

# 5

## COGNITIVE AND ATTITUDINAL PATHS FROM CHILDHOOD TRAUMA TO ADULT HIV RISK

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In the search for links between childhood trauma and adult HIV risk, two conclusions seem clear from the data: First, there is a connection, and second, it is not a simple, direct link (Whitmire, Harlow, Quina, & Morokoff, 1999). Little is known about the nature of the pathways between these two life points, hence this volume. This chapter examines ways in which initial reactions to traumatic childhood experiences might become translated over time to increased HIV risky sexual behavior in adult women.

Although a few studies have demonstrated an association between child sexual abuse (CSA) and HIV risk among adult men (Bartholow et al., 1994) and adolescents (Lodico & DiClemente, 1994), most of the work on CSA and on the nature of the connections has focused on women. Studies have identified cognitive and attitudinal predictors in gay (Aspinwall, Kemeny, Taylor, Schneider, & Dudley, 1991) and heterosexual (Sheeran, Abraham, & Orbell, 1999) men's sexual risk-related choices. Noar and Morokoff (2002)

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found that college men with a traditional masculine ideology held more negative attitudes toward condom use, and those negative attitudes translated into less readiness to use condoms. We look forward to extensions of the work that follows to issues for men.

Figure 5.1 lays out a mediational model<sup>1</sup> for the CSA–HIV risk connection, beginning with the child abuse event and its traumagenic effects. If left unabated, the adult may develop cognitions and beliefs about herself; her behavioral responses to these may lead to HIV risky behaviors. Although cognitions and attitudes do not act alone in this path, they may be among the HIV risk predictors most amenable to interventions with at-risk women (Exner, Seal, & Ehrhardt, 1997; St. Lawrence et al., 1998). This chapter is not an exhaustive review of the literature, nor a well-tested model. Rather, we offer a framework both for assessing the current research in the field and for encouraging future research on these or similar connections.

