
Application of the Transtheoretical Model for HIV Prevention in a Facility-Based and a Community-Level Behavioral Intervention Research Study

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This article describes the application of the transtheoretical model of behavior change to prevention programs for women at risk for or infected with HIV. The focus of these multisite demonstration projects was to increase condom and contraceptive use. The model was operationalized for use in the following two different intervention approaches: facility-based interventions (individual counseling for women in clinics, shelters, and drug treatment centers) and community-level interventions (including production of small media materials, street outreach, and community mobilization). The authors found that interventions derived from a complex theory can be disseminated to frontline providers who have little prior HIV education experience or academic training. They suggest that the transtheoretical model has value for the design and implementation of HIV prevention programs.

Keywords: *transtheoretical model; HIV prevention; behavioral intervention research; women*

In the latter half of the 1980s, women accounted for only about 7% of cumulative AIDS cases; by 1998, the percentage had increased to 23% (Centers for Disease Control and Prevention [CDC], 1999). HIV infection among women is most prevalent during the childbearing years, and AIDS-related conditions are now the leading cause of death among women ages 25 to 45 (CDC, 1995; Davis et al., 1998).

For sexually active women, the most effective protection currently available against heterosexual transmission of HIV is the consistent and correct use of condoms by their male sex partners. Yet, in the 1990 National

Survey of Family Growth, only 17% of sexually active unmarried women reported that their male partners always used condoms when having sex with them (Mosher & Pratt, 1990). These low rates of condom use also have been found among women at high risk for HIV, such as the sex partners of injecting drug users (Tross, Abdul-Qadar, & Simons, 1993).

Despite the numerous efforts to promote condom use as a preventive measure, it has been argued that neither HIV prevention education (Freudenberg, 1990) nor condom promotion programs targeting high-risk women (Kalichman, Kelly, Hunter, Murphy, & Tyler, 1993; Worth, 1989) will be maximally effective unless they include several features. Specifically, an HIV prevention program should (a) expand beyond the provision of information alone; (b) use culturally specific, interpersonal two-way communication; and (c) acknowledge and incorporate the socioeconomic and cultural context of women's lives into the program's educational and motivational strategies (Zimmerman, Janz, & Wren, 1995). Moreover, program directors should look to the many lessons that have been learned from the application of theoretical constructs to other health behaviors, such as smoking, lack of exercise, or weight loss (Bandura, 1989; Kelly, Murphy, Sikkema, & Kalichman, 1993). Facilitating HIV risk reduction may be best implemented and understood by systematically applying behavior change theory in different settings and with different populations. Stage theories have been used in HIV prevention research and interventions and may be particularly useful in explaining the complex processes underlying sexual risk behavior (Weinstein, Rothman, & Sutton, 1998). These models also assume that interventions will reach and retain more partici-

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pants when they are tailored to the stage of change. This article describes the application of the transtheoretical model (TM) of behavior change (Prochaska, DiClemente, & Norcross, 1992) using two different structural models for intervention delivery.

► THE PREVENTION OF HIV IN WOMEN AND INFANTS DEMONSTRATION PROJECTS

In 1991, the CDC addressed the growing HIV prevention needs of women by funding the Prevention of HIV in Women and Infants Demonstration Projects; this multisite intervention trial involved five research teams from four U.S. cities. The CDC's Division of STD/HIV Prevention and the Division of Reproductive Health initiated and jointly funded these projects, which acknowledged the integral relationship between women's needs for HIV prevention and their reproductive health requirements. These projects also reflected the CDC's recognition that services designed to prevent women from contracting HIV or becoming pregnant unintentionally should be grounded in behavioral science principles to maximize their potential effectiveness (Bandura, 1989; Fisher & Fisher, 1992; Leviton, 1989). To reach women with high-risk behaviors in the diverse settings they frequent, investigators developed the following two types of interventions: one that was facility based (in Baltimore and Philadelphia) and one that intervened at the community level (in Pittsburgh, Portland, and Philadelphia). The goals of these projects were to reduce sexual behaviors that increase risk for HIV, increase the use of effective contraception, and strengthen reproductive decision-making skills.

