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A Dual-Focus Motivational Intervention to Reduce the Risk of Alcohol-Exposed Pregnancy

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Abstract

Project CHOICES developed an integrated behavioral intervention for prevention of prenatal alcohol exposure in women at high risk for alcohol-exposed pregnancies. Settings included primary care, university-hospital based obstetrical/gynecology practices, an urban jail, substance abuse treatment settings, and a media-recruited sample in three large cities. The intervention was based on motivational interviewing and targeted both adoption of effective contraception and reduction of alcohol use. Treatment included 4 manual-guided sessions delivered by mental health clinicians and 1 contraceptive counseling session delivered by a family planning clinician. This paper describes the rationale for treatment; the use of motivational interviewing and the transtheoretical model for a dual-focused approach to behavior change; the development of the Project CHOICES intervention; development of the study protocol and treatment manual; and selection, training, supervision, and monitoring of study counselors. Implications for future applications of the intervention are discussed.

Drinking alcohol during pregnancy can cause a number of birth defects, mild to severe mental retardation, and learning, emotional, and behavioral problems. It can also cause effects involving the heart, face, and other organs (American Academy of Pediatrics, 2000). The term “fetal alcohol spectrum disorder” (FASD) is used to describe the many problems associated with exposure to alcohol before birth. The most severe of these is fetal alcohol syndrome (FAS), a combination of abnormal facial features, neurodevelopmental disorders, and growth deficits. Consuming alcohol during pregnancy also increases the risk of miscarriage, low birth weight, and stillbirth (Sokol, Delaney-Black, & Nordstrom, 2003). FAS and FASD are significant and costly medical and societal problems that have been identified as health care priorities by the U.S. Department of Health and Human Services and the Institute of Medicine (Stratton, Howe & Battaglia, 1996; U.S. Department of Health and Human Services, 2000).

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Drinking among women has increased, especially among those of childbearing age. Although many women significantly reduce their alcohol use once they know they are pregnant, a large number of women do not realize they are pregnant until they are well into the first trimester. Pregnancy recognition may be delayed among women not intending to become pregnant. Nearly half of U.S. pregnancies are "unplanned" (Henshaw, 1998), implying that women were not seeking pregnancy and were not preparing for pregnancy by taking steps such as eliminating drinking or starting a course of prenatal vitamins. Because the early weeks of pregnancy are considered a critical period of fetal susceptibility to the actions of alcohol, alcohol-related birth defects may become established before a woman is aware she is pregnant (Floyd, Decouflé, & Hungerford, 1999). Therefore, to avoid an alcohol-exposed pregnancy (AEP), it is critical to intervene with women prior to conception to help them reduce risky drinking and/or improve contraception. The Project CHOICES intervention was developed through a program of research that identified high-risk populations (Project CHOICES Research Group, 2002), tested the feasibility and impact of the intervention (Project CHOICES Intervention Research Group, 2003), and tested the impact of the intervention in a randomized controlled trial (Floyd et al., 2007). Due to journal space limitations, details of the intervention presented here have not previously been published. This paper describes the rationale for the intervention, the use of motivational interviewing for a dual-focused approach to behavior change, and the development of the Project CHOICES intervention. We also describe the development of the study protocol and treatment manual, and the selection, training, supervision, and monitoring of study counselors. Implications for future applications of the intervention are discussed.

Identification of Women at Risk for Alcohol-Exposed Pregnancies and Summary of Results

In 1997, the Centers for Disease Control and Prevention (CDC) began to pursue primary prevention of prenatal alcohol exposure by focusing on women at high risk for an AEP before conception. A year later, three university sites were funded to conduct a collaborative study to develop and test promising approaches for achieving this objective. Each university proposed two community-based settings with higher proportions of at-risk women than could be expected in the general population. In Florida (Fort Lauderdale), the two sites included a primary care practice in a large suburban hospital catchment area and media recruitment. In Texas, the sites included a large urban jail and three drug treatment agencies in the greater Houston area. In Virginia (Richmond), the two sites included a university-hospital obstetrical/gynecology practice and a community primary care center. To confirm that the settings had a high proportion of at-risk women, investigators from the three sites and the CDC first conducted an epidemiological survey during 1998–2000. Rates of women at risk for an AEP based on both reported alcohol consumption and contraceptive practices varied across the six settings, with higher rates in the jail (21%) and alcohol and drug treatment centers (24%), and lower rates in primary care settings (5%). The risk of AEP in the combined settings (N = 2,672) was 13.0%, in contrast to the overall national average of 2% among fertile women, confirming that the selected study settings were appropriate locations to implement interventions targeted at reducing AEP (Project CHOICES Research Group, 2002).

