PERCEIVED SELF-EFFICACY IN THE EXERCISE OF CONTROL OVER AIDS INFECTION

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ABSTRACT

This article analyzes the influential role played by perceived self-efficacy in the exercise of control over behavior that carries risk of AIDS (Acquired Immunodeficiency Syndrome) infection. Effective programs of self-directed change require four major components. The first is informational, designed to increase awareness and knowledge of health risks. The second component is concerned with development of the social and self-regulatory skills needed to translate informed concerns into preventive action. The third component is aimed at skill enhancement and building resilient self-efficacy through guided practice and corrective feedback in applying the skills in high-risk situations. The final component involves enlisting social supports for desired personal changes.

Prevention of infection with the AIDS (Acquired Immunodeficiency Syndrome) virus requires people to exercise influence over their own motivation and behavior. Social efforts designed to control the spread of AIDS have centered mainly on informing the public on how the human immunodeficiency virus (HIV) is transmitted and how to safeguard against such infection. It is widely assumed that if people are informed adequately about the AIDS threat they will take appropriate self-protective action. Heightened awareness and knowledge of health risks are important preconditions for self-directed change. Unfortunately, information alone does not necessarily exert much influence on refractory health-impairing habits. It has not slimmed the obese or eradicated cigarette smoking, despite its acknowledged hazard for cancer, respiratory disorders, and heart disease, nor has it made a substantial dent on nutritional patterns that create a high risk of cardiovascular disease in those who most need to change. It certainly will not make the sexually active celibate and impel intravenous drug users to renounce drugs, which are the two major transmitter modes for the AIDS virus.

To achieve self-directed change, people need to be given not only reasons to alter risky habits but also the means and resources to do so. Effective self-regulation of behavior is not achieved by an act of will. It requires certain skills in self-motivation and self-guidance (Bandura, 1986). Moreover, there is a difference between possessing coping skills and being able to use them effectively and consistently under difficult circumstances. Success, therefore, requires not only skills, but also strong self-belief in one's capabilities to exercise personal control.

Perceived self-efficacy is concerned with people's beliefs that they can exert control over their motivation and behavior and over their social environment. People's beliefs about their capabilities affect what they choose to do, how much effort they mobilize, how long they will persevere in the face of difficulties, whether they engage in self-debilitating or self-encouraging thought patterns, and the amount of stress and depression they experience in taxing situations. When people lack a sense of self-efficacy, they do not manage situations effectively, even though they know what to do and possess the requisite skills. Self-inefficacious
thinking creates discrepancies between knowledge and action. Numerous studies have been conducted linking perceived self-efficacy to health-promoting and health-improving behavior (Bandura, 1986, 1989; O'Leary, 1985). The results show that perceived efficacy can affect every phase of personal change—whether people even consider changing their health habits, how hard they try should they choose to do so, how much they change, and how well they maintain the changes they have achieved. In addition to influencing health habits, perceived coping inefficacy increases vulnerability to stress and depression and activates biochemical changes that can affect various facets of immune function (Bandura, 1989; Maier, Laudenslager, & Ryan, 1985).

Translating health knowledge into effective self-protection action against AIDS infection requires social skills and a sense of personal power to exercise control over sexual situations. As Gagnon and Simon (1973) have observed correctly, managing sexuality involves managing interpersonal relationships. Problems arise in following safer sex practices because self-protection often conflicts with interpersonal pressures and sentiments. In these interpersonal situations the sway of coercive power, allurements, desire for social acceptance, social pressures, situational constraints, and fear of rejection and personal embarrassment can override the influence of the best of informed judgment. The weaker the perceived self-efficacy, the more such social and affective factors can increase the likelihood of risky sexual behavior.

