The Effect of Partner Involvement and Partner Behaviors on Marijuana Treatment Outcomes

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ABSTRACT

The involvement of significant others in substance abuse treatment has been shown to be beneficial in the alcohol and cigarette literatures. However, these findings have not been extended to treatment for other substance abuse, particularly marijuana. This study examined whether partner involvement leads to improved outcomes for people seeking treatment for marijuana abuse. In addition, we examined what possible mechanisms can account for a partner's contribution to positive treatment outcomes. Hypotheses were only partially supported. Treatment conditions did not lead to differential changes in partner behaviors. However, there was some evidence that these partner behaviors do have impact on treatment outcomes. In particular, negative partner behaviors were associated with poorer outcomes.

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INTRODUCTION

Social support is known to be a protective factor against the development of many different types of pathology. In addition to potential protective benefits, many researchers theorize that social support can also be important in recovery. In general, research has shown that social support is associated with well-being, but exactly how those benefits apply to substance use outcomes is less clear (Beattie, 2001). A variety of models suggest that social support, depending on what type of support a person receives, can be either a protective factor against or a risk factor for future substance use following treatment (Walton et al., 2003). Put simply, a social environment that supports sobriety will facilitate abstinence, and an environment that does not support sobriety will facilitate relapse. A multitude of research has supported the conclusion that specific support behaviors contribute to this observation, and much of the extant research has focused specifically on the social support provided by spouses or significant others. Positive support behaviors from a partner help an individual become motivated to quit and assist that individual with maintaining initial abstinence, and negative support behaviors do just the opposite (Pollak et al., 2006). The complexities of this interaction have been examined in both the alcohol and cigarette literature, but have not been extended to the area of marijuana or other drug abuse research.

Social support can be seen as general or abstinence-specific (Wasserman, Stewart, & Delucchi, 2001). General support deals with social connectedness and assistance from others, while abstinence-specific support deals with connectedness to non-users and behaviors from others that focus directly on abstinence. Tracy, Kelly, and Moos (2005) identify several relevant aspects of social support that relate to substance use treatment outcomes. The first is simply whether a social support system is present. Generally speaking, outcomes are better when a person has a social

support system. For instance, Walton et al (2003) examined social and environmental predictors of substance use in the two years following a substance abuse treatment episode, and their results showed that being single predicted both alcohol and drug use directly. These results suggest that having a significant other in and of itself may be beneficial for outcomes from substance abuse treatment.

The quality of the support system is a second feature to consider. High quality support systems typically yield better outcomes. Relevant to partner support, several studies have found associations between high marital satisfaction at pretreatment and better outcomes posttreatment (McCrady, Epstein, & Kahler, 2004; McCrady, 2004). However, marital satisfaction alone has not been shown to predict abstinence reliably over time (McCrady, Epstein, & Kahler, 2004; McCrady, 2004; McCrady et al., 2002).

A third feature of importance is whether individuals in the social support system are substance-users. When substance-users remain in the social support system of a person posttreatment, outcomes are generally worse. In a review of processes that improve outcomes for substance abuse treatment, Moos (2007) delineates several reasons that a partner's using behavior and the support a partner provides are important. Based on social learning theory, partners act as role models for substance use, and partners' using behaviors reinforce positive expectancies from substance use. Therefore, this aspect of partner involvement may be the simplest gauge for how supportive a partner's behaviors are towards the outcomes of substance abuse treatment. One of the factors known to predict alcoholics' acceptance of treatment is that the alcoholic's spouse is not also alcoholic (O'Farrell, 1995). Also, the likelihood of relapse increases significantly when an individual who has quit smoking is living with a smoker, and the individual's partner is the person with the greatest impact on cessation maintenance (Cohen & Lichtenstein, 1990; McBride et al.,

1998; Mermelstein, Lichtenstein, & McIntyre, 1983; Pollak & Mullen, 1997) . A reasonable conclusion posed by Palmer, Baucom, and McBride (2000) based on these findings is that a significant portion of people who want to quit smoking will not be able to quit unless their partner's smoking is addressed. Some studies have found evidence to suggest that the benefits of a partner providing support may even be negated if that partner continues to smoke. Pollak and Mullen (1997) found that women who received support from a smoking partner were five times more likely to relapse and start smoking again than women who received support from a nonsmoking partner. It may be that the partners' smoking is a stronger predictor of cessation success, but it also may be that the individuals perceive their partners as not supportive because they continue to smoke (Palmer, Baucom, & McBride, 2000).

In addition to actual substance use, supportive behavior, or lack thereof, from the spouse has a significant impact on outcomes. The support appears to become even more influential when the support is positive (reward, praise, etc.) or when there is an absence of negative behaviors (nagging, criticism, etc.) (Mermelstein, Lichtenstein, & McIntyre, 1983; Rohrbaugh, Shoham, Trost, Muramoto, Cate , & Leischow, 2001). Perceived partner criticism has been related to poorer outcomes, including shorter time to relapse, greater likelihood of relapse, and continued use of substances (Moos, 2007). In contrast, supportive behaviors by partners have been shown to lead to better outcomes. Fals-Stewart, O'Farrell, and Hooley (2001) demonstrated the importance of perceived criticism in their study examining relapse rates among male substance-abusing patients. Following completion of a community-based substance abuse treatment episode, participants were asked about their perceived criticism from their partners. After controlling for several demographic variables and severity of substance use problems, results showed outcomes were related to the level of perceived criticism held by the participants. Higher levels of perceived criticism related to both

the likelihood of relapse and the length of time before relapse occurred. These effects were still observed after marital satisfaction was controlled.

