

Sex, drugs and escape: a psychological model of HIV-risk sexual behaviours

D. J. McKIRNAN,¹ D. G. OSTROW² & B. HOPE³

¹The University of Illinois at Chicago, ²Center/or AIDS Intervention Research, Medical CoSege of Wisconsin, and ³Howard Brown Health Center, Chicago, USA

Abstract *The lack of an effective HIV vaccine or other biomedical intervention means that behavioural change will continue to be critical to the prevention of HIV infection. Despite near universal knowledge of HIV and sexual safety, and widespread intentions to be safe, rates of unprotected sex and HIV sera-conversion remain high among gay and bisexual men. Explanatory models that link risk-taking and prevention to rational processes such as knowledge, social norms, behavioural intentions, or perceived vulnerability to infection, cannot fully account for the continued risk behaviours observed in virtually all cohorts of gay men. We feel that innovative conceptions of risk and risk prevention are needed, that emphasize non-rational, affective processes in risk-taking and decision-making. Consistent with recent models from social psychology, we propose that for many people sexual risk does not stem from a lack of community norms or personal standards, but from a desire to escape cognitive awareness of very rigorous norms and standards. Being self-aware of HIV risk arouses anxiety and precludes highly-desired activities: fatigue, fatalism, or other negative affect over HIV may lead people to 'cognitively disengage' within the sexual situation, and not to follow their norms or intentions toward safety. We propose that both substance use and the approach of high stimulation or other sexual settings facilitates this cognitive disengagement, wherein people enact 'automatic' sexual scripts and/or become more responsive to external pressures toward risk. We briefly review current psychosocial models of HIV risk behaviour, outline a cognitive escape model with particular emphasis on substance use as a behavioural risk factor, and discuss implications of an escape model for behavioural interventions among gay and bisexual men.*

Introduction

HIV preventive behaviours are widely understood and, for many people, not technically or physically difficult. However, compliance to HIV prevention, even among well-educated, relatively affluent gay men, is inconsistent at best (Adib *et al.*, 1991; Hays *et al.*, 1990; Kelly *et al.*) 1993; McKiman *et al.*, 1994). This is similar to most areas of health behaviour, where relapse to 'risky' behaviour is more the rule than the exception (Brownell *et al.*, 1986; Marlatt & Gordon, 1985; Stall *et al.*, 1990). This paper outlines a model of sexual risk behaviour derived from current 'cognitive escape' approaches in social psychology (Heatherton &

Address for correspondence: David J. McKiman, Department of Psychology, The University of Illinois at Chicago, 1007 W. Harrison Street, Chicago, IL 60607-7137, USA. Tel. + 1 (312) 413 2634; Fax. + 1 (312) 413 4122; E-mail davidmck@uic.edu.

Baumeister, 1991; Heatherton *et al.*, 1993; Tiffany, 1990), that may help explain the finding that people who 'know better' continue to place themselves at risk for HIV infection.

Our approach differs from current models by emphasizing affective elements in sexual risk. The core hypothesis is that for many people risk behaviour is not the result of limited resources, misinformation, or inappropriate attitudes. Rather, many people find it aversive to be continually aware of HIV and restrictive sexual norms. By cognitively 'escaping' from this awareness, they may be particularly vulnerable to sexual risk. Alcohol or drug use, or the approach of highly stimulating sexual contexts, may facilitate this cognitive escape. We briefly outline assumptions common to prominent conceptual models underlying HIV research, describe processes underlying alcohol or drug use and risk behaviour, and then describe the escape model. Finally, we describe intervention implications of the model for gay and bisexual men.

The 'rational operator'* and HIV risk

Most psychosocial models of HIV risk behaviour emphasize individual-based variables such as knowledge, attitudes, behavioural intentions, or normative perceptions of others (Amaro, 1995; Kelly *et al.*, 1992; Peterson *et al.*, 1991). Thus, the AIDS Risk Reduction Model (AARM; Catania *et al.*, 1992) and others (e.g. Fisher & Fisher, 1992) are derived from standard Health Belief or 'Protection Motivation' theories (e.g. Becker & Joseph, 1988; Rogers, 1983), and attribute preventive behaviour to the additive effects of information, perceived vulnerability, risk reduction motivation, and behavioural skills.

Basic attitude and social learning models have also been cited in many studies of HTV risk change. The Theory of Reasoned Action relates prevention to behavioural intentions—i.e. cognitive representations that one intends to take a specific action under specific conditions—that themselves stem from information-based beliefs and subjective evaluations, plus normative perceptions of others' beliefs and evaluations (e.g. Fishbein & Middlestadt, 1989). Self-efficacy theory posits that whatever one's attitude, action requires the additional belief that one can efficaciously perform the desired behaviour (Bandura, 1977, 1991). Relapse prevention models add the assumption that behavioural skills and other psychosocial variables (e.g. coping skills) help maintain safety in the face of inducements toward relapse (see Brownell *et al.*, 1986; Peterson *et al.*, 1991).

These theories commonly assume that people behave as 'rational operators', wherein knowledge or attitudes affect health behaviour in a straightforward fashion. It follows that risk is decreased by enhancing behavioural intentions or other health-related attitudes, and that continuing risk reflects inadequate strength or clarity in these cognitions. While these variables are clearly important, we feel that such models present an incomplete picture. The theory of reasoned action, for example, was initially developed around issues such as consumer preferences (Ajzen & Fishbein, 1980), where attitudes may more directly affect behaviour than in an area as emotionally-charged as sexuality. Further, cognitive dissonance theory (Festinger, 1964; Goethals, 1992) demonstrates that even in less emotionally-charged areas people tend to adjust their beliefs to match their behaviour rather than the other way around. Behavioural intentions and self-efficacy judgements do correlate with self-reports of HIV risk, although often within cross-sectional surveys, where the similarity between predictor and outcome measures ensures strong correlations (e.g. Fishbein *et al.*, 1991; Hays *et al.*, 1990). Whether such findings illustrate the actual dynamics of sexual risk is not clear.

Understanding sexual risk only through relatively 'rational', cognitively-based constructs de-emphasizes what is probably the most salient element of sexuality; its non-rational, emotional nature. Non-rationality in this context refers to occasions where sexual or other

'appetitive' behaviours depart significantly from the individual's larger plans or behavioural intentions. Non-rationality in sexual risk-taking may stem from many sources, including emotional states that distort perceptions of personal vulnerability, highly-charged sexual settings, or substance use.

Non-rationality and perceived vulnerability to HTV

Any individual-based theory of preventive change begins with the person perceiving that s/he is vulnerable to a health threat. Rationalist conceptions tend to assume that direct, personalized information about vulnerability should, when combined with information about preventive behaviours, induce behavioural change (see, however, van der Plight *et al.*, 1993). Hence, continuing sexual risk behaviour among some individuals may simply reflect their not being adequately informed about HIV, or their holding a stereotype that HIV is not relevant to their social group (see Hu *et al.*, 1989; Kippax *et al.*, 1990; Williams, 1986). Consistent with this, people who are informed that HIV spreads through 'risk groups' see themselves as less vulnerable than do people given information about individual risk behaviours (Spears *et al.*, 1992).

