
The Sexual Health Model: application of a sexological approach to HIV prevention

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Abstract

This article outlines the Sexual Health Model and its application to long-term HIV prevention through comprehensive, culturally specific, sexuality education. Derived from a sexological approach to education, the model defines 10 key components posited to be essential aspects of healthy human sexuality: talking about sex, culture and sexual identity, sexual anatomy and functioning, sexual health care and safer sex, challenges to sexual health, body image, masturbation and fantasy, positive sexuality, intimacy and relationships, and spirituality. A brief review of literature supporting a need for a more explicit focus on sexuality and relationships in HIV prevention is presented to demonstrate the relevance of the Sexual Health Model. The model is anchored in a holistic definition of sexual health. This definition is followed by a description of the Sexual Health Model’s developmental origins in sexuality education, the importance of culturally relevant information, and the authors’ qualitative and quantitative research. The model’s 10 key components are discussed in more depth, and the theoretical and practical applications of this approach to HIV prevention are discussed. The article concludes with some cautions and suggestions for research. It is recommended that HIV prevention agencies contemplating use of the model

should design their sexual health intervention to fit the unique needs of their target population. Evaluation of the effectiveness of interventions based on the model has begun, but further research is needed to confirm its viability.

Introduction

Sexuality and intimate relationships are at the center of sexual HIV risk. Within this context, issues such as desire and attraction, power and coercion, love and affection, and identity and self-esteem may influence HIV risk behaviors. Several studies have documented associations between safer-sex behaviors and sexual factors. Acceptance and comfort with sexuality were found to be associated with greater condom use (Fisher, 1984), even when controlling for other variables such as behavioral intentions (Boldero *et al.*, 1992). Higher levels of sex guilt were reported among college women using no or ineffective contraception (Gerrard, 1982). In a sample of adolescents, a positive relationship was found between high sexual self-esteem and risky sexual behavior among female adolescents (Rosenthal *et al.*, 1991). In many of these reports, researchers expressed concern about how well self-efficacy in condom use and sexual negotiation skills taught in educational settings generalize to the sexually charged atmosphere of the bedroom. Based on their review of social cognitive frameworks and studies, Abraham and Sheeran concluded that HIV-preventive behavior will ‘depend on effective management of sexual excitement which may in turn rely on self-acceptance of sexuality...’ [(Abraham and Sheeran, 1994), p. 180].

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In accordance with these and other findings, HIV-prevention researchers have begun to recognize the need to address the sexual and relational context of HIV risk in prevention efforts (Carovano, 1991; Ehrhardt and Wasserheit, 1991; Ehrhardt *et al.*, 1992; Boulton *et al.*, 1995; Kalichman, 1998). An illustrative case is the work of Ehrhardt *et al.* who conducted focus groups of primarily Latina and black heterosexual women from high HIV seroprevalence neighborhoods in New York City (Ehrhardt *et al.*, 1992). Based on their results, these researchers recommended that HIV prevention messages address sex education (including anatomy and physiology), women's desire for pregnancy, sexual negotiation not specific to HIV issues and the threat of negotiating condom use to the intimacy of sexual relationships.

Existing HIV prevention theories have acknowledged the importance of the emotional, relational and sexual factors affecting HIV risk behavior (Ajzen and Fishbein, 1980; Bandura, 1994; Fishbein *et al.*, 1994; Rosenstock *et al.*, 1994; Fishbein, 1997). We suggest that a more explicit focus on sexuality is needed, including specific attention to the *sexual* aspects of relationships (e.g. sexual desire, arousal, functioning and pleasure). Further, current models of HIV prevention include sexual negotiation as a part of the general self-efficacy construct [e.g. (Bandura, 1994; Rosenstock *et al.*, 1994)]. We suggest including sexual self-efficacy as a discrete part of this construct as well. It is our belief that sexual self-efficacy—enhanced through the promotion of a holistic view of sexual health—will facilitate the application of HIV knowledge and prevention skills during sexual activity.

In addition, since instances of unsafe sex may be symptomatic of deeper underlying issues, it is important for prevention efforts to focus on the behavior patterns and psychological reasons underlying unsafe sexual behavior. Such an approach to HIV prevention—with attention to human sexual behavior and mental health—has been gaining empirical support. For example, Ross found that variables associated with lack of change to safer sex included depression, anxiety and insomnia,

anger and hostility, fatigue, confusion, and total dysphoric mood (Ross, 1990). Curtin *et al.* observed that both self-reported negative emotional states and general urges to engage in sex preceded violations of safer-sex goals (Curtin *et al.*, 1997). Folkman *et al.* suggest that a coping style that involves using social support, rather than keeping things to oneself, is important in promoting and maintaining safer sex (Folkman *et al.*, 1992). Rotheram-Borus *et al.* found that gay youths who engaged in risk behaviors were more likely to report symptoms of anxiety (Rotheram-Borus *et al.*, 1995). Taken together, these studies suggest a health benefit to developing interventions which both encourage participants to identify wider emotional issues that might impede their ability to adopt safer-sexual behaviors consistently, and which model ways of alleviating depression and anxiety without engaging in unsafe sex.