Exercise of personal control over sexual situations that carry risk of infection calls on skills and self-efficacy in communicating frankly about sexual matters and protective sexual methods and ensuring their use. Some of the people who perceive a personal risk of sexually transmitted disease are reducing the number of sexual partners and are more wary of engaging in sex with casual partners. Ignorance of a partner's sexual and drug activities has become a new risk factor. However, to rest self-protection on partners' reports of their sexual and drug history is a hazardous safeguard. Sexually transmitted disease is a hazardous safeguard. Sexual ardor and impression management can readily expurgate risky histories in personal disclosures. Survey studies reveal that even a majority of "monogamous" relationships are so in name rather than in actual practice. With increased heterosexual transmission of the AIDS virus, occasional sex with partners outside a monogamous relationship, especially those who have had bisexual or drug involvements, expands the range of potential risk.

Risk appraisal for AIDS infection is highly unreliable when the relevant risk factors remain concealed. Lacking knowledge of the behavioral history and serostatus of sexual partners, people tend to make their risk appraisals on the basis of social and physical appearances, which can be quite misleading because infected persons often remain asymptomatic for a long time. Even those who are well informed on safer-sex guidelines often err in their subjective appraisal of the extent to which they are putting themselves at risk of HIV infection. Bauman and Siegel (1987) found that gay men practicing hazardous sex underestimate the riskiness of their behavior as judged against epidemiologically established linkage to seropositivity. Misappraisals of riskiness of one's sexual practices tend to be associated with underestimation of personal susceptibility to infection and with misbeliefs that risky sex with a few regular partners is safe and that behavioral precautions that actually have no protective value (showering before and after sexual contact, healthful regimens, inspecting partners for lesions) will render risky sex safe. Such findings underscore the need for risk-reduction messages to describe not only risky sexual practices but also the common misbeliefs about factors that invest risky practices with false safety.

In managing sexuality, people have to exercise influence over themselves as well as over others. This requires self-regulatory skills in guiding and motivating one's actions. Self-regulation operates through internal standards, affective reactions to one's conduct, use of motivating self incentives, and other forms of cognitive self-guidance. Self-regulatory skills thus form an integral part of risk-reduction capabilities. They partly determine the social situations into which people get themselves, how well they navigate through them, and how effectively they can resist social inducements to potentially risky behavior. It is easier to wield control over preliminary choice behavior that may lead to troublesome social situations than to try to extricate oneself from such situations. This is because the antecedent phase involves mainly anticipatory motivators which are amenable to cognitive control; the entanglement phase includes stronger social inducements to engage in high-risk behavior which are less easily manageable.

In some countries, such as Africa, Latin America, and the Caribbean, AIDS is almost exclusively a heterosexually transmitted disease, with untreated venereal diseases increasing susceptibility to HIV infection. In Europe and the United States, the route of heterosexual transmission is mainly via bisexuals and intravenous drug users infected by sharing contaminated needles. Control of the spread of the AIDS virus by intravenous drug users requires risk-reduction strategies aimed at both drug and sexual practices. Relatively little effort has been devoted to developing interventions to prevent infection among intravenous drug users. This is a serious neglect because infected drug users are transmitting the virus heterosexually to their female sexual partners who, in turn, run a high chance of infecting their infants through perinatal transmission. As a result, AIDS
is taking an increasingly heavy toll on women and children, especially among ethnic minorities in impoverished environs where drug use is prevalent. Those who continue to inject drugs intravenously, despite cognizance of the threat of AIDS infection, need access to sterile needles and knowledge on how to disinfect needles to safeguard against transmission of the virus. They need to be taught protective sexual practices to avoid infecting their sexual partners and persuaded to use them.

ROLE OF PERCEIVED SELF-EFFICACY IN THE CONTROL OF HIGH-RISK BEHAVIOR

Perceived Self-Efficacy and Adoption of Health Practices

People's beliefs that they can motivate themselves and regulate their own behavior plays a crucial role in whether they even consider altering habits detrimental to health. They see little point to even trying if they believe they cannot exercise control over their own behavior and that of others. Even people who believe their detrimental habits may be harming their health achieve little success in curtailing their behavior unless they judge themselves as having some efficacy to resist the instigators to it. This observation is corroborated in a longitudinal study conducted by McKusick, Wiley, Coates, and Morin (1986) of gay men's sexual behavior. Several psychological factors that could influence sexual risk-taking behavior were assessed. These included perceived threat that one is potentially at risk of exposure to the AIDS virus, degree of peer support for adopting low-risk sexual behavior, social skills necessary to negotiate protective sexual behavior, level of self-esteem, and perceived self-efficacy that one can take protective actions that lessen the risk of AIDS infection.