Our cognitive escape perspective proposes that for behaviours that are highly desired, the rational process whereby information leads to perceived vulnerability and behavioural change may be reversed: people may be 'motivated' to see themselves as not vulnerable to risk, and may ignore or distort information to the contrary (Weinstein, 1993). Mood, the perceived controllability of risk, or the perceptual salience of risk outcomes (e.g. airplane vs auto crashes) all can lead risk estimations to depart considerably from rational probability judgements (Constans & Mathews, 1993; Linville *et al.*, 1993; Slovic *et al.*, 1982). For example, the stereotype that alcoholics have an uncontrollable 'disease' may allow even very heavy drinkers to view themselves as different from the stereotype, and therefore not vulnerable to alcoholism (Weinstein, 1982). Similar 'optimistic biases' in risk estimation operate in areas such as cancer risk, crime victimization, and HIV-risk, with corresponding effects on preventive behaviours (Perloff, 1983; Rogers, 1983; Tyier, 1984; van der Plight *et al.*, 1993).

The high rate of unprotected sex among gay men in emotionally close relationships (see Adib & Ostrow, 1996; Hays *et al.*, 1990; Schoofs, 1995) may illustrate how emotion can distort perceptions of risk vulnerability. Unprotected sex with a relationship partner is common, even among men who, during the same interview, report that they are not sexually exclusive with that partner and/or do not know his HIV status (McKiman *et al.*, 1994). Men in a close relationship are less free to make unilateral decisions about sexual behaviour, but may also feel 'safe' in some larger, emotional sense. Were one to directly ask such men if their actual vulnerability had decreased in a non-monogamous relationship they may be rational enough to say that it has not, yet their behaviour suggests another, less rational assumption.

Context, setting, and the non-rational power of the stimulus

Writers ranging from Shakespeare to Erica Jong have pointed clearly to the power of setting and context in directing sexual behaviour. Despite this, many psychosocial models of sexual risk deemphasize its social or physical context (see Amaro, 1995; Auerbach *et al.*, 1994). For example, a recent review paper authored by several theorists cited above noted that the context of sexual risk could neither be conceptualized nor measured clearly enough to be integral to measurement or prevention models (Fishbein *et al.*, 1991).

Other health behaviour research has attempted to understand how external stimuli interact with psychological states to control behaviour. For example, many dieters show high dietary compliance followed by equally high non-compliance—i.e. a binge—in response to an external event or state of mind (Heatherton *et al.*; 1990). Similarly, an alcohol or drug binge frequently follows a 'slip' in an abstinence programme (Brownell *et al.*; 1986), itself induced by a setting or person commonly associated with substance use (see Orford, 1985). An abstinence—binge pattern is 'non-rational,' in that it is not directly predictable from the person's pro-health attitudes and intentions.

The psychological mechanisms that underlie bingeing may be relevant to sexual risk, particularly 'cognitive restraint'. Many people limit food intake in response to factors such as cultural pressure or a medical regimen, rather than a lessened interest in food. This behavioural restraint requires some degree of cognitive effort which, paradoxically, produces a heightened responsiveness to food-related stimuli. Hence, most people compensate for a highly caloric food item by eating less. In contrast, dieters who are high in cognitive restraint 'counter-regulate' by bingeing; once their restraint is lifted they over-indulge in the proscribed behaviour (Polivy *et al.*, 1992). Ruderman and McKimman (1985) found the same phenomenon among social drinkers.

This process is similar to the Abstinence Violation Effect (Marlatt & Gordon, 1985), wherein a 'slip' by a recovering alcoholic leads to counter-regulation in the form of a drinking binge or full relapse. The initial slip may be elicited by external stimuli, such as habitual settings or contact with people who facilitate consumption, through a process of classical conditioning (see Orford, 1985). The relevance of this to sex is clear. Sexual safety is an externally-imposed diet; few people use condoms or abandon desired activities due to an intrinsic motivation. Rather, sexual safety is typically maintained by considerable cognitive restraint, that may not require a very powerful external stimulus to break down. The prospect that a specific external stimulus may 'release' a person from their norms or attitudes regarding sexual safety may account for some of the non-rationality of sexual behaviour.²

In this view sexual risk is not simply the misregulation of behaviour via consciously-held attitudes or intentions. Rather, risk may stem from a lack of self-regulation or decision-making. A powerful external stimulus may not simply remind the person of enjoyable risk activities that had previously been associated with that setting, but may actually limit active decision-making by leaving the person less cognitively restrained regarding ongoing risk. Thus, settings such as gay bars or bathhouses, sexually-oriented events, or a particular partner, may both present opportunities for sexual risk and cognitively release the person from sexual norms. Substance use may play a key role in this process.

Substance use and strategic non-rationality

Substance use does not globally increase self-reported sexual risk behaviour, and for some people may even be associated with safer sex (Leigh & Stall, 1993; McCusker *et al.*, 1990). However, many studies do report increased unsafe sex among substance users (Cooper, 1992), and measures of both alcohol and drug use show simple correlations with HIV sero-conversion among gay and bisexual men (Buchbinder *et al.*, 1994; Ostrow *et al.*, 1995). The association of substance use with sexual risk may be due to direct effects of substances on risk behaviour, or mediated effects wherein gay men use substances 'strategically' to induce a state of cognitive release, that itself leads to risk.

Direct effects: pharmacology and simple association

Most discussions of substance use and sexual risk have attempted to find mechanisms wherein substances directly cause risk behaviour (Leigh & Stall, 1993). Substance use may disinhibit sexual activity—or even serve as an 'aphrodisiac'—by direct autonomic or central nervous system mechanisms that increase arousal (Crowe & George, 1989), decrease anxiety (Levenson *et al.*, 1980), or enhance the perception of immediate sensation while decreasing the ability to process or retrieve abstract information (Steele & Josephs, 1990) including, potentially, norms for sexual safety.

Simple learning may also contribute to direct effects of substance use on risk. For many gay men bars or clubs are an important social and sexual nexus (McKiman & Peterson, 1992). The pairing of **sex** and substance use within specific settings may create a strong learned association between these activities (see Caudill & Marlatt, 1975; Crowe & George, 1989), wherein cues such as time, setting, or person become pruned to elicit risky **sex** in the presence of substance use.

Several studies have attempted to test direct effects of substance use by measuring several sexual episodes within the same person, and contrasting risk levels on occasions when substances have versus have not been consumed. These data do not show increased sexual risk in the presence of substance use (Leigh & Stall, 1993). In our view this research strategy reflects the faulty assumption that substances should have a direct, 'main effect' on risk behaviour within any given person. We propose that individuals differ in their disposition to respond to substances with increased or decreased sociability, sexual risk, or other behaviours; psychosocial variables such as coping skills or expectancies regarding the personal effects of substance use may mediate the effect of substance use on sexual behaviour.