In another study following up with alcoholics at 18-months posttreatment, Fichter et al. (1997) examined the impact of critical comments on outcomes for alcohol treatment. Fichter et al. found that lower risk of relapse was associated with a lower number of critical comments and greater amounts of warmth from the social environment. O'Farrell (1995) highlights the importance of positive interchanges between couples during treatment for alcohol addiction, and he also points out that negative behaviors toward the person in recovery can lead to abusive drinking again. O'Farrell states that positive interactions should involve positive and specific requests, rather than negative, vague demands.

Cohen and Lichtenstein (1990) examined the impact of positive and negative behaviors on outcomes for smoking cessation. One month after their quit date, participants completed the Partner Interaction Questionnaire to report the frequency of support behaviors from their partners. Cohen and Lichtenstein found that combining positive and negative behavior frequencies into a ratio was more predictive of outcomes than either positive or negative behaviors alone. A meta-analysis of smoking-cessation interventions by Kottke, Battista, DeFriese, and Brekke (1988) found results to support that successful treatment included personalized support and assistance over the longest possible time period, and they concluded that smoking is a social habit and is best targeted by changing the social environment, which includes how individuals interact with their partners. This conclusion is consistent with approaches to other addictive behaviors, including alcohol (Palmer, Baucom, & McBride, 2000).

These correlational findings have led to involving partners in treatment in order to increase the chances that they are providing the right kind of behaviors to support abstinence (Tracy, Kelly,

and Moos, 2005). Research has shown that a spouse's participation and support in treatment is helpful for individuals in both the alcohol and cigarette literatures (O'Farrell, 1995; Fals-Stewart, Birchler, & Kelley, 2006; Mermelstein et al., 1986; McBride et al., 1998; Ockene et al., 2002). The process of involving a partner in treatment can occur in at least two ways. First, partner involvement may consist of couples therapy, meant to address some broader communication or relational problems present in the relationship. This type of involvement, though not directly related to substance use, has been used by several researchers in substance use treatment studies. Theoretically, these researchers believed that improving the relationship quality in a general sense would improve treatment outcomes for substance use. Second, a partner can be involved in treatment to the extent that the partner learns what kinds of behavior and support will help an individual, as well as what kind of behavior will hinder recovery. In this sense, therapy would address the partner's behaviors with regard to substance use.

Behavioral Couples Therapy (BCT) is an integrated approach that attempts to incorporate both areas of partner involvement. While targeting individual factors related to substance use, BCT also addresses the partner's behavioral response to the individual's using and more broadly the quality of the couple's interactions (McCrady et al., 2002). Several studies, particularly in the alcohol literature, have examined BCT to attempt to determine whether each component contributes to outcomes. When compared to individual treatment alone, ABCT typically produces better outcomes (McCrady et al., 2002; Winters et al, 2002; Fals-Stewart, Birchler, & O'Farrell, 1996; Fals-Stewart et al., 2000). However, not all research finds support for each component of ABCT. In particular, outcomes were not always improved by including the couple's general quality of interactions as a target of intervention (McCrady, Epstein, & Kahler, 2004; Walitzer & Dermen, 2004). This finding raises the possibility that brief interventions focused specifically on

encouraging partners to engage in abstinence promoting supportive behaviors, and avoid criticism and substance promoting behaviors, may be a cost-effective means of improving treatment outcomes.

Although research has been devoted to examining how partner support impacts outcomes for recovery from alcohol and cigarette addictions, there are few studies investigating partner effects with other substances of abuse and none that focus specifically on marijuana dependence. The focus of the current paper is to explore partner effects on the outcomes from treatment for marijuana dependence in the context of a randomized treatment-outcome study that included partners in the interventions. This examination will include partner involvement in treatment, partner marijuana use status, and positive and negative partner behaviors in relation to subsequent participant marijuana use outcomes. This paper is based on a secondary analysis of data collected during the Marijuana Treatment Project (Stephens, Roffman, & Curtin, 2000). The Marijuana Treatment Project (MTP) was a controlled treatment-outcome study of adults seeking treatment for marijuana use. One intervention in the MTP study involved an extended cognitive-behavioral group treatment that involved partners in collateral treatment sessions. The other intervention involved a very brief treatment which utilized motivational interviewing, but also offered some significant-other involvement. A delayed treatment control was also included to assess what changes occurred in the absence of intervention. Results showed that both the extended and brief interventions produced comparable reductions in marijuana use relative to the delayed treatment control. However, the contribution of partner involvement in treatment and partners' specific behaviors have not been examined.

Generally, the researchers expected the extended intervention to result in greater abstinence and less marijuana use as compared to the brief intervention and the delayed group. They also

expected that the involvement of significant others would increase participant motivation to change and that their involvement would serve as a protective factor against relapse following the completion of treatment (Stephens, Roffman, & Curtin, 2000). This paper will more closely examine whether the preexisting characteristics of significant other relationships had an impact on treatment outcomes in the MTP study. Another relevant question to be addressed by this paper is whether the experimental interventions led to changes in partner behaviors concerning marijuana use. Finally, the paper will explore what effect partner involvement in treatment had on treatment outcomes.

Hypotheses

1. Several characteristics of the significant other relationship prior to and post treatment will be related to treatment outcomes.
    a. Participants who had a significant other who used marijuana will have poorer outcomes than participants with significant others who did not use marijuana.
    b. Pre- and post-treatment relationship satisfaction will influence outcomes. Generally, higher pretreatment levels of satisfaction are expected to lead to improved outcomes.
    c. The presence of supportive behaviors from partners will be associated with better outcomes and the presence of criticizing or promoting behaviors will be associated with poorer outcomes.
    d. Participants with significant others who became involved in their treatment will have better outcomes than their counterparts whose significant others did not become involved.