After conducting a successful single-arm multisite study to determine the feasibility and promise of the CHOICES intervention (Project CHOICES Intervention Research Group, 2003), the intervention was tested in a randomized controlled trial (RCT). Results were recently reported (Floyd et al., 2007), and are summarized here to provide context.

Recruitment strategies included the use of flyers and presentations in the settings, and newspaper and radio announcements in the community. Women who drank alcohol and were of childbearing age were invited to be screened. Of 4,626 women screened, 3,591 (77.6%) did not meet the inclusion criteria for drinking or ineffective use of contraception, and 205 of the

eligible women (19.8%) refused to participate. In the RCT, 830 women were randomized to either the motivational counseling (information plus counseling; IPC) group (n = 416) or the information only (IO) group (n=414). Women in the IPC condition received the four CHOICES motivational counseling sessions and one contraception planning visit, described in detail in this paper. Women in the IO condition received one brief advice session in which they were provided with brochures on alcohol use and women's health in general, and a referral guide to local resources. The IO session lasted, on average, from 5 to 10 minutes.

To be eligible for the study, women must have been of childbearing age (18 to 44), fertile (no tubal ligation, menopause, or other reason for infertility); had sexual intercourse with a fertile man in the past 3 months; used ineffective or no contraception; not pregnant or planning a pregnancy in the next 9 months; and reported drinking more than seven standard drinks a week on average or having more than one binge-drinking episode (≥5 standard drinks in a single day) in the past 90 days. (This definition of binge drinking was used by the CDC at the time of the study; Centers for Disease Control and Prevention, 2002.) In addition, a woman must have stated that she would remain available for the follow-up period. Thus, at baseline all participants were at risk for an alcohol-exposed pregnancy.

Nearly all of the women in the IPC intervention condition (98%) attended at least one counseling session and 63% attended all four sessions, a higher rate than is found in most alcohol treatment studies (Wickizer et al., 1994). The contraception consultation was attended by 70% of the women. Overall 71% of the women completed the 9-month follow-up (Table 1). Frequent phone and mail contacts and updating locator information at each counseling session and at each assessment interview contributed to the high treatment and research compliance.

The women were 30 years of age, on average, 48% were African American, 51% had never been married, 55% had annual incomes of less than $20,000, 90% had used illicit drugs, and 70% smoked. There were no baseline differences found between the intervention women and the control women.

The primary outcome for the study was risk of an AEP, computed from data collected using the Timeline Follow-Back (TLFB) calendar method (Sobell & Sobell, 1992) modified to assess daily vaginal intercourse and contraception behavior in addition to drinking from 90 days prior to intake to 9 months post-intake. The primary outcome was a dichotomous measure of a woman's risk for an AEP: at-risk for an AEP or at-reduced-risk for an AEP. To reach reduced risk of AEP, women had to have been abstinent from sexual intercourse or used effective contraception every time they engaged in sexual intercourse, or drank below risk levels (no more than four drinks in a single day and no more than seven drinks in a week), or adopted changes in both behaviors.

Sixty-nine percent of the intervention women were at reduced risk of an AEP at 9 months postintervention. The intervention group was more likely to have reduced their risk of AEP (p =.05), with approximately twofold greater odds than in the control group at 9 months (OR=1.90; 95% CI=1.36–2.66) postintervention. Of the three routes to reduced risk of AEP (i.e., reduced drinking, using effective contraception, or both), most of the women chose to use effective contraception. Nearly half of the women (47.3%) had both reduced their drinking and were using effective contraception at 9 months. Routes to reduced risk of AEP for both the intervention and the control group at the 3-, 6-, and 9-month assessment time points are provided in Table 2. No differences were found in testing for effects on AEP of the diverse settings; therefore, data were combined for the longitudinal outcome analyses.