Investigators from each of the communities collaborated with CDC staff members to apply the TM (Prochaska & DiClemente, 1992; Prochaska, DiClemente et al., 1992) to intervention development and research design for this pair of behavioral intervention studies. The TM was selected as the foundation for these projects because we felt that the description of behavior change as gradual, incremental, and dynamic was

appropriate and useful for characterizing the process of adopting condom and contraceptive use. Furthermore, the relationships between specific psychosocial influencing factors and stages of readiness to change behavior, hypothesized in the model, provided us with guidance in development of specific intervention strategies and messages.

► THE TM

The TM was developed in the early 1980s with initial applications in smoking cessation (DiClemente & Prochaska, 1982), psychotherapy (McConaughy, Prochaska, & Velicer, 1983; McConaughy, DiClemente Prochaska, & Velicer, 1989), and weight loss (Prochaska & DiClemente, 1985). The model describes the phases (stages of change) through which people pass as they adopt a new behavior or eliminate an existing one. The model also describes the strategies or techniques used to modify behavior (processes of change) that people use to bring about these changes. Applied to a woman's perspective on condom use, the stages were defined within these projects as follows:

- Precontemplation:* The woman has no intention of having partners use condoms consistently in the foreseeable future.
- Contemplation:* The woman is seriously thinking about having partners use condoms consistently in the next 6 months but has not yet made a commitment to take action in the near future.
- Ready for action (or preparation):* The woman is intending to start having partners use condoms every time they have intercourse in the next month and may have already begun using them inconsistently.
- Action:* The woman's partners have begun to use condoms every time they have intercourse but has been doing so for less than 6 months.
- Maintenance:* Condoms have been used at every act of intercourse for 6 months or more.

According to the TM, the progression from one stage to the next is mediated by specific processes of change (DiClemente, Prochaska, & Fairhurst, 1991; Prochaska, Norcross, Fowler, Follick, & Abrams, 1992; Prochaska, Velicer, DiClemente, Guadagnoli, & Rossi, 1991). The processes have been found to be consistently relevant for nine different health behaviors among college students (Rossi, 1992). Among women at risk for HIV, the processes have also been found to be operative in their HIV preventive and contraceptive behaviors (Milstein, Lockaby, Fogarty, Cohen, & Cotton, 1998).

The TM suggests that cognitive and emotional processes facilitate movement primarily from precontemplation to contemplation. Movement between later stages involves greater emphasis on behavioral processes. Interventions appropriately tailored to a person's stage and to processes relevant to that stage have helped people to stop smoking (Prochaska, DiClemente, Velicer, & Rossi, 1993) and to start exercising (Marcus,

