Couple and Family Psychology: Research and Practice
2012, Vol. 1, No. 2, 94–105
© 2012 American Psychological Association
2160-4096/12/$12.00 DOI: 10.1037/a0028890

Couple-Based Behavioral HIV Interventions: Placing HIV Risk-Reduction Responsibility and Agency on the Female and Male Dyad

Nabila El-Bassel
Columbia University

Wendee M. Wechsberg
Research Triangle Institute International, Research Triangle Park, North Carolina

Despite the importance of the dyad in HIV risk reduction in both domestic and international settings, there is a gap in behavioral HIV prevention science regarding the availability of effective couple-based intervention strategies. This article presents the advantages of behavioral, couple-based HIV interventions; highlights the state of the science; addresses the challenges and clinical implications of delivering a couple-based prevention intervention; identifies the gaps in couple-based HIV prevention science; and recommends new directions for HIV couple-based prevention.

Keywords: HIV, couple, prevention

While there have been calls both in the United States and internationally to advance behavioral HIV prevention interventions at the couple and family levels (Coates, Richter, & Caceres, 2008; Pequegnat & Stover, 2000), a systematic review shows that until recently, behavioral HIV prevention for heterosexual couples has remained limited (Burton, Darbes, & Operario, 2010) and couple-based approaches are rarely used in real-world settings (El-Bassel et al., 2010a). Given that HIV transmission occurs mainly through heterosexual intercourse in both generalized epidemic areas, such as sub-Saharan Africa, as well as in Black urban areas of the northeastern United States (e.g., Massachusetts, Pennsylvania, Washington, DC), focusing on couple-based HIV prevention is essential (Raj & Bowleg, 2011).

The heterosexual couple context is crucial to address due to mounting evidence demonstrating that not only do men bring HIV risks into their partnerships, but women also transmit HIV acquired from a previous relationship or by having multiple and concurrent sex partners (Riehman, Wechsberg, Francis, Moore, & Morgan–Lopez, 2006).

Studies on serodiscordant couples (where one partner is HIV positive and the other is HIV negative) from the Rakai district in Uganda have reported no significant difference in the per act probability of HIV transmission from men to women and women to men (Gray et al., 2011). Further, because many concurrent partnerships are nonmonogamous and involve other sex partner networks, couples can be infected at a greater rate (Adimora, Schoenbach, Taylor, Khan, & Schwartz, 2011).

Despite the importance of the dyad in HIV risk reduction both domestically and internationally, there is a large gap in behavioral HIV prevention science regarding effective couple-based intervention strategies, including primary prevention for serodiscordant couples, couples who do not know their HIV status, and couples in which both partners are HIV negative but vulnerable to transmission due to risky behavior with partners from communities with high HIV rates (El-Bassel et al., 2005; Pequegnat, 2005; Pequegnat & Stover, 2008).

One of the strengths of couple-based approaches is that they acknowledge the unique vulnerabilities and susceptibility to HIV that women face from a social, cultural, and biological perspective. However, couple-based strategies also acknowledge that men and women can potentially infect each other and need to work together to reduce their HIV risks. While cou-

Nabila El-Bassel, School of Social Work, Columbia University; Wendee M. Wechsberg, Substance Abuse Treatment Evaluations and Interventions Research Program, RTI International, Research Triangle Park, North Carolina.

Correspondence concerning this article should be addressed to Nabila El-Bassel, DSW, Columbia University, School of Social Work, 2155 Amsterdam Avenue, New York, NY 10027. E-mail: ne5@columbia.edu

ple-based approaches embrace men's susceptibilities to HIV, they can also address male gender privileges, gender inequities, and women's experiences with sexual violence. A couple-based HIV prevention modality places the agency on both individuals, promoting mutual responsibility and communication while underscoring that HIV prevention is not solely the responsibility of one partner (El-Bassel et al., 2010a).

This article presents the advantages of couple-based HIV interventions, highlights the state of the science domestically and internationally, addresses the challenges and clinical implications of delivering couple-based prevention interventions, identifies the gaps in the science of behavioral couple-based HIV prevention, and recommends new directions for prevention.

What We Know About Couple-Based HIV Prevention

Early couple-based prevention interventions focused on Couple Voluntary Counseling and HIV Testing (CVCT) for heterosexual couples, mainly in Africa (Allen et al., 1992; Glick, 2005; Kamenga et al., 1991). In a number of studies in Africa, CVCT was shown to have the potential to avert more than two thirds of new HIV infections among urban men and women (Allen et al., 1992; Farquhar et al., 2004; Padian, O'Brien, Chang, Glass, & Francis, 1993). This strategy has been employed as an effective prevention intervention for more than 20 years, showing approximately a 50% reduction in transmission among serodiscordant couples when compared to where the VCT intervention is delivered to one partner alone (Allen et al., 2003). CVCT has been described by the Centers for Disease Control and Prevention (CDC) as a "high-leverage" intervention in African settings (Jaffe, 2007).

CVCT has also been found to increase condom use and reduce sexual risk taking (Kamenga et al., 1991; Allen et al., 1992, 2003; Dunkle et al., 2008; Roth et al., 2008). CVCT has rarely been used with men who have sex with men (MSM), although MSM couple-based CVCT is urgently needed, especially in the United States where half (50.6%) of the reported HIV cases in 2009 were among MSM (CDC, 2010). Qualitative research conducted among MSM suggests that CVCT is well received by many MSM couples. MSM who learned about CVCT acknowledged testing together as an expression of commitment to their relationship. Additionally, HIV-positive participants reported having used individual VCT as a pretext to disclose their HIV-positive status to partners in the past, and expressed interest in the CVCT service as a facilitated means of disclosure in the future (Sullivan et al., 2011; Stephenson, 2011).