A simple thematic coding process was used to qualitatively analyze data from an open-ended question about which aspects of CHOICES the women found "most important." The most

frequent responses were that therapists "have a caring attitude" and were "compassionate" and "encouraging."

Objectives of the Intervention

In designing the Project CHOICES intervention, the investigators considered several issues. Because this intervention focused on two concurrent problems (i.e., risky use of alcohol and unprotected sex), it was likely that many of the women would not be aware of their risk of an AEP, nor would they be actively planning to change either one or both of the target behaviors (i.e., alcohol use and contraception utilization). Consequently, although study participants would be at risk for AEP, they would not necessarily be requesting gynecological or alcohol treatment services, nor would they be identifying AEP risk as a concern. Identifying such women, informing them of the risk, and instilling or increasing motivation for change of one or both of the behaviors that place them at risk were critical objectives. A second consideration was the treatment length. While the treatment needed to be comprehensive enough to address the anticipated complexity of the women's lives, it also had to fit into the context of the various treatment settings and schedules. A final issue was to develop an intervention that would foster a supportive and respectful therapeutic environment that could appeal to women not seeking treatment. This was particularly important given that many of the women were likely to have been in settings or life situations that were punitive.[1]

Motivational Interviewing as the Guiding Therapeutic Approach

Given the above issues, motivational interviewing (MI) was selected as the basis for the intervention. MI is a counseling style that guides the individual to explore and resolve ambivalence about changing while highlighting and increasing perceived discrepancy between current behaviors and overall goals and values (Miller & Rollnick, 1991, 2002). It is a respectful approach that is designed to enhance an individual's intrinsic motivation to initiate and persist in behavior change efforts. Given that the primary responsibility for change is believed to lie within the individual, therapists assume a collaborative and encouraging role. Therapists using MI express empathy, roll with resistance, support self-efficacy, and explore ambivalence by using strategies such as open-ended questioning, reflective listening, summarizing, and affirming (Miller & Rollnick, 2002).

Studies have supported the efficacy of MI to reduce drinking and enhance treatment engagement among problem and dependent drinkers across diverse drinking samples including outpatient (Daley & Zuckoff, 1998; Dench & Bennett, 2000; Project MATCH Research Group, 1998), inpatient, and residential settings (Brown & Miller, 1993; Heather, Rollnick, Bell & Richmond, 1996), pregnant drinkers (Handmaker, Miller, & Manicke, 1999), adolescent drinkers in the emergency department (Monti et al., 1999), college students (Marlatt et al., 1998), and those in primary care (Fleming, Barry, Manwell, Johnson & London, 1997; Senft, Polen, Free-born, & Hollis, 1997). Although MI has been successfully used with several populations that are similar to the target population of the present study, studies of the impact of MI on contraceptive use were lacking. In addition, at the time of initiation of this study, there were no published studies in which MI was used to target more than one behavior at a time.

[1]26.9% of the women in the study were recruited in a jail setting.

Intervention Development

An important strength of Project CHOICES was its methodological rigor. Considerable effort was made to assess and maintain treatment integrity by developing and utilizing a standardized treatment manual and having training and supervision conducted by experienced MI trainers.

Brief Description of IPC Intervention

The four sessions had the following goals: (a) encourage attendance at a contraceptive counseling visit, (b) provide norms-based—but personalized—feedback of risk of an AEP, (c) increase motivation to change one or both target behaviors, (d) decrease temptation to engage in risk behaviors, (e) increase confidence to avoid risk behaviors, and (f) develop a personalized, tailored change plan. Discussions in each session were tailored to each participant's self-rated readiness to change and interest in discussing one or the other behavior.

Each participant was offered four counseling sessions, plus the visit to a contraception provider, delivered over the course of 10 weeks. Women were also given informational brochures on alcohol, health, and available birth control methods. Any participant who requested information on referral resources for primary care, gynecology, or drug/alcohol treatment services received relevant phone numbers (e.g., local health department local treatment providers, etc.). All participants were asked not to drink before sessions, and a breath alcohol test was administered prior to each assessment session (excluding the first assessment session for jail and inpatient treatment sites, as these women did not have access to alcohol).

