting HIV and thus addressing the ImpUSS model.

Consistent condom use while engaging in sexual behavior is of paramount importance in protecting individuals from contracting HIV and other sexually transmitted diseases. Inconsistent condom use conveys a particularly high level of risk where multiple and/or high-risk partners are involved. Concomitant substance use or abuse also contributes to the risk status of individuals, particularly in the case of needle sharing but also due to an association between alcohol and/or drug use and impaired judgment. The current study tests the hypothesis that high Neuroticism and low Agreeableness and Conscientiousness scores will be related to three levels of HIV risk behavior defined by factors such as consistency of condom use with sexual partners, history of risky sexual practices, and needle-sharing history. Participants in this investigation are from a sample of disadvantaged minority men and women, a segment of the population that, although currently believed to be most at risk for contracting HIV, has been relatively underrepresented in personality and HIV risk research to date (Armistead, Morse, Forehand, Morse, & Clark, 1999; Thomas, Lansky, Weiner, Earp, & Schoenbach, 1999).

METHOD

Participants

The patient population was drawn from a service area that includes eight counties located in central and southeastern Arkansas, six of which contain no urban centers and are located in the impoverished Arkansas delta region. This region has higher rates of syphilis and substance abuse than national averages, and it has a significant shortage of health care providers. The population is described as economically disadvantaged with low literacy levels, and according to statistics from the Arkansas Department of Health (2000), there were 1161 cumulative reported cases of AIDS and a total of 1904 cumulative reported cases of HIV infection within this area. The majority of these HIV cases were African American.

All study participants took part in an HIV risk reduction intervention program called ''Take Charge'' (for details, see Trobst et al., 2000). Briefly, the Take Charge program is a counseling intervention for HIV risk reduction that is designed to reduce exposure to unprotected sex by motivating individuals to adopt consistent condom use behavior or abstinence as an HIV risk reduction strategy. Trained peer counselors recruit and enroll at-risk clients into the HIV counseling and testing intervention. A total of 539 potentially high-risk individuals were recruited from the following sites: health clinics, substance abuse counseling programs, church groups, and homeless shelters. Risk reduction counseling is provided over four sessions, and clients are permitted to complete the sessions at their own pace and convenience.

Of the 539 individuals recruited between March 1994 and June 1997, complete data were collected from 407 HIV-seronegative participants. Of the 132 participants excluded from this study, 65 were HIV positive, 63 were unwilling to undergo HIV testing, and 4 were missing risk history information. Due to the highly disadvantaged nature of the sample, reading tests were conducted to determine whether or not individuals would be able to complete the necessary questionnaires. A 6th grade or higher reading level, according to the Slosson Oral Reading Test (Slosson, 1963), was required to complete the written questionnaires as specified in the manual of the Revised NEO Personality Inventory (NEO-PI-R) (Costa & McCrae, 1992). A total of 201 participants met these criteria and were administered the self-report NEO-PI-R.

Demographic characteristics of the 201 participants in the study sample include the following: average age 29.8 years (range 18–62); 56% female; 19% married; and 81% African American, 18% White, and 1% Native American. Just over half (55%) of the participants were recruited from health clinics, while the remaining participants were recruited from substance abuse counseling programs. The majority of participants (95%) reported that they were sexually active, and although participants were not directly asked to indicate their sexual orientation, the majority were heterosexual. All participants provided signed informed consent prior to their participation.

Personality Measures

Revised NEO Personality Inventory. This is a 240-item self-report questionnaire designed to operationalize the FFM. The NEO-PI-R measures six specific traits, or facets, that define each of the five broad factors, and it uses a 5-point Likert response scale ranging from *strongly disagree* to *strongly agree*. Details regarding the instrument's reliability, validity, and longitudinal stability are presented in the manual (Costa & McCrae, 1992) and summarized elsewhere (Piedmont, 1998). The NEO-PI-R has been used successfully in African American clinical samples (Piedmont & Ciarrocchi, 1999). In the current sample, internal consistencies for the five domains were .88, .85, .83, .80, and .89 for Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness, respectively. A factor analysis of the 30 NEO-PI-R facet scales in the current sample replicated the structure obtained in the normative sample, with coefficients of congruence ranging from .92 to .97.