There are a number of advantages to couple-based CVCT studies. First, if both members of a serodiscordant couple learn their HIV status in the early stages of the disease and receive antiretroviral therapy (ARV) if needed, this would significantly reduce HIV transmission to the uninfected person (Allen et al., 2003). Second, CVCT intervention allows the couple to discuss how they will access informal and formal support to manage the virus in their relationship (Dunkle et al., 2008; Painter, 2001; Roth et al., 2008). Third, this provides an opportunity for couples to discuss and clarify agreements about monogamy or rules about additional sex partners (Sullivan et al., 2009).

A typical CVCT intervention included a heterosexual couple receiving pretest information together, participating in pretest counseling, and obtaining the results of HIV testing and posttest counseling as a dyad. HIV-positive concordant couples were advised to use condoms with each other to prevent exposure to different strains of HIV and with outside sex partners to prevent transmission. HIV-negative concordant couples were advised to stay monogamous with each other and to use condoms with any outside sex partners. For serodiscordant couples, correct and consistent use of condoms was promoted to protect the HIV-negative partner from infection (Hageman et al., 2009). Other CVCT studies included content on how to purchase and use condoms, refrain from anal sex with new partners, or choose abstinence (Padian et al., 1993), and negotiate a risk-reduction plan to reduce high transmission behavior (Coates et al., 2000). CVCT remains an important strategy in the United States and abroad, given that a large number of couples do not know their HIV status, are not tested for HIV together, and may not consider themselves to be at risk.

Three decades have elapsed since the first reports of heterosexually transmitted HIV, yet

couple-based HIV prevention has been slow to move beyond CVCT. CVCT combined with evidence-based behavioral risk-reduction interventions has the potential to further decrease HIV transmission. Although the science of couple-based HIV prevention has been demonstrated, the number of studies in the field remains limited, especially in the United States. Burton et al. (2010) found that only six behavioral couple-based clinical trials had been published in the United States. Since 2008, two additional studies were added to the armamentarium of behavioral couple-based HIV prevention research (El-Bassel et al., 2010a; El-Bassel et al., 2011).

Couple-Based HIV Prevention Beyond CVCT

While use of couple-based approaches has lagged in comparison to individual and group approaches for most-at-risk populations, emerging research suggests the potential efficacy of focusing on the dyad as the unit of change in reducing sexual HIV risk behaviors among heterosexual couples (Burton et al., 2010).

General HIV Intervention Studies

One of the first randomized controlled trials (RCTs) to test the efficacy of a relationship-based HIV prevention intervention was Project Connect, conducted with low-income urban couples in New York City (El-Bassel et al., 2003; El-Bassel et al., 2005). This study included 217 couples who reported risky sexual behaviors with each other or with at least one outside sex partner. The Connect intervention emphasized relationship contexts, gender roles, communication, and intimacy, all of which can contribute to HIV risk behaviors. The intervention consisted of an orientation session and five relationship-based sessions. It combined content related to safer-sex practices and prevention of HIV and other STIs, as well as joint HIV testing. The intervention emphasized communication, negotiation, and problem-solving skills. The goal of the Connect intervention's relationship-based approach was to reframe safer sex not as individual "protection," but rather as an act of love, commitment, and intimacy and as a way to preserve the relationship and the community. This approach highlights how relationship dynamics may be affected by gender roles and expectations. The session content pointed to the positive contribution of each participant to the future health of their partnership, family, and community.

Consistent with the U.S. National HIV Prevention Plan (Centers for Disease Control & Prevention, 2001), the Connect intervention also directed prevention messages to HIV-positive individuals and serodiscordant couples. For example, the intervention emphasized reducing risk for any new STIs including HIV with a secondary prevention emphasis on HIV-infected individuals. It also educated participants about drug-resistant strains of HIV. The intervention addressed the particular susceptibility of HIV-positive individuals to infection by other STIs, and corrected the common erroneous belief that individuals whose viral load is undetectable pose no transmission risk to their partners.

El-Bassel et al. (2003, 2005) found at both the 3-month and 12-month follow-up assessments that Project Connect was efficacious in reducing unprotected sex as compared with the health promotion intervention arm. Two major factors may explain the success of the intervention: The Project Connect intervention enabled women and their intimate partners to discuss sexual issues and to explore together how they could protect themselves from HIV.

Harvey, Bird, Henderson, Beckman, and Huszti (2004) developed an intervention focused on young couples that was delivered in a group modality with culturally appropriate counseling. The intervention included facilitated discussions in small groups about relationship dynamics affecting sex-risk behavior and choices about contraception, a demonstration of proper use of condoms, and assistance for couples in selecting a healthy safer-sex strategy. Strategies were designed to consider the couple's reproductive intentions and sexual expectations, including preventing an unintended pregnancy or having a healthy pregnancy, avoiding or controlling triggers leading to unsafe sex, and communicating with partners about sexual issues. At the end of each session, participants were given condoms. While the findings of the study showed no significant effect on condom use at 3 and 6 months, intervention effects were found at 3 and 6 months on

self-efficacy, and effects on health protective communication skills were found at 3 months.

Project Eban, a recent RCT funded by the National Institute of Mental Health that involved four sites across the United States (El-Bassel et al., 2010b), was conducted among 535 serodiscordant couples randomized into HIV risk-reduction and health promotion arms. The findings showed that couples in the risk-reduction arm had significant increases in condom use when compared to couples in the health promotion arm.

Combination Sexual and Drug Use Risk Reduction Intervention Studies

None of the couple-based HIV studies described above specifically targeted people who use drugs. Although the studies included a large percentage of participants with histories of drug use, the interventions had minimal content in their core components on reducing HIV drug-risk behaviors (e.g., the proper way to clean syringes, needles, and other drug equipment) and HIV risks associated with sharing syringes and other drug paraphernalia with main sex partners (Burton et al., 2010). Moreover, couple-based HIV prevention is not an approach commonly found in drug abuse treatment programs or among HIV services. Because of the intersection of sex and injection drug use (IDU), bringing IDUs and noninjecting drug users and their regular sex partners together in an HIV prevention intervention may be an effective strategy to reduce both sex- and drug-risk behaviors.