The contraceptive counseling component utilized a checklist, developed by Project CHOICES investigators in collaboration with gynecological experts, to guide the practitioner in conducting the contraceptive counseling session, which was scheduled separately from the four MI sessions. These contraceptive counseling sessions included taking a medical history, discussing options for contraception, addressing contraception myths, discussing concerns about particular methods, conducting physical exams and pregnancy tests if requested by the woman, and providing contraceptive prescription or contraceptives. Four obstetrician-gynecologists and three family planning clinical specialists were responsible for providing contraception counseling.

Intervention Manual

Treatment manuals facilitate the training of therapists, provide specific, identifiable and replicable treatment procedures, and serve as a basis for developing measurement systems to objectively assess therapist conformity within an intended approach (Carroll & Nuro, 2002). They also serve to reduce "noise" in that they decrease the variability in outcome due to therapist effects. The Project CHOICES treatment manual was a comprehensive, 92-page document.[2] The first section contained an introduction and overview of FAS and FASD. It also detailed the study rationale and the theoretical underpinnings of the intervention with an emphasis on the transtheoretical model's stages of change (Prochaska & DiClemente, 1984), decisional balance considerations, and temptation and confidence. The manual also outlined the principles and strategies of MI and how they were to be adapted for alcohol and contraceptive use.

The second section of the manual was a counseling guide that presented issues for therapists to consider in conducting the counseling sessions. For example, while counselors were encouraged to complete all procedures and forms in the study protocol, they were advised to

[2]Readers interested in obtaining a copy of the CHOICES manual can contact Dr. Louise Floyd at rlf3@CDC.Gov.

remember that the quality of the therapeutic relationship was the key to the successful delivery of MI. Thus, the manual stated, "when sessions are conducted, the basic guideline is that all of the required procedures must be conducted, but the procedures need not be covered in the exact order as listed in the protocol, and the amount of time spent on each procedure or form should be determined by the participant's needs rather than by a set rule" (p. 14). Potential problems, such as client resistance, intoxication, medical emergencies or clients' becoming pregnant during the study period, were covered as well. Guidelines were suggested for delivering the two-pronged intervention, including tips on being aware of client behaviors and statements that might indicate when to best focus on each target behavior.

Session Components

The third section of the manual detailed the components of the four sessions. Sample scripts illustrating the use of MI for each component were included in the manual. Session 1 consisted of rapport-enhancement; review of a fact sheet on women and alcohol and contraceptive methods; explanation of how to schedule the contraceptive counseling visit (if desired); provision of a daily journal in which to record episodes of drinking, intercourse, and contraception; assignment (for completion at home) of a decisional balance exercise examining the pros and cons of changing drinking and contraception use; and provision of brochures and a gift pack of nominal value. Session 2 consisted of the presentation of personalized feedback derived from the woman's baseline assessment measures (Table 3), review and discussion of the information recorded in the daily journal, arrangement of or discussion of the contraception counseling visit, review of the decisional balance exercise, completion of self-evaluation rulers addressing her readiness to change drinking or contraception, completion of an initial goal statement and change plan, and discussion of temptation and confidence profiles. Following Session 2, women attended the contraception counseling visit. Session 3 consisted of discussion or debriefing of the contraception counseling appointment, discussion of the information recorded in the daily journal, review and updating of the decisional balance and self-evaluation exercises and the goal statements and change plans. Session 4 consisted of a review of previous sessions, review of goals and finalization of change plans, problem-solving, reinforcement of goals, strengthening commitment to change, and discussion of the participant's next steps.

Although both behaviors leading to risk for alcohol-exposed pregnancies were targeted, sessions were designed so that the counselor first addressed the target behavior the woman was most ready to change, then moved to the other target behavior later in the session or in subsequent sessions. While each woman was free to choose the behavior changes she wanted to make, approximately equal time was spent exploring each behavior, leading to a change plan and goal statement tailored to each woman's' specific situation. This tailoring, along with placing responsibility and choice for change on the patient, is consistent with an MI approach.