To more adequately address the broader context in which long-term sexual HIV risk occurs, we have developed a preliminary Sexual Health Model which more fully integrates the pursuit of sexual, relational and emotional variables (e.g. sexual fulfillment and satisfaction, intimacy needs, and essential affirmation of self and identity). In this article, we provide a definition of sexual health, describe the development of the Sexual Health Model, outline its 10 components, and discuss its theoretical and practical application to HIV prevention. Our hypothesis in applying the model to disease prevention is that if one is more sexually literate, comfortable and competent, one is also more likely to develop successful long-term strategies to reduce risk in the real life context of one's sexual behaviors and relationships.

Defining sexual health

Integral to the Sexual Health Model is a clear definition of sexual health itself. Only a few such definitions are provided in the literature, but these are similar in tone and content (WHO, 1975; Rosser *et al.*, 1995; Coleman, 1997). Our definition of sexual health incorporates aspects of these earlier frameworks:

Sexual health is an approach to sexuality founded in accurate knowledge, personal awareness and self-acceptance, such that one's behavior, values and emotions are congruent and integrated within a person's wider personality structure and self-definition. Sexual health involves an ability to be intimate with a partner, to communicate explicitly about sexual needs and desires, to be sexually functional (to have desire, become aroused, and obtain sexual fulfillment), to act intentionally and responsibly, and to set appropriate sexual boundaries. Sexual health has a communal aspect, reflecting not only self-acceptance and respect, but also respect and appreciation for individual differences and diversity, as well as a feeling of belonging to and involvement in one's sexual culture(s). Sexual health includes a sense of self-esteem, personal attractiveness and competence, as well as freedom from sexual dysfunction, sexually transmitted diseases, and sexual assault and coercion. Sexual health affirms sexuality as a positive force, enhancing other dimensions of one's life.

This definition promotes the idea that sexual health involves much more than freedom from sexually transmitted diseases, and sexual assault and coercion. It acknowledges the importance of sexual knowledge, but also recognizes the great value of sexual pleasure, joy, relationship and effective communication. It requires mental health, but goes beyond that in requiring sexual integration—the congruence of a person's sexual values and behaviors. Finally, our definition encompasses cultural diversity in recognizing that definitions of sexual health may vary in different social and cultural contexts. Guided by this definition, we have adapted an existing approach to sexuality education into a model for promoting sexual health that can be applied to HIV prevention and other sexual health goals.

Development of the Sexual Health Model

The Sexual Health Model emerged from a combination of three sources of empirical and theo-

retical information: (1) key characteristics of an established sexological approach to comprehensive sexuality education, (2) literature-based recommendations for culturally specific, relevant, normative models of sexual health derived from the target community's experience, and (3) qualitative and quantitative research on the sexual attitudes, practices, and risk factors of various populations, as well as their context for safer-sex decision making.

Comprehensive sexuality education: the Sexual Attitude Reassessment (SAR) seminar

For over 30 years, SAR seminars have been offered to a myriad of populations [e.g. medical students, physicians, health professionals, clergy, people with disabilities, HIV prevention workers and the general public (Halstead and Halstead, 1983; Held *et al.*, 1974; Rosser *et al.*, 1995; Stayton, 1998)]. Their dual purpose is to (1) promote an increased understanding of participants' own sexuality and (2) help participants analyze their attitudes toward the sexuality of others (Held *et al.*, 1974). SAR seminars are typically conducted as a 2-day curriculum using lectures, panel presentations, videos, music, exercises and small group discussions (Bollough, 1994; Lief, 1970; Rozsnafsky *et al.*, 1979). Standards defining core curriculum topics for the seminars were developed by the American Association of Sex Educators, Counselors and Therapists (AASECT Board of Directors, January 1994). A key feature of the seminar curriculum is the use of sexually explicit media which are gradually introduced using principles of systematic desensitization (Wolpe, 1961). These materials assist participants in clarifying their emotional responses to sex and sexuality, alleviating shame, and enhancing comfort. A number of studies have demonstrated the usefulness of sexually explicit materials in treating sexual problems (Held *et al.*, 1974; Seigraves, 1984; Fisher *et al.*, 1988; Cohen *et al.*, 1994; Walters, 1994; Rosser *et al.*, 1995; Robinson *et al.*, 1996, 1999b) and in reinforcing safer-sex behavior change (Quadland *et al.*, 1987).