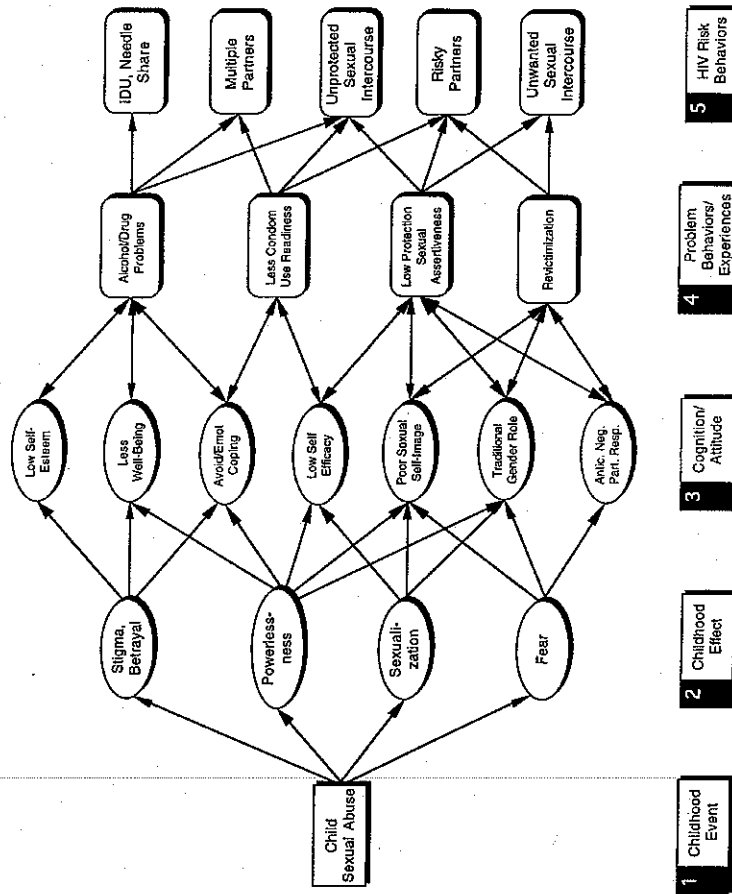
### CHILDHOOD TRAUMA EVENTS AND THEIR IMPACTS

There are a number of well-documented impacts of trauma, particularly CSA (see reviews by Briere & Runtz, 1993; Finkelhor & Hashima, 2001; Quina & Carlson, 1989). Finkelhor and Browne (1985) outlined traumagenic dynamics that result from abuse (or from the events surrounding the abuse, such as responses of others to disclosure of the abuse). These dynamics can become incorporated into the child's self-concept and affect her worldview and her interactions with her world. Adapting this model to our focus on cognitive and attitudinal outcomes, we have focused on the following: stigmatization (the child is abused because she is bad or deserved it) and betrayal of trust; powerlessness (there is no way to prevent the assaults); and sexualization, including training in traditional gender roles alongside of sexual place. Across these dynamics, there is a pervasive effect of fear. Sexual abuse often creates terror in children, even when it does not involve physical violence. When attempts to take control of safety fail, for example, when the child is physically beaten for fighting back or telling another adult, the child's reality may become a far-reaching fear of violence as an adult.

These effects are more dramatic when the abuse takes place within the family, in which it is likely to start earlier and go on for an extended period of

<sup>1</sup>Mediation occurs when one identifies a variable that intervenes between an independent variable (IV) and a dependent variable (DV), such that there is a strong relationship between the IV and the mediator and a strong relationship between the mediator and the DV (Collins, Graham, & Flaherty, 1998). Any direct relationship between the IV and the DV should diminish or drop when the mediator is included in analyses. For example, Whitmire et al. (1999) found that adult sexual victimization was a significant mediator between the IV of CSA and the DV of unprotected sex in a longitudinal sample of women at risk for HIV. In contrast, a moderator variable interacts with the IV to change the nature of the relationship to the DV (Baron & Kenny, 1986). Although it is possible that some of these variables may be moderator variables, the mediational approach seems more appropriate at this preliminary stage.

Figure 5.1. Proposed model of the path from child sexual abuse to adult HIV risk. The arrows between Columns 3 and 4 are double-headed to indicate that cognitions and attitudes interact with behaviors and experiences; for example, low self-esteem may cause alcohol- and drug-related problems, or it may be the reverse, or they may continually enhance each other. IDU = intravenous drug use; Antic. Neg. Part. Resp. = anticipated negative partner response.



time, and to involve a direct betrayal of trust (Freyd, 1996; Wyatt, Newcomb, & Riederle, 1993). Furthermore, we found that women who experienced penetrative sexual abuse showed more heterosexual HIV risk than women with nonpenetrative sexual abuse experiences, regardless of relationship to the abusers or number of incidents (Whitmire et al., 1999).

### COGNITIVE AND ATTITUDINAL SEQUELAE IN ADULT SURVIVORS

Seven constructs have consistent support in the research literature both as an outcome of CSA and as a predictor of HIV risky behavior: poor self-esteem, lack of psychosocial well-being, avoidant coping strategies, low self-efficacy, belief in traditional gender roles, poor psychosexual functioning, and anticipated partner negative response. It is likely that there is overlap among them, they co-occur (e.g., Nyamathi, Stein, & Swanson, 2000; Quina, Harlow, Morokoff, Burkholder, & Deiter, 2000), and there are others. However, this structure will permit a systematic review of the literature supporting their importance as variables in the HIV risk equation. Each of these is addressed in turn.

#### Self-Esteem

A number of researchers have identified lowered self-esteem as one of the sequelae of CSA (e.g., Finkelhor, 1990; Vanwesenbeeck, de Graff, van Zessen, Straver, & Visser, 1995). Among community women in New Zealand, those reporting more than 10 episodes of childhood abuse also had significantly lower self-esteem (Romans, Martin, Anderson, O'Shea, & Mullen, 1995).