Mediated effects: the 'strategic' use of substances

Many societies define substance use as a time out from ordinary social constraints (Harford *et al.*, 1980): witness the Blues lyric 'Honey, you know it don't count if I was high...' (King, 1971). The gay bar 'scene' presents multiple settings for a 'time out' from stresses common to the gay community. Individual differences in men's orientation toward gay bars as a social focus are related to both alcohol and drug abuse, and to the association of alcohol use and unsafe sex (McKiman & Peterson, 1992). Substance use may then become associated with sexuality not only by simple co-occurrence, but through social learning of bars as settings where gay sexuality is sanctioned or celebrated.

This social learning perspective suggests that a linkage of substance use and sexuality should generally be prominent in the gay community. Beyond this cultural vulnerability, we propose that individuals differ in their use of substances to 'justify' proscribed behaviour or escape from rational self-awareness, that may lead to risky behaviour (see Hull & Bond, 1986). People with guilt or anxiety regarding **sex** are more responsive to sexual stimuli when given even placebo alcoholic beverages (George *et al.*, 1980; Lang *et al.*, 1980). More globally, people who have strong negative affect may strategically use substances to become less mindful of the source of stress, particularly if they also have strong expectancies that substance use will have such effects (see Brown *et al.*, 1980; Cooper, 1992). Thus, 'tension reduction' expectancies of alcohol most strongly predicted alcohol abuse among gay men who reported high levels of discrimination (McKiman & Peterson, 1989). This process may also be controlled by other expectancies; those who are high in sensation-seeking may engage in both substance use and high-risk sex in response to anxiety (Kalichman *et al.*, 1994).

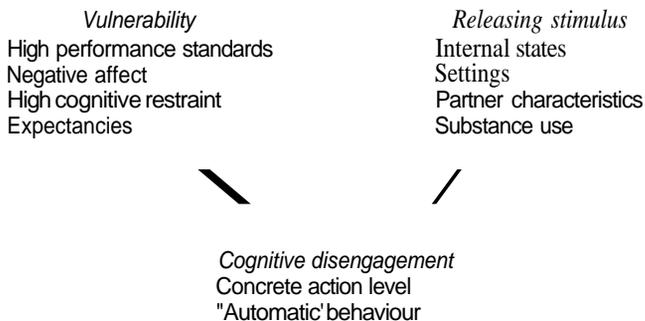


FIG. 1. Overview of escape model.

'Sexual restraint' may also underlie the behavioural effect of substances. In an attempt to understand the inconsistent effect of substance use on sexual risk, McKimman & Peterson (1990) hypothesized that substance use might act as a behavioural 'releaser' among gay men whose scores on a scale of effortful sexual restraint were higher. Consistent with the hypothesis, the correlation between substance use and unsafe sex was significantly higher among the 'restrained' men than among those whose adherence to safer sex norms was less effortful, suggesting that substance use acted as a releasing mechanism in a sexual variation on the restraint-binge syndrome.

Both direct and 'mediated' conceptions of how substance use may increase sexual risk propose that a central mechanism is the person's inability to monitor or follow social or personal norms when using substances. We propose that individual differences in negative affect, including 'burnout' or fatalism regarding HIV risk, when combined with specific expectancies or personality dispositions, lead people to use substances strategically to induce a state of cognitive escape regarding personal risk (see Steele & Josephs, 1990). The latter mechanism is the focus of the psychosocial model we propose here.

Sexual risk and cognitive 'escape'

Cognitive escape models have been applied to alcohol or drug abuse, binge eating, and general normative self-regulation (George *et al.*, 1989, Heafherton & Baumeister, 1991; Tiffany, 1990). In addressing sexual behaviour we hypothesize that many gay men engage in unprotected sex not because they lack information or intentions to be safe, but because coping with HIV risk over time becomes aversive, and motivates them to escape from self-awareness of HIV. This is appropriate to a more established epidemic such as HIV, where episodic risk-taking and/or relapse from safe to unsafe sex is more a problem than is a lack of initial change (Adib & Ostrow, 1996; McKimman *et al.*, 1994; Stall *et al.*, 1990).

An overview of the escape model is given in Figure I. We classify the major precursors of disengagement in terms of 'person' variables that create *vulnerability* to escape, and external, '*releasing stimuli*' that set off an escape process. The endpoint is a state of *cognitive disengagement*, where behaviour is progressively less under the control of long-term planning or abstract goals than of learned sexual 'scripts' or external pressure. The non-rationality of this state may leave the individual likely to engage in risk if such behaviours are available and desired.

Vulnerability to sexual escape

High performance standards. The beginning of escape models is the presence of high, perhaps unreachable, performance standards. For example, bulimia among young women is associated with unrealistically perfectionistic standards in the culture and family (Heatherton & Baumeister, 1991). When the performance standards are personally very salient—for individual psychological reasons, or among people vulnerable to a health threat such as HIV—the person becomes self-aware of how much behaviour actually or potentially departs from the standard, and how much conforming to the standard requires cognitive effort.

Gay communities have rigorous and clearly-articulated norms regarding sexual safety: few men lack the information or intention to avoid HIV, and the pressure for sexual safety is high. The best predictors of gay men's underestimating their behavioural risk are stronger safe **sex** norms and stronger identification with the gay community (Doll *et al.*, 1994), suggesting that individuals who continue risky sex may respond to the strong community pressure toward safety by dissembling in their self-reports. Odets (1994) has articulated the zeal with which AIDS education programmes have promulgated very high standards for sexual safety, e.g. using condoms with oral as well as anal sex, for all partners on all occasions.

Negative affect. The lack of either a cure or an effective vaccine for HIV and AIDS means that there is no end to difficult demands for sexual safety. Several writers (Elovich, 1995; Odets, 1994) have noted increasing pessimism regarding HIV in the gay community, including fear or shame over behavioural risks, safer **sex** 'burnout' or fatigue, or fatalism regarding long-term compliance to safer **sex** standards. These feelings may become associated with the larger domain of HIV and sexual practices, making general self-awareness of one's sexual health aversive (see Wegner & Zanakos, 1992). This negative affect may be most pronounced among men whose social networks contain HIV-positive men, who have poor coping or communication skills, or low self-efficacy for maintaining safety. These are key variables in all psychosocial models of risk behaviour; their primary role in our model is in 'setting people up' for cognitive escape processes.

Cognitive restraint and escape expectancies. Safer sex is a clear example of a cognitively restrained activity; condom use or abstinence from penetrative sex are clearly not preferred by many gay men, yet relatively abstract health concerns dictate that these stringent sexual standards be followed consistently. Stronger norms or behavioural intentions for safer **sex** clearly facilitate cognitive restraint over sexual risk, yet lead to negative affect and a loss of highly-desirable activities. If physical escape from difficult behavioural standards is not possible—i.e. the HIV risk inherent in gay **sex**, or dietary implications of eating—cognitive escape may follow.