When we first considered developing a sexological approach to sexual health and HIV preven-

tion, we were encouraged by initial results from qualitative formative evaluation and quantitative short-term evaluations demonstrating the positive impact of the SAR seminar on participants (Rosser *et al.*, 1995). As we began to apply this approach to HIV prevention, we recognized the need to better theoretically define and evaluate this approach. We first applied the Sexual Health Model in our HIV prevention work with men who have sex with men (Rosser and Bockting, 1994). In working with this population in particular, we realized the importance of attempting to recapture the interest of participants already saturated with traditional safer-sex education, and to promote positive sexuality and sexual health, including long-term behavior change (Centers for Disease Control and Prevention, 1999b). We have since expanded our use of this approach to other populations and their partners, including African-American women and men (Robinson *et al.*, 1994), transgender persons (Bockting and Forberg, 1998), women who have sex with both women and men (Bockting *et al.*, 1999), and Latino HIV prevention workers (Rosser *et al.*, 2000c).

Our experience in designing and evaluating these SAR-based programs (Rosser *et al.*, 1995) informed our development of the Sexual Health Model. Overall, the model integrates most of the required topic areas in the standards for these seminars (e.g. sexuality across the life-span, sexual ethics and morals, sexual variations, sexuality and physical and developmental disabilities, negative sexual experiences, sexual orientation, and masturbation), as well as additional components that fall under 'elective topics' in the standards (AASECT Board of Directors, 1994). Importantly, the model has a sexually pluralistic and sex-positive focus, encouraging comprehensive sexuality education, and the use of sexually explicit materials and language. Moreover, its application in sexual health interventions requires a format that would facilitate open, frank and explicit discussion about sexuality (e.g. small group discussions, community panels, and multi-media and multi-method instructional techniques).

Culturally specific understandings of sexual health

In general, when education is culturally specific and tailored to the unique issues and needs of the targeted community, it is more likely to lead to positive outcomes (Rokeach, 1969; Pitts *et al.*, 1989). Effectiveness is enhanced because culturally specific interventions are more likely to attract targeted participants. Moreover, HIV prevention program participants find the material more relevant, understandable, interesting and believable, and therefore they are more likely to listen, understand and remember it (Kalichman *et al.*, 1993; Yep, 1993; Bockting *et al.*, 1999). Minority populations can find it difficult to access information that is relevant to them. In light of this, our Sexual Health Model advocates incorporating understandings of sexual health derived from the target community's experiences and norms. We have applied this in our sexual health seminars by involving community members in the seminar design and implementation. This was achieved by establishing partnerships with community organizations, conducting multiple focus groups, and involving professional and peer educators from the target populations.

In developing our Sexual Health Model, we also relied on the definition of sexual pluralism of Reiss and Reiss, which advocates an acceptance of the rights of others to differ from you in their choices and a belief that there is more than one way to achieve a moral life (Reiss and Reiss, 1997). Underlying the model is the belief that effective HIV interventions should encourage participants to think for themselves, to identify their sexual feelings, needs and preferences, to develop their own sexual morality, to make informed choices about their behavior, and to develop individualized HIV prevention plans.

Research on context and HIV risk

Overall, the Sexual Health Model advocates a sex-positive, comprehensive approach to sexual health, rooted in the concept of sexual pluralism. This provides a key framework for sexual health interventions. The specific content of such interventions,