HIV and STD Risk Behavior Questionnaire. This form includes an HIV and sexually transmitted disease (STD) personal history checklist; questions about HIV knowledge, attitudes, and beliefs; and a self-assessment of HIV risk. The HIV and STD history checklist asks respondents to indicate whether they have ever engaged in the following risk behaviors: (a) ''I've had vaginal or anal sex''; (b) ''I've received anal sex''; (c) ''Since 1977, I've had a sex partner that shot up drugs''; (d) ''I've had sex with someone with the AIDS virus''; (e) ''Since 1977, I've shared needles or 'works' to shoot up drugs''; (f) ''I received blood products between 1978 and 1985''; (g) ''I've had syphilis''; (h) ''I've received treatment for a sex disease including herpes, gonorrhea (GC or 'clap'), pubic lice (or 'crabs')''; (i) ''I've received money or drugs for sex''; (j) ''I've given money or drugs for sex''; (k) ''I've tested positive for the AIDS virus before''; (l) ''I've been referred to a drug or alcohol treatment program before''; and (m) ''I drink alcohol or use street drugs.'' Respondents are instructed to check all that apply.

Condom Use Questionnaire. This is a questionnaire of condom use behavior that employs an algorithm based on the Transtheoretical Model of Behavior Change (Grimley, Prochanska, & Prochanska, 1997). All respondents are asked, ''Right now, do you have vaginal or anal sex with a main partner?'' If they respond ''no,'' then they have completed the questionnaire. If their response is ''yes,'' then they are asked a second question: ''When you have vaginal or anal sex with your main partner, do you use condoms?'' If the answer to the second question is ''yes,'' then they are asked, ''In the past 6 months, did you use condoms every time you had vaginal or anal sex with your partner?'' If the answer is ''no,'' then they are asked, ''When do you plan to use condoms with your partner?,'' with the following response options: ''I do not plan to use them,'' ''sometime in the future,'' and ''the next time I have sex.'' Separate forms are administered for both main and casual partners.

Procedure

Participants were asked to attend an appointment at an area clinic, where they completed a battery of questionnaires including the NEO-PI-R; a questionnaire assessing history of risky sexual practices, STDs, and substance use/abuse; and a questionnaire assessing condom use with main and casual partners during the preceding 6 months (Grimley, Prochanska, & Prochanska, 1993). Personality correlates of HIV risk behavior were examined by contrasting individuals who were classified into one of three groups on the basis of their sexual and nonsexual risk behavior history (see Table 2).

Respondents were classified as *low risk* ($n = 43$, 58% female) if they reported consistent condom use or abstinence during the preceding 6 months, did not endorse any risky sexual practices, had no history of STDs, and did not share needles. Respondents were classified as *high risk* ($n = 62$, 42% female) if they reported inconsistent or no condom use with main or casual sex partners *and* if they engaged in one or more of the following high-risk sexual behaviors: received anal sex, had sex with a partner who shoots drugs, had sex with someone with AIDS, received money or drugs for sex, and gave money or drugs for sex. Furthermore, all respondents reporting a history of needle sharing, regardless of condom use status, were classified as high risk. The remaining respondents were classified as *medium risk* ($n = 96$, 62% female). The medium-risk group was comprised of two subgroups of respondents: (a) those who reported inconsistent or no condom use but did not engage in high-risk practices ($n = 69$) and (b) those who reported consistent condom use or abstinence but engaged in high-risk practices ($n = 27$). Of this latter group, 17 individuals engaged in only one risky behavior.