The nature of an escape process will be shaped by individual or culturally-based expectancies. As noted, substance use can represent a culturally-endorsed 'time out' from social norms. Similarly, a tendency toward risk or sensation-seeking may lead an individual toward highly-stimulating environments to escape self-awareness of sexual or other health risks. In each case the lessening of cognitive restraint—and corresponding disinhibition of sexual behaviour—is accomplished by deflecting attention away from oneself and one's sexual standards (see Heatherton *et al.*, 1993).

Releasing stimuli

An escape from cognitive restraint may become activated by a releasing stimulus. For a given individual, sexuality may become associated with physical settings such as bars, clubs, baths, or 'cruise' areas, certain partners, or ancillary behaviours such as substance use. These stimuli may come to elicit not only sexual arousal, but the anxiety, negative affect, and aversive cognitive restraint that accompany awareness of HTV risk. If the person learns to be cognitively disengaged in response to the stimulus—by enacting a relatively 'mindless' sexual script, and/or using alcohol or drugs—he receives powerful rewards both from sexual satisfaction, and from the lowering of anxiety over HIV. Thus, a stimulus may become associated both with sexuality, and with behaviours that facilitate cognitive avoidance of HIV concern. As with any avoidance response, these associations may be difficult to extinguish once learned (see Barlow *et al.*, 1992).

Once cognitive avoidance is learned, the person may systematically approach the releasing stimulus in response to internal states such as sexual arousal, loneliness, stress, or other moods. The habitual association of a mood state with the stimulus context and mindless **sex** may create a larger unsafe **sex** pattern for the individual. Further, many of the sexual contexts that represent releasing stimuli will also contain opportunities for risk, including other men willing to have unprotected **sex** or drugs or alcohol. Finally, the physical features of many sexual settings may facilitate cognitive disengagement, e.g. bars or clubs that are extremely loud, poorly lit, or that present erotic visual stimulation, or sexual settings that stress anonymity.

Cognitive disengagement

The escape of self-awareness consists of actions being identified at a *concrete action level*, i.e. in terms of the mechanics of the behaviour or the immediate environment in which it occurs, rather than its larger meaning (see Vallacher & Wegner, 1985). The decrease of abstract processing can be facilitated by the individual's attentional focus: behaviours that require attention to high levels of sensation or stimulation will decrease abstract processing and force attention to mechanics. Similarly, recreational substance use decreases abstract thought or awareness of social norms by focusing attention on the 'here and now' (Steele & Josephs, 1990).

The end-point of the process is for sexual behaviour to become more *automatic*, where it is controlled more by over-learned behavioural scripts or immediate environmental stimuli than by larger goals or intentions (Karoly, 1993; Tiffany, 1990). Of course, many tasks—ranging from simple behavioural skills such as riding a bicycle, to abstract processes such as decoding language—are more efficient and effective when made automatic (see Bargh, 1993). Thus, 'automatic' social behaviour gains efficiency by representing a learned, consensual pattern, such as socially-shared 'scripts' for negotiating a restaurant, or making a purchase from a store (Abelson, 1981). Such scripts do not require a high degree of cognitive processing, they simply run to completion in response to strong situational cues. However, efficiency comes at a substantial cost if the automatic behaviour represents a health risk, such as substance use or risky sex.

Of course, if an individual's sexual script consisted of using condoms or avoiding penetrative sex, the 'automatic' element would facilitate rather than inhibit safety. A sexual partnership built on mutual condom use may embody this, as would a strong community norm that sex simply 'means' condom use. However, many men find condom use to be inconvenient or even unpleasant, and the erosion of safer sex norms in some segments of the

gay community can make the negotiation of condom use difficult (see Gold, 1995). Thus, the 'default' sexual scripts shared by many people may not include condom use; sexual health may require one to be mindful and 'cognitively restrained' to avoid what comes naturally.

Implications of an escape perspective for preventing HIV

An escape model raises paradoxes for both the structure and the content of HIV prevention. If people are motivated to not be aware of HIV risk, how do we structure HTV interventions so that people will be willing to participate? As well, intervention content that stresses the danger of unsafe **sex** may, by increasing anxiety, make self-awareness of HIV risk even more aversive, and cognitive escape from such awareness more appealing.

The structure of HIV-prevention: prevention markets

An escape perspective would predict that the very attitude that facilitates unsafe sex—the desire not to be acutely aware of HIV risk—will also make high-risk people unlikely to attend preventive interventions.³ In this spirit, effective broad-based community-level interventions would be optimal, since safer **sex** would stem from larger cultural patterns rather than individual motivation or decision-making. However, outcome data suggest that direct, face-to-face contact is most effective in changing behaviour, with the general trend that more intervention material results in more change (Choi & Coates, 1994; Kalichman *et al.*, 1996).

Getting people to attend face-to-face preventive interventions is indeed a problem. Although the intervention outcome literature has shown modest effects of clinical-like approaches—i.e. employing multiple session, workshop or individual counseling structures—the most powerful 'finding' in this area is that it is very difficult to get gay men to attend interventions. Clinical-like interveatioLi CuLoiLa arc typically small, recruited with great difficulty, show high attrition, and tend to be comprised of the 'worried well' rather than the truly risky. Nationally, somewhat over a third of high-risk gay men have ever received a safer **sex** intervention, with most consisting of a single, several-hour session (McKiman *et al.*, 1996; see also Peterson *et al.*, 1995). Intervention recruitment is difficult enough that research trials of multi-session interventions routinely have to pay participants to ensure attendance and follow-up.

Of course there may be barriers to intervention attendance beyond the desire to escape awareness of HIV. It is estimated that only 25% of individuals in the general population with a diagnosable psychopathology are in treatment (Reiger *et al.*, 1993), hence low intervention attendance is not limited to gay men and HIV risk. However, some 75% to 95% of both African-American and white gay men receive HTV testing and counseling (McKiman *et al.*, 1995, 1996), and outreach interventions are able to reach higher-risk men (Kegeles *et al.*, 1993). Thus, gay men are willing to participate in less intensive HIV-related activities that are not explicitly structured as psychosocial interventions.

A second major finding relevant to intervention design is that sexual risk is episodic. In longitudinal data most men who report behavioural risk do not report it at each wave. Rather, men move in and out of 'risk' status, with shifts predicted by variables such as changes in relationship status or substance use (see Adib *et al.*, 1991; McKiman *et al.*, 1994, 1996). Consistent with this, the effects of even successful workshop-based interventions show relatively fast decay (Kelly *et al.*, 1993). Thus, behavioural interventions must occur over the sexual lifespan; a single, intense 'dose' of intervention, even if people would attend it, is inappropriate to an enduring health threat where behavioural relapse is a common risk pattern.