In 2010, the first couple-based HIV and sexually transmitted infections (HIV/STI) prevention pilot study for IDUs was developed and conducted outside of the United States in Kazakhstan (Gilbert, El-Bassel, Terlikbayeva, & Rozental, 2010). The study examined the preliminary effects of a Couple-based HIV Sex-risk Reduction (CHSR) intervention.

The content of all the CHSR sessions was couple-based and focused on identifying HIV risks encountered by the couple, while introducing, modeling, and practicing couple communication and problem-solving skills that both partners could use to reduce their transmission risks. Materials and exercises incorporated social–cognitive skills-building strategies, including sexual communication between couples, problem-solving and assertiveness enhancement, technical condom use, and syringe disinfection (CDC, 2004). As the preferred method of reducing injection risks, participants were encouraged to obtain new needles from a needle exchange program and not share drug use equipment. Participants were also taught problem-solving and assertiveness skills to identify and avoid triggers for unsafe sex and injection practices. Other activities included participating in games, brainstorming, role-playing, and small group discussions to build group cohesiveness and to increase knowledge of HIV/STIs and transmission risks. Couples were significantly more likely to increase condom use and decrease unsafe injection acts at the 3-month follow-up when compared to the health promotion comparison arm.

This pilot trial demonstrated the preliminary benefits of a couple-based approach for reducing sex- and drug-related HIV risks. The study findings also suggest preliminary evidence of the short-term effects of the CHSR intervention in increasing HIV/STI knowledge, condom negotiation self-efficacy, and couple's risk-reduction communication. These positive effects suggest that delivering the CHSR intervention using a mixed modality of single-gender group sessions and an individual couple session was effective in promoting change (El-Bassel et al., 2003; El-Bassel et al., 2005).

This pilot study informed a larger couple-based HIV clinical trial that is currently underway in Kazakhstan with 300 IDU couples (n = 600) who were randomized into one of two arms: HIV risk reduction or health promotion. At baseline, 64% of the female partners were IDUs, and 96% of the male partners were IDUs. Also at baseline, the prevalence rate of HIV among the participants was 26% and the prevalence rate of STIs was 15%. Thus far, the follow-up rate at 12 months is 80%.

Couple-based HIV prevention is especially important in countries where the major mode of HIV transmission is IDU (e.g., Eastern Europe, Central Asia, Russia, and Southeast Asia) and where a large number of women are infected via heterosexual intercourse because their male partner injects drugs. Utilizing couple-based drug- and sex-risk HIV prevention to decrease transmission to women whose sex partner is an IDU is an important area for future research.

The previously discussed Project Connect intervention has been adapted for drug-involved couples (El-Bassel et al., 2011). Project Connect II used an RCT to Study 282 HIV-negative drug-using couples (564 individuals) in the United States who were randomly assigned to receive one of three interventions: couple-based HIV risk reduction; individual-based HIV risk reduction; or couple-based wellness promotion, which served as an attention control condition. At 12-month follow-up, there was a 30% reduction in the number of unprotected acts of intercourse with the study partners compared to participants in the attention control arm. Also at 12-month follow-up, there was a 41% reduction in the same outcome in the couple arm compared with the individual arm. A promising intervention effect for injection drug use over the follow-up period of 12 months was found when comparing the two risk-reduction interventions to the attention control arm (El-Bassel et al., 2011).

Interventions in South Africa

HIV has caused a significant public health crisis in South Africa; consequently, there is an urgent need to develop and test culturally appropriate interventions that address HIV risk in the context of heterosexual relationships. South Africa has been found to have high rates of gender-based violence, alcohol and other drug abuse, and risky sex behaviors with multiple partners; all of which are interrelated within a backdrop of health disparities and gender inequality (Wechsberg et al., 2008; Sawyer et al., 2006). Because these interrelated risk phenomena occur in settings where drinking and social life take place and are often tied to cultural and gender role expectations, interventions also need to address this context (Browne & Wechsberg, 2010).

In 2008, the National Institute on Alcohol Abuse and Alcoholism funded "Venue-based Recruitment and HIV Prevention for Alcohol and Other Drug Using (AOD) Couples in South Africa." To recruit couples to improve their resistance to high-risk situations and empower positive behavior change, this 5-year study built on previous research to test an innovative approach to HIV prevention that considered sociocultural traditions, including AOD use, sexual partnerships, violence against women, and men's reluctance to use condoms, as well as the environmental context (e.g., venues where drinking occurs, neighborhoods). Adaptations of evidence-based interventions from El-Bassel and Wechsberg were conducted over several years with pretesting and pilot testing phases (Wechsberg, Browne, et al., 2010).

To date, almost 300 African couples have been screened for the randomized community design, where the intervention workshops take place in community settings. Biological testing has shown baseline differences between couples that have been in relationships longer than one year, with men much more involved in drug use (cannabis, 28%; methamphetamine, 12%; methaqualone, 8%; alcohol, 5%) and women less involved in drug use (cannabis, 3%; methamphetamine; 8%; methaqualone, 2%; alcohol, 0%) and women having an HIV-positive rate twice that of men (21% vs. 11%, respectively). The salient adaptations for the couple's intervention in South Africa involved using participants' voices from focus groups, highlighting methods for safer sex with a main sex partner and reducing outside sex partners, facilitating harm reduction, exploring gender roles and equality in the new South Africa, and learning problem-solving and communication skills to enhance appreciation of each member of the dyad. This couple intervention comprises two half-day workshops given in the community, and to date the retention rate is 98%.