Data Analysis

T scores for all NEO-PI-R scales were calculated with reference to gender-specific normative data. Mean group differences on each of the NEO-PI-R domain and facet scales were

TABLE 2
Endorsement of Risk Items among Low-, Medium-, and High-Risk Participants (Percentages Reported)

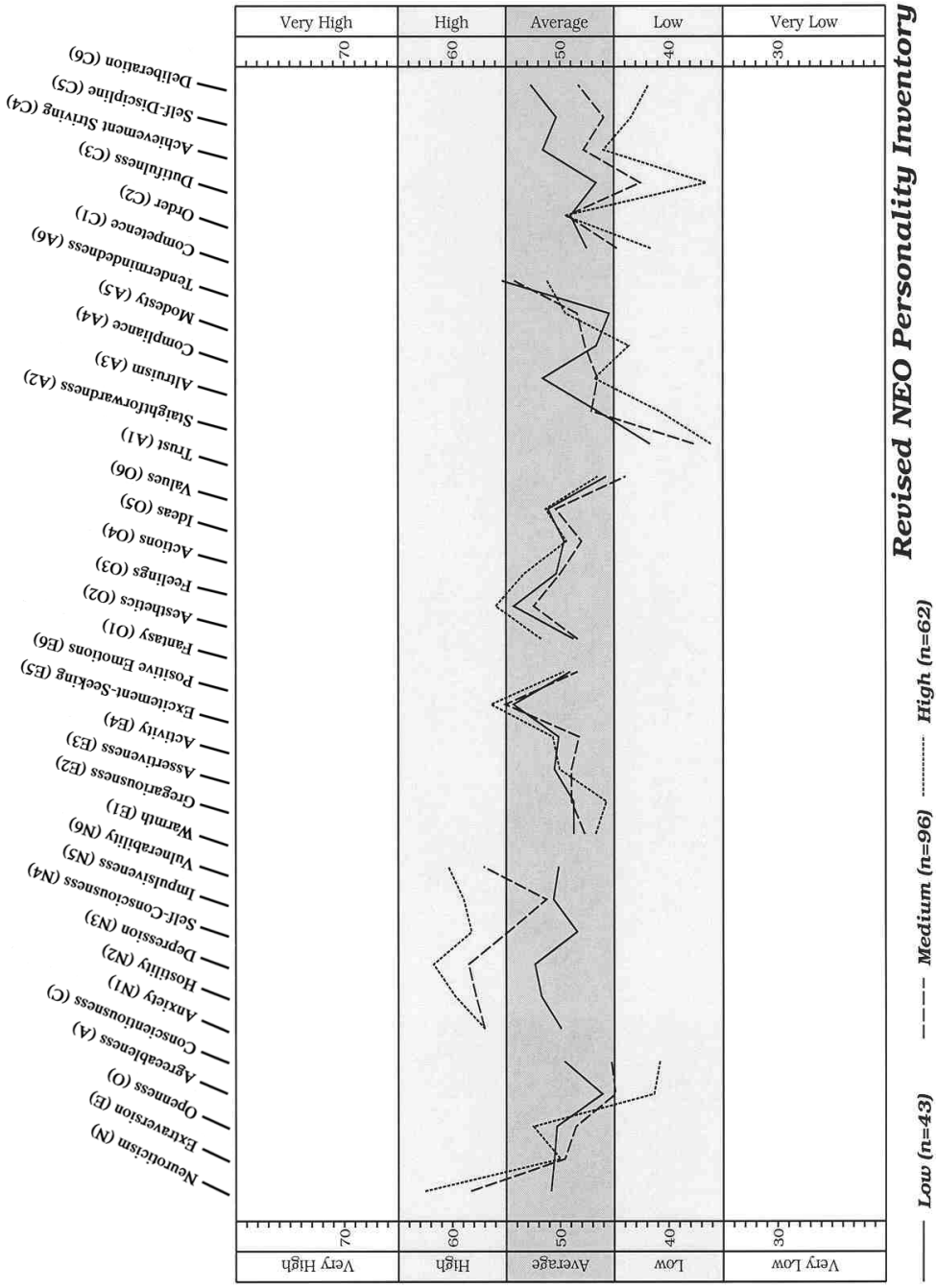
	Low risk (n = 43)	Medium risk (n = 96)	High risk (n = 62)
Risky sexual practices			
Received anal sex	0	9	18
Had sex with a partner who shoots drugs	0	6	42
Had sex with someone with AIDS	0	1	3
Received money or drugs for sex	0	14	51
Gave money or drugs for sex	0	12	50
Had sex without a condom in past 6 months	0	59	90
Sexually transmitted diseases			
Received treatment for any sexually transmitted disease	0	46	52
Syphilis	0	13	19
Gonorrhea	0	32	42
Herpes	0	0	3
Pubic lice	0	9	16
Other sexually transmitted diseases	0	7	5
Drug use			
Shared needles	0	0	29