A. third core finding is that sexual safety is strongly influenced by social norms (Fishbein *et al.*; 1991; Hays *et al.*, 1990; McKiman *et al.*, 1995). Health behaviour is generally supported by its social and cultural context, particularly a domain such as sexuality where a partner must co-operate; the effects of even a strong intervention are hampered if the individual must engage in difficult negotiations with a partner who is less committed to safety. The erosion of norms for condom use or safer **sex** in some quarters of the gay community may actually increase risk among those who are more strongly gay-identified (Gold, 1995). Thus, actually decreasing HTV sero-incidence requires that interventions have high coverage in the population (see Blower & McLean, 1994); less intense interventions attended by a large percentage of the population may have more effect on sero-incidence than highly-intense, clinical interventions that are attended by few, highly-motivated people.

These findings—the lack of attendance at intensive interventions, and the need for widely-disseminated prevention over the sexual lifespan—indicate that the use of therapy or workshop structures as a primary face-to-face HIV prevention format needs rethinking. We propose that prevention planners take a marketing approach. Weaving HIV prevention into health markets that people already are engaging in and that deliver a concrete product—HIV testing, primary health care visits, health clubs or social services—may not arouse the anxiety, stigma, and escape motives that occur with more intensive behavioural interventions, where the individual must identify himself as having a 'problem' with sexual safety that he needs to 'fix'. Brief formats may provide enough individualized programming to induce or maintain change and, through the linkage of personal risk patterns to other resources, may constitute a 'foot in the door' to more intense interventions.

Evidence for this approach comes from longitudinal cohort studies, which find decreases in HIV risk similar to the shifts seen in randomized controlled trials of theory-driven interventions (Metzger *et al.*, 1993; McKiman *et al.* 1996). Although longitudinal research cohorts are typically designed to observe rather than modify risk behaviour, they may exemplify effective intervention structures. Periodic HIV testing may maintain cohort members' general awareness of HTV risk, and personal interviews regarding risk settings and partners, and/or topics such as attitudes toward sexuality and condoms, may facilitate awareness of personal risk patterns. Stalls or risk reduction strategies are available through counseling that accompanies HIV testing, and the long-term relationship established with a 'gay positive' study staff or facility may assist participants to commit themselves to more enduring behaviour change. By being presented as periodic health visits (and/or data collection), this format is less prey to the avoidance or felt stigma that can be aroused by more intensive or clinically-structured safer **sex** interventions.

Risk reduction programming for HIV testing or other health care contacts has not been adequately developed, and is administered in a hit-or-miss fashion (Doll, 1995). Thus, data assessing the efficacy of this intervention format are inconclusive (see Higgins *et al.*, 1991). Further, intensifying prevention programming in existing health care markets may lead people to 'escape' this intervention format as well. Nonetheless, HIV testing, primary healthy care visits, or programmes offered in settings such as health clubs, all warrant more serious attention as 'entry-level' preventive contacts that may help counter the tendency to escape HIV awareness by avoiding more intensive safer **sex** interventions.

Escape processes and the content of HIV-prevention

A market-oriented approach to preventive intervention can be considered a form of 'harm reduction'. Getting a high percentage of an at-risk population into a structured, longer-term approach to behavioural safety will generally decrease infection rates, even if the intervention

received by many specific individuals is less intense than optimal. However, some percentage of risk populations are willing to attend more intensive interventions, and we would predict attendance at intensive interventions may increase if they are articulated with health visits or periodic, low-intensity contacts.

As with psychotherapy generally (see Dawes, 1994, Lambert & Bergin, 1994), most intensive HIV prevention programmes consist of several common factors: information, behavioural skills training, identification and problem-solving for individual risk patterns, group or normative feedback about risk, a non-judgemental atmosphere, and a comprehensible 'model' of how risk occurs (Holtgrave *et al.*, 1995; KaUchman *et al.*, 1996; Kelly & St. Lawrence, 1989, 1990). By increasing commitment to prevention and fostering behavioural skills these basic ingredients are integral to any structured intervention approach.

An escape perspective adds to cognitive-behavioural or related approaches the concept that whatever a person's skills or commitment to safety, in the 'real world' of sexual interactions specific moods or sexual contexts may lead turn temporarily to abandon the larger safer **sex** enterprise. Further, extremely strong intentions to be safe may actually increase escape motivation by increasing anxiety or inducing shame over previous risk-taking. Getting high-risk men to recognize that cognitive escape may be implicit in certain patterns of substance use or sexual activity, and to recognize the precursors of an escape process, may enable them to apply their safer **sex** strategies more consistently.

Of course for some men safer **sex** is itself an 'automatic' response, and cognitive disengagement is not a health risk. Alternately, some men may simply decide, within a perfectly mindful state, to be risky. However, we propose that for many men the most immediate 'cause' of risk is not a decision to be unsafe, but temporary cognitive disengagement regarding HIV. In this view, effective interventions must not simply strengthen stalls or intentions, but must include strategies for maintaining self-awareness in very high-risk settings or states of mind.

An escape-based intensive intervention attempts to induce awareness that using **sex** or drugs to become cognitively disengaged is not 'accidental', but reflects a larger pattern of cognitive disengagement and risk, particularly among men who combine substance use with sex. As with motivational interviewing or cognitive-behavioural approaches, participants must 'deconstruct' recent episodes of sexual risk to articulate their personal risk pattern, i.e. in terms of settings, partners, or other elements that make sexual control difficult. Unlike more standard approaches, an escape-based intervention assists men to understand not simply the conditions under which they are risky, but when they become 'mindless' about sexual risk. Thus, intervention materials attempt to clarify the moods and emotions, as well as expectancies and coping styles, that make men vulnerable to a pattern of cognitive escape.

The escape framework underlying actual workshop exercises posits that awareness of HIV risk induces negative affect, and safety requires 'effortful' cognitive restraint that detracts from the immediate sexual experience. This makes cognitive escape during sex attractive. Vulnerability for a particular form of cognitive escape depends upon other variables, such the expectancy that substance use reduces anxiety, a sensation-seeking or avoidant coping style, low self-esteem, or a risk-oriented social network. High vulnerability for escape may lead men to be responsive to—or actively approach—situations where they have learned to be cognitively disengaged during **sex**, e.g. specific settings, partners, or substance use. Risk patterns may be lessened through structured exercises to self-diagnose personal vulnerabilities, plus directed behavioural stalls, training in self-monitoring, substance use control strategies, or interventions to alter coping styles or social networks.

Summary

In a population such as gay men, who have the knowledge and resources to remain sexually safe, rationalist conceptions of risk-taking cannot adequately explain the continuing HIV epidemic. Many models of risk behaviour do cite non-rational processes, although variables such as behavioural skills, information, attitudes, or self-efficacy continue to dominate discussions—and interventions—for sexual risk among gay men. The difficulty of modifying sexual behaviour and the bleak prospects for a vaccine or cure may, for many, create a motivation to escape from self-awareness of HIV risk and sexual standards. Under conditions of cognitive disengagement, knowledge or intentions, no matter how appropriate, cannot have a decisive influence on behaviour.