Self-esteem has also been associated with HIV risk. Among Black and Caribbean college women, Braithwaite and Thomas (2001) found that self-esteem was negatively correlated with sexual risk taking. Among minority women who were homeless and in drug recovery, Nyamathi (1991) found that those women with higher self-esteem and a stronger sense of coherence reported significantly fewer HIV risky behaviors. Somlai et al. (2000) found similar results for inner-city women attending a health clinic. In their cluster analysis of community-based women, Harlow et al. (1998) found self-esteem was significantly lower for the women who were in the two highest HIV risk level clusters; these two groups of women also had experienced the most child and adult victimization.

#### Psychosocial Well-Being

Characterized in the literature as purpose and meaning in life, hopefulness, and low demoralization, psychological well-being has been found to be

lower among women with CSA histories in samples of Black and White adults (Whitmire et al., 1999; Wyatt, 1988, 1991), middle-class college students (Johnsen & Harlow, 1996), women in methadone maintenance (El-Bassel, Simoni, Cooper, Gilbert, & Schilling, 2001), and women in prison (Morrow, Mitchell, Quina, & Hevey, 1999). Extremely poor psychological functioning has been linked with more severe forms of sexual abuse. In a large survey of 9,000 adults, Felitti et al. (1998) found a significant relationship between depression and suicidality and the number of different types of child abuse. Wyatt (1988) found that well-being was lower in adult survivors whose abuse involved more severe body intrusion and a longer duration of incidents.

In a number of studies, poorer psychological well-being predicts HIV risk for adult women, particularly among the most at-risk women. Somlai et al. (2000) found that inner-city women at highest risk for HIV expressed more personal fatalism, less optimism concerning the future, and greater life dissatisfaction than peers at the lowest levels of risk. Among Black women, Orr, Celentano, Santelli, and Burwell (1994) found that HIV risky behaviors were more frequent among women who were depressed. Among women in serodiscordant couples, Kennedy et al. (1993) found that condom use was less likely among women who were psychologically distressed. Harlow et al. (1998) observed that the women engaging in the most HIV risky sexual behaviors scored lower on purpose and meaning in life and higher on hopelessness measures, and they were more likely to have experienced severe forms of CSA. Morrill, Ickovics, Golubchikov, Beren, and Rodin (1996) found that women who were initially higher in optimism for the future were four times as likely to initiate safer sex following training than women with lower optimism.

Ehrhardt, Yingling, Zawadzki, and Martinez-Ramirez (1992) suggested that overwhelming life circumstances reduced cognitive decision-making skills: In focus groups with various ethnic groups, they found that women who were demoralized were not able to determine whether they were at risk for infection. Consistent with this view, Harlow, Newcomb, and Bentler (1986) found that purpose and meaning in life was associated with a range of maladaptive behaviors, including alcohol and drug use and suicidality.

### Passive and Avoidant Coping

CSA increases reliance on avoidant strategies: either more directly, as the child may choose to not engage in protective or fighting stances because of the futility of those strategies in past experiences; or less directly, as she tries to avoid her pain and fear through drug and alcohol use, dissociation (mentally "splitting" from the immediate situation, going to "another place" in one's mind; see chap. 6, this volume), or denial (not recognizing or minimizing the genuine risk of a situation). Deblinger, McLeer, Atkins, Ralphe,

and Foa (1989) found greater avoidant and dissociative symptoms among adults reporting CSA. Among women in prison, Morrow et al. (1999) found that a history of CSA was positively correlated with avoidant coping and negatively correlated with active problem solving. Several researchers have suggested that CSA survivors may consume alcohol and other drugs to avoid or "mask" painful memories, anxiety, stress, and low self-esteem (Miller, Downs, & Testa, 1993).

Coping strategies have also been linked to HIV risk-related behaviors. Nyamathi et al. (2000) found that drug use and low self-esteem were associated with emotion-focused coping such as eating, drinking, sleeping, being alone, or taking stress out on others. Emotion-focused coping, in turn, was associated with having a recent sexually transmitted infection. Problem-focused coping, consisting of such active strategies as becoming informed, thinking and talking about the issue, and making an action plan, was associated with less drug use, less risky behavior, and seeking an HIV test (hence becoming more aware of level of risk).