2. Partner participation in the treatment interventions will increase supportive behaviors and decrease criticizing and substance promoting behaviors. It is expected that this effect will be greater in the extended treatment as compared to the brief treatment because of a significantly greater involvement of the partner.
3. Partner behaviors will predict marijuana use outcomes.
    a. Partner positive supportive behaviors at pretreatment will be associated with improved outcomes during treatment and early posttreatment, whereas a greater number of pretreatment criticizing or promoting behaviors will be associated with poorer outcomes. These behaviors will also predict baseline marijuana use.
    b. Posttreatment levels of positive supportive, criticizing, and promoting behaviors will predict marijuana use outcomes at later follow-up points.
4. The effect of the treatment conditions on marijuana use will be partially mediated by increases in supportive partner behaviors and decreases in criticizing and promoting behaviors.

Method

Participants

Originally, 601 participants were screened for participation. Based on eligibility criteria, 183 were ineligible to participate because they had used marijuana less than 50 times in the past 90 days (N = 24), reported alcohol or other drug abuse in the past 90 days (N = 149), reported severe psychological distress (N = 8; examples of distress were suicidal intent or symptoms of thought disorder), or indicated they were already participating in formal treatment for marijuana abuse (N = 2). Of the 418 participants who were eligible, 127 people failed to complete pretreatment assessment and research protocols. Therefore, the final sample for this study consists of 291

marijuana using adults who sought treatment for marijuana use. Participants were randomly assigned to one of three conditions: relapse prevention support groups (RPSG; N = 117), individualized assessment and advice (IAI; N = 88), and delayed treatment control (DTC; N = 86). Seventy-seven percent of the final sample were male with a mean age of 34 years. Of the sample, 95% were Caucasian, 76% were employed full-time, and 45% were married. Participants reported a mean of 75 (SD=18.35) days of marijuana use in the 90 days prior to baseline and nearly all met criteria for cannabis dependence.

Procedures

Marijuana users who wanted help quitting were recruited for the MTP study via media advertisements in the greater Seattle, Washington area. Potential participants who responded to the advertisements were first screened for age appropriateness. Those who were at least 18 years of age and wanted help quitting marijuana were invited to come in for an orientation process. Those who were interested in joining the study went over an informed consent and also were asked to leave a $60 deposit that would be refunded to them in part at each follow-up assessment that they attended. Participants were also asked to identify a collateral for researchers to contact at each follow-up assessment. Participants then completed self-report instruments assessing marijuana and other drug use and related consequences, self-efficacy, and other social leaning theory constructs related to substance use. Those who were married or were involved with significant others completed measures regarding relationship satisfaction and specific partner behaviors related to marijuana use.

Follow-up assessments occurred at 4, 7, 13, and 16 months after random assignment and were administered by mail. These time points were chosen so that participants in both RPSG and IAI were assessed at the end of treatment, 3 months posttreatment, and 12 months posttreatment. Individuals in the DTC condition were assessed only at the 4-month follow-up. Following that time

point, DTC participants were provided treatment and their posttreatment outcomes were not assessed. Follow-up rates ranged from 81% to as high as 92%. Stephens, Roffman, and Curtin (2000) analyzed this sample to examine whether there was any systematic bias related to participant attrition. Based on a series of two-way ANOVAs (Treatment Condition x Follow-up Completion) on relevant demographic and pretreatment variables, no systematic differences were found between groups.

Treatment Conditions

The study was designed to compare treatment outcomes of an extended 14-session cognitive-behavioral group treatment to a brief 2-session individual treatment utilizing motivational interviewing. The 14-session condition, referred to as relapse prevention support groups (RPSGs; *N* = 116), was akin to a comprehensive outpatient treatment approach to marijuana cessation using cognitive-behavioral and social support processes. As described in Stephens, Roffman, and Curtin (2000), the RPSG condition consisted in 14 two-hour group sessions conducted over an 18-week period. Sessions 1-10 occurred weekly, and Sessions 11-14 occurred biweekly. Sessions 1-4 focused on enhancing motivation to change, which included having participants list reasons for quitting, discuss consequences of use, and discuss advantages of stopping use. The target quit date for participants in RPSG was the date of their 4th session, and a quit ceremony was conducted at this session. Sessions 5-10 focused on building coping skills through role-plays and exercises. Participants discussed high-risk situations and ways to cope with those situations. Sessions 11-14 focused on relapse prevention techniques, including how to cope with future negative thinking and how to respond to relapse when it occurs. Participants in RPSG were invited to ask a significant other to attend four additional Supporters Group (SG) sessions. Participants were encouraged to attend the SG sessions with their partners as well. The SG was led by the same therapists as the

primary groups and met during Weeks 3, 4, 5, and 11 of the 18-week treatment period. The purpose of these sessions was to help the significant others learn relapse prevention skills to help the participant in quitting marijuana (see McCrady, 1989). More specifically, sessions consisted of structured activities to provide supporters with practice in helping participants identify high-risk situations and brainstorming sessions to help participants identify coping strategies.