Pressure toward avoidance may be countered by weaving prevention into health behaviours that people are already willing to engage in, and through intervention content that articulates escape processes. Rather than simply strengthening resolve to 'be safe', interventions should assist people to remain mindful of their safety standards while 'in the trenches' of the sexual situation. We have focused on substance use, since many sexually-active gay men combine substances with sex, and substances themselves facilitate cognitive disengagement. However, there may be many other conditions where people 'forget about' what they intend to do for sexual safety. While this complexity makes escape models difficult to test empirically, we feel that both research and intervention design will be served by concepts that more closely model the personal and social processes that conspire to maintain behavioural risk in the face of the HIV epidemic.

Acknowledgements

The authors thank Michael Gross, Joseph Stokes, Peter Vanable, Phillip Patoja, David Wagstaff, and Peggy Peterson for comments on drafts of this paper.

Notes

- [1] For reviews of health behaviour models applied to HIV, see Auerbach *et al.*, 1994; Fishbein *et al.*, 1991; Fisher & Fisher, 1993; Kelly *et al.*, 1993; Pryor & Reeder, 1993. For community-based or network conceptions of risk see, for example, Amaro, 1995; Bye, 1990; Chitwood *et al.*, 1991.
- [2] The concept of a releasing stimulus has been most clearly articulated within Relapse Prevention models; see Brownell *et al.*, 1986.
- [3] For related perspectives, see Protection Motivation theory (Rogers, 1983), or fear arousal' models of attitude change (Leventhal, 1970).

References

- ABELSON, R.P. (1981). The psychological status of the script concept. *American Psychologist*, 36, 715-729.
- ADIB, S.M. & OSTROW, D.G. (1996, in press). Sexual behavior changes and their correlates: the Chicago MACS/CCS cohort 1986-1992. *Journal of Psychology and Human Sexuality*.
- ADIB, S.M., JOSEPH, J.G., OSTROW, D.G., TAL, M. & SCHWARTZ, S.A. (1991). Relapse in sexual behavior among homosexual men: a 2-year follow-up from the Chicago MACS/CCS. *AIDS*, 5, 757-760.
- AJZEN, I. & FISHBEIN, M. (1980). *Understanding attitudes and predicting social behavior*, Englewood Cliffs, NJ: Prentice-Hall.
- AMARO, J. (1995). Love, sex, and power considering women's realities in HIV prevention. *American Psychologist*, 50, 437-447.
- AUERBACH, J.D., WYPIJEWSKA, C. & BRODIE, K.H. (1994). *AIDS and behavior: an integrated approach*. Washington, DC: National Academy Press.

- BANDURA, A. (1977). Toward a unifying theory of behavioral change. *Psychological Review*, 84, 191-215.
- BANDURA, A. (1991). Self-efficacy mechanism in physiological activation and health promoting behavior. In: J. MADDEN (Ed.), *Newobiology of learning, emotion, and affect* (pp. 229-269). New York: Raven Press.
- BARGH, J. (1993). Conditional automaticity: varieties of automatic influence in social perception and cognition. *Annual Review of Psychology*, 44, 3-51.
- BARLOW, D.H., RAPEE, R.M. & BROWN, T.A. (1992). Behavioral treatment of generalized anxiety disorder. *Behavioral Therapy*, 23, 551-570.
- BBCKER, M.H. & JOSEPH, J.G. (1988). AIDS and behavioral change to reduce risk a review. *American Journal of Public Health*, 78, 394-110.
- BLOWER, S.M. & McLEAN, A.R. (1994). Prophylactic vaccines, risk behavior change, and the probability of eradicating HIV in San Francisco. *Science*, 265, 1451-1454.
- BROWN, S., GOLDMAN, M., INN, A. & ANDERSON, L. (1980). Expectations of reinforcement from alcohol: their domain and relation to drinking patterns. *Journal of Consulting and Clinical Psychology*, 48, 419-426.
- BROWNELL, K.D., MABLATT, G.A., LICHTENSTEIN, E. & WILSON, T. (1986). Understanding and preventing relapse. *American Psychologist*, 41, 765-782.
- BUCHBINDER, S., JUDSON, P., McKIRNAN, D.J., MACQuHBN, K. et al. (1994). *Predictors of seroconversion in high-risk gay men*. Proceedings of the Xth International Conference on AIDS, Yokohama, Japan.
- BYE, L.L. (1990). Moving beyond counseling and knowledge-enhancing interventions: a plea for community-level AIDS prevention strategies. In: D.G. OSTROW (Ed.), *Behavioral aspects of AIDS*. New York: Plenum Press.
- CATANIA, J., KEGELES, S.M. & COATES, T.J. (1990). Towards an understanding of risk behavior an AIDS Risk Reduction Model. *Health Education Quarterly*, 17, 53-72.
- CATANIA J.A., KEGELES, S.M. & COATES, T. (1992). Toward an understanding of risk behavior the AIDS risk reduction model (AARM). *Health Education Quarterly*, 17, 53-72.
- CAUDILL, B.D. & MARLATT, G.A. (1975). Modeling influences in social drinking: an experimental analogue. *Journal of Consulting and Clinical Psychology*, 43, 405-415.
- CHITWOOD, D.D., INCIARDI, J.A., McBRIDE, D.C., McCoY, C.B., McCov, H.V. & TRAPIDO, E. (1991). *A community approach to AIDS Intervention*. Westport, CT: Greenwood Press.
- CHOI, K. & COATES, T.J. (1994). Prevention of HIV infection. *AIDS*, 8, 1371-1389.
- CONSTANS, J.I. & MATHEWS, A.M. (1993). Mood and the subjective risk of future events. *Cognition 6- Emotion*, 7, 545-560.
- COOPER, M.L. (1992). Alcohol and increased behavioral risk for AIDS. *Alcohol Health and Research World*, 16, 64-72.
- CROWE, L.C. & GEORGE, W.H. (1989). Alcohol and human sexuality: review and integration. *Psychological Bulletin*, 105, 374-386.
- DAWES, R.M. (1994). *House of cards: psychology and psychotherapy built on myth*. New York: Macmillan.
- DOLL, L.S., HARRISON, J.S., FREY, R.L., McKIRNAN, D.J. et al. (1994). Failure to disclose MV risk to clinic staff among gay and bisexual men attending STD clinics. *American Journal of Preventive Medicine*, 10, 125-129.
- DOLL, L.S. (1995, August). *HIV test risk reduction counseling: current status and needs for development*. Paper presented to Third Science Symposium, HIV Prevention: Current Status and Future Directions, Flagstaff, Arizona.
- ELOVICH, R. (1995). Harm's way. *The Advocate*, May 16.
- FESTINGER, L. (1964). *Conflict, decision, and dissonance*. Stanford: Stanford University Press.
- FISHBEIN, M. & MIDDLESTADT, S.E. (1989). Using the theory of reasoned action as a framework for understanding and changing AIDS-related behaviors. In: V.M. MAYS, G.W. ALBEE & S.F. SCHNEIDER (Eds.), *Primary prevention of AIDS* (pp. 93-109). New York: Sage.
- FISHBEIN, M., BANDUBA, A., TRIANDIS, H.C., KANFER, F.H., BECKER, M.H. & MIDDLESTADT, S.E. (1991). *Factors influencing behavior and behavior change*. Final Report: Theorists Workshop, National Institute of Mental Health, Washington, D.C.
- FISHER, J.D. & FISHER, W.A. (1992). Changing AIDS-risk behavior. *Psychological Bulletin*, 111, 455-474.
- GEORGE, W.H., DERMEN, K.-H. & NOCHAISH, T.H. (1989). Expectancy set, self reported expectancies, and dispositional traits: predicting interest in violence and erotica. *Journal of Studies on Alcohol*, 50, 541-551.
- GOETHALS, G.K. (1992). Dissonance and self justification. *Psychological Inquiry*, 3, 327-329.
- GOLD, R.S. (1995). Why we need to rethink AIDS education for young men. *AIDS Care*, 7 (suppl. 1), s11-s19.
- HARFORD, T.C., PABKER, D.A. & LIGHT, L. (Eds) (1980). *Normative approaches to the prevention of alcohol abuse and alcoholism*. DHEW Pub. No. (ADM) 79-847. Washington, DC: US Govt. Printing Office.
- HAYS, R.B., KBGEI-ES, S.M. & COATES, T.J. (1990). High HIV risk-taking among young gay men. *AIDS*, 4, 901-908.
- HEATHERTON, T.F. & BAUMEISTER, R.F. (1991). Binge eating as escape from self-awareness. *Psychological Bulletin*, 110, 86-108.
- HEATHERTON, T.F., POUVY, J., HERMAN, C.P. & BAUMEISTER, R.F. (1993). Self-awareness, task failure, and disinhibition: how attentional focus affects eating. *Journal of Personality*, 61, 49-61.