Arata (1999) found that adult rape survivors who had also been sexually abused as children were less likely to use active coping strategies in the face of a dangerous sexual situation. Zlotnick et al. (1994) suggested that responding to stress with dissociation may be an important link to HIV risk. Denial of risk may also be a coping strategy. Quina et al. (2000) found that women who had been sexually abused as children were less likely to ask their sexual partners for information that would help them assess their HIV risk, even though they reported greater suspicions that their partners had had a risk factor. In a related vein, Harlow et al. (1998) found that women with the highest levels of abuse reported less confidence that they knew their partners' HIV risk status.

### Self-Efficacy

In the face of repeated overwhelming physical and emotional force, it is not surprising that some survivors doubt that they can protect themselves (Perez, Kennedy, & Fullilove, 1995). Bandura (1990) introduced self-efficacy—the conviction that a person can successfully execute behaviors required to produce a desired outcome—into the HIV risk equation. A childhood without apparent options may lead to a belief that one can never control outcomes, particularly true of options with respect to sexuality. Bandura suggested that the more confident a woman feels regarding her ability to use condoms to prevent diseases, the more likely she will be to insist on their use. Yet for a CSA survivor, the ability to contemplate successful outcomes, and the confidence that she can apply the strategies necessary to achieve them, may be difficult.

Wingood and DiClemente (1996) reviewed research on self-efficacy and HIV risk among women and found a number of studies that have shown

that higher self-efficacy for birth control and condom use is associated with stronger intentions to engage consistently in their use. They concluded that women who reported they were less efficacious about their ability to insist on condom use or to avoid being infected with HIV, and women who reported lower confidence about their ability to control condom use, were more likely to engage in HIV-related sexual risk. Furthermore, from intervention studies designed to increase HIV prevention efforts, they concluded that programs increasing women's self-efficacy for using condoms and negotiating their use with sexual partners increased HIV prevention in women.

The relationship between self-efficacy for condom use and protection from HIV infection is fairly robust, observed with sexually active college students (Harlow, Quina, Morokoff, Rose, & Grimley, 1993), women with steady partners (Morrison, Gilmore, & Baker, 1995), Latinas (Gomez & Marin, 1996), and adult women living in the community (Harlow et al., 1998), although this last study found that women in minority groups reported lower levels of self-efficacy overall. In a random household survey of 1,600 unmarried Latino adults, Marin, Tschann, Gomez, and Gregorich (1998) also found that self-efficacy was related to condom use, for men and women, but further clarified the nature of this relationship. Women reported that condom use was most challenging when asking regular partners to use condoms. There were few demographic differences in self-efficacy, although less educated men and women reported more difficulties when partners were resistant and when asking steady partners to use condoms.

There are at least three studies describing self-efficacy as a mediating link between CSA and HIV risk. Brown, Kessel, Lourie, Ford, and Lipsitt (1997) found that among adolescent female psychiatric patients, 38% reported CSA, and self-efficacy for condom use was lower for them than for teens not reporting CSA. These data were particularly powerful in that 16% of the variance was uniquely accounted for by a history of CSA. In our cluster analysis of older community women, those in the least efficacious group were at highest risk for HIV and most likely to have experienced CSA (Harlow et al., 1998). Among clients at a sexually transmitted disease (STD) clinic, Thompson, Potter, Sanderson, and Maibach (1997) found that those who reported CSA also had lower expectations for partner-related condom use efficacy.

### Gender Role Beliefs

CSA appears to enhance traditional gender roles for women in sexual situations, as passive and deferent to male partners' choices and pressures (Holland, Ramazanoglu, Scott, Sharpe, & Thomson, 1990) and as sexual objects (Davis & Petretic-Jackson, 2000; Tharinger, 1990). Jehu (1988) and Maltz and Holman (1987) both examined how sexual abuse enhances gender roles, reporting that adult women CSA survivors were more likely to

view sexual relationships as something men expect and feel that they have no rights to assert otherwise. Zurbriggen, Quina, and Freyd (2001) found that college women and men who had experienced sexual abuse from a close family member tended to have more traditional attitudes toward women than nonabused students, although this relationship did not reach statistical significance.