The spreading threat of AIDS has produced substantial changes in sexual practices in the gay community as shown in reduction of high-risk sexual acts and number of sexual partners. Perceived self-efficacy emerged as the best predictor of sexual risk-taking behavior. The lower the perceived self-efficacy, the higher the likelihood of engagement in sexual practices that carry a high risk of AIDS infection. Men who frequented bars and bath houses had a lower sense of efficacy than those who were committed to a monogamous relationship. Social skill in negotiating protective sexual activity was also associated with low-risk sexual practices.

Framing Health Messages

Efforts to encourage people to adopt health practices rely heavily on persuasive communications in health education campaigns. In such health messages, appeals to fear by depicting the ravages of disease are often used as motivators, and recommended preventive practices are provided as guides for action. People need enough knowledge of potential dangers to warrant action, but they do not have to be scared out of their wits to act, any more than homeowners have to be terrified to insure their households. Rather, what people need is sound information on how AIDS is transmitted, guidance on how to regulate their behavior, and firm belief in their personal efficacy to turn concerns into effective preventive actions. Responding to these needs requires a shift in emphasis from trying to scare people into healthy behavior to empowering them with the tools for exercising personal control over their health habits.

The influential role of people's beliefs in their personal efficacy in adopting preventive health practices is shown by Beck and Lund (1981). They studied the persuasiveness of health communications in which the seriousness of a disease and susceptibility to it were varied. Patients' perceived efficacy that they could stick to the required preventive behavior was a good predictor of whether they adopted the preventive practices. Fear arousal had little effect on whether or not they did so. Slater (1989) has found similarly that perceived self-efficacy plays an influential role in the social diffusion of health practices promoted by mass media campaigns. The stronger the perceived self-efficacy, the more likely people are to adopt the recommended practices. The relationship remains even when multiple controls are applied for a host of other possible influences.

To be most effective, health communications should instill in people the belief that they have the capability to alter their health habits and should instruct them on how to do it. Communications that explicitly do so increase people's determination to modify habits detrimental to their health (Maddux & Rogers, 1983). Entrenched habits rarely yield to a single attempt at self-regulation. Success is usually achieved through renewed effort following failed attempts. To strengthen the staying power of self-beliefs, health communications should emphasize that success requires perseverance, so that people's sense of efficacy is not undermined by a few setbacks. Unfortunately, the possibility that the AIDS virus is transmittable to the immunologically vulnerable through a few sexual contacts with infected partners or sharing a few contaminated needles does not leave much room for carelessness.

An increased research effort is needed to determine how preventive health communications should be framed to maximize their impact on perceived self-regulatory efficacy. Self-efficacy theory provides one set of guidelines (Bandura, 1986). I shall consider later how symbolic modeling influences should be structured to maximize their psychosocial impact. Decision theory regarding risk perception and risky decisions provides other suggestions (Tversky & Kahneman, 1981). For ex-
COMPONENTS OF EFFECTIVE SELF-DIRECTED CHANGE

An effective program of widespread change in detrimental lifestyle practices includes four major components: The first is informational, designed to increase people's awareness and knowledge of health risks. The second component is concerned with development of the social and self-regulatory skills needed to translate informed concerns into effective proactive action. The third component is aimed at skill enhancement and building resilient self-efficacy by providing opportunities for guided practice and corrective feedback in applying the skills in high-risk situations. The final component involves enlisting social supports for desired personal changes. Let us consider how each of these four components would apply to self-directed change of behaviors that pose high risk of AIDS infection.