- HEATHEBTON, T.F., POUVY, J. & HERMAN, C.P. (1990). Dietary restraint: some current findings and applications. *Psychology of Addictive Behavior*, 4, 100-106.
- HIGGINS, D.L., GALAVOTTI, C., O'REILLY, K-R. *et al.* (1991). Evidence for the effects of HIV-antibody counseling and testing on risk behaviors. *Journal of the American Medical Association*, 266, 2419-2429.
- HOLTGRAVE, D.R., QUALLS, N.L., CUWIAN, J.W., VALDISERRI, R.O., GUIMAN, ME. & PARKA, W.C. (1995). An overview of the effectiveness and efficacy of HIV prevention programs. *Public Health Reports*, 110, 134-146.
- Hu, D., KELLER, R. & FLEMING, D. (1989). Communicating AIDS information to Hispanics: the importance of language and media preference. *American Journal of Preventive Medicine*, 5, 196-200.
- HULL, G.J. & BOND, C.P. (1986). Social and behavioral consequences of alcohol consumption and expectancy: a meta analysis. *Psychological Bulletin*, 99, 347-360.
- KAUCHMAN, S.C., ADAIR, V., ROMPA, D., MULTHAUF, K., JOHNSON, J. & KBLLY, J. (1994). Sexual sensation seeking: scale development and predicting AIDS-related behavior among homosexually active men. *Journal of Personality Assessment*, 62, 385-397.
- KAUCHMAN, S.C., CABBY, M.P. & JOHNSON, B.T. (1996). Prevention of sexually transmitted HIV infection: a meta-analytic review of the behavioral outcome literature. *Annals of Behavioral Medicine*. In press.
- KAROLY, P. (1993). Mechanisms of self-regulation: a systems view. *Annual Review of Psychology*, 44, 23-52.
- KEGELES, S.M., HAYS, R.B. & COATES, T. (1993 June). A community-level risk reduction intervention for younger gay and bisexual men. DC International Conference on AIDS, Berlin. [Abstract WS-C07-1].
- KBLLY, J. & ST. LAWRENCE, J.S. (1989). Behavioral intervention to reduce AIDS risk activities. *Journal of Consulting and Clinical Psychology*, 57, 60-67.
- KELLY, J.A. & ST. LAWRENCE, J.S. (1990). *WakcbvnoTcbaasfiaswmea*. *American Journal of Public Health*, 80, 351.
- KELLY, J., MURPHY, D., ROFFMAN, R. *et al.* (1992). Acquired immunodeficiency syndrome/human immunodeficiency virus risk behavior among gay men in small cities: findings of a 16-city national sample. *Archives of Internal Medicine*, 152, 2293-2297.
- KELLY, J.A., MURPHY, D.A., SKKEMA, K.J. & KAUCHMAN, S.C. (1993). Psychological interventions to prevent HIV infection are urgently needed: new priorities for behavioral research in the second decade of AIDS. *American Psychologist*, 48, 1023-1034.
- KING, B.B. (1971). *Hoc blues can you get*. (J. Feather). BMI.
- KIPPAX, S., CRAWFORD, J., CONNELL, R.W., DOWSETT, G.W., WATSON, L., RODDEN, P., BAXTER, D. & BERG, R. (1990). *The importance of gay community to the prevention of HIV transmission*. (Social Aspects of the Prevention of AIDS, Study A, Report 7). Macquarie University, Australia.
- LAMBERT, M.J. & BBRGIN, A.E. (1994). The effectiveness of psychotherapy, in: A.E. BERGIN & S.L. GAIFFIELD (Eds), *Handbook of psychotherapy and behavior change* (pp. 143-189). New York: Wiley.
- LANG, A.R., SEARLES, J., LAUERMAN, R. & ADESSO, V. (1980). Expectancy, alcohol, and sex guilt as determinants of interest in and reaction to sexual stimuli. *Journal of Abnormal Psychology*, 89, 644-653.
- LEIGH, B.C. & STALL, R. (1993). Substance use and risky sexual behavior for exposure to HIV. *American Psychologist*, 48, 1035-1045.
- LEVENSON, R.W., SHER, K.J., GROSSMAN, L.M., NEWMAN, J. & NBWLIN, D.B. (1980). Alcohol and stress response dampening: pharmacological effects, expectancy, and tension reduction. *Journal of Abnormal Psychology*, 89, 528-538.
- LEVINTHAL, H. (1970). Findings and theory in the study of fear communications. In L. BERKOWITZ (Ed.), *Advances in experimental social psychology* (Vol. 5). New York: Academic Press.
- LINVILLE, P.W., FISCHBR, G.W. & FISCHHOFF, B. (1993). AIDS risk perceptions and decision biases. In J.B. PRIOR & G.D. REEDER (Eds), *The social psychology of AIDS prevention* (pp 5-38). Hillsdale, NJ: Erlbaum.
- MARLATT, G.A. & GORDON, J.R. (Eds) (1985). *Relapse prevention: maintenance strategies in the treatment of addictive behaviors*. New York: Guilford Press.
- McCuSKER, J., WESTENHOUSE, J., STODDARD, A.M., ZAPKA, J.G., ZORN, M.W. & MAYER, K.H. (1990). Use of drugs and alcohol by homosexually active men in relation to sexual practice. *Journal of Acquired Immune Deficiency Syndrome*, 3, 729-736.
- MCKIRNAN, D.J. & PETERSON, P.L. (1988). Stress, expectancies, and vulnerability to substance abuse: a test of a model among homosexual males. *Journal of Abnormal Psychology*, 97, 461-466.
- MCKIRNAN, D.J. & PETERSON, P.L. (1990, May). *Cognitive restraint and hinging in drugs and unsafe sex*. Presented to American Psychiatric Association Annual Meeting, New York.
- MCKIRNAN, D.J., BUCHBINDHR, S., MACQUEEN, K., DOUGLAS, J., JUDSON, F. & VANABLE, P. (1994, November). *Stability of risk behaviors for HIV sera-conversion among gay men*. Presented to 7th annual Conference on Advances in AIDS Vaccine Development, Washington, DC.
- MCKIRNAN, D.J., STOKES, J.P., DOLL, L. & BURZETTE, R.G. (1995). Bisexually active men: social characteristics and sexual behavior. *Journal of Sex Research*, 32, 64-75.