Links between gender role adherence and HIV risk are less studied, but there are important connections identified. Amaro (1995), Gomez and Marin (1996), and Quina, Harlow, Morokoff, and Saxon (1997) viewed traditional feminine gender norms of passivity and submission to men as risk predictors in and of themselves. Bowleg, Belgrave, and Reisen (2000) found that gender roles and more direct power strategies were significant predictors of sexual self-efficacy around HIV risk reduction. Clay, Noar, Zimmerman, and Stewart (2002) and Zurbriggen et al. (2001) found that women with less traditional attitudes on the Attitudes Toward Women Scale had higher condom assertiveness, and the latter study found condom assertiveness was associated with safer sex practices.

### Sexual Self-Image

Perhaps the most pervasive result of early sexual objectification of a child is a sense of one's sexual self, which lacks purpose and meaning (except to please the male partner), in which one has little power over sexuality or its uses, and in which the woman (as the child) defers to male domination. This adaptation to abuse may also be reinforced by abusers. Finkelhor and Browne (1985) suggested that whereas abuse teaches the child she is powerless to resist another's sexual suggestions or advances, compliance with sexual advances is rewarded if it results in acceptance and approval from the more powerful male abuser. Briere and Runtz (1993) suggested that abused children learn that intimacy only occurs in sexual contacts.

CSA is also related to number of adult sexual partners and HIV risk levels of those partners. In a survey of 9,000 adults, Fellitti et al. (1998) found a strong relationship between the number of categories of exposure to CSA and adult levels of promiscuity and number of STDs. Wyatt et al. (1993) found that women who had been sexually abused as children reported more sexual partners, a finding echoed by Thompson et al. (1997) among clients at an STD clinic. Our data supported this observation: Although frequency of sexual intercourse was comparable across groups, community women who reported sexual penetration as a child had more different partners, and these partners were reported to have a higher level of risk (Whitmire et al., 1999).

Fewer studies have actually looked at the links between psychosexual attitudes and HIV risk. Using a new measure of purpose and meaning in sexual life, based on more general measures of well-being, Harlow et al. (1998) found strong associations between poorer psychosexual attitudes and greater



HIV risk. Quina et al. (2000) observed that women with poorer psychosexual attitudes had more sexual partners with more known indicators of sexual risk. In the Netherlands, Vanwesenbeeck et al. (1995) observed that even among commercial sex workers, those who had been sexually abused as children could be characterized as more likely to take risks that suggested a lack of a sense of power over their own sexual encounters.

### Anticipated Partner Negative Response

The terror experienced during childhood traumas does not easily go away. It can become an adult fear of men, or a fear of male anger, which the woman will try to avoid whenever possible—and one good strategy is to avoid angering her partner. The co-occurrence of different types of trauma can be statistically dramatic. Quina et al. (2000) found high intercorrelations among CSA, adult relationship violence, and anticipation of negative responses to requests for condom use from men.

There is ample evidence that having a violent partner is associated with greater acceptance of risky behaviors with that partner (e.g., Molina & Basina-Smith, 1998; Wingood & DiClemente, 1997). Experiences with a violent partner do not have to be direct, however. Anticipating a negative partner response also affects HIV risk reduction strategies. Quina et al. (2000) found that anticipated negative partner response was greater among women who reported more known partner HIV-related risk factors; in addition, that anticipation was associated with less refusal assertiveness, poorer psychosocial attitudes, and lower self-efficacy. Harlow et al.'s (1998) highest partner risk group had experienced more of each type of interpersonally negative event assessed, including anticipated negative partner response.