In the 2-session condition, referred to as individualized assessment and advice (IAI; N = 88), therapists utilized motivational interviewing techniques and provided cognitive-behavioral techniques for stopping marijuana use. This condition was modeled after the Drinker's Check-Up (Miller, Benefield, & Tonigan, 1993; Miller & Sovereign, 1989). As described by Stephens, Roffman, and Curtin (2000), this condition consisted of two 90-minute individual sessions with a therapist who provided feedback, used motivational interviewing, and provided participants advice on cognitive-behavioral techniques to help stop marijuana use. During the first session, the therapist reviewed a report with the participant that was based on data collected during pretreatment assessment. The report described the participant's use data, problems related to marijuana use, reasons for wanting to quit marijuana, and high-risk situations for marijuana use. Therapists provided information about the health effects from using marijuana as well. Therapists also used motivational interviewing techniques to enhance participant's motivation while avoiding confrontation with the participant. These techniques include using open-ended questions, reflective listening, reframing, and affirmation (Miller & Rollnick, 1991). The therapist also worked with the participant to create a plan and contract for quitting, as well as identify possible antecedents to relapse (e.g., high-risk situations). Following the first session, participants received a letter in the mail which reinforced the commitment to change and encouraged the participant to call the therapist during the month between the first and second session. In the second session, participants

were invited to bring a significant other into the session to be involved with the review and planning process. During this session, the therapist reviewed the participant's use over the previous month, utilized motivational interviewing, and worked with the participant on a plan for sustaining abistinence. When a significant other was present, the therapist used the significant other's comments to enhance motivation and identify high-risk situations.

Measures

Demographic Information

Demographic information was collected via self-report questionnaire prior to the beginning of treatment. The questionnaire included items such as age, gender, race, marital status, level of education completed, employment status, income, and legal status (see Appendix A).

Participant Marijuana Use

Marijuana use was assessed via self-reports (see Appendix B). History and chronicity of marijuana use was captured as self-reported age of first use, age of first daily use, total years of use, and number of previous quit attempts. At all time points, frequency of marijuana use was assessed by using self-reported days of use over the past ninety days, divided by three to yield a monthly frequency of use index. This index was the primary dependent measure for all assessment points. As a proxy for quantity of marijuana use, participants reported the number of times they used marijuana on a typical day on a 4-point scale (0 = *not at all*, 1 = *once*, 2 = *2-3 times*, 3 = *4-5 times*, 4 = *6 or more times per day*). Stephens, Roffman, and Curtin (2000) demonstrated the validity of self-reported marijuana use in the present study using collateral interviews. Agreement on abstinence during the assessment periods across follow-ups was 87%. The correlation between collateral and self-report for days of marijuana use was .75, and the correlation for the number of

times used on a typical day was .66. For most of the indices examined, discrepancies occurred because participants were reporting more use than their respective collaterals.

Partner Status and Marijuana Use

Participants reported their marital status and frequency of contact with partners via self-report questionnaire. In the same questionnaire, marijuana use by partners was assessed by participant's report (see Appendix C). Using the same questions that participants had answered about their own use (described above) participants provided the frequency and quantity estimates of their partners' use.

PCI

The Primary Communication Inventory (PCI) is a 25-item self-report instrument designed to measure marital communication patterns (originally developed by Locke & Wallace, 1959; modified by Navran, 1967) (see Appendix D). Navran demonstrated the reliability and validity of the PCI, but its psychometric properties have also been demonstrated by several other researchers (O'Leary & Turkewitz, 1978, e.g.). Items capture the frequency of both positive and negative communications among partners. The PCI represents patterns of positive and negative interactions within the relationship, but is also representative of general relationship satisfaction (Navran, 1967). Participants rate items such as "Do you and your partner talk about things in which you are both interested?" on Likert scales to indicate frequency, from one ("Never") to five ("Very frequently"). Nine of the PCI items involve making a judgment about one's partner ("How often does your spouse sulk or pout?"). After reverse-scoring three of the items that measure negative behaviors, the total score is generated by adding the Likert-ratings for all 25 items.

Relationship Satisfaction

In addition, Relationship Satisfaction was also assessed using an individual self-report item (See Appendix E). Participants were asked to report their general level of satisfaction with a partner on a Likert scale of one ("Completely unsatisfied") to seven ("Completely satisfied"). Though this is only a single-item assessment of this construct, research has shown that assessing marital satisfaction with one question is adequate (as shown by Goodwin, 1992).

PIQ

The Partner Interaction Questionnaire (PIQ) assesses positive and negative support behaviors related to smoking cessation (see Appendix F). The original measure was developed by Mermelstein, Lichtenstein, and McIntyre (1983) and consisted of 76 items. Researchers have since adapted the PIQ by shortening it as well as modifying the item content to apply to substances other than cigarettes (e.g., Pollak et al., 2006). For this study, the original PIQ items were modified to apply to marijuana use rather than cigarettes. For example, "Complimented my not smoking cigarettes" was changed to "Complimented my not smoking marijuana." Not all original items were included because some items did not readily translate to marijuana use. After making these modifications, 46 items were retained. Participants rated each of these behaviors both for frequency in the past month and helpfulness. For frequency, ratings were "Never occurred" (0 times), "Occurred rarely" (1 or 2 times), "Occurred a few times" (3-6 times), and "Occurred often" (7 or more times). For helpfulness, ratings were "Unhelpful," "Neither helpful nor unhelpful," and "Helpful."

Inspection of the scree plot from a principal components analysis suggested that three factors were appropriate for the PIQ items assessing the frequency of partner behaviors and accounted for 49.43% of variance. Based on item content, these three factors can be characterized as Supportive Behaviors, Criticizing Behaviors, and Promoting Behaviors. Eleven items that failed

to load at .40 or higher on any factor or showed complex loadings on multiple factors were dropped. The Supportive Behaviors scale consists of 16 items that can be characterized as supportive of the participant's efforts to stop using marijuana (e.g., "Complimented my not smoking marijuana," "Congratulated me for my decision to quit through a program"). Cronbach's alpha coefficient for the Supportive Behaviors scale was .92. The Criticizing Behaviors scale consists of 15 items. This scale can be characterized as partner behaviors that criticize the participant (e.g., "Expressed doubt about my ability to quit/stay quit" and "Criticized me for not being dependable when smoking marijuana"). Cronbach's alpha coefficient for the Criticizing Behaviors scale was .88. The Promoting Behaviors scale contains 4 items. These items represent behaviors by the partner that promote marijuana use (e.g., "Smoked marijuana in my presence" and "Left marijuana or paraphernalia lying around"). Cronbach's alpha coefficient for the Promoting Behaviors scale was .85.