Interventions With Female Sex Workers

Recently there have been calls for the design of a couple-based HIV prevention for female sex workers in long-term relationships. Many earlier couple-based studies have included women who trade sex for money or drugs (El-Bassel et al., 2003; El-Bassel et al., 2010a; El-Bassel et al., 2010c); however, to date no couple-based studies have specifically targeted sex workers and their main or regular sex partners. Wechsberg et al. (2008) studied alcohol-using females who had recently engaged in sex trading and had main partners, and found that more than half of the study participants had used alcohol before or during sex with their main partner and more than one quarter had used cannabis before or during sex. Female sex workers and women who trade sex for goods are a population that could benefit from couple-

based interventions. While female sex workers and sex traders use protection with clients most of the time, they typically do not use condoms with their main sex partners, yet the majority have main partners and showed significant positive outcomes in negotiation and protection skills after an intervention that dealt with skills in coping with partners (Wechsberg et al., 2010).

Advantages of a Couple-Based HIV Prevention for Women and Their Main Sex Partners

A number of advantages have been identified in the literature for couple-based approaches to HIV prevention. First, bringing couples together sends a message that the responsibility for HIV risk reduction falls on both members of the dyad and underscores that both men and women can put each other at risk for HIV. Second, it provides a supportive environment that may enable a couple to more safely disclose to each other extradyadic sex partners, a history of STIs, a history of injection drug use, or past experiences in abusive relationships (El-Bassel et al., 2001). Third, it provides an environment in which a couple can learn communication skills and practice them, and discuss gender differences (e.g., how men and women discuss sex, the meaning of requesting and/or refusing the use of condoms), gender power imbalances associated with sexual coercion and the inability to negotiate condom use, gender inequalities in risk practices (Basen–Engquist, 1992; El-Bassel et al., 2001; Fisher & Fisher, 1992; Kelly, 1995; Nadler & Fisher, 1992; Tanner & Pollack, 1988), and sexual expectations.

Couple-based behavioral prevention is particularly useful for women who are fearful of negotiating condom use, uncomfortable in suggesting safer-sex practices, or afraid to refuse unsafe sex because of a partner's reaction and abuse (El-Bassel et al., 2003). Research has shown that when women negotiate safer-sex practices with their partners, they may experience an increased risk of abuse. Therefore, a couple-based approach, especially within a group forum, provides women with an opportunity in a safe environment to engage their partner in a fun process, learn new ways to communicate, and discuss fears and concerns about their ability to request using condoms without increasing risk of partner abuse. Further, having couples together offers an open forum for social support and learning new strategies for safer-sex practices that couples can then try in privacy.

In a couple-based intervention, participants can address, as a couple or in a group, relationship challenges that can create stress, such as intimate partner violence. For example, in South Africa, men admit to beating women because that is what they learned culturally, although they know it is against the law (Sawyer-Kurian, Wechsberg, & Luseno, 2009). When men use alcohol or other drugs they may disregard laws against abuse and beat or rape women, falling into traditions and beliefs that controlling and beating women into submission is their right. Women in South Africa have said that denying a man sex could result in abuse or rape, and a man's use of drugs often leads to this abuse and rape (Sawyer-Kurian et al., 2009).

Although the intersection of violence, substance abuse, and sexual risk has been well documented in South Africa (Wechsberg et al., 2010; Wechsberg, Luseno, Lam, Parry, & Morojele, 2006) and many other parts of the world, including India (Cottler et al., 2007), most of the evidence is based on correlational studies, which limits understanding of the interrelationships among alcohol and other drug abuse, violence, and sexual risks. Jewkes, Dunkle, Nduna, and Shai (2010) found partner violence and relationship power inequities were factors contributing to the increase of HIV among young South African women.

Clinical Implications of Challenging Couple Situations

There is a notable heterogeneity in HIV intervention content in couple-based studies (Burton et al., 2010). Most studies explore knowledge about HIV and STIs, technical skills in condom use, couple skills in communication and negotiation, as well as problem solving and goal setting. Additionally, discussions occur about couple power imbalances associated with sexual decision-making (Burton et al., 2010) and ways to promote and maintain a healthy relationship. Other content of HIV interventions address joint HIV counseling and testing, family planning, a review of cultural values to re-

inforce commitment to protect one's partner and community, and changing a couple's peer norms regarding safer-sex practices (Burton et al., 2010); El-Bassel et al., 2005; El-Bassel et al., 2010a, 2010b).

A number of clinically challenging situations in couple-based HIV prevention may arise for which the facilitators who deliver the session need to be well trained to be responsive within the sessions (El-Bassel et al., 2003, 2010a, 2010b), and will be described below.

One Partner Constantly Seeks the Other Partner's Point of View

Possible reasons for one partner constantly seeking the other partner's point of view include that the partner wants attention, is looking for advice, is trying to please the partner, does not understand what position is the best one to take, or wants to challenge the facilitator. In response, if appropriate, the facilitator may ask the couple for situations that demonstrate relevant questions and role-play these situations.

Couple Is Breaking Up

Possible reasons for couples breaking up include longstanding problems in the relationship and recent conflicts causing difficulty coping with the relationship. Also, the new experience of couple-focused sessions may be highlighting problems and making participants feel frustrated with the relationship. The facilitator's response may include checking in with both partners about the message being communicated and exploring if a threat to break up is legitimate, an effort to get the partner's attention, or a call for help. The facilitator can also explain that feelings of discomfort or confusion in relationships are normal when couples begin to engage in these sessions. Although the intervention is meant to strengthen the relationship, opening up to one another can be an intense experience and it may take time to become comfortable.

Verbal, Physical, or Sexual Abuse

Suspicion or witnessing that one or both partners are verbally, physically, or sexually abusive during or outside the sessions may occur even though most HIV prevention models exclude couples who report abusive relationships during the recruitment and screening process. However, should this occur, the facilitator needs to follow the agency's protocol and provide safety planning to ensure that the abuse victim has access to resources and services to deal with the situation. Participation in the sessions may be terminated if the abusive relationship continues to escalate, as it may be dangerous to have the couple attend sessions together.