- McKIRNAN, D.J., VANABLE, P.V., MACQUEEN, K., BUCHBINDBR, S. & JUDSON, F. (1996). The effectiveness of community-based interventions for safer sex among gay men: a longitudinal cohort study. In review.
- METZGER, D.S., WOODY, G.E., McLELLAN, A.T. *et al.* (1993). Human immune-deficiency virus seroconversion among intravenous drug users in- and out-of-treatment: an 18 month prospective follow-up. *Journal of Acquired Immune Deficiency Syndromes*, 6, 1049-1056.
- ODETS, W. (1994). AIDS education and harm reduction for gay men. *AIDS and Public Policy Journal*, Spring.
- ORFORD, J. (1985). *Excessive appetites: a psychological view of addictions*. New York: Wiley.
- OSTROW, D.G., DiFRANCESCO, W.J., CHMIEL, J.S., WAGSTAFF, D.A. & WESCH, J. (1994). A case-control study of HIV Type I seroconversion and risk related behavior in the MACS/CCS cohort, 1984-1992. *American Journal of Epidemiology*, 142, 1-9, 1995.
- PERLOFF, L.S. (1983). Perceptions of vulnerability to victimization. *Journal of Social Issues*, 39, 41-66.
- PETERSON, J.L., COATES, T.J., CATANIA, J.A., HILUARD, B., MIDDLETON, L. & HEAKST, N. (1995). Help seeking for AIDS high-risk sexual behavior among gay and bisexual African-American men. *AIDS Education and Prevention*, 7(1), 1-9.
- PETERSON, P.L., OSTROW, D.G. & MCKIRNAN, D.J. (1991). Behavioral interventions for the primary prevention of HIV infection among homosexual and bisexual men. *Journal of Primary Prevention*, 12, 19-34.
- POUVY, J., RUDEBMAN, A. & BESBEAS, M. (1992). Psychological characteristics of dieters and bulimics. *Journal of Abnormal Psychology*, 101, 383-390.
- PRIOR, J.B. & REEDER, G.D. (1993) *The social psychology of AIDS prevention*. Hillsdale, NJ: Erlbaum.
- REIGER, D.A., NARROW, W.E., RAE, D.S., MANDERSCHIED, R.W., LOCKE, B.Z. & GOODWIN, F.K. (1993). The de facto U.S. mental and addictive disorders service system: Epidemiological Catchment Area prospective 1-year prevalence rates of disorders and services. *Archives, of General Psychiatry*, 50, 85-94.
- ROGERS, R.W. (1983). Cognitive and psychological processes in fear appeals and attitude change: a revised theory of protection motivation. In J.T. CACIOPPO, R.R. PETTY & D. SHAFKO (Eds), *Social psychology, a sourcebook* (pp. 153-176). New York: Guilford.
- ROSENSTOCK, I.M., STRECHER, V.J. & BECKER, M.H. (1988). Social learning theory and the health belief model. *Health Education Quarterly*, 15, 175-183.
- RUDERMAN, A. & MCKIRNAN, D.J. (1985). The development of a restrained drinking scale: a test of the abstinence violation effect among alcohol users. *Addictive Behaviors*, 9, 365-371.
- SCHOOFS, M. (1995). Can you trust your lover? Gay couples weigh the risk of unprotected sex. *Village Voice*, 40(5),
- SLOVIC, P., FISCHHOFF, B. & LICHTENSTEIN, S. (1982). **Facts versus fears: understanding perceived risk.** In D. KAHNEMAN, P. SLOVIC & A. TVERSKY (Eds), *Judgement under uncertainty: heuristics and biases* (pp. 463-492). Cambridge: Cambridge University Press.
- SPEARS, R., ABRAHAM, S.C., ABRAMS, D. & SHEERAN, P. (1992). Framing in terms of 'high-risk groups' versus 'risky practices' and prognoses of HIV infection. *European Journal of Social Psychology*, 22, 195-201.
- STALL, R., EKSTRAND, M., POLLACK, L., McKUSICK, I. & COATS, T. (1990). Relapse from safer sex: the next challenge for AIDS prevention efforts. *Journal of Acquired Immune Deficiency Syndromes*, 3, 1181-1187.
- STEELE, C.M. & JOSEPHS, R.A. (1990). Alcohol myopia: its prized and dangerous effects. *American Psychologist*, 45, 921-933.
- TIFFANY, S.T. (1990). A cognitive model of drug urges and drug-use behavior role of automatic and nonautomatic processes. *Psychological Review*, 97, 147-168.
- TYLER, T.R. (1984). Assessing the risk of crime victimization: the integration of personal victimization experience and socially transmitted information. *Journal of Social Issues*, 40, 27-38.
- VALLACHER, R.R. & WEGNER, D.M. (1987). What do people think they're doing? Action identification and human behavior. *Psychological Review*, 94, 3-15.
- VAN DER PLIGHT, J., OTTEN, W., RICHARD, R. & VAN DER VELDE, F. (1993). Perceived risk of AIDS: unrealistic optimism and self-protective action. In J.B. PRIOR & G.D. REEDER (Eds), *The social psychology of AIDS prevention* (pp. 39-58). Hillsdale, NJ: Erlbaum.
- WEGNER, D.B. & ZANAKOS, S. (1994). Chronic thought suppression. *Journal of Personality*, 62, 615-640.
- WEINSTEIN, N.D. (1982). Unrealistic optimism about susceptibility to health problems. *Journal of Behavioral Medicine*, 5, 441-460.
- WEINSTEIN, N.D. (1993). Testing four competing theories of health-protective behavior. *Health Psychology*, 12, 324-333.
- WILLIAMS, L.S. (1986). AIDS risk reduction: a community health education intervention for minority high risk members. *Health Education Quarterly*, 13, 407-422.