Informational Component

The preconditions for change are created by increasing people's awareness and knowledge of the profound threat of AIDS. They need to be provided with a great deal of factual information about the nature of AIDS, its modes of transmission, what constitutes high-risk sexual and drug practices, and how to achieve protection from infection. This is easier said than done. Our society does not provide much in the way of treatment for drug addiction; nor is it about to provide refractory drug users with easy access to sterile needles and other drug paraphernalia. It has little experience in how to reach and educate drug users on how to disinfect needles to reduce the risk of AIDS infection.

In the sexual domain, our society has always had difficulty talking frankly about sex and imparting sexual information to the public at large. Since parents generally do a poor job of it as well, most youngsters pick up their sex education from other, often less trustworthy and reputable sources outside the home or from the consequences of uninformed sexual experimentation. To complicate matters further, some sectors of the society lobby actively for maintaining a veil of silence regarding protective sexual practices on the belief that such information will promote indiscriminate sexuality. In their view, the remedy for the spreading AIDS epidemic is a national celibacy campaign for unweds and gays and faithful monogamy among the wedded. They oppose educational programs in the schools that talk about sex methods that provide protection against AIDS infection.

The net result is that many of our public education campaigns regarding AIDS are couched in desexualized generalities that leave some ignorance in their wake. To those most at risk, such sanitized expressions as "exchange of bodily fluids" are not only uninformative but also may invest safe bodily substances with perceived infective properties. Even those more skilled in deciphering medical locations do not always know what the preventive messages are talking about. For example, an intensive campaign spanning a full week was conducted on the Stanford campus, including public lectures, numerous panel discussions, presentations in dormitories, and condom distribution, all of which were widely reported in the campus newspaper. A systematic assessment of students' beliefs and sexual practices conducted several weeks later revealed that more than a quarter of the students did not know what constitutes "safer sex," and some of them had misconceptions of safer sex practices that, in fact, would present high risk of infection. Other findings of this study, which will be reviewed later, underscore the severe limitations of efforts to change sexual practices by information alone.

The informational component of the model of self-directed change includes two main factors—the informational content of the health communications and the mechanisms of social diffusion. Detailed factual information about AIDS must be imparted socially in an understandable, credible, and persuasive manner. Social cognitive theories provide a number of guidelines on how this might best be accomplished (Bandura, 1986; McGuire, 1984; Zimbardo, Ebbesen, & Maslach, 1977). However, developing effective AIDS prevention programs is only the first step; they must also be disseminated. Unlike other health risk-reduction campaigns which involve relatively prosaic habits, the risky habits for AIDS infection are laden with matters of illegality and judged immoralities.

Informative health messages, however well designed, cannot have much social impact without effective means of dissemination. Because of their wide reach and influence, the mass media, especially television, can serve as a major vehicle of social diffusion of informa-
tion regarding health guidelines. However, a variety of diffusion vehicles must be enlisted in a public health campaign for several reasons. High costs and restricted access to television limit its availability. Moreover, television networks typically adopt a conservative stance on controversial matters. They have resisted getting into the act for fear that talk of protective sex practices will jeopardize advertising revenue by arousing the wrath of some sectors of their viewing audience. This resistance may eventually weaken as the AIDS virus is increasingly transmitted heterosexually, thus making it a more general societal problem rather than one confined to gays and drug users. However, it is unlikely that the television industry will offer much help if AIDS becomes mainly a disease of poor minorities. Existing social, religious, recreational, occupational, and educational organizations can serve as highly effective disseminators of preventive health guidelines. Wide cultural diversity requires that the messages of risk-reduction campaigns for AIDS be tailored to socioeconomic, racial, and ethnic differences in value orientations and disseminated through multiple sources to ensure adequate exposure (Mantell, Schinke, & Akabas, 1988).