Disclosure of Troublesome Information About Oneself

One member of the couple may disclose troublesome information about him or herself which may shock or hurt the partner. Examples include secrets, such as disclosure of an affair, injection drug use, or having an STI. While it is made clear in the first session that a couple should only share information that they feel comfortable sharing, some participants may experience these sessions as a safe and appropriate place to share everything. In such cases, it is critical for the facilitator to help the couple deal with the disclosure and open up lines of communication for future discussions and negotiation.

Disclosure of Information About the Partner

There may be occasions when one partner reveals information about the other partner without permission and that disclosure subsequently shocks or hurts the partner whose information is shared in the group. Examples include those listed above. For some couples, the disclosure might be experienced as an "outing" of information or the sharing of an intimacy they did not wish to be disclosed. It is again important for facilitators to help the couple manage the disclosure.

HIV Disclosure to Previously HIV-Negative Couples

Couples may test positive for HIV during the time they are in the intervention sessions. If a participant who was HIV negative discloses in the session that they discovered they are now HIV positive, it is critical that the facilitator

ascertain whether the other partner already knows this or if this is new information. Facilitators should again ensure couples feel able to adequately explore this disclosure during and after the session.

Under the Influence of Drugs

If one or both participants are under the influence of alcohol or other drugs, the facilitator should intervene early on in the session, if not immediately, and be careful to avoid confrontation (if not necessary). Participants should be redirected toward more appropriate (attentive, nondisruptive) behavior. Facilitators can express concern for the participant, state why they were asked to leave the session, and offer to provide a referral to a substance abuse treatment facility or to a local self-help group meeting such as Alcoholics Anonymous or Narcotics Anonymous.

Level of Clinical Training and Skills

Couple-based intervention requires that facilitators have more clinical training and skills than that required for individual-based interventions. Clinical agency staff members tend to be more comfortable conducting individual interventions and it may take more time to feel comfortable delivering couple-based sessions.

Although the CDC has issued curriculum guidelines for counselor training/preparation at *http://www.cdc.gov/globalaids/Resources/prevention/chct.html* couple-based approaches are not broadly used, adopted, and accepted as a standard practice in HIV community-based organizations, primary health care settings, substance abuse treatment programs, and harm-reduction programs. Often in these settings, there is low awareness of the utility and importance of couple-based prevention interventions and couple-based adherence/treatment approaches. However, in South Africa, a couple-based intervention is being culled by male and female peers from the community who believe in equality for both genders and act as important role models (Wechsberg et al., 2010). Even with training, staff expectations and scripted interventions, staffing can be problematic because cultural demands within townships often consider manhood along traditional lines of power and foster inequity toward women (Wechsberg et al., 2008).

Gaps in Couple-Based HIV Prevention and Future Directions

Defining a Couple

Existing couple-based intervention studies vary in their definition of a "couple." Most couple intervention research has used stringent criteria. For example outside the United States, most studies include being married or cohabiting as criteria. In the United States, being together for 3–6 months was used as a criterion for defining a couple. Moreover, couples with severe history of IPV have been excluded from HIV couple-based intervention studies as well as those who are trying to get pregnant. In most HIV studies, verification assessment was used to screen those who are not couples. Consequently, issues remain as to generalizability of study findings. Flexible definitions that do not use length of time in a relationship, assessment of commitment, or verification of couple status is recommended for reaching out to all types of couples (casual, long term, unmarried, noncohabiting).

Methodological Limitations

First, most couple-based studies are limited by one or more methodological drawbacks, including relatively small sample sizes and/or the lack of biologically confirming STIs or HIV status or drug use as an outcome variable. To date, no couple-based studies have been sufficiently powered to examine new STI and HIV infections as outcomes.

Second, few studies have examined whether couple-based interventions are effective in reducing partners' extradyadic sexual relationships. This is an important outcome to consider because partner concurrency increases HIV risk within a partner's sexual networks as well as within the dyad (Adimora et al., 2011). It is unclear whether existing couple-based HIV prevention approaches reduce HIV risk with extradyadic partners.

Third, couple-based HIV prevention approaches have used different modalities to deliver the intervention. The science of couple-based HIV prevention has yet to demonstrate which modality works better. For example, are interventions more effective when sessions are delivered to each couple individually or by

bringing a group of couples together? Or is effectiveness improved when some sessions are delivered in small, single-gender groups? Future research should address the question of which modality is most efficacious and/or cost-effective. Cultural and contextual differences may lead to differences in which modality works best among a particular population.

Fourth, the specific mechanisms that lead to behavior change remain unspecified. To advance the science of HIV prevention intervention with couples, there is a need to power studies so that mediators and modifiers can be identified. Moreover, greater attention needs to be given to the use of relationship-based theories that move beyond social–cognitive theory, which has guided most couple-based studies (Ajzen & Fishbein, 1980; Bandura, 1977a; Bandura, 1977b; Bandura & Adams, 1977; Beck, 1975; Rosenstock, Strecher, & Becker, 1988). These theories assume that couples are motivated to take protective actions, but often overlook many relationship and dyadic factors. These traditional psychosocial theories may not fit within other cultures. Moreover, it is unclear which populations are most responsive to which mechanisms of action and mediators leading to behavioral change. Advancing the science of HIV intervention with couples will not only depend on theories that focus on fine-grained relationship structures and contexts, but that challenge conventional understanding within the backdrop of culture and gender-power frameworks.

Fifth, more thorough statistical techniques using data collected from couples need to be developed. For example, is the unit of analysis the individual or the couple and what is a conservative way to handle discrepant reports from partners on conjoint behaviors? Although data from existing prevention and treatment studies were collected from couples, most of the studies reviewed used individual-data analytical approaches. The use of couple-based data could advance HIV prevention and treatment science for this modality and answer questions on the efficacy of the intervention used in the existing studies. More attention needs to be given to dyadic analytical techniques. Further, community relevance may also become an analytic factor in its adoption of new gender roles and expectations.