Results

Final Sample

The maximum sample size possible was used for each stage of analysis. For hypothesis one, correlations were run on participants from all conditions who reported having a partner (N = 221; 76% of the randomized sample). For hypothesis two, analyses were further restricted to participants with partners who were in the two active conditions (RPSG or IAI, N = 158; 77% of randomized sample). Of these 158 participants, 44 did not complete the post partner questionnaire. Analyses of the characteristics or people who completed the posttreatment PQ and those who did not revealed significant differences on only two variables. For frequency of alcohol use, an ANOVA comparing completers to non-completers showed a significant difference (F (1, 156) = 5.47, $p < .05$) between people who did complete the posttreatment questionnaire (M = 21.43, SD =

28.67) and those who did not (M = 10.65, SD = 14.49), with non-completers drinking on significantly fewer days during the 90 days prior to baseline. Chi-square analyses on relevant categorical variables revealed a significant difference between completers and non-completers in race. For race there was a significant difference (x^2 (4, n = 158) = 10.90, $p < .05$), such that a higher proportion of African Americans were among non-completers (11.4%) than completers (0.9%) and a higher proportion of Caucasians were among completers (95.6%) as compared to non-completers (88.6%). Otherwise, there were no differences between completers and noncompleters on other demographic or marijuana use variables.

An additional 14 participants reported that they were no longer in relationships at the post assessment and therefore did not complete the post partner questionnaire. Based on these exclusions, the remaining sample size was 100. Analyses for hypotheses three and four included participants from all three conditions who reported having a partner when examining pretreatment marijuana use and only participants from the two active conditions when examining posttreatment marijuana use. Sample sizes for analyses were further reduced due to attrition across the follow-up period.

Partner Attendance of Treatment Sessions

Of the 158 participants with partners who were in the active conditions, 88 were assigned to the RPSG condition. For 38 (43%) of these participants, a partner attended at least one of the four partner sessions. On average, partners in this group attended 2.47 (SD = 1.16) sessions. Seventy participants with partners were assigned to IAI. For 28 (40.0%) of these participants, a partner attended the second treatment session.

Hypothesis One

To examine hypothesis one, marijuana use at each follow-up assessment was correlated with pretreatment relationship characteristics, including partner marijuana use, relationship satisfaction, partner supportive, criticizing, and promoting behaviors, and whether the partner became involved in treatment sessions. Marijuana use at each follow-up assessment was also correlated with post-treatment relationship characteristics. Marijuana use outcomes were expected to be better when participants reported that their partners were not using marijuana, when participants reported high relationship satisfaction, when supportive behaviors were high and criticizing and promoting behaviors were low, and when participants' partners attended treatment versus when they did not. See Table 1 for means and standard deviations relating to this analysis.

In general, pretreatment and posttreatment relationship characteristics were not related to outcomes (see Table 2). Whether a partner was a marijuana user at the baseline assessment was correlated to participant's monthly marijuana use at the 7-month follow-up ($r = .30$, $p < .01$), such that participants reported more days of marijuana use at this follow-up when their partner was also a marijuana user. The only other pretreatment partner behavior that yielded a significant correlation was the total score on the PIQ Promoting Scale with 7-month participant marijuana use ($r = .37$, $p < .01$). However, neither of these effects occurred at other follow-ups. Correlations were somewhat higher when posttreatment levels of these partner behaviors and relationship characteristics were analyzed. Whether a partner was a marijuana user at the posttreatment assessment was correlated to participant's monthly marijuana use at both the 4-month and 7-month follow-ups, such that participants reported more days of marijuana use at these follow-ups when their partner was also a marijuana user. Higher totals on the PIQ Criticizing scale at posttreatment were also associated with higher levels of participant marijuana use at the 4-month, 13-month, and 16-month follow-

ups. Higher scores on the PIQ Promoting scale at posttreatment were similarly associated with higher reported days of marijuana use, but this effect did not extend to later follow-ups.

Hypothesis Two

First, in order to determine whether treatment condition impacted partner behaviors, a series of 3 (Treatment Condition: RPSG, IAI, or DTC) x 2 (Time: Pretreatment vs. Posttreatment) ANOVAs were conducted for supportive, criticizing, and promoting behaviors. These ANOVAs produced no significant treatment by time interactions (See Table 3 for means and standard deviations related to this analysis). There were main effects of time for supportive ($F(1, 144) = 9.30$, $p < .01$) and criticizing behaviors ($F(1, 143) = 53.59$, $p < .001$), such that both types of behaviors significantly decreased over time. The lack of any interaction effects suggests that active treatment interventions did not lead to differential change in the levels of these partner behaviors over time as compared to the delayed control group. There was a significant main effect of treatment such that participants in the RPSG condition reported fewer criticizing behaviors than participants in the IAI or DTC conditions. IAI participants were not significantly different when compared to either the RPSG or DTC groups on criticizing behaviors.