Nontraditional social networks must be enlisted for high-risk groups who are beyond the reach of the usual community organizations. For example, in an educational program in San Francisco, “streetwise” counselors have been highly successful in reaching drug populations (Watters, 1987). After they become known in the social circles of drug users, the counselors help them with referrals to drug treatment programs. They offer them explicit instruction in safer sex practices. They teach intravenous drug users how to reduce the risk of AIDS by disinfecting needles with ordinary household bleach which kills the HIV virus. The disinfection procedure, which had rarely been used before, was adopted widely and applied consistently. Although this outreach program also increased the use of condoms, the drug users were much more conscientious in disinfecting needles than in protecting their sexual partners against sexually transmitted infection. Such findings underscore the need for sexual partners to exercise personal control in protecting their own health.

A comprehensive national program regarding the growing AIDS threat must address broader social issues as well as risky health practices. This is because the AIDS epidemic has far-reaching social repercussions. One of these issues concerns the widespread public fear of AIDS infection. Many people continue to believe that the AIDS virus can be transmitted by casual contact or by insect transmission and food handling, despite evidence to the contrary. Efforts by health professionals to dispel misapprehensions are discounted by many of those who are alarmed on the grounds that what is proclaimed safe currently may be discovered to be risky later. Fear gets translated into advocacy of laws requiring sweeping mandatory blood testing and identification and social restriction of those with antibodies to the HIV virus.

As AIDS imposes mounting financial burdens on society and strains medical and social service systems, members of high-risk groups may become targets of growing public hostility. Once entire groups get stigmatized because some of its members behave in high-risk ways, those who do not also become the objects of fear and hostility. The way in which they are treated socially may be dictated more by group identity than by their personal characteristics. Public alarm fueled by many misbeliefs enhances such stigmatization. Policy debates on how to control the spread of AIDS have become highly politicized. Prohibitionists argue that public health campaigns promote indiscriminate sex. Their critics argue that knowledge does not foster sexuality and that prohibitionists are intent at curtailing sex practices they find morally objectionable rather than at increasing the safety of sex. Uninformed public reactions to the AIDS threat require serious attention as do the risky health practices themselves, because they help to shape public policies and impose constraints on health education programs.

Development of Self-Protective Skills and Controlling Self-Efficacy

It is not enough to convince people that they should alter risky habits. Most of them also need guidance on how to translate their concerns into efficacious actions. In the Stanford survey mentioned earlier, after exposure to the intensive educational campaign less than half of the students who were sexually active used safer sex methods designed to prevent infection with sexually transmitted diseases. Most of them even avoided talking about the matter with their sexual partners. Studies conducted on other campuses similarly reveal that most sexually active students who are knowledgeable about AIDS do not adopt safer sex practices (Edgar, Freimuth, & Hammond, 1988). McKusick, Horstman, and Coates (1986) found that gay men were uniformly well informed about safer sex methods for protecting against AIDS infection, but those who had a low sense of efficacy that they could manage their behavior and sexual relationships were unable to act on their knowledge.

The ability to learn by social modeling provides a highly effective method for increasing human knowledge and skills. A special power of modeling is that it can transmit simultaneously knowledge and valuable skills to large numbers of people through the medium of videotape modeling. Knowledge of modeling processes identifies a number of factors that can be used to enhance the instructive power of modeling. Applications of modeling principles to AIDS prevention would focus on how to manage interpersonal situations and one's own behavior in ways that afford protection against infection with the AIDS virus. Both self-regu-
latory and risk-reduction strategies for dealing with a variety of situations would be modeled to convey general guides that can be applied and adjusted to fit changing circumstances.