Conclusion

Although the evidence from couple-based interventions is still mounting, the advantages of couple-based HIV behavior approaches are becoming clear. Approaches that interweave and address the evident risks of substance use, unprotected nonmonogamous sex, and gender-based violence, while also addressing cultural and contextual factors, are challenging, but crucial. Couples in high HIV transmission areas are keen to be involved in couple-based intervention (El-Bassel et al., 2011; Gilbert et al., 2010; Wechsberg et al., 2010). Although HIV couple-based interventions can teach harm-reduction methods to lower transmission of HIV, more research is needed to determine sustainability and efficacious implementation to services settings.

In addition, there is a need to focus on HIV couple-based approaches that reach the most-at-risk populations (e.g., drug users, sex workers). Further, in regions with high HIV transmission rates, it is essential to reach couples who do not know their HIV status, to offer testing and couple-based interventions to prevent future transmission. CVCT combined with behavioral risk-reduction strategies and promotion of condom use remains a strategic prevention priority in the United States and other countries.

The science of couple-based research can be advanced by addressing the gaps and challenges discussed in this paper, in particular biological outcomes and the impact of couple-based interventions on concurrent sexual relationships. In the past several years, the HIV field has witnessed significant biomedical treatment advances that have important implications for serodiscordant couples. Recent studies have shown that persons living with HIV who ARV treatment are much less infectious and therefore much less likely to transmit HIV. The HPTN-052 randomized study found a 96% reduction in HIV transmission from an HIV-infected person to his or her sex partner (Reynolds et al., 2011), establishing the importance of ARV treatment and adherence.

ARV treatment coupled with strategies to promote condom use and safer-sex practices remain paramount for sustainability of HIV risk reduction among serodiscordant and seronegative couples at risk. Yet, the strategies need to be more comprehensive and offer practice and

role-playing of new ways to communicate and methods for couples to remain monogamous. Couple-based HIV interventions can be adapted and disseminated in community–based organizations and HIV clinics. Using a combination of behavioral and biomedical prevention strategies may hold greater potential for reducing HIV risk among serodiscordant couples than biomedical prevention alone.

References

Adimora, A. A., Schoenbach, V. J., Taylor, E. M., Khan, M. R., & Schwartz, R. J. (2011). Concurrent partnerships, nonmonogamous partners, and substance use among women in the United States. *American Journal of Public Health, 101,* 128–136. doi:10.2105/AJPH.2009.174292

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice Hall.

Allen, S., Serufilira, A., Bogaerts, J., Van de Perre, P., Nsengumuremyi, F., Lindan, C., . . . Hulley, S. (1992). Confidential HIV testing and condom promotion in Africa: Impact on HIV and gonorrhea rates. *Journal of the American Medical Association, 268,* 3338–3343. doi:10.1001/jama.1992.03490230068030

Bandura, A., & Adams, N. E. (1977). Analysis of self-efficacy theory of behavioral change. *Cognitive Therapy and Research, 1,* 287–310. doi:10.1007/BF01663995

Bandura, A. (1977a). Cognitive processes mediating behavior change. *Journal of Personality and Social Psychology, 35,* 125–139. doi:10.1037/0022-3514.35.3.125

Bandura, A. (1977b). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84,* 191–215. doi:10.1037/0033-295X.84.2.191

Basen–Engquist, K. (1992). Psychosocial predictors of "safer sex" behaviors in young adults. *AIDS Education and Prevention, 4,* 120–134.

Beck, T. K. H. (1975). *An exploratory study of cognitive style based on perceptual mode, conceptual style and speech code.* Atlanta, GA: Emory University.

Browne, F. A., & Wechsberg, W. M. (2010). The intersecting risks of substance use and HIV risk among substance-using South African men and women. *Current Opinion in Psychiatry, 23,* 205–209. doi:10.1097/YCO.0b013e32833864eb

Burton, J., Darbes, L. A., & Operario, D. (2010). Couples-focused behavioral interventions for prevention of HIV: Systematic review of the state of evidence. *AIDS and Behavior, 14,* 1–10. doi:10.1007/s10461-008-9471-4

Centers for Disease Control and Prevention. (2001). *HIV/AIDS surveillance supplemental report.* Atlanta, GA: US Department of Health and Human Services.

Centers for Disease Control and Prevention. (2004). *Syringe disinfection for injection drug users.* Atlanta, GA: US Department of Health and Human Services.

Centers for Disease Control and Prevention. (2010). Vital signs: HIV testing and diagnosis among adults – United States, 2001–2009. *MMWR: Morbidity and Mortality Weekly Report, 59,* 1550–1555.

Coates, T. J., Grinstead, O. A., Gregorich, S. E., Sweat, M. D., Kamenga, M. C., & Sangiwa, G. (2000). Efficacy of voluntary HIV-1 counselling and testing in individuals and couples in Kenya, Tanzania, and Trinidad: A randomised trial. *Lancet, 356,* 103–112. doi:10.1016/S0140-6736(00)02446-6

Coates, T. J., Richter, L., & Caceres, C. (2008). Behavioural strategies to reduce HIV transmission: How to make them work better. *The Lancet, 372,* 669–684. doi:10.1016/S0140-6736(08)60886-7

Cottler, L. B., Satyanarayana, V. A., O'Leary, C. C., Vaddiparti, K., Benegal, V., & Chandra, P. S. (2010). Feasibility and effectiveness of HIV prevention among wives of heavy drinkers in Bangalore, India. *AIDS and Behavior, 14,* 168–176. doi:10.1007/s10461-010-9729-5