assessed by performing 3 (low-, medium-, or high-risk group) by 2 (male or female) multivariate analyses of variance (MANOVAs)—one for the five domains and one for each set of facet scales. Each omnibus MANOVA was followed by univariate ANOVAs to determine significant group differences on the domain and facet scales. Scheffé post hoc comparisons followed each significant univariate ANOVA. Because there were no Risk Group × Gender interactions, this article reports only main effects for risk group.

RESULTS

Personality Profiles of Low-, Medium-, and High-Risk Groups

The NEO-PI-R profiles for the three risk groups are provided in Fig. 1. The Neuroticism domain scores for the high- and medium-risk groups are in the high range compared to the normative population (T-score range 45–54, mean T = 50). For the high-risk group only, the Agreeableness and Conscientiousness scores are in the low range compared to the normative group. Inspection of the facet scale scores for the high-risk group shows that all six Neuroticism facets are above average; only the Excitement-Seeking facet of Extraversion is in the high range, and the Aesthetics facet of Openness is high. Below average facets on Trust, Straightforwardness, Compliance, Competence, Dutifulness, and Deliberation also characterize the high-risk group. In general, the medium-risk group was intermediate between the high- and low-risk groups, with similar but fewer facets differing from the


Very High
High
Average
Low
Very Low
70
60
50
40
30
Very High
High
Average
Low
Very Low
Neuroticism (N)
Extraversion (E)
Openness (O)
Agreeableness (A)
Conscientiousness (C)
Anxiety (N1)
Hostility (N2)
Depression (N3)
Self-Consciousness (N4)
Impulsiveness (N5)
Vulnerability (N6)
Warmth (E1)
Gregariousness (E2)
Assertiveness (E3)
Activity (E4)
Excitement-Seeking (E5)
Positive Emotions (E6)
Fantasy (O1)
Aesthetics (O2)
Feelings (O3)
Actions (O4)
Ideas (O5)
Values (O6)
Trust (A1)
Straightforwardness (A2)
Altruism (A3)
Compliance (A4)
Modesty (A5)
Tender-mindedness (A6)
Competence (C1)
Order (C2)
Dutifulness (C3)
Achievement Striving (C4)
Self-Discipline (C5)
Deliberation (C6)
Low (n=43)
Medium (n=96)
High (n=62)
Revised NEO Personality Inventory

high-risk group. For the low-risk group, nearly all of the facets were in the average range, and only for Trust were they in the low range.

MANOVA of Domain and Facet Scales

The three NEO-PI-R profiles were statistically analyzed via a 3 (low-, medium-, or high-risk group) by 2 (male or female) MANOVA including the five NEO-PI-R domain scales. The MANOVA revealed a significant multivariate risk group effect (Wilks' lambda = .82), $F(10, 382) = 4.09$, $p < .001$, with significant univariate differences on the domains of Neuroticism, $F(2, 195) = 15.08$, $p < .001$, $\eta^2 = .13$; Agreeableness, $F(2, 195) = 4.59$, $p = .01$, $\eta^2 = .05$; and Conscientiousness, $F(2, 195) = 8.07$, $p < .001$, $\eta^2 = .08$. Scheffé post hoc comparisons revealed that the high-risk group (mean = 62.5) obtained significantly higher Neuroticism scores than did the medium-risk group (mean = 58.3), which obtained significantly higher Neuroticism scores than did the low-risk group (mean = 50.8). Scheffé post hoc tests also revealed that the high-risk group (mean = 40.8) obtained significantly lower Conscientiousness scores than did the low-risk group (mean = 49.6). No significant post hoc differences were obtained on the Agreeableness domain.