I mentioned earlier that human competency requires not only skills but also self-belief in one's capability to use those skills well. Indeed, results of numerous studies of diverse health habits and physical dysfunctions reveal that the impact of different methods of influence on health behavior is partly mediated through their effects on perceived self-efficacy (Bandura, 1989). The stronger the self-efficacy beliefs they instill, the more likely are people to enlist and sustain the effort needed to change habits detrimental to health. Modeling influences should, therefore, be designed to build self-assurance as well as to convey rules for how to deal effectively with troublesome situations. The influence of modeling on beliefs about one's capabilities relies on comparison with others. People judge their own capabilities, in part, from how well those whom they regard as similar to themselves exercise control over situations. People develop stronger belief in their capabilities and more readily adopt modeled ways if they see models similar to themselves solve problems successfully with the modeled strategies, than if they see the models as very different from themselves (Bandura, 1986). To increase the impact of modeling, the characteristics of models such as their age, sex, and status, the type of problems with which they cope, and the situation in which they apply their skills, should be made to appear similar to the people's own circumstances.

Enhancement of Social Proficiency and Resiliency of Self-Efficacy

Proficiency requires extensive practice and this is no less true of managing the interpersonal aspects of sexuality. After people gain knowledge of new skills and social strategies, they need guidance and opportunities to perfect these skills. Initially, people practice in simulated situations where they need not fear making mistakes or appearing inadequate. This is best achieved by role-playing in which they practice handling the types of situations they have to manage in their social environment. They receive informative feedback on how they are doing and the corrective changes that need to be made. The simulated practice is continued until the skills are performed proficiently and spontaneously.

Not all the benefits of guided practice are due to skill improvement. Some of the gains result from raising people's beliefs in their capabilities. Experiences in exercising control over social situations serve as self-efficacy builders. This is an important aspect of self-directed change because if people are not fully convinced of their personal efficacy they undermine their efforts in situations that tax capabilities and readily abandon the skills they have been taught when they fail to get quick results or suffer reverses. The important matter is not that difficulties rouse self-doubts, which is a natural immediate reaction, but rather the degree and speed of recovery from setbacks. It is resiliency in perceived self-efficacy that counts in maintenance of changes in health habits. The higher the perceived self-efficacy, the greater is the success in maintenance of health-promoting behavior (Bandura, 1989).

The influential role played by perceived self-efficacy in the management of sexual activities is documented in studies of contraceptive use by teenage women at high risk because they often engage in unprotected intercourse (Levinson, 1982). Such research shows that perceived self-efficacy in managing sexual relationships is associated with more effective use of contraceptives. The relationship remains when controls are applied for demographic factors, knowledge, and sexual experience.

Gilchrist and Schinke (1983) applied the main features of the multicomponent model of personal change to teach teenagers how to exercise self-protective control over sexual situations. They received essential factual information about high-risk sexual behavior and self-protective measures. Through modeling they were taught how to communicate frankly about sexual matters and contraceptives, how to deal with conflicts regarding sexual activities, and how to resist unwanted sexual advances. They practiced applying these social skills by role playing in simulated situations and received instructive feedback. The program significantly enhanced perceived self-efficacy and skill in managing sexuality.

Research by Kelly and his colleagues attests to the substantial value of self-regulatory programs for AIDS risk reduction (Kelly, St. Lawrence, Hood, & Brasfield, 1989). Gay men were taught through modeling, role playing, and corrective feedback on how to exercise self-protective control in sexual relationships and to resist coercions for high-risk sex. Multifaceted assessments showed that they became more skillful in handling sexual relationships and coercions, they markedly reduced risky sexual practices and used condoms on a regular basis. These self-protective practices were fully maintained in follow-up assessments. In contrast, matched control subjects continued to engage in unprotected high-risk sexual practices.

Combining factual information about health risks with development of risk-reduction efficacy produces good results. Because people learn and perfect effective ways of behaving under lifelike conditions, problems of transferring the new skills to everyday life are reduced. The mastery-modeling approach is readily adaptable in audio or videocassette format to self-protective behavior with regard to AIDS. Large-scale applications of self-instructional programs sacrifice the guided role-playing component. However, instruction in imaginal rehearsal, in which people mentally practice dealing with prototypic troublesome situations, boosts per-
ceived self-efficacy and improves actual performance (Bandura, 1986; Kazdin, 1978). The self-instructional approach, designed in a format suitable for mass distribution, has been shown to achieve some success in changing other refractory health-impairing behavior (Sallis et al., 1986).