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TABLE 1
Processes of Change

<i>Process</i>	<i>Definition</i>	<i>Examples of Community-Level Activities Designed to Influence This Process of Change^a</i>	<i>Examples of Facility-Based Activities Designed to Influence This Process of Change^b</i>
Consciousness raising	Acquiring information or increasing knowledge about risk and one's current risk behavior.	Outreach specialist informs a woman that HIV may lie dormant for years before developing into AIDS.	"Fact or fiction"—A true-false quiz that helps dispel myths about condoms or STDs/HIV.
Self-reevaluation	Clarifying and evaluating thoughts and feelings about one's own behavior.	Outreach specialist discusses with a woman the personal consequences of her current behavior and the changes that might occur if she used condoms consistently.	"How much like you"—Client rates value statements (e.g., My health is important to me) and relates them to current condom use and potential change.
Social reevaluation	Evaluating effects of one's own behavior on others.	Outreach specialist discusses with a woman with children how she will provide for them if she becomes HIV positive and too sick to care for them.	"How would they feel"—Questions to explore the impact of risk (contracting HIV) on significant others in client's life (e.g., children or partner).
Dramatic relief	Experiencing and expressing feelings about one's current behavior and potential behavior changes.	Role-model story relates an emotionally moving experience about being diagnosed with multiple sexually transmitted diseases.	"Guided imagery"—Help client experience emotions associated with thinking about friends or relatives who have an STD or HIV.
Self-liberation	Choosing to act and making a commitment to do so and a belief in one's ability to change.	Role-model story describes a woman's internal conversation about changing her behaviors and the declarations she made to others to gain support for her choices.	"Publicking"—Client is encouraged to announce her condom use intentions to others in her life.
Social liberation	Taking steps to make social changes that support personal behavior changes.	Role-model story highlights a woman who has gone from engaging in prostitution without condoms to being a peer networker for other prostitutes.	"Becoming involved"—Encourages client to join an HIV prevention organization or talk to others about using condoms.
Reinforcement management	Reinforcing positive changes.	Outreach specialist asks a woman how she rewards herself for using condoms all the time; woman says that she gets her nails done every week.	"Just for me"—Client creates meaningful rewards (e.g., a manicure) for meeting a goal like asking a partner to use condoms.
Helping relationships	Forming relationships that involve trust, empathy, caring, and openness.	Peer networker discusses the experience of her positive behavior change attempts with new networkers who are also attempting to change risky behaviors.	"Peer team support"—Connects clients (individually or in group sessions) with each other to provide social support for condom use.
Counter-conditioning	Substituting positive behaviors and experiences for risky ones.	Role-model story relates one woman's strategy of opting to go dancing instead of putting herself in a potentially risky situation without condoms.	"Making safe sex fun"—Client chooses and agrees to try alternatives to unsafe sex.
Stimulus control	Restructuring one's environment so that risk taking is less likely.	Role-model story describes a woman's strategy of carrying a WIDP key chain that doubles as a condom holder so that she will always have condoms with her.	"Temptation"—Identify situations that encourage unsafe sex and list techniques to avoid or change the situations.

a. The use of these activities is described in greater detail in the section titled Community-Level Intervention.

b. The titles in quotations are names of specific activities from the facility-based project manual. Use of these activities is described in the section titled Applying the TM in a Facility-Based Intervention.

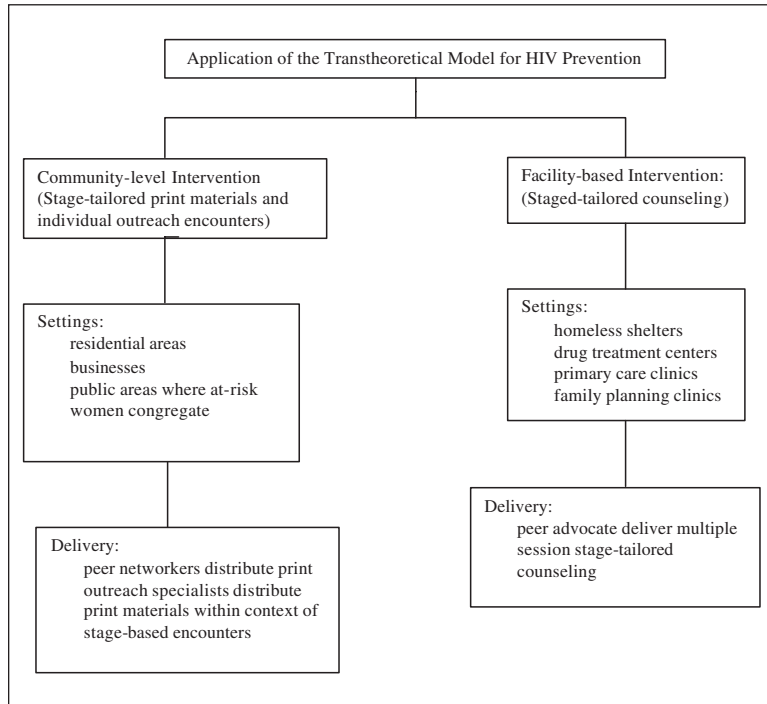


FIGURE 1 Schematic Comparison of the Two Intervention Strategies Using the TM

Banspach, Lefebvre, Rossi, & Carleton, 1992). Matching HIV prevention efforts to people's stages should maximize the effectiveness of public health practice (Weinstein et al., 1998). We developed materials and messages that addressed the processes that facilitate stage transitions, as specified by the TM (see Table 1). The sections that follow describe more fully the application of the TM at the facilities and in the community sites; an overview of the two interventions is presented in Figure 1.