Next, we included partner attendance of treatment sessions in the models to explore whether effects of the interventions on partner behavior could be detected. These analyses necessarily excluded participants in the DTC condition. Several 2 (Treatment Condition: RPSG or IAI) x 2 (Partner attendance) x 2 (Time: Pretreatment vs. Posttreatment) mixed-model ANOVAs examined whether treatment conditions led to changes in partner supportive, critical, and promoting behaviors between pretreatment and posttreatment assessments (See Table 4). The between subjects factors were treatment condition and whether the partner attended any treatment sessions, and time was the within-subjects variable. Our prediction was that partner participation in treatment

sessions would lead to increased supportive behaviors and decreased criticizing and promoting behaviors (See Table 4 for means and standard deviations of partner behaviors based on partner treatment attendance). Additionally, it was predicted that these effects would be greater in the extended RPSG treatment as compared to the briefer IAI treatment. Therefore, a three-way interaction of condition, attendance, and time was expected.

There were no significant main or interaction effects for supportive behaviors. The 2 x 2 x 2 ANOVA for criticizing behaviors also produced non-significant 3-way and 2-way interactions. There was a significant main effect for Time ($F(1, 95) = 44.10$, $p < .01$), where the PIQ scale score for criticizing behaviors decreased between the pretreatment ($M = 9.10$, $SD = 7.94$) and posttreatment ($M = 4.49$, $SD = 6.14$) assessment. Other main effects for Condition and Partner Attendance were not significant.

For promoting behaviors, a 3-way interaction was found ($F(1, 95) = 8.70$, $p < .01$) and there was a significant main effect for Time($F(1, 95) = 7.67$, $p < .01$), where the mean PIQ scale score for promoting behaviors decreased between pretreatment and posttreatment. Main effects for Condition and Partner Attendance were not significant. To examine this 3-way interaction for promoting behaviors, 2 (Partner attendance) x 2 (Time: Pretreatment vs. Posttreatment) ANOVAs were run on the RPSG and IAI participants separately. Among RPSG participants, there was no interaction ($F(1, 54) = 1.99$, $p > .05$), suggesting that partner promoting behaviors did not change differentially based on partner attendance for participants in RPSG. For IAI participants, there was an attendance by time interaction ($F(1, 41) = 7.22$, $p < .05$). This interaction suggests that the way that promoting behaviors changed over time differed based on whether partners attended treatment or not. For IAI participants whose partners did not attend the treatment group, promoting behaviors slightly increased between pretreatment ($M = 2.04$) and posttreatment ($M = 2.40$), though this was

not significant (t (24) = -1.06, $p > .05$). When partners did attend a treatment session for IAI participants, promoting behaviors significantly decreased between pretreatment (M = 2.89) and posttreatment (M = 1.61) (t (17) = 2.36, $p < .05$).

Hypothesis Three

To examine the third hypothesis, multiple regression analyses were run to examine whether partner behaviors were predictive of participant marijuana use. Marijuana use at the baseline assessment and 4-month follow-up were regressed on pretreatment levels of partner supportive, criticizing, and promoting behaviors to determine whether these indices predicted marijuana use during and shortly after treatment. Similarly, marijuana use outcomes at later follow-ups were regressed on posttreatment levels of these same indices to determine whether these partner behaviors were predictive of longer-term outcomes. We predicted that supportive behaviors at pretreatment would be associated with improved outcomes during treatment and early posttreatment, whereas a greater number of pretreatment criticizing or promoting behaviors would be associated with poorer outcomes. It was also predicted that posttreatment levels of positive supportive, criticizing, and promoting behaviors would predict marijuana use outcomes at later follow-up points.

To examine the effect of concurrent behaviors on baseline levels of marijuana use, baseline marijuana use was regressed onto pretreatment partner behaviors (See Table 5). The overall model for this analysis was significant (F (3, 214) = 2.95, $p < .05$) and R^2 was .04. Neither supportive nor criticizing behaviors produced significant effects, but the promoting behaviors were positively related to frequency of marijuana use. When participant marijuana use at the 4-month follow-up was regressed onto pretreatment partner behaviors, the overall model was not significant (F (3, 180) = .46, $p > .05$).

Participant marijuana use at 4-, 7-, 13-, and 16-months were regressed onto posttreatment partner behaviors in separate analyses (see Table 6). At the 4-month follow-up, the overall model was significant (F (3, 155) = 11.04, $p < .01$) and R^2 was .18. Effects for supportive, criticizing, and promoting behaviors were all significant and in the predicted direction. At the 7-month follow-up, the overall model was significant (F (3, 98) = 6.63, $p < .01$) and R^2 was .17. Supportive behaviors were not significantly related at this follow-up, but criticizing and promoting behavior scales predicted higher frequency of use. For the 13-month follow-up, the overall model was significant (F (3, 95) = 3.38, $p < .05$) and R^2 was .10. The effects for supportive and promoting behaviors were not significant, but criticizing behaviors were significantly related to greater frequency of marijuana use. At 16-months, the overall model was significant (F (3, 97) = 4.07, $p < .01$) and R^2 was .11. The effects for supportive and promoting behaviors were not significant, but the effect for criticizing behaviors again predicted greater use.

Hypothesis Four

We also predicted that the effect of the treatment conditions on marijuana use would be partially mediated by increases in supportive partner behaviors and decreases in criticizing and promoting behaviors. However, the failure of treatment to systematically affect partner behaviors precluded the examination of a meditational relationship.

Discussion

The present study explored the impact of partner behavior on marijuana use in adults seeking treatment for marijuana dependence. Data from a randomized controlled treatment trial was utilized to examine which aspects of partner relationships related to treatment outcomes, as well as whether a partner's supportive, criticizing, or promoting behaviors changed over the course of treatment and whether these behaviors could predict outcomes. In general, relationship

characteristics measured prior to treatment were only weakly related to marijuana use both before and after treatment. After treatment, there were several characteristics that correlated with treatment outcomes at early follow-ups, but these effects generally did not extend to later follow-ups. Analyses also indicated that the treatment interventions had little differential impact on the occurrence of partners' supportive, criticizing, and promoting behaviors, though there were some indications that these behaviors changed over time regardless of treatment condition. The ability of these behaviors to predict marijuana use among participants was mixed. Supportive behaviors were generally not predictive of outcomes, but criticizing and promoting behaviors were somewhat predictive.