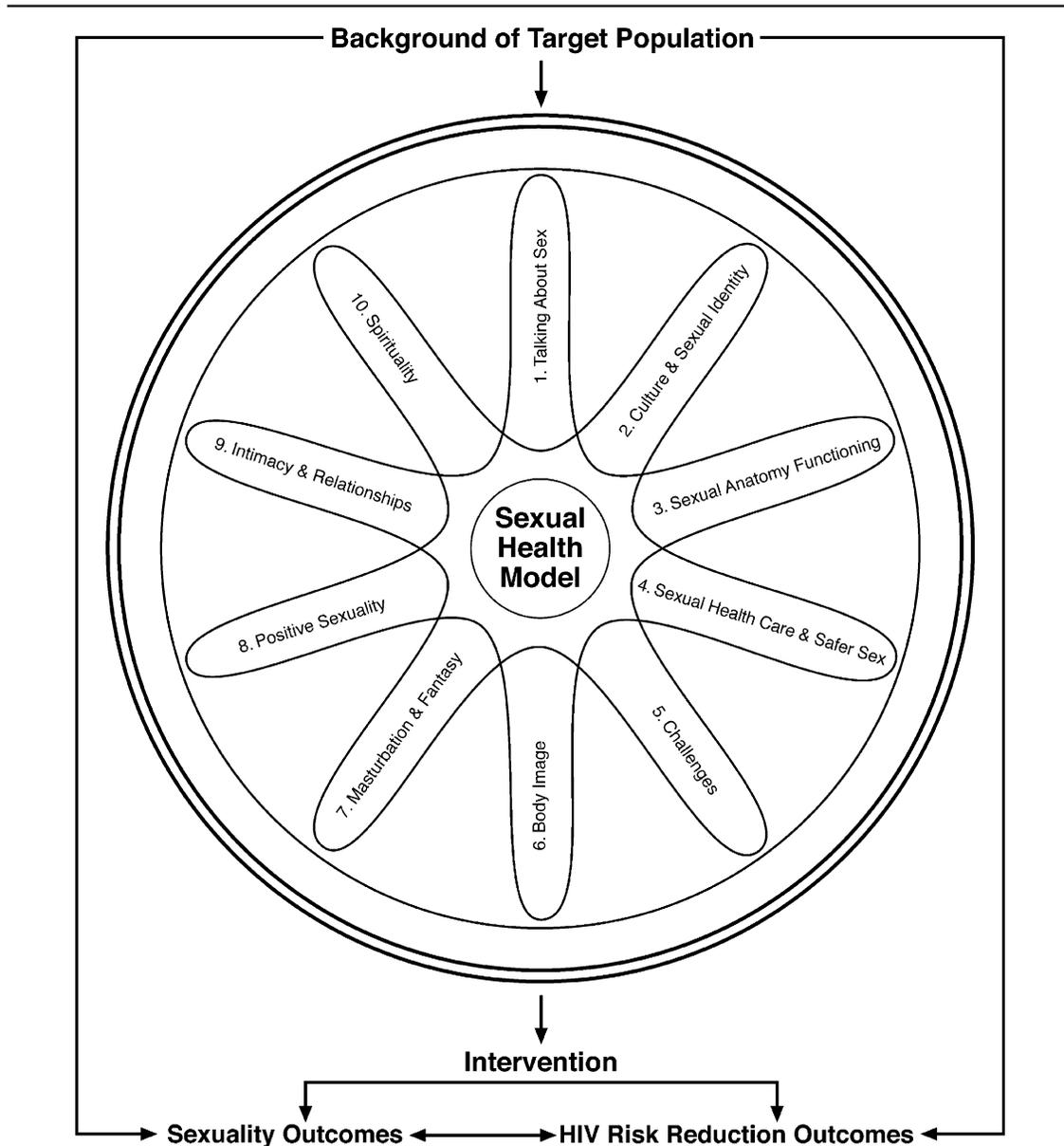


Fig. 1. Application of the Sexual Health Model to HIV prevention.

however, is informed by quantitative and qualitative research, including our clinical experience with our targeted populations. For example, from our research with men who have sex with men, we found that internalized homonegativity and loneliness were cofactors of long-term risk for unsafe

sexual behaviors (Rosser, 1991). In focus groups, African-American women described a lack of understanding about their own sexual response and functioning that affected their ability to communicate with their partners about sexuality and safer-sex techniques (Robinson *et al.*, 2001). For transgender

persons, important themes were fear of rejection upon disclosure of transgender identity (which may preclude safer-sex negotiation) and the need for help with ways of coming out to potential sexual partners (Bockting *et al.*, 1998). Finally, for bi-sexually active women, the fact that substantial percentages of lesbian women may have sex with men (some of whom have sex with other men) challenges the myth that lesbians are at minimal risk for HIV (Ziemba-Davis *et al.*, 1996). These data on the unique educational needs and sexuality issues of each target population are continuously gathered through pre-, post- and follow-up questionnaires and focus groups, and then incorporated into a targeted curriculum based on the Sexual Health Model.

The Sexual Health Model and HIV prevention

Based on the previously described definition, theories and research, we have identified 10 components that constitute what we believe to be essential aspects of healthy human sexuality, many of which influence a person's ability to effectively reduce sexual HIV risk. Each of these components is represented as a spoke on the sexual health wheel (Figure 1) and is described below, along with examples of their relevance to HIV prevention. We chose the wheel symbol for aesthetic reasons as well as to reflect the fact that the interactions and hierarchy of the 10 components have yet to be defined. In this preliminary model, all 10 spokes are assumed to have equal weight; thus, the addition or removal of a spoke as dictated by future research will not disrupt the model.