Dunkle, K. L., Stephenson, R., Karita, E., Chomba, E., Kayitenkore, K., Vwalika, C., . . . Allen, S. (2008). New heterosexually transmitted HIV infections in married or cohabiting couples in urban Zambia and Rwanda: An analysis of survey and clinical data. *The Lancet, 371,* 2183–2191. doi:10.1016/S0140-6736(08)60953-8

El-Bassel, N., Gilbert, L., Witte, S., Wu, E., Hunt, T., & Remien, R. (2010a). Couple-based HIV prevention in the United States: Advantages, gaps, and future directions. *Journal of Acquired Immune Deficiency Syndromes, 55,* S98–S101. doi:10.1097/QAI.0b013e3181fbf407

El-Bassel, N., Gilbert, L., Wu, E., Witte, S., Chang, M., Hill, J., & Remien, R. (2011). Couple-based HIV prevention for low-income drug users from New York City: A randomized controlled trial to reduce dual risks. *Journal of Acquired Immune Deficiency Syndromes, 58,* 198–206. doi:10.1097/QAI.0b013e318229eab1

El-Bassel, N., Jemmott, J. B., Wingood, G. M., Pequegnat, W., Landis, J. R., & Bellamy, S. L. (2010b). NIMH Multisite Eban HIV/STD prevention intervention for African American HIV serodiscordant couples: A cluster randomized trial. *Archives of Internal Medicine, 170,* 1594–1601. doi:10.1001/archinternmed.2010.261

El-Bassel, N., Witte, S., Gilbert, L., Sormanti, M., Moreno, C., Pereira, L., . . . Steinglass, P. (2001). HIV prevention for intimate couples: A relationship-based model. *Families, Systems, & Health, 19,* 379–395. doi:10.1037/h0089467

El-Bassel, N., Witte, S. S., Gilbert, L., Wu, E., Chang, M., Hill, J., . . . Steinglass, P. (2003). The efficacy of a relationship-based HIV/STD prevention program for heterosexual couples. *American Journal of Public Health, 93,* 963–969. doi: 10.2105/AJPH.93.6.963

El-Bassel, N., Witte, S. S., Gilbert, L., Wu, E., Chang, M., Hill, J., & Steinglass, P. (2005). Long-term effects of an HIV/STI sexual risk reduction intervention for heterosexual couples. *AIDS and Behavior, 9,* 1–13. doi:10.1007/s10461-005-1677-0

Farquhar, C., Kiarie, J. N., Richardson, B. A., Kabura, M. N., John, F. N., Nduati, R. W., . . . John–Stewart, G. C. (2004). Antenatal couple counseling increases uptake of interventions to prevent HIV-1 transmission. *Journal of Acquired Immune Deficiency Syndromes, 37,* 1620–1626. doi:10.1097/00126334-200412150-00016

Fisher, J. D., & Fisher, W. A. (1992). Changing AIDS-risk behavior. *Psychological Bulletin, 111,* 455–474. doi:10.1037/0033-2909.111.3.455

Gilbert, L., El-Bassel, N., Terlikbayeva, A., & Rozental, Y. (2010). Couple-based HIV prevention for injecting drug users in Kazakhstan: A pilot intervention study. *Journal of Prevention & Intervention in the Community, 38,* 162–176.

Glick, P. (2005). Scaling up HIV voluntary counseling and testing in Africa: What can evaluation studies tell us about potential prevention impacts? *Evaluation Review, 29,* 331–357. doi:10.1177/0193841X05276437

Gray, R.H., Wabwire–Mangen, G. K., Nelson, K., Sewankambo, D., Serwadda, M. B., Moulton, L. H., . . . Wawer, M. J. (2011). Randomized trial of presumptive sexually transmitted disease therapy during pregnancy in Rakai, Uganda. *American Journal of Obstetrics and Gynecology, 185,* 1209–1217. doi:10.1067/mob.2001.118158

Hageman, K. M., Dube, H. M. B., Mugurungi, O., Gavin, L. E., Hader, S. L., & St. Louis, M. E. (2010). Beyond monogamy: Opportunities to further reduce risk for HIV infection among married Zimbabwean women with only one lifetime partner. *AIDS and Behavior, 14,* 113–124. doi: 10.1007/s10461-009-9603-5

Harvey, S. M., Bird, S. T., Henderson, J. T., Beckman, L. J., & Huszti, H. C. (2004). He said, she said: Concordance between sexual partners. *Sexually Transmitted Diseases, 31,* 185–191. doi: 10.1097/01.OLQ.0000114943.03419.C4

Jaffe, H. W., Valdiserri, R. O., & De Cock, K. M. (2007). The reemerging HIV/AIDS epidemic in men who have sex with men. *JAMA: Journal of the American Medical Association, 298,* 2412–2414. doi:10.1001/jama.298.20.2412

Jewkes, R. K., Dunkle, K., Nduna, M., & Shai, N. (2010). Intimate partner violence, relationship power inequity, and incidence of HIV infection in young women in South Africa: A cohort study. *The Lancet, 376,* 41–48.

Kamenga, M., Ryder, R. W., Jingu, M., Mbuyi, N., Mbu, L., Behets, F., . . . Heyward, W. L. (1991). Evidence of marked sexual behavior change associated with low HIV-1 seroconversion in 149 married couples with discordant HIV-1 serostatus: Experience at an HIV counseling center in Zaire. *AIDS, 5,* 61–68. doi:10.1097/00002030-199101000-00009

Karenga, M. (1994). *Maat, the moral ideal in ancient Egypt: A study in classical African ethics.* Los Angeles, CA: University of Southern California Press.

Kelly, J. A. (1995). Advances in HIV/AIDS education and prevention. *Family Relations: An Interdisciplinary Journal of Applied Family Studies, 44,* 345–352. doi:10.2307/584989

Nadler, A., & Fisher, J. D. (1992). Volitional personal change in an interpersonal perspective. In Y. Klar, J. D. Fisher, J. Chinsky & A. Nadler (Eds.), *Initiating self-change: Social psychological and clinical perspectives* (pp. 213–230). New York, NY: Springer–Verlag.