Applying the TM in a Community-Level Intervention Study

Researchers conducted cross-sectional stage assessments of women in the community settings where the interventions would occur. These measurements determined the distribution of the women's stages for implementation of these interventions. For example, in one site, these surveys indicated that many women were in precontemplation for condom use by their main partners (51%), with 10% in contemplation, 18% in preparation, and only 20% in action or maintenance. For condom use by non-main partners, 12% were in precontemplation, none in contemplation, and 16% in preparation; there were more women in action and maintenance (56%).

The community-level project employed two integrated strategies for tailoring interventions to stages and the specific processes of change associated with each stage. The TM was applied to (a) the production of print

materials for at-risk women and (b) individual outreach encounters conducted by trained community members in public housing developments and other residential areas, businesses, and public areas where women with risk behaviors congregate.

Stage-tailored HIV prevention materials—role-model stories. Applying the TM to the production of print material derived in part from the groundbreaking work in HIV prevention by the AIDS community demonstration projects (CDC, 1996; O'Reilly & Higgins, 1992) and also from initiatives in coronary heart disease prevention (Puska et al., 1986) and smoking cessation (McAlister et al., 1992). Stage-tailored messages were spread throughout the participating communities by having community volunteers distribute HIV prevention materials (e.g., flyers, brochures, and newsletters) containing role-model stories.

These stories depicted women with current or past risk behaviors who were residents of the neighborhoods in which the projects operated. Each role-model story was developed from a semistructured, conversational interview with one of these women. They incorporated the following information: a particular risk behavior, a brief narrative about her successful movement from an earlier to a later stage, the processes of change she used that contributed to her successful movement between stages, the stage of change achieved through this process, and her current stage of change. The goal of the role-model story was to model and encourage women's movement from their current stages to the next stage. An example is presented in Table 2.

The message provided in this story is, "I realized that I was putting myself at risk for HIV, so I started thinking about using condoms. Now I'm trying to use condoms all the time, but I'm not there yet." The media protocol for the development and distribution of role-model stories followed the distribution of stages seen in the cross-sectional baseline data from each community. The proportion of stories developed for each of the five stages, that is, precontemplation, contemplation, preparation, action, and maintenance, was determined by the proportion of women from the community who were in that stage at baseline (Terry et al., 1999). Because most of the women in the communities were in precontemplation or contemplation for condom and contraceptive use with their main partners, most print materials focused on cognitive and emotional processes of change. However, role-model stories relevant to women at all stages of readiness to change were developed both to provide a model for change and to reinforce change among women already in action.

Community volunteers, called peer networkers, disseminated the stage-tailored materials through a variety of community networks attempting to reach women

where they lived, worked, and socialized. Initial formative research identified where and how to recruit influential volunteers from the local neighborhoods. These volunteers also provided HIV prevention information and referrals. The consistent presence of peer networkers distributing the materials and endorsing the stage-tailored messages throughout the community was intended to encourage widespread and persistent message dissemination.