Talking about sex

A cornerstone of the Sexual Health Model is the ability to talk comfortably and explicitly about sexuality, especially one's own sexual values, preferences, attractions, history and behaviors. We believe that such communication is necessary for one to effectively negotiate safer sex with sexual partners, and is a valuable skill that must be learned and practiced. Each of our sexual health

intervention seminars begins with exercises designed to encourage the use of sexual language. Various styles of sexual language are introduced and then practiced by participants in facilitated small groups. This gives participants the opportunity to articulate and discuss their personal sexual journeys while using a sexual language that is familiar and comfortable to them.

Culture and sexual identity

Culture influences one's sexuality and sense of sexual self. It is important that individuals examine the impact of their particular cultural heritage on their sexual identities, attitudes, behaviors and health. The cultural meaning of sexual behaviors needs to be taken into account since that meaning may drive unsafe or safer sex. For example, our seminars for African-American women address the impact of sexual messages directed towards black women as a result of slavery (e.g. the desire of many parents for their daughters to remain sexually chaste for as long as possible and the resulting paucity of sex education, including safer-sex information, directed toward this population, Wyatt, 1997). In our work with Latino men who have sex with men, we address the common belief that one is not gay (and thus not vulnerable to HIV) as long as one is the inserter in anal sex (Diaz, 1998). For transgenders, sexual health information should reflect the impact of transphobia and harassment on HIV risk, e.g. transexuals who hide their natal gender during a sexual encounter may not want to raise safer-sex issues which could jeopardize their secret and safety (Kammerer *et al.*, 2001).

Sexual anatomy and functioning

Sexual health assumes a basic knowledge, understanding and acceptance of one's sexual anatomy, sexual response and sexual functioning, as well as freedom from sexual dysfunction and other sexual problems. In our seminars targeting African-American women, we encourage physical genital exploration, try to increase their comfort with their genitals and teach the female sexual response cycle, because we believe this knowledge enables women to discuss safer sex more comfort-

ably (Ehrhardt *et al.*, 1992). For men who have sex with men, sexual difficulties and concerns are common and can interfere with condom use (Rosser *et al.*, 1997, 1998). For transgenders, sexual anatomy and safer-sex behavior is more complex. In our seminars with this population, we discuss sexual functioning by covering a wide range of topics: feelings about one's genitals (e.g. genital dysphoria), recognition that genitals do not always determine gender, the (re)naming and the affirmation of transgender-specific anatomy (e.g. phallosclit, neovagina, woman with a penis or a man with a vagina), and specifics about safer-sex techniques in the transgender context (Bockting and Forberg, 1998; Bockting and Robinson, 2000).

Sexual health care and safer sex

As a component of the Sexual Health Model, physical health includes, but is not limited to, practicing safer-sex behaviors. Its broad perspective encompasses knowing one's body, obtaining regular exams for sexually transmitted diseases and cancer, and responding to physical changes with appropriate medical intervention, thus lowering the chances of HIV transmission. In our seminars with African-American women, we discuss the importance of regular gynecological checkups and obstetrical oversight. For men who have sex with men, we discuss testicular self-exams, and medical checkups for prostate cancer and anal health. Sexual health care for transgender persons encompasses an even broader array of topics such as disclosure of transgender identity to health care providers, and gynecological and urological health [e.g. pap-smears for female-to-males and prostate exams for male-to-females (Bockting and Forberg, 1998)]. We encourage exploration of the meanings of safer and unsafe sexual behaviors among different populations. For example, swallowing semen is considered a means of nourishing maleness among some female-to-male transgenders (Hein and Kirk, 1999).

Challenges: overcoming barriers to sexual health

Challenges to sexual health such as sexual abuse, substance abuse, compulsive sexual behavior, sex

work, harassment and discrimination are critical in any discussion of sexual health. This is particularly true in the context of interventions for cultural and sexual minorities, many of whom are disproportionately affected by these issues. A sexual health approach to HIV prevention explores the association of these challenges to unsafe sex and addresses strategies for recovery, in an atmosphere that promotes resilience and empowerment. In our seminars targeting transgenders and men who have sex with men, we try to help empower them to challenge prejudice and internalized homo- and trans-negativity (Bockting and Robinson, 2000). African-American women are encouraged to assess the impact of alcohol and drugs on HIV risk as well as on sexual functioning, and should be supported in their recovery from substance abuse (Centers for Disease Control and Prevention, 1999a). A sexual health approach is expected to lead to improved sexual functioning, and a decreased need to use chemicals to overcome inhibitions and relax oneself for sex.