Padian, N. S., O'Brien, T. R., Chang, Y. C., Glass, S., & Francis, D. (1993). Prevention of heterosexual transmission of human immunodeficiency virus through couple counseling. *Journal of Acquired Immune Deficiency Syndromes, 6,* 1043–1048.

Pequegnat, W. (2005). AIDS behavioral prevention: Unprecedented progress and emerging challenges. In K. H. Mayer (Ed.), *The AIDS pandemic: Impact on science and society* (p. 236). London, UK: Elsevier Academic Press. doi:10.1016/B978-012465271-2/50012-1

Pequegnat, W., & Stover, E. (2008). Payoff from AIDS behavioral prevention research. In K. H. Mayer & H. Pzer (Eds.), *HIV prevention: A comprehensive approach* (pp. 169–202). San Diego, CA: Academic Press.

Raj, A., & Bowleg, L. (2011). Heterosexual risk for HIV among Black men in the United States: A call to action against a negleced crisis in black communities. *American Journal of Men's Health, 20,* 1–4.

Reynolds, S. J., Makumbi, F., Nakigozi, G., Kagaayi, J., Gray, R. H., Wawer, M., . . . Serwadda, D. (2011). HIV-1 transmission among HIV-1discordant couples before and after introduction of anti retroviral. *AIDS, 25,* 473–477. doi:10.1097/QAD.0b013e3283437c2b

Riehman, K. S., Wechsberg, W. M., Francis, S., Moore, M., & Morgan–Lopez, A. (2006). Discordance in monogamy beliefs, sexual concurrency, and condom use among young adult substance-involved couples: Implications for risk of sexually transmitted infections. *Sexually Transmitted Diseases, 33,* 677–682. doi:10.1097/01.olq.0000218882.05426.ef

Rosenstock, I. M., Strecher, V. J., & Becker, M. H. (1988). Social learning theory and the health belief model. *Health Education Quarterly, 15,* 175–183. doi:10.1177/109019818801500203

Roth, D. L., Stewart, K. E., Clay, O. J., van Der Straten, A., Karita, E., & Allen, S. (2001). Sexual practices of HIV discordant and concordant couples in Rwanda: Effects of a testing and counseling program for men. *International Journal of STD & AIDS, 12,* 181–188. doi:10.1258/0956462011916992

Sawyer, K. M., Wechsberg, W. M., & Myers, B. (2006). Cultural similarities and differences between a sample of black/African and coloured women in South Africa: Convergence of risk related to substance use, sexual behavior, and violence. *Women & Health, 43,* 73–92.

Sawyer–Kurian, K. M., Wechsberg, W. M., & Luseno, W. K. (2009). Exploring the differences and similarities between black/African and coloured men regarding violence against women, substance abuse, and HIV risks in Cape Town, South Africa. *Psychology of Men & Masculinity, 10,* 13–29. doi:10.1037/a0013267

Stephenson, R., Rentsch, C., & Sullivan, P. (2012). High levels of acceptability of couples-based HIV testing among MSM in South Africa. *AIDS Care, 24,* 529–535

Stephenson, R., Sullivan, P. S., Salazar, L. F., Gratzer, B., Allen, S., & Seelbach, E. (2011). Attitudes towards couples-based HIV testing among MSM in three US cities. *AIDS and Behavior, 15,* S80–S87. doi:10.1007/s10461-011-9893-2

Sullivan, P. S., Salazar, L., Buchbinder, S., & Sanchez, T. H. (2009). Estimating the proportion of HIV transmissions from main sex partners among men who have sex with men in five US cities. *AIDS, 23,* 1153–1162. doi:10.1097/QAD.0b013e32832baa34

Tanner, W. M., & Pollack, R. H. (1988). The effect of condom use and erotic instructions on attitudes toward condoms. *Journal of Sex Research, 25,* 537–541. doi:10.1080/00224498809551481

Wechsberg, W., Browne, F. A., El–Bassel, N., Carney, T., Myers, B. J., Zule, W., . . . Latkin, C. (2010). *What's love got to do with it? Adapting an HIV evidence-based intervention with couples in South Africa.* Presented at the XVIII Annual International AIDS Conference, Vienna, Austria. Abstract #WEPE0258.

Wechsberg, W. M., Luseno, W. K., Browne, F. A., Kline, T. L., Middlesteadt–Ellerson, R., & Zule, W. A. (2010). The effect of an adapted evidence-based woman focused HIV intervention on condom use and negotiation among at-risk women in Pretoria, South Africa: Preliminary findings. *Journal of Prevention & Intervention in the Community, 38,* 132–146. doi:10.1080/10852351003640799

Wechsberg, W. M., Luseno, W. K., Lam, W. K., Parry, C. D. H., & Morojele, N. K. (2006). Substance use, sexual risk, and violence: Findings from an HIV prevention pilot intervention with sex workers in Pretoria. *AIDS and Behavior, 10,* 131–137. doi:10.1007/s10461-005-9036-8

Wechsberg, W. M., Luseno, W., Riehman, K., Karg, R., Browne, F., & Parry, C. (2008). Substance use and sexual risk within the context of gender inequality in South Africa. *Substance Use & Misuse, 43,* 1186–1201. doi:10.1080/10826080801918247

Wechsberg, W. M., Parry, C. D. H., & Jewkes, R. K. (2010 May). Policy brief: *Drugs, sex, gender-based violence, and the intersection of the HIV/AIDS epidemic with vulnerable women in South Africa.* RTI Press Publication PB-0001–1005. Research Triangle Park, NC: RTI Press.

Received January 18, 2012
Revision received May 9, 2012
Accepted May 9, 2012 ■