Community-level stage-based outreach. The activity of the peer networkers was complemented by a second strategy that integrated the TM: the stage-based outreach encounter. The stage-based outreach encounter was delivered by paraprofessionals called outreach specialists who were most often community members who had been trained to apply the TM model. With standardized training on reflective listening skills and application of the TM to real-life situations, the outreach specialists were skillful in approaching, engaging, and developing rapport with women. They would then assess women's stage for their and their partners' condom use by engaging them in a discussion regarding their intentions for and consistency of use (see Figure 2). The outreach specialist asked questions to assess confidence in and barriers to use of condoms and used the information to tailor a message to help women move to the next stage. As Table 1 demonstrates, the outreach specialist can choose from a number of processes. For example, if a woman in precontemplation seems not to understand that her behavior is risky, the outreach specialist can provide information on HIV transmission (i.e., focusing on the consciousness-raising process of change). Or, for a woman in action who is concerned about her risk and who knows she cannot count on her partner to use a latex condom when she gets drunk or high, the outreach specialist can choose to focus on stimulus control to help the woman develop strategies for protecting herself in these situations (Terry et al., 1999). They also used appropriate role-model stories as a way of conveying and reinforcing these messages. The outreach specialists developed trust in the neighborhoods by making repeated contacts in locations targeted through formative research; they might talk to 5 to 12 women a day in addition to delivering media material to businesses and recruiting for role-model stories.

Applying the TM in a Facility-Based Intervention Study

A similar approach to operationalizing the TM was used in facility-based settings (Cabral et al., 1996), including family planning clinics, drug treatment centers, homeless shelters, and primary care clinics for

TABLE 2
Example of the Role-Model Story From Community Intervention

- I was 16 when I started working the streets to support my drug habits.
- (a) I mixed drugs, and I had unprotected sex all the time and thought nothing of it. It didn't matter how many men I was with, and I didn't care at all about protecting myself from HIV/STDs.
 - (b) I never used a condom. I did what I did to get by. Most of the time, I lived in a fog. Then 1 day, I went to the clinic and found out that I had three different STDs—not one but three! That really hit home.
 - (c) I took a good look at myself and saw that my life was crumbling down around me. I didn't like what I saw. Working the streets like I did, not using condoms . . . I knew I was out of control.
 - (d) It got me thinking that if I didn't make some changes, I would probably be in real trouble, like next time getting AIDS. I knew that I had to at least try to start using condoms! I'm trying to take better care of myself now. I'm not doing drugs now, and I'm planning to quit the streets soon.
 - (e) I use condoms most of the time now, but I really want to get to using them all the time.

- a. The woman's risk behaviors.
- b. Her past condom use behavior (unprotected sex with many men; she is in the precontemplation stage for condom use).
- c. The woman's past experiences that influenced a specific process of change (here, the woman uses self-reevaluation).
- d. Self-reevaluation helps the woman move from precontemplation to contemplation for condom use.
- e. The woman's current stage of change for condom use (ready for action).

HIV-infected women. Women were enrolled (high risk, $n = 1,289$; HIV positive, $n = 322$) in the Women and Infants Demonstration Project and were offered basic Title X reproductive health services. Women in the enhanced condition were then offered stage-based counseling on condom use, on reproductive decision making and contraception, and on the use of reproductive health services.

The counseling offered to each woman in the enhanced condition during a 6-month period was provided by peer paraprofessional counselors called advocates. These advocates were from the local communities and were selected for their interpersonal skills and empathy in addition to their relevant life experiences.

Enhanced counseling. The advocates were trained on counseling skills and the processes of change associated with different stage transitions for each behavior (partner's use of condoms, use of contraceptives, and obtaining reproductive health services). During an initial 1-month warm-up period with a new client, they focused on developing a trusting relationship, establishing the foundation for future work toward behavior change, and determining the client's stage for each behavior. When an advocate and her supervisor determined that a satisfactory warm-up phase had occurred, the advocate began to focus on individualized stages-of-change counseling. The advocate used a structured manual to