A MANOVA including the six facets of Neuroticism resulted in a significant multivariate risk group effect (Wilks' lambda = .79), $F(12, 380) = 4.0$, $p < .001$, with significant univariate effects on all six Neuroticism facets: Anxiety, $F(2, 195) = 9.7$, $p < .001$, $\eta^2 = .09$; Angry Hostility, $F(2, 195) = 6.5$, $p < .001$, $\eta^2 = .06$; Depression, $F(2, 195) = 8.8$, $p < .001$, $\eta^2 = .08$; Self-Consciousness, $F(2, 195) = 10.4$, $p < .001$, $\eta^2 = .10$; Impulsiveness, $F(2, 195) = 9.9$, $p < .001$, $\eta^2 = .09$; and Vulnerability, $F(2, 195) = 8.8$, $p < .001$, $\eta^2 = .08$. Post hoc Scheffé analyses revealed that for the facets of Anxiety, Angry Hostility, Depression, Self-Consciousness, and Vulnerability, the medium- and high-risk groups obtained higher scores than did the low-risk group ($p < .001$). On the facet of Impulsiveness, the high-risk group obtained higher scores than did both the low- and medium-risk groups ($p < .001$). Analyses of the Extraversion and Openness facets revealed no significant risk group differences.

A MANOVA including the six facets of Agreeableness indicated a sig-

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FIG. 1. Mean Revised NEO Personality Inventory (NEO-PI-R) Form S profiles of low-, medium-, and high-risk groups. N, Neuroticism; E, Extraversion; O, Openness to Experience; A, Agreeableness; C, Conscientiousness. Profile form reproduced by special permission of the publisher, Psychological Assessment Resources (PAR), Inc., 16204 North Florida Avenue, Lutz, FL 33549, from the NEO-PI-R, by Paul T. Costa and Robert R. McCrae. Copyright © 1978, 1985, 1989, 1992 by PAR, Inc. Further reproduction is prohibited without permission of PAR, Inc.

nificant multivariate risk group effect (Wilks' lambda = .85), $F(12, 380) = 2.8$, $p = .001$, with significant univariate effects for the facets of Trust, $F(2, 195) = 4.0$, $p = .02$, $\eta^2 = .04$; Straightforwardness, $F(2, 195) = 6.7$, $p = .002$, $\eta^2 = .06$; and Altruism, $F(2, 195) = 3.2$, $p = .04$, $\eta^2 = .03$. Scheffé post hoc comparisons revealed that the low-risk group obtained higher Trust scores than did the high-risk group, the low- and medium-risk groups had higher Straightforwardness scores than did the high-risk group, and no significant post hoc differences were obtained for the facet of Altruism.

With respect to the facets of Conscientiousness, MANOVA revealed a significant risk group effect (Wilks' lambda = .85), $F(12, 380) = 2.8$, $p = .001$. Univariate ANOVAs revealed significant effects for Competence, $F(2, 195) = 3.6$, $p = .03$, $\eta^2 = .04$; Dutifulness, $F(2, 195) = 10.7$, $p < .001$, $\eta^2 = .10$; Achievement Striving, $F(2, 195) = 3.5$, $p = .032$, $\eta^2 = .03$; Self-Discipline, $F(2, 195) = 4.3$, $p = .015$, $\eta^2 = .04$; and Deliberation, $F(2, 195) = 11.8$, $p < .001$, $\eta^2 = .11$. Post hoc comparisons indicated that for the facets of Dutifulness and Deliberation, the low-risk group obtained higher scores than did the medium- and high-risk groups. For the facets of Competence, Self-Discipline, and Achievement Striving, the low-risk group obtained higher scores, indicating that its members were relatively more well prepared to cope with life's problems, more able to motivate themselves especially in the presence of distractions, and had goals and worked hard to achieve them more than did the high-risk group.