The initial hypothesis that relationship characteristics at pretreatment and posttreatment would relate to treatment outcomes was not strongly supported, with the majority of correlations being quite small. Pretreatment and posttreatment relationship satisfaction did not correlate strongly with marijuana use after treatment. This finding is inconsistent with other research that has demonstrated associations between marital satisfaction and treatment outcomes (McCrady, Epstein, & Kahler, 2004; McCrady, 2004). Consistent with the literature about partner's use behaviors, having a partner who used marijuana did tend to be associated with higher frequencies of marijuana use reported at follow-up (Moos, 2007; Palmer, Baucom, & McBride, 2000). For partner behaviors, the levels of supportive, criticizing, and promoting behaviors at pretreatment were only weakly associated with outcomes. These behaviors were more strongly related to outcomes when posttreatment levels were considered, particularly for negative behaviors such as criticizing and promoting. While it is surprising that supportive behaviors were so weakly related to outcomes, the effects found for criticizing and promoting behaviors were consistent with our hypothesis. These findings generally indicate that relationship characteristics prior to treatment were essentially

unrelated to outcomes, and posttreatment relationship characteristics were only partially related to outcomes.

The second hypothesis predicted that the treatment interventions and partner involvement in treatment would lead to differential change in the amounts of partner supportive, criticizing, and promoting behaviors. This hypothesis was not supported. Though it was predicted that treatment would lead to increased amounts of supportive behaviors, analyses yielded no significant interactions or main effects for supportive behaviors. Again, the lack of findings regarding supportive behaviors is somewhat surprising. These behaviors did not change over time, nor did they vary based on treatment condition and partner participation. Because this sample consists of people who are actively and voluntarily seeking treatment, partners may have been relatively supportive at the start of treatment. Based on the high means associated with the supportive behaviors scale at pretreatment, there was little opportunity for increases in the levels of these behaviors into posttreatment. It was also predicted that treatment would lead to a decrease in criticizing behaviors. Analyses showed that there was not a differential change in the levels of criticizing behaviors based on treatment condition, but the overall amount of criticizing behaviors decreased from pretreatment to posttreatment. The overall amount of promoting behaviors also decreased over time. Though treatment condition was unable to account for these changes over time, it may be that the process of the participant going through treatment influenced the partners to behave differently toward the participant between pretreatment and posttreatment. Partners may have gained increased sensitivity about their behaviors toward the participant as a result of the participants' experience in treatment, regardless of condition.

The third hypothesis predicted that the levels of partner supportive, criticizing, and promoting behaviors would predict outcomes. Pretreatment levels of these behaviors were not

predictive of any follow-up time points. Given that this population consisted of heavy marijuana users exhibiting signs of substance dependence, it is likely that pretreatment partner behaviors had little predictive ability because they had little impact on participants at the start of treatment. At posttreatment, these behaviors appeared to be more influential. All three kinds of behaviors were predictive of early follow-ups, though the impact of supportive behaviors declined quickly over follow-ups. Toward the end of follow-up assessments, only criticizing behaviors were predictive of outcomes. The literature generally indicates that both supportive and criticizing behaviors are important, though our results only lend strong support for the importance of criticizing behaviors. The weakness of supportive behaviors as a predictor is surprising given the strong background literature suggesting the importance of partner support in treatment outcomes (Mermelstein, Lichtenstein, & McIntyre, 1983; Rohrbaugh, Shoham, Trost, Muramoto, Cate , & Leischow, 2001). In our sample, it is possible that the positive effects of supportive behaviors were not predictive because partners were generally so high on the supportive scale. The literature does note that presence of negative behaviors from a partner can negate the impact of positive behaviors, so in our sample criticizing behaviors may have been the more important element given the consistently high levels of supportive behaviors (Fals-Stewart, O'Farrell, and Hooley, 2001; Fichter et al., 1997).

There are several limitations to this study that likely affected the results. The partner-involvement component of treatment was optional and not part of the design. While nearly half of participants did have a partner attend treatment, this is a self-selected sample. In addition, exposure to treatment was minimal for partners in the IAI condition and attendance of multiple sessions in the RPSG treatment was limited. There simply may not have been ample opportunity for the intervention to have an impact on the partner's behaviors because of the brevity of exposure. Another limitation in the present paper is that relationship status was not highly specified.

Important features of the relationship, such as length of the relationship and sometimes the nature of the relationship itself, were at times unclear. For example, there was no information collected to differentiate couples who had been together for years versus those who had only been together for weeks. A final caveat is that all the present analyses of partner behaviors are based on the participant's report of his or her partner, which may or may not accurately represent the partner's behavior. While research suggests that the perception of support and criticism is important, capturing the partner's perspective more systematically is important.

Sample attrition was also a limitation. Though follow-up rates in general were good for this sample, a large number of participants did not complete the posttreatment Partner Questionnaires. There may have been unmeasured characteristics of non-completers that were different from completers. If such differences did exist, it is also possible that partner behaviors may have had more (or less) impact among people who did not complete the posttreatment questionnaire.