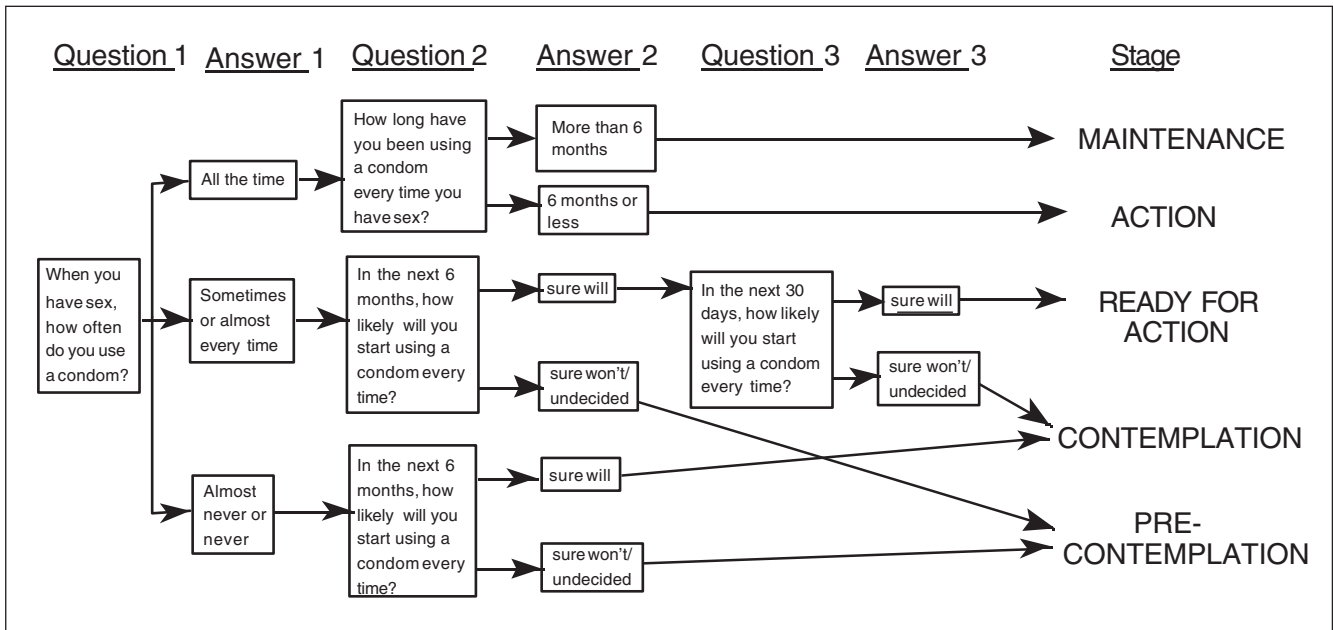


FIGURE 2 Algorithm for Stage-of-Change Assessment

select processes appropriate for the client's stage for each of the target behaviors (Project CARES Working Group, 1994). The manual is organized by processes and has for each a menu of corresponding exercises and activities.

For example, for a client in contemplation for condom use by her main partner, the advocate may have chosen to focus on the process of change termed *self-reevaluation* (e.g., she might ask the client to think about how she would view herself differently if she changed her behavior). During a counseling session, the advocate might have used the "crystal ball" exercise from the manual of the facility-based intervention; this exercise employs guided imagery to help a client imagine what her relationship with her partner would be like if he used condoms consistently with her.

Advocates conducted stages-of-change counseling with clients in a variety of locations, such as rooms in shelters, drug treatment centers, and clinics. Counseling was available for up to 6 months after enrollment in the project; clients were then prepared for the end of project-sponsored activities and many were directed toward ongoing support groups and other social services.

► TRAINING AND SUPERVISION

To implement successfully these interventions based on the TM, outreach specialists and advocates received standardized initial and ongoing training. The manuals they used were specifically designed for the application of the TM in facility-based and community-level settings. Training strategies were aimed at the adult learner, with an emphasis on participatory learning.

Training focused first on determining a woman's stage of change and then on the processes of change associated with each of the five stages. Outreach specialists and advocates were trained in specific intervention activities associated with the processes. Advocates were trained to use a structured TM manual during one-on-one counseling in a facility setting; outreach specialists were trained in a conversational approach for delivering interventions in a variety of community settings. Both groups of paraprofessionals also learned about HIV education, HIV prevention strategies, family planning strategies, and other topics related to reproductive and sexual health concerns.