## RISK-RELATED BEHAVIORS AND EXPERIENCES

Another set of behavioral and experiential factors appear to transform cognitions and attitudes into HIV risky sexual practices. Alcohol and drug use are perhaps the most obvious, as these substances increase vulnerability in a number of emotional and behavioral ways (e.g., El-Bassel, Gilbert, Rajah, Foleno, & Frye, 2000; Miller et al., 1993; Testa, Livingston, & Collins, 2000). Willingness to adopt condom use, discussed here as readiness to use condoms, is a specific statement of the individual of her intentions to put cognitions and attitudes into action, and is highly related to actual condom use (Evers, 1999; Lauby et al., 1998; Redding & Rossi, 1999). Sexual assertiveness is the self-reported ability of a woman to refuse unwanted sex, insist on condom use by her partner, and discuss with her partner his HIV risk potential. Sexual revictimization as an adult has been shown to link closely to HIV risk (Goodman & Fallo, 1998; Letourneaux, Resnick, Kilpatrick, Saunders, & Best, 1996; Whitmire et al., 1999). As with the other

lists presented in this chapter, the selection of these four behavioral and experiential factors is preliminary, based on the evidence available, but by no means to be considered exhaustive or nonoverlapping. Because substance use problems and revictimization are covered extensively in other chapters in this volume, and the transtheoretical model is discussed extensively in other sources (Harlow et al., 1999; Prochaska, Norcross, & DiClemente, 1994), we focus the present discussion on sexual assertiveness.

Our research group conceptualized and developed a psychometrically sound Sexual Assertiveness Scale (SAS), which takes a rights-based approach to women's sexual choices to initiate wanted sexual activity, refuse unwanted (and not forced) sexual activity, and insist on condoms to prevent infections or pregnancy (Morokoff et al., 1997). Johnsen and Harlow (1996) found that college women who reported CSA scored significantly lower on the SAS subscales for refusal and condom and birth control assertiveness, even though they were also less sure of their partner's HIV risk status. Zurbriggen et al. (2001) observed lower SAS scores among women and men who had been sexually abused as children. Harlow et al.'s (1998) most at-risk cluster showed lower SAS scores for condom use and higher levels of prior sexual abuse.

Of particular interest is assertiveness for condom use, which is negatively correlated with unprotected vaginal sex (Harlow et al., 1998; Morokoff et al., 1997). Wingood and DiClemente (1998) found that Black women who had not used a condom in the past 3 months were less likely to be sexually assertive. Zamboni, Crawford, and Williams (2000) found sexual assertiveness was the strongest predictor of condom use among women college students.

Communication assertiveness—the ability to communicate a desire for safe sex—has been positively related to condom use (Catania et al., 1992; Quina et al., 2000). In a study of Black and Latina clients of methadone clinics, condom use was related to women's attitudes toward the negotiation of safer sex with a partner and their comfort with communication skills with that partner (Schilling, El-Bassel, Gilbert, & Schinke, 1991). Deiter (1994) introduced communication subscales to the SAS, for requesting information about a partner's sexual history and asserting one's sexual preferences. Using these scales, Lang (1998) found that sexual communication assertiveness was one of the strongest predictors of HIV risky behavior in adolescent women but not men, suggesting that responses on this variable are strongly gender based. Quina et al. (2000) concluded that communication of HIV risk information was used by some as an HIV risk reduction strategy, although not always effectively.

#### TOWARD A MODEL: CAVEATS

There are important caveats to address before building more formal models with these and other constructs. First, any review of potential mediators requires us to consider the contexts in which risk occurs. First and fore-

most must be the sociocultural considerations of gender, ethnicity, sexuality, class, and power (Connell, McKeivitt, & Low, 2001; Goldstein & Manlowe, 1997; Pequengnat & Stover, 1999; Wingood & DiClemente, 2000). Prediction models for White middle-class gay men will be different from prediction models for a heterosexual Black woman living in poverty, even though both groups are among the most vulnerable to HIV infection (Amaro, 1995; Wyatt, 1988, 1991, 1994). Understanding risk to a woman who survives through sex work, who has little education and inadequate skills to earn a living otherwise, a woman who is drug- or alcohol-dependent, or a woman in a violent relationship is different from understanding risk for a well-educated, financially secure college student (El-Bassel et al., 2000; Kalichman, Williams, Cherry, Belcher, & Nachimson, 1998; Kline, Kline, & Oken, 1992; Muller & Boyle, 1996; Shayne & Kaplan, 1991). Defining and measuring risky behavior in a neighborhood where HIV infection rates are high becomes a different task than defining and measuring risk on a college campus, where estimates of seroprevalence are low; indeed, differences may be observed among similar women in settings in which the local seroprevalence rates vary (Wood, Tortu, Rhodes, & Deren, 1998). Thus this chapter is undertaken with the caution that cognitive and attitudinal predictors can only be viewed within the specific context of a person's life.