DISCUSSION

Overall, the results confirm the hypothesis that persons who experience greater levels of chronic emotional distress (high Neuroticism) and who are less organized, persistent, and motivated in goal-directed behaviors (low Conscientiousness) engage in risky sexual practices and other risky behaviors. Contrary to the findings of previous studies, the current study showed no significant differences among the three risk groups on measures of sensation or excitement seeking (Kalichman et al., 1994). Because all three risk groups scored within the average range on the Excitement-Seeking facet of Extraversion, we can infer that at-risk individuals are engaging in unsafe sex and other high-risk behaviors not merely for thrills and kicks. Rather, these at-risk individuals are anxious, are easily overwhelmed, have difficulties coping, and may engage in risky behaviors to obtain gratification more as temporary relief from their suffering than to increase their arousal levels. High-risk individuals also have a low opinion of their skills and self-efficacy, are relatively unmotivated to persist and follow through with their plans, and tend to act without considering the consequences, characteristics understandably related to risky practices. It is interesting to note that, consistent with these findings, measures of the impulsive sensation-seeking scale, like the

ImpUSS scale of the ZKPQ, can be construed as reflecting low Conscientiousness and Agreeableness rather than low Extraversion (cf. Zuckerman et al., 1993).

Low Agreeableness was also associated with risk behavior. Because a fundamental part of HIV risk and prevention involves interpersonal relationships, the current findings that show a consistent relationship between low Agreeableness and risk group membership highlight the interpersonal context of HIV risk behaviors. Insisting that one's partner use a condom and refusing to use dirty needles, for example, are interpersonal behaviors that may require a significant degree of communication, negotiation, and interpersonal sensitivity. The two at-risk groups displayed a relative absence of these interpersonal tendencies—their low Trust, Straightforwardness, and Compliance. These findings highlight the need for interventions to reduce HIV risk behavior that address these interpersonal issues.

Identifying the personality traits that contribute to sexual risk behavior has important public health implications. ''The placing of the locus of the problem—on the individual, on the drug, or on the environment in which both exist—implies the acceptance of different kinds of actions taken to solve it'' (Leigh & Stahl, 1993, p. 1041). Given the forgoing conceptualizations, attention to the development of personality-informed intervention programs would appear to be a worthwhile enterprise (Gibson, McCusker, & Chesney, 1998). A number of pharmacological and psychotherapeutic interventions are available for alleviating negative feelings such as anxiety and depression, and by promoting increased coping abilities and feelings of self-worth, they may result in increased willingness and ability to adopt safer practices. Anti-depressive agents (i.e., SSRIs) and other pharmacological interventions might be used to ameliorate aggressive and impulsive tendencies (Coccaro & Murphy, 1990). Skills training to enhance feelings of efficacy for negotiating condom use might be efficacious, especially for persons who are more interpersonally poised and assertive. It may be less easy, however, to change low levels of Conscientiousness, but in these cases alternative strategies that compensate for the lack of organization, planfulness, and motivation that distinguish members in the high-risk group might be considered (Carey & Lewis, 1999).

Developing compensatory strategies might help individuals low in Conscientiousness to ensure availability of condoms with a minimal amount of prior planning and may bring about greater condom use by these individuals. Enlisting the aid of partners, friends, and others in the social network to cooperate with the goals of increasing safe sex and decreasing risky practices might be the route to take in this intervention strategy. And perhaps the best approach for enhancing protective behavior among individuals low in Agreeableness is to capitalize on their cynical tendencies and to stress the importance of protecting oneself in sexual situations.

CONCLUSIONS

Approaches that organize interventions not by the nature of the target behavior but rather by the underlying dispositions may be the key to lowering HIV-related behavior. Future research needs are to develop personality-informed interventions and to evaluate their effectiveness in bringing about lasting reductions in unsafe sex and high-risk behaviors.

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