Supervising outreach specialists and advocates was an intensive, ongoing process, with debriefing occurring at least weekly with both groups. Role-playing offered opportunities to practice staging women and using process-based counseling. The supervisors used comprehensive process evaluation measures (stage, processes selected, message, role-model story, or other materials given) to help ensure that outreach and counseling were proceeding as intended. They also used process data to track the level of intervention effort being provided in both settings.

Evaluation of the process data from the facility-based intervention suggests that the training provided to advocates was effective (Cabral et al., 1996). Review by supervisors of the advocates' staging of women's behaviors indicated that during the first 6 months of the project, advocates used the staging questions appropriately in 94% of cases to classify women's behaviors according to the TM. Although they were not previously familiar with the TM, advocates were able to conduct stage assessments for three different behaviors and to use

those assessments to develop tailored intervention plans for their clients.

► EVALUATION OF THE INTERVENTION

Two different types of evaluation designs were used to measure the effectiveness of the projects. The community-level intervention employed a quasi-experimental design to compare matched intervention and comparison sites in each of the cities (four total pairs). Repeated cross-sectional surveys were conducted annually: a 1993 baseline survey that preceded the intervention followed by surveys in 1994, 1995, and 1996 ($n = 225$ to 240 each). Women included in the survey must have had vaginal intercourse in the past 30 days and have been 15 to 34 years old. Random selection rules were used in recruiting and interviewing women meeting these criteria in both intervention and comparison communities. Women were recruited in residential settings, in public areas, and outside of businesses to yield a cross-sectional sample that approximated representation of the women living in the community.

Analyses were conducted using community as the unit of analysis. On the 1996 survey, nearly two thirds of the women in the intervention communities reported some exposure to the project intervention materials and activities. Results showed that women in the treatment communities who reported exposure to the intervention were more likely than those in the comparison communities to have attempted to get their main partner to use condoms (an increase of 37%) and were less likely to report never talking to their partner about and never using condoms. Of the nine condom-related outcome measures, eight showed positive effects in the intervention communities, although only three were statistically significant (Lauby, Smith, Stark, Person, & Adams, 2000). Having a relatively small number of community pairs may have resulted in diminished power to detect significant intervention effects, a common problem for community-based interventions (Fishbein, 1996).

The facility-based intervention employed a longitudinal cohort design to compare women participating in treatment and comparison conditions over time. In the Baltimore site (HIV-positive) women were randomly assigned to the comparison condition (standard Title X reproductive health care services) or the treatment condition (stage-based counseling in addition to the standard reproductive health services). In the Philadelphia site, the participating facilities (e.g., drug treatment centers and shelters) were randomly assigned to conditions. All participants were interviewed at study enrollment and at 6-, 12-, and 18-month follow-up visits.

The results showed that at the six-month follow-up, HIV-positive women in the treatment group were two-and-a-half times as likely to have progressed up one or more stages toward consistent condom use with their

main partners compared with women in the comparison group (Gielen et al., 2001). They were also one quarter to one third as likely to have relapsed back one or more stages. At-risk women from the Philadelphia site who were exposed to enhanced counseling were significantly less likely to relapse and more likely to be at a higher stage of change for condom use with their main partner compared with women in the standard group.

► IMPLICATIONS FOR PRACTITIONERS

Applying the TM in diverse service settings. The experience of these projects indicates that behavioral science theory, in particular the TM, can be creatively applied to the development and delivery of interventions in diverse settings. The model is functionally adaptable for a community-level intervention where women are contacted directly by workers from the community and influenced indirectly by messages disseminated through social networks. It is similarly adaptable for an individual-level counseling intervention with women in clinics and social service facilities. Our experience has been not only that this model can be adapted in these settings but also that the outreach specialists and advocates believed it contributed to their ability to listen and respond systematically as opposed to “playing it by ear” for each interaction.