In a related vein, there are significant structural factors that may enhance or diminish the CSA-HIV link. The most at-risk women are located in a constellation of poverty, drugs, racism, marginal living conditions including homelessness, and violence from partners (Mullings, Marquart, & Brewer, 2000; O'Leary & Martins, 2000; Quina et al., 2000). The Multifaceted Model of HIV Risk (Harlow et al., 1993) posited that HIV risky sexual behavior was complex, with behavioral, interpersonal, cognitive and attitudinal, and gender or cultural predictors working together to enhance or diminish risky behavior. Indeed, most studies of HIV risk find multiple predictors, overlap among variables, and complex interrelationships (e.g., Rotheram-Borus, Mahler, Koopman, & Langabeer, 1996). It would be far too naïve to presume that cognitions or beliefs could outweigh all other forces.

Furthermore, any model must be respectful of the ways in which power, particularly interpersonal power, shapes the influence of any predictor or mediator for each individual (Quina et al., 1997; Wingood & DiClemente, 2000). Lack of power may undermine any efforts of an individual to choose or initiate protective strategies. For example, Kline et al. (1992) found a link between low levels of condom use and women's lack of power in relationships; indeed, although some women reported condom use with secondary partners, who had little power over them, condoms were not likely to be used with their main partners, with whom presumably they had less power. The more dependent a woman is on the monetary contributions of her partner—and thus the "security" of the relationship—the more she may be subjected to her partner's (often violent) sexual and other demands (Shayne & Kaplan,

1991). Power is a greater issue in relationships in which violence has been used to enforce the power differential. In focus groups, we found that young mothers with violent partners were explicit about the tradeoffs they made in their relationships: They would demand safety and support for their children, but they understood that to succeed in achieving that goal they would not make sexual demands such as condom use (Quina et al., 1999).

A final caveat recognizes that these are not predetermined outcomes; at any point in time good interventions or experiences—a teacher who believes in the child, a helpful emotional partner—can help the child or the adult feel good about herself, cope well, and develop a healthy sexual life. By the same token, further negative experiences, in particular further violence and abuse, can magnify the potential for negative outcomes, as suggested by Whitmire et al. (1999).

In spite of these caveats, we believe researchers can proceed in the testing of proposed models across groups of adult women and careful generalizations of results. Although studies comparing ethnically different samples of women have found differences in levels of risk-related behaviors (e.g., Harlow et al., 1998) and condom use (e.g., Gomez & Marin, 1996), these studies have found no significant differences in the pattern of predictors. Furthermore, in the absence of large-scale societal change, cognitions and attitudes hold some promise for individual change in those women whose living conditions permit (Sutton, McVey, & Glanz, 1999). Interesting new research by Noar, Morokoff, and Redding (2001) and Noar (2002) has found that young men's condom use decisions are responsive to women's attitudes and behavioral messages. Indeed, developing the belief that it is possible to have control over her own life might enable a woman to enact the structural changes that would allow her to use risk-reduction strategies.

## CONCLUSION

This framework, and the literature review that accompanies it, are not exhaustive, nor are they ideal. We developed the framework to help researchers, including ourselves, to begin to examine those constructs in more depth, with conceptual and empirical support from the literature. Although the links we suggest are informed by existing data, we must underscore that for the most part, the mediated relationships we outline are hypothetical, and we urge readers to consider further research to pursue this important line of discovery. More importantly, we hope that this approach can inform cognitive and attitudinally based interventions, to reduce the harm of HIV risk-related behaviors.

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