Sample Scripts Exemplifying Some Project CHOICES Procedures

In the examples below, essential MI strategies for clinicians, often referred to as OARS (i.e., using open questions, affirmations, reflection, summaries) are highlighted. Other key aspects noted in the scripts that embody the spirit of MI include emphasizing client choice and autonomy, utilizing a collaborative style—rather than one that is instructive or "expert"—and evoking clients' reasons and needs for change as opposed to informing or trying to convince them of the need to change are also noted. Delivery of information is carried out in a neutral manner rather than in a judgmental or directive way, and is often preceded by assessing the client's interest in and/or permission to receive the information.

Introducing the Dual Focus Aspect of Project CHOICES

counselor: By an alcohol-exposed pregnancy, we mean when a woman drinks alcohol when she is pregnant, the developing baby is also exposed to that alcohol, and when this happens—especially early in the pregnancy—it can affect the baby, and it doesn't take very much drinking to have an effect. An additional issue is that often a woman doesn't know for several weeks that she is pregnant, and about half the time the pregnancy wasn't planned. This is a consideration because drinking before you know you are pregnant can affect your baby. What are your thoughts about that? [*provision of information, asking open question*]

client: You mean it can hurt the baby? That's awful.

counselor: It's a little scary to think about. [*reflection*] We know there are two main ways to avoid having an alcohol-exposed baby. One way is to avoid getting pregnant by using birth control effectively. Exploring the options you have for birth control is one of the things you will be doing in Project CHOICES. The other way to avoid having an alcohol-exposed pregnancy is to not drink at all or only drink below risky levels. We can help you take a look at your drinking and give you information you can use, if you like, to avoid drinking at risk levels. Of course, the most effective protection is to keep your drinking down and also use birth control effectively. What questions might you have so far? Which of these options appeals to you most—changing your alcohol use or your contraception use, or both? [*provision of information, asking open question, emphasizing choice*]

client: Well, my boyfriend doesn't like it when we use contraceptives, so I guess the alcohol area is best.

counselor: It will be simpler, maybe, to focus on alcohol then—less trouble with your boyfriend. We might talk later, too, just a bit, about the contraception issues again, especially in light of your circumstances, if that would be helpful. But let's keep the focus on alcohol. [*reflection, agreeing with woman's area of focus*]

client: That sounds great—I don't need any more trouble than I've already got with him.

Sample Script of Personalized Feedback

In sessions that include therapist's provision of information and feedback, it is important to frequently invite clients to participate in the dialogue by asking about their thoughts or reactions. In addition, asking about their ideas and reactions creates opportunities for eliciting "change talk" (i.e., self-motivating statements such as client-generated reasons or desires to change). Examples of such invitations are: "What do you make of this?" "Where do you fit in?" "What does this mean to you?" "What are your thoughts about this?" It is also important to pay attention to nonverbal reactions such as a frown, sigh, or tears. Reflective listening is an excellent way to respond to both verbal and nonverbal reactions to feedback. Here are some examples: "This is surprising…" "It worries you…" "Looks like this is hard for you to hear…" To minimize the probability of client resistance, a "caveat prelude" before providing information or advice can be offered, such as, "This information has been helpful for many, but I'm not sure how it might fit for you" or "This may or may not concern you…" An alternative preface is simply to ask the client if he/she would be interested in hearing some information and/or advice. Almost always, the answer is yes; on the very rare occasion that a client might decline, a response such as, "I appreciate your letting me know," can be followed by an offer to extend the information/advice at another time when it might be more helpful. And finally, at the end of the session, it is always useful to summarize significant elements of

the session, such as the client's emotional reactions to information or feedback, or the client's expressions of their desire to commitment to change.