Body image

In a culture with so many sexual images focused on a type of physical beauty unattainable for many, body image is an important aspect of sexual health and may be directly related to unsafe sexual practices (Kraft *et al.*, in preparation). Challenging the notion of one, narrow standard of beauty and encouraging self-acceptance is relevant to all populations, and the Sexual Health Model advocates doing this in a culturally sensitive manner. In our seminars targeting African-American women, specific aspects of body image addressed are skin color, hair and buttocks, in addition to body size and shape (Story, 1998; Robinson *et al.*, 1994). For men who have sex with men, we discuss over-concern with body image and that gay men are more likely to engage in risky sexy behavior with an attractive man (Ross and Kelly, 2000). The body image issues of transgender persons discussed include body dysphoria, and feminizing or masculinizing through dress, make-up, accessories, hormones and surgery (Bockting and Forberg, 1998; Bockting and Robinson, 2000).

Masturbation and fantasy

The topics of masturbation and fantasy are saddled with a myriad of historical myths associated with sin, illness and immaturity that need to be confronted in order to normalize masturbation (Coleman, 1999). A sexual health approach to HIV prevention includes a realistic appreciation of the important role of masturbation and fantasy in safer sex. Along with abstinence, it is the ultimate in safe sex. Encouraging masturbation as a normal adjunct to partnered sex can decrease the pressures on women to engage in penetrative sex with their partners more frequently than they have desire and arousal for. Preliminary results from seminars for African-American women suggest a positive relationship between positive attitudes toward masturbation and positive attitudes toward condoms (Robinson and Harrell, 1999; Robinson *et al.*, 1999a).

Positive sexuality

Too often, HIV prevention interventions have viewed sexual exploration only in terms of risk and disease. A developmental approach to sexual health over the life-span recognizes the reality that all human beings need to explore their sexuality in order to develop and nurture who they are. The importance of exploring and celebrating sexuality from a positive and self-affirming perspective is an essential feature of the Sexual Health Model. The model assumes that when people are comfortable with their sexuality—know and are able to ask for what is sexually pleasurable for them—they will be more able to set appropriate sexual boundaries essential for safer sex (Abraham and Sheeran, 1994; Fisher, 1984). In our curricula, positive sexuality includes appropriate experimentation, affirming sensuality, attaining sexual competence through the ability to get and give sexual pleasure, and setting sexual boundaries based on what one prefers, as well as what one knows is safe and responsible (Robinson *et al.*, 1994; Rosser and Bockting, 1994; Bockting and Forberg, 1998).

Intimacy and relationships

Intimacy is a universal need that people try to meet through their relationships. As such, it can

affect safer-sex decision making and is a critical area to address in a sexual health approach to HIV prevention. For example, we know that people are less likely to use condoms in primary relationships than in more casual relationships (Bockting *et al.*, 1998; Goldsmith, 1988; Hunt *et al.*, 1990). Helping participants to strengthen their decision making around safer sex within the wider context of intimacy is important. For African-American women, we discuss strategies for overcoming the weak bargaining power of black women in their relationships with men [due, in part, to the shortage of available black men (Becker *et al.*, 1998)]. For men who have sex with men, McWhirter and Mattison's research on male couples is useful to highlight and normalize challenges in relationships (McWhirter and Mattison, 1984). Transgenders are taught where and how to find potential partners, how to disclose their transgender identity and unique genital status, and how to negotiate sexual relationships outside conventional gender roles (Bockting and Forberg, 1998). All groups are taught dating and relationship skills that can help improve self-efficacy in negotiating safer sex.

Spirituality

Our definition of sexual health assumes a congruence between one's ethical, spiritual and moral beliefs, and one's sexual behaviors and values. In this context, spirituality may or may not include identification with formal religions, but needs to address moral and ethical concerns. Exposure to multiple cultural traditions (e.g. Native-American story telling, African-American church activism, etc.) is important, especially those traditions that have a positive and life-affirming view of sexuality. For men who have sex with men, successfully dealing with institutionalized homonegativity by many organized religions while reclaiming their spirituality is important (Rosser, 1991). Transgenders may engage in learning about the spiritual meaning and role of transgender persons in various cultures (Roscoe, 1991; Coleman *et al.*, 1992; Taywaditep *et al.*, 1997), and reflect on the image and gender of God. All populations should be challenged to reflect on their deeper values to find

a way to better integrate their sexual and spiritual selves, in the expectation that this will lead to safer self-care.

Theoretical and practical applications to HIV prevention

Theoretical framework

The aim of the Sexual Health Model is to provide a theoretical framework for improving people's overall sexual well-being. The assumption underlying the application of the model to HIV prevention is that sexually healthy persons (i.e. persons who are sexually literate, comfortable and competent) will be more likely to make sexually healthy choices, including decisions concerning HIV and sexual risk behaviors. This includes condom use and non-penetrative safer-sex practices, as well as other strategies which focus on sexual relationships such as developing different rules for primary and casual partners, reserving penetrative sex for more intimate relationships, and agreeing that condom use is not necessary if both partners test negative and practice monogamy.