Because of the high level of unprotected sexual activity and experimentation with drugs by teenagers, they are vulnerable to becoming the new high-risk group as transmitters of the AIDS virus (Mantell & Schinke, in press). Training materials need to be developed to assist parents and teachers on how to educate youngsters about AIDS. The mastery-modeling program developed by Gilchrist and Schinke (1983) provides a good prototype for application in schools. However, other channels of dissemination must be created to reach teenagers because of factional opposition to educational efforts in the schools that address self-protective behavior in an explicitly informative manner. A major segment of the teenage population can be reached by making informative audio tapes and videocassettes readily available in the settings they frequent, such as record and video stores.

Social Supports for Personal Change

People effect self-directed change when they understand how personal habits threaten their well-being, are taught how to modify them, and believe in their capabilities to marshal the effort and resources needed to exercise control. However, personal change occurs within a network of social influences. Depending on their nature, social factors can aid, retard, or undermine efforts at personal change. This is especially true in the case of sexual and drug practices.

People who are fully informed on the modes of HIV transmission and effective self-protective methods acquire the virus only if they allow it to happen. They often allow it to happen because interpersonal, sociocultural, religious, and economic factors operate as constraints on self-protective behavior. Some of those most at risk must contend with sociocultural obstacles to the use of prophylactic methods that afford protection against HIV infection. The major burden for self-protection against sexually transmitted diseases usually falls on women. Unlike protection against pregnancy, where women can exercise independent control, use of condoms requires them to exercise control over the behavior of men. Those men who possess coercive power over their partners resist the use of condoms if, in their view, it reduces their sexual pleasure, threatens their sense of manliness and authority, casts aspersions on their faithfulness, and carries the frightening implication that they may be carriers of disease. It is difficult for women to press the issue in the face of emotional and economic dependence, coercive threat, and subcultural prescription of compliant roles for them. Women who are enmeshed in relationships of imbalanced power, need to be taught how to negotiate protected sex nonconfrontationally. At the broader societal level, attitudes and social norms must be altered to increase men's sense of responsibility for the consequences of their sexuality.

Risk reduction through alteration of subcommunity norms is an especially important vehicle for curbing the spread of AIDS among intravenous drug users. This is because drug use is often a socially shared activity. Restricted access to drug injection equipment and the legal problems of being caught with it promote risky common use of drug paraphernalia. Shooting galleries involving widespread sharing of contaminated needles provide the most fertile ground for spreading the virus. Preventive efforts aimed at drug subcultures show that drug users are reachable and instructable in safer practices. Thus, provision of protective information by outreach workers about AIDS transmission, needle-exchange programs, and instruction on how to sterilize needles can substantially reduce risky injection practices which lower infection rates among those who continue the drug habit (Des Jarlais, 1988; Watters, 1987). Needle-exchange programs do not propagate drug use, as some people have feared it might (Buning, van Brussel, & van Santen, 1988). As Des Jarlais notes, most drug users now know about the modes of AIDS transmission, but many are inadequately informed or misinformed about risk reduction techniques. For example, some dutifully wash needles in solutions that do not kill the virus. Although the subcommunity approach also serves as an excellent vehicle for enlisting drug users in treatment programs, there is not much that outreach workers can offer them because of the scarcity of treatment services.

Social influences rooted in indigenous sources generally have greater impact and sustaining power than those applied by outsiders for a limited time. A major benefit of community-mediated programs is that they can mobilize the power of formal and informal networks of influence for transmitting knowledge and cultivating beneficial patterns of behavior. A community-mediated approach is a potentially powerful vehicle for promoting both personal and social change in several ways. It provides an effective means for creating the motivational preconditions of change, for modeling requisite skills, for enlisting natural social incentives for adopting and maintaining beneficial habits, and for establishing protective practices as the normative standards of conduct. Generic principles of effective programs are readily adaptable at the subcommunity level to sociocultural differences in the populations being served. In the social diffusion of new behavior patterns, indigenous adopters usually serve as more influential exemplars and persuaders than do outsiders. Moreover, behavioral practices that create widespread health problems require group solutions that are best achieved through community-mediated efforts.