As an added note, it is important to deliver feedback or information in a conversational manner as opposed to a practiced, rote, or hurried way. This can be harder than it sounds, especially when the clinician has given similar feedback to a number of other clients.

counselor: If it's okay, let's take a few minutes to review some of the questionnaires you completed last session. From what you told us, your current drinking level, as compared to other women ages 18 to 44, falls into the risky drinking category and indicates that you are drinking more than 95% of women in that age group. What do you make of that? [*implicit asking consent to share information; provision of information followed by open question*]

client: Well, that's a shock—almost everybody I know drinks about as much as I do.

counselor: You didn't expect to hear that—it's pretty surprising. [*reflection*] You also told us that you sometimes have intercourse without using birth control, and that indicates that you are at risk of becoming pregnant.

client: Well, I guess so, now that you put it that way. That makes me a little nervous.

counselor: It's kinda worrisome. [*reflection*]

client: Yeah. (*sigh*)

counselor: It's hard to hear. [*reflection of nonverbals*] Would you be interested in hearing about some problems that are associated with drinking? [*asking permission*] (*client nods*)

Discussing Importance, Confidence, and Readiness

counselor: On the line below, please make a slash mark at the point that best reflects how important it is for you to drink below risky levels, from not important at all to very important.

client: Well, I guess I'd put it at about here… (*close to very important*).

counselor: Tell me about that.. what makes it so important? [*open question to elicit change talk*]

client: Well, what we just talked about … my daughter, and then there are the fights with my mother—that would probably slow down if I cut down on my drinking. Oh, yeah, and all those health risks, too. I just need less to deal with, to worry about.

counselor: So, the concerns about risk of cancer, HIV, and especially your family. [*reflection of change talk*] (*client nods slowly, thoughtfully*)

counselor: On the following scale, make a slash mark at the place that best reflects how ready you are at the present time to drink below risky levels, from not confident to very confident.

client: I'd put it about in the middle. This would be a big change for me.

counselor: So somewhere about halfway… [*reflection*] What would it take for your confidence to increase a bit? What might help? [*open question*]

client: I guess I'd have to get through a weekend without drinking—that'd be incredible. counselor: That would really prove that you can do something when you set your mind to it. It would be a real accomplishment. [*reflection*]

client: For sure.

counselor: And finally, with these exercises, where would you put yourself, making a mark on this form, in terms of being ready to make this kind of change, from not ready at all to planning and committing to make a change?

client: I think I'm ready to try. Things would be so much simpler.

Counselor Characteristics and Training

Counselors were 15 master's-level and doctoral-level clinicians. They received study protocol training from the entire investigative team at a central site, as well as MI training from the principal investigators, who were experienced MI trainers (Ingersoll, L. Sobell, M. Sobell, and Velasquez). Counselors were also given (a) information about the reproductive risks of drinking during pregnancy, (b) information about contraceptive methods currently available to women in the target populations, (c) education on how to help the participants identify and discuss reasons why they might want to avoid or plan future pregnancies, and (d) information about how to identify situations in which the counselors should recommend that women obtain additional medical care. Counselors did not counsel women regarding which contraceptive method to use, as this was the responsibility of the family planning health care provider. The counselors were, however, trained to provide basic information about contraceptive methods that might be requested by the woman.

The site-based MI training was an intensive course that included didactics, role-plays, demonstrations, discussions, and practice. Upon completion of the training workshops, each counselor was assigned a minimum of two training cases. All training cases were audiotaped and reviewed by the trainer for (a) adherence to manual guidelines, (b) level of skillfulness in MI, (c) maintenance of appropriate focus, and (d) empathy and facilitation of the therapeutic alliance.

A total of 16 counselors were trained over the course of the study; all counselors began to conduct the intervention once they reached proficiency, with the exception of one counselor who did not meet proficiency standards and did not continue working with Project CHOICES.

Quality Control Through Therapist Supervision

To maintain consistent quality of treatment delivery, all intervention sessions were audiotaped and supervisors reviewed at least one third of each participant's sessions. Selected sessions were rated for therapist skillfulness, adherence to the manual guidelines, and adherence to the "active ingredients" of MI, and these ratings were used in the supervision process. Individual supervision sessions were initially conducted weekly and then on an as-needed basis, and group supervision sessions were held at least monthly. The study protocol included a remediation plan for any therapist who fell below acceptable levels of proficiency. This was not required, however, since after the pilot cases were completed all therapists maintained satisfactory levels of proficiency, as determined through tape ratings and ongoing supervision sessions.