Getting the most from limited client contacts. A commonly accepted principle that cuts across various behavior change theories is that change is enhanced when people receive multiple contacts with interventions (Coates, 1990; McAlister, 1987). The HIV prevention services described here were designed for multiple contacts with any given woman, be they in a facility or “on the street,” but there is a practical limit to the times a particular woman can be reached in these settings. In social service facilities and clinic settings, for instance, women may not choose to use available services, and on the street, an outreach specialist may locate a particular woman only once.

Interventions based on stage theories help providers address the problem of limited access to particular individuals by increasing the efficiency of each contact (Weinstein et al., 1998). A health educator should be able to identify stages in a community or an individual client and then focus scarce time and resources effectively. These models, such as the TM, match a need (revealed by the individual’s current stage) to an activity that is likely to promote a positive response to that need (i.e., to catalyze a process of change). The matching of stage to activity increases the opportunity for promoting behavior change during a given contact because the activity is customized to the unique needs of the client. This strategy, unlike other more generic health education practices, may eliminate unnecessary messages and yield greater program impact.

The use of volunteer peer networkers was another choice made to increase the number and frequency of contacts made in a given area. With limited resources, both health departments and other agencies can obtain a wider coverage of their intended audience through the strategic use of community volunteers.

Training paraprofessionals in the TM. The strategies being researched in this study employ familiar intervention elements—counseling, outreach, materials dissemination, and community mobilization—implemented with rigorous attention to the behavioral science theory that underpins their process and content. Thus, an important feature of intervention implementation is rigorous initial and ongoing staff training. Any careful application of the scientific principles of behavior change to the problem of HIV risk behaviors requires a commitment to train providers in the information, skills, and techniques that are necessary to carry out that application.

We have learned that individuals with little or no experience in community health and varying academic backgrounds can be trained to apply the TM. Moreover, many of the outreach specialists and advocates viewed their project training as a very positive aspect of their personal and professional development. They reported feeling more professional after the training they have received in the TM. In turn, their connections within the local communities facilitated the application of that training.

▶ OTHER LESSONS LEARNED

We found that most women reached by these interventions were at early stages of change for condom use, particularly with their main partners. This required a particular focus on the development of a variety of materials and stage-based counseling exercises tailored to the early stages. This baseline stage distribution also shows why sustained interventions are necessary to move women forward into maintenance and to prevent relapse. We found that behavior change was a gradual process. In the community-level intervention, effects were measured after 2 years of intervention; in the facility-based intervention sites, changes made by the at-risk women were not sustained past 6 months. These observations suggest that practitioners should consider some form of continued support, particularly for women in early stages, as crucial for motivating and sustaining behavior change.

The Prevention of HIV in Women and Infants Demonstration Projects included a number of key features considered to characterize successful HIV/STD prevention programs (Zimmerman et al., 1995). Use of a theory-based model; integration of programs in local communities, clinics, and service organizations; use of culturally relevant role-model stories and counseling activities; use of credible, empathetic workers from the local communities; repetition of messages through mul-

iple stories made available through many sources; and multiple contacts with paid staff members and peer volunteers are important strengths of these projects.

▶ CONCLUSION

The TM, which has demonstrated utility for at least 12 different health-related behaviors (Prochaska et al. 1994) is a robust, flexible model for promoting HIV risk reduction behaviors, particularly condom use. The prevention of HIV in women and infants demonstration projects have successfully integrated the TM into several established public health settings and strategies for reducing HIV risk. The projects were able to reach much larger numbers of women (e.g., precontemplators) than can be reached by traditional “action-oriented” programs relevant for only some women at any one time. Role-model stories were received and distributed enthusiastically. Peer educators can be trained in the TM and can deliver stage-based counseling wherever women can be contacted without the need to schedule and organize formal group sessions (common in other HIV prevention interventions). We believe intervening to reduce risk of HIV/STDs among women in high-risk neighborhoods and settings such as drug treatment centers is strengthened by the use of this stage-based model.

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