Our overall application of the Sexual Health Model to HIV prevention begins by acknowledging the importance of the background of the target population (Figure 1). Background characteristics can be sociocultural (e.g. norms about interracial relationships or gender roles), interpersonal, (e.g. domestic violence or sexual abuse) or individual (e.g. alcohol or drug use) (Simon and Gagnon, 1986; Gagnon, 1990). These background characteristics can directly impact sexuality outcomes such as sexual satisfaction, sexual functioning and sexual communication, as well as HIV risk reduction outcomes such as attitudes toward condoms, behavioral intentions to use condoms and committing to a monogamous relationship. Alternatively, the model posits that background characteristics can first interact with an individual's overall sexual health via one or more of the 10 identified components of sexual health and thereby influence sexual health outcomes.

In this context, we hypothesize that HIV preven-

tion interventions based on the Sexual Health Model can positively impact sexuality outcomes and HIV risk reduction. Absent an intervention, an individual's sexual health impacts sexuality outcomes and HIV risk reduction as well. Improvements in either set of outcomes might be expected to yield healthier results in the other set. For example, sexuality outcomes such as improved sexual communication can improve one's ability and willingness to negotiate safer sex, thus increasing HIV risk reduction behavior. On the other hand, practicing safer sex can also impact sexuality outcomes, such as when a sense of comfort, trust and sexual intimacy is increased through practicing or discussing safer sex.

As noted earlier, one application of the model, in seminar format, has been operationalized and used in six different at-risk populations. The interventions consisted of intensive, 1- or 2-day seminars covering all or some of the 10 topics in the Sexual Health Model (Figure 1) specifically tailored to each of the six populations discussed earlier, and designed to help participants clarify issues critical to their sexuality and to help them promote safer sex in their lives. The seminars were multi-media and multi-method using videos, pictures, photographs and music; presentations by health professionals; peer panels; story telling, exercises, and small group support and discussion groups. Sexually explicit media were used where appropriate to facilitate open and frank discussion and self-disclosure about participant's sexuality. The emphasis was on exploring and celebrating sexuality; HIV/sexually transmitted disease prevention was addressed as an integral part of that emphasis. The approach was positive, uplifting and empowering, with a focus on strengths rather than weaknesses. For some of the more economically disadvantaged communities, financial incentives, food, daycare, transportation, raffles and gifts were provided as part of this atmosphere.

These interventions are currently being evaluated in two randomized, controlled trials—one targeting men who have sex with men ($n = 422$) and another targeting African-American women ($n = 218$). Some preliminary results are promising. A higher

proportion of men who have sex with men in the intervention group reported consistent condom use at the 12-month follow-up period (i.e. the control group reported a 29% decrease in the use of condoms during anal intercourse, while the intervention group reported an 8% increase, $t = 3.79$, $P = 0.0002$). In addition, a significant reduction in internalized homonegativity was found in the experimental group ($t = 3.79$, $P = 0.0002$) at the 12-month follow-up (Rosser *et al.*, 2000a,b). Among the primarily African-American women engaging in unsafe sex at pretest, those in the intervention exhibited positive changes in attitudes towards female condoms [$F(1,35) = 6.54$, $P = 0.015$] and an increase in non-risky sexual activities [$F(1,27) = 5.56$, $P = 0.026$] at the 9-month follow-up period (Robinson *et al.*, 2001). In addition, preliminary results indicate relationships between safer-sex behaviors and the sexuality variables of compulsive sexual behavior and body image in the sample of men who have sex with men. Compulsive sexual behavior, as measured by the Compulsive Sexual Behavior Inventory, was significantly positively related to unsafe sexual behavior [$t(317) = 2.40$, $P > 0.05$ (Coleman *et al.*, in preparation)]. A trend associating positive body image with unsafe sexual behavior was also found [$\chi^2(1) = 3.225$, $P = 0.0713$ (Kraft *et al.*, in preparation)]. Statistical algorithms for measuring safer-sex behavior contextually have been developed (Miner *et al.*, in preparation). Evaluation thus far has focused on only this one type of intervention: a one-time, intensive, 1- or 2-day sexual health seminar. Different types of interventions such as small groups, individual and small group, and adding booster sessions may prove more effective in applying this model to HIV prevention.

Practical recommendations and model limitations

Given this experience and the theoretical framework just described, we now provide some general recommendations for designing HIV prevention interventions based on the Sexual Health Model, as well as briefly describing our seminar format. First, the content of the intervention curriculum

would ideally cover each of the 10 spokes of the model, while specifically linking the context of sexuality to HIV prevention. For example, curricula might encourage open communication about one's own sexuality (e.g. sexual experiences, sexual history, favorite and disliked sexual activities, etc.), reduce guilt and shame about safe sexual activities such as masturbation and fantasy, educate participants about sexuality across the life-span and thus contribute to sexual competence, and disseminate specific sexual techniques for eroticizing safer sex.