Lessons Learned

Women who participated in Project CHOICES were recruited actively because they were at risk for AEP, but most of them were not seeking treatment for either alcohol problems or to obtain contraception. Therefore, we experienced several difficult presentations among recruited women.

Very commonly, women presented with heavy drinking. In some cases, women met criteria for alcohol dependence but were not seeking to decrease their drinking. Occasionally, these

women arrived to CHOICES appointments and provided a breathalyzer sample that indicated they were too intoxicated to participate. When women arrived intoxicated, we provided them with the time and space to safely become sober, and to participate once sober, if they desired. Alternatively, we provided them with a safe way to get home, such as a taxi or calling a friend for a ride. Second, we maintained a local referral resource sheet at each site that included referrals for treatment for alcohol dependence. If women requested treatment, we provided this information, and facilitated a referral. With women who did not request treatment, or were opposed to it, we asked for their interest in receiving the referral resource sheet. If they were interested in this referral information, we provided the resource sheet, along with an offer to help her contact any of these resources. However, because we used a harm reduction perspective consistent with MI, we never forced a referral or even information on women who were uninterested.

Another common situation was that some women used no contraception, or used methods considered medically ineffective, such as withdrawal or the rhythm method. Many of these women planned to continue this practice, either due to religious views that active contraception was wrong, or due to willingness to take a chance on pregnancy. Given that this was an AEP risk reduction project, we respected her choice to continue to be at risk for pregnancy. In such cases, we asked her to consider making changes in her drinking, so that if she were to become pregnant, the risk of an AEP would be reduced. Some of the most challenging cases were those in which women were both dedicated drinkers and planned to continue no contraception or ineffective contraception habits. These cases required closer supervision because counselors could experience the “righting reflex”—the altruistic urge to correct someone’s mistake or to warn them of consequences, both of which are not consistent with MI practice. Minimizing the impact of the righting reflex in cases in which women chose to remain at risk for an AEP was an especially important task in supervision. Supervisors and therapists using this approach had to maintain their acceptance of a woman’s autonomy to make decisions that might keep her at risk, knowing that hopefully a seed had been planted that might lead to behavior change at a later time. Counselors also benefited from supervision focusing on maintaining a positive therapeutic relationship, one that might encourage a woman to return to counseling in the future.

The last common challenge was presented by women who had extensive psychiatric disorders in addition to the behaviors placing them at risk for an AEP. Therapists encountered women struggling with symptoms of depression, anxiety, and personality problems. In most cases, these issues were managed by spending portions of sessions on these issues if presented by the woman as a barrier to changing her drinking or contraception habits. Additionally, women were offered referrals for treatment as needed, and CHOICES therapists facilitated those community referrals when the woman indicated she wanted that assistance. Therefore, although CHOICES therapists were study staff, hired due to their proficiency with MI, they had to have some social work skills as well, in order to accomplish effective referrals.

Discussion

Project CHOICES demonstrates the efficacy of a dual-focused adaptation of motivational interviewing to reduce risk for AEP. The therapy development and implementation process produced an intervention that facilitated behavior change in both of the target behaviors, even though an AEP could be avoided by changing just one target behavior.

It is especially notable that this motivational intervention promoted change in two behaviors among women not necessarily seeking to change either behavior. The CHOICES intervention did not specifically include a standardized discussion of how the two risky behaviors were linked in terms of reduction of one behavior reducing the risk of the other; this might be a useful addition to the protocol in future adaptations of CHOICES.

Despite many differences in Project CHOICES setting characteristics, the intervention was adaptable to a variety of settings, with very minimal changes necessary. Although the intervention's efficacy was strong, it was also delivered by highly trained staff under optimal conditions of training and supervision. It is not yet known whether briefer adaptations of the Project CHOICES intervention, or those delivered by staff with less extensive training and supervision, would be efficacious. Currently, other studies are investigating the promise of adaptations of the intervention in prison, public health, and drug treatment settings. Adaptations are being tested with staff without counseling backgrounds and with briefer interventions such as single sessions.