Despite these limitations, there was evidence that these partner behaviors impact outcomes for individuals seeking treatment for marijuana dependence. These results are particularly noteworthy given that the partner-involvement component of treatment was not a primary focus of the interventions under examination in this study. Given the lack of research on partner impact on marijuana treatment outcomes, these findings are an important addition to the literature on treatment of illicit drugs, and also have important implications on how treatment is conducted. These results demonstrate that a partner's behavior can impact treatment outcomes, and accordingly these behaviors should be addressed, particularly if the partner also uses. At a minimum, discussing partner use, support, and criticism could be a helpful component of any treatment program. For clients who present for treatment and report a using partner, clinicians might consider attempting to include the partner in the treatment process. Future studies will need

to systematically test interventions designed specifically to change those behaviors. It will be important to carefully operationalize and measure relationship characteristics.

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Table 1

Means and Standard Deviations for Participant and Partner Characteristics at Pretreatment and Posttreatment

	RPSG	IAI	DTC
		Pretreatment	
	n = 88	*n* = 70	*n* = 63
Relationship Satisfaction	4.76 *SD* = 1.59	4.99 *SD* = 1.48	4.65 *SD* = 1.60
PCI Scale Total	87.04 *SD* = 10.65	87.5 *SD* = 10.75	88.75 *SD* = 9.16
Support Scale Total Score	13.78 *SD* = 9.98	16.12 *SD* = 10.41	14.86 *SD* = 11.10
Criticizing Scale Total Score	8.86 *SD* = 8.47	10.18 *SD* = 9.01	10.48 *SD* = 8.52
Promoting Scale Total Score	2.32 *SD* = 3.56	2.35 *SD* = 3.23	1.81 *SD* = 3.24
		Posttreatment	
	n = 56	*n* = 44	*n* = 48
Relationship Satisfaction	5.2 *SD* = 1.39	5.18 *SD* = 1.45	5.08 *SD* = 1.38
PCI Scale Total Score	89.57 *SD* = 11.17	87.91 *SD* = 8.90	88.96 *SD* = 11.89
Support Scale Total Score	13.11 *SD* = 9.78	14.2 *SD* = 10.09	11.34 *SD* = 9.35
Criticizing Scale Total Score	3.8 *SD* = 4.81	5.39 *SD* = 7.41	8.05 *SD* = 7.43
Promoting Scale Total Score	1.16 *SD* = 2.79	2.02 *SD* = 3.48	1.77 *SD* = 3.33

Table 2

Correlations between Pretreatment and Posttreatment Relationship Characteristics and Treatment Outcomes

	Frequency of Marijuana Use, in number of days of use per month			
	4-month Follow-up	7-month Follow-up	13-month Follow-up	16-month Follow-up
	Pretreatment			
	N = 186	*N* = 130	*N* = 135	*N* = 140
Relationship Satisfaction	0.01	0.00	-0.09	-0.08
PCI Scale Total	0.07	-0.06	-0.03	-0.03
Partner's Marijuana Use Status	0.11	.30**	0.10	0.10
Support Scale Total Score	0.06	-0.03	-0.10	-0.07
Criticizing Scale Total Score	0.02	-0.05	0.06	0.00
Promoting Scale Total Score	0.04	.21*	0.10	0.04
	Posttreatment			
	N = 160	*N* =103	*N* = 100	*N* = 102
Relationship Satisfaction	0.02	0.07	-0.17	-0.14
PCI Scale Total Score	-0.08	-0.08	-0.11	-0.05
Partner's Marijuana Use Status	.26**	.37**	0.12	0.14
Support Scale Total Score	-0.11	-0.10	-0.05	-0.06
Criticizing Scale Total Score	.27**	0.19	.21*	.26**
Promoting Scale Total Score	.22**	.34**	0.19	0.12

Note. Sample sizes vary slightly due to missing data.

* $p<.05$, ** $p<.01$

Table 3

Means and Standard Deviations for Partner Behaviors in All Conditions

	Pretreatment	Posttreatment
Support Scale Total Score		
RPSG	13.36[a]	13.11[a]
	SD = 8.83	*SD* = 9.78
IAI	16.51[a]	13.67[a]
	SD = 10.02	*SD* = 9.58
DTC	15.53[a]	11.34[b]
	SD = 10.72	*SD* = 9.35
Criticizing Scale Total Score		
RPSG	8.32[a]	3.80[b]
	SD = 7.25	*SD* = 4.81
IAI	10.13[a]	5.40[b]
	SD = 8.74	*SD* = 4.49
DTC	10.98[a]	8.05[b]
	SD = 8.16	*SD* = 7.51
Promoting Scale Total Score		
RPSG	1.81[a]	1.16[a]
	SD = 2.99	*SD* = 2.79
IAI	2.40[a]	2.07[a]
	SD = 3.37	*SD* = 3.51
DTC	1.63[a]	1.77[a]
	SD = 3.15	*SD* = 3.33

Note. RPSG $n = 56$, IAI $n = 43$, DTC $n = 48$.

[a], [b] Values within a row that do not share a superscript differ significantly at $p < .05$.

Table 4

Means and Standard Deviations for Partner Behaviors in Active Conditions

	RPSG *n* = 56		IAI *n* = 44	
	Pretreatment	Posttreatment	Pretreatment	Posttreatment
Support Scale Total Score				
Attenders	13.62 [a] *SD* = 9.08	14.52 [a] *SD* = 10.34	16.94 [a] *SD* = 9.35	16.79 [a] *SD* = 10.63
Non-attenders	13.08 [a] *SD* = 8.71	11.59 [a] *SD* = 9.09	16.20 [a] *SD* = 10.65	12.24 [a] *SD* = 9.41
Criticizing Scale Total Score				
Attenders	8.78 [a] *SD* = 7.95	4.10 [b] *SD* = 4.96	8.83 [a] *SD* = 6.49	3.58 [b] *SD* = 4.03
Non-attenders	7.82 [a] *SD* = 6.