The Sexual Health Model acknowledges challenges to sexual health such as chemical dependency, sexual dysfunction (e.g. erectile dysfunction and dyspareunia), and psychological issues including depression, anxiety and compulsive sexual behavior. Therefore, intervention participants in need of intensive therapy to treat psychological, psychiatric or physical problems should be referred for in-depth interventions using psychotherapy and medication. Thus, mental health and health care professionals should be involved in the development of the specific intervention.

To address the relevant concerns of the target communities, interventions based on the Sexual Health Model require accurate information about the specific sexual knowledge, attitudes, behavior, cultural context and background of those communities. This can be a challenge insofar as little is known about the sexual health issues of many minority groups. Thus, intervention planners must build an in-depth knowledge-gathering phase into their development plan. Conducting multiple focus groups comprised of individuals from the targeted communities is recommended. Communities may find it helpful to partner with health or sexological professionals who can build capacity by training and working with community representatives (Bockting *et al.*, 1999). Similarly, since program implementation in human service areas is normally quite difficult (Chen, 1990), HIV prevention agencies seeking to add this approach to their current HIV prevention efforts are encouraged to more broadly train HIV prevention workers in sexual health concerns to include knowledge of areas such as sexual

disorders (e.g. erectile dysfunction and low desire), sexual abuse and human sexual response. This is especially important in developing countries where sexuality research and education are often limited and sexual myths are all too prevalent. Persuasion and communication models (e.g. elaboration likelihood) stress the importance of audience involvement and issue salience (Cacioppo and Petty, 1981; Cacioppo *et al.*, 1986; Wiese *et al.*, 1992; Dinoff and Kowalski, 1999; Slater, 1999). One of the primary advantages of incorporating the Sexual Health Model in HIV prevention efforts is its emphasis on human sexuality—a topic with intrinsic appeal, and thus issue salience, to most people, in contrast to HIV prevention *per se*. The sexual health focus can provide a stimulating, motivational, empowering and fun environment, which in turn can motivate people to learn (Crump, 1995; Stoney and Oliver, 1998). Interventions based on this model should strive for a positive and empowering tone. This type of approach is particularly important at this stage of the US AIDS epidemic as we face reports of increasing indifference to the usual safer-sex messages (Kalichman *et al.*, 1998) and increases in unsafe sex among some populations (Centers for Disease Control and Prevention, 1999b).

As with any approach, the Sexual Health Model—in its present, preliminary form—has its challenges. The model posits the importance of a large number of variables, yet their relative importance and interactions with each other are currently unknown. Future work should strive to recognize covariants or temporal relationships, determine which of these components are necessary for HIV risk reduction, which facilitate and which interact in more complex ways to facilitate safer-sex behaviors—especially when combined with core HIV prevention variables and techniques already shown to be effective (Fishbein, 1997). Research using multiple regression techniques is underway to examine some of these issues.

We acknowledge that the Sexual Health Model is not appropriate for all HIV prevention environments and that not all components of the model

need to be applied in all situations. Poorer countries, in particular, may be less able to implement a comprehensive sexuality education approach to HIV prevention, but can certainly find parts of the model to be useful and applicable. Judging by the interest shown in the Sexual Health Model by many professionals from developing countries at the XIII International AIDS Conference, there seems to be a desire in those countries for a sexuality framework for HIV prevention (Robinson *et al.*, 2000).

Finally, Schmidt has pointed out the danger of defining ‘healthy’ or ‘proper’ sex, which can lead to ‘propagating sexual norms disguised as medical truths’ (Schmidt, 1987). We agree with Langfeldt and Porter who express similar concerns, but suggest that rather than giving up on a universal definition, we need to be aware that within broad statements about sexual health, specific concepts will vary ‘from country to country, from region to region and from community to community’ [(Langfeldt and Porter, 1986), p. 7]. This pluralistic view is central to the Sexual Health Model.

Conclusion

The application of the Sexual Health Model responds to the suggestions of HIV researchers advocating the need for examining and integrating wider sexuality concerns into HIV prevention. It is built directly on an approach used successfully in the education of health professionals, and is unique in embedding traditional and time-proven HIV prevention within the wider framework of comprehensive human sexuality education.

This paper is the first attempt to develop a model for addressing HIV prevention within the wider context of human sexuality. Initial findings and responses to this model appear promising. However, further research is needed to demonstrate the effectiveness of a sexual health approach, to specify the most effective and efficient methods and applications of the model, and to delineate which components of the model are essential and which are more peripheral to its effectiveness.

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