Future studies should explore whether the intensity of treatment delivered in the current study is necessary to bring about change or whether a briefer intervention would be effective. It also remains to be seen whether counselors without significant training in mental health (such as health educators or nurses) could successfully implement the CHOICES protocol and whether the intensive ongoing supervision and monitoring provided to the counselors in Project CHOICES is necessary in order to produce the successful outcomes attained in this study.

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Table 1

Recruitment and Session Attendance

Total IPC	**n=830 n=415**	**n=223 n=110**	**n=121 n=62**	**n=125 n=59**	**n=113 n=58**	**n=148 n=75**	**n=100 n=51**
	Total N/Total % of IPC	Jails [a]/%	SA TX [b]/%	MCV [c]/%	V-HMO [d]/%	Media [e]/%	NBPC [f]/%
Session 1	407/98.0	102/90.9	62/100	59/100	58/100	75/100	51/100
Session 2	358/86.2	94/85.5	62/100	54/91.5	45/77.6	63/84.0	40/78.4
Session 3	287/69.2	54/49.0	54/87.0	51/86.4	42/72.4	51/68.0	35/68.6
Session 4	261/62.9	45/40.9	52/83.9	46/78.0	38/65.5	50/66.7	30/58.8
BC Session [g]	283/68.2	54/49.0	52/83.9	42/71.2	39/67.2	58/77.3	38/74.5
3 mo F-up	585/70.5	141/63.2	90/74.4	102/81.6	82/72.6	105/70.9	65/65.0
6 mo F-up	576/69.4	154/69.1	99/81.8	89/71.2	67/59.3	104/70.2	63/63.0
9 mo F-up	593/71.4	149/66.8	103/85.1	94/75.2	70/61.9	111/75.0	66/66.0

[a]Jails=Harris County Jail and Plane State Jail, Houston.

[b]SA TX=substance abuse treatment centers, Houston.

[c]MCV=Medical College of Virginia outpatient gynecology clinic.

[d]V-HMO=Virginia Medicaid HMO.

[e]MEDIA=Ft. Lauderdale area media recruited.

[f]NBPC=North Broward County primary care clinic.

[g]BC Session=Contraceptive counseling session.

Table 2

Proportion of Participants Meeting Risk Reduction Thresholds at 3, 6, and 9 Months

Risk Outcomes % [a]	3 Months		6 Months		9 Months	
	IO [e]	IPC [f]	IO	IPC	IO	IPC
	n =333 [*]	*n=332* [*]	*n =305*	*n =299*	*n =302*	*n=291*
Reduced Risk Drinking [b]	30.3%	42.2%	32.5%	42.4%	40.4%	48.8%
Effective Contraception [c]	28.4%	45.8%	32.8%	47.7%	38.7%	56.3%
Reduced Risk for AEP [d]	45.6%	63.6%	46.9%	63.9%	54.3%	69.1%

[a] Risk outcome percentages do not reflect exclusive categories.

[b] Drinking <8 drinks per week and < five drinks on any day during the 90 day period.

[c] Abstained from vaginal intercourse or used effective contraception during the 90 day period.

[d] Both drinking <8 drinks per week and < five drinks on any day *and* abstained from vaginal intercourse or used effective contraception during the 90 day period.

[e] IO=Information only.

[f] IPC=Information plus Counseling.

[*] Sample sizes per cell may vary slightly from the overall (N) due to missing data for some cells at a given follow-up point.

Table 3

Personalized Feedback Provided at CHOICES Interview

Behavior	Measure
Alcohol consumption	Number of drinks per week. Number of drinks in a single day. Participant's drinking compared to other women (i.e., percentile of national norms)
Money spent on alcohol in past 3 months	If consumed at home. If consumed in a bar or restaurant
Calories from alcohol consumption	Average number of calories consumed per drinking day
Pregnancy risk	Number of times had vaginal intercourse with a man and did not use effective contraception. Reported high risk of pregnancy if number of times of vaginal intercourse without effective contraception was >1.
Alcohol consumption temptation and confidence	Participant's reported temptation to drink and confidence to avoid drinking in a set of high-risk life situations.
Ineffective contraception temptation and confidence	Participant's reported temptation to have sex without birth control and confidence to avoid having sex without birth control in high-risk life situations.