In their pioneering health-promoting programs, Far-
quhar and Maccoby have drawn heavily on existing community networks for transmitting knowledge and cultivating beneficial patterns of health behavior (Farquhar, Maccoby, & Solomon, 1984). This work provides a model of how to mobilize community resources to disseminate health information and to convey explicit guides on how to change refractory health habits. A program of self-directed change should be applied in ways designed to create self-sustaining structures within the community for promoting behavioral practices conducive to health. Persons in the community, who serve as local organizers, are taught how to design, coordinate, and implement the programs. By teaching communities how to take charge of their own change, self-directedness is fostered at the community level as well as at the personal level.

The substantial reductions in high-risk sexual practices by gay subgroups was achieved largely through effective self-empowering organization. They educated themselves, made safer sex practices the social norm, devised their own instructional programs to prevent HIV transmission, established mechanisms for diffusing this knowledge, issued regular updates on new research findings and available treatments, created social support systems to counteract despair and encourage meaningful life pursuits, and actively fostered lifestyle changes that might enhance immune function in those infected with the virus but not yet experiencing any symptoms. There have been some attempts at self-mobilization by drug-user subgroups for self-protective change, but these have been less successful (Friedman, de Jong, & Des Jarlais, 1988). Lack of educational and financial resources, illegalities surrounding drug activities, mistrusts, and the large amount of time devoted to supporting the drug habit impede efforts at self-organization. These conditions create a greater need for external aid in subgroup organization for risk reduction.

Attitudinal Impediments to Development of Psychosocial Models

There exist several attitudes that downgrade the priority for the development of psychosocial approaches to this deadly epidemic. One such view trivializes psychosocial approaches by regarding them as merely stopgap measures until a vaccine is discovered. The AIDS virus appears in many forms, it mutates rapidly, it invades immune cells and not only evades destruction by the body's defense system but turns infected cells into producers of more viruses and destroys the very cells that provide protective immunity, it remains latent for long periods, and it may become more virulent over time. Considering these baffling biological properties, the quest for a vaccine that will provide protective immunity against the changing forms of this virus is likely to be a lengthy and frustrating one. Because viruses merge into the host cells the task of developing antiviral treatments that can kill the AIDS virus without destroying the host immune cells is a formidable one. Even the more limited goal of slowing or keeping the condition in check with antiviral drugs that do not produce serious toxicities presents an immense challenge. Sexually transmitted diseases, such as gonorrhea and syphilis, that have been with us for ages have thwarted vaccine development. Whether our advanced biotechnology will triumph over the AIDS virus, or the mutable virus will foil our biotechnology remains to be seen. In any event, AIDS will remain with us for a long time to come.

Another downgrading view rests on the belief that psychosocial influences cannot effect much change in the transmissive risky behaviors because they serve potent drives. Amenability of behavior to change differs considerably depending on whether one seeks to eliminate certain kinds of gratifications or to alter the means of gaining those gratifications. It is much more difficult to get people to relinquish behavior that is powerfully reinforced than to adopt safer forms of the behavior that serve the same function. In the case of AIDS prevention, people who are not about to give up drugs or their preferred forms of sexuality can achieve substantial protection against HIV infection by substituting safer behaviors for risky ones. Multifaceted psychosocial programs that equip people with protective knowledge, with the means and self-beliefs to exercise effective personal control, and provide social supports for their efforts at personal change can achieve highly beneficial results. Indeed, prevention programs that incorporate many of these elements have produced substantial reductions in risky sexual and drug-injection behaviors. Neglect or downgrading of psychosocial models for AIDS prevention will exact heavy personal tolls and impose mounting financial and social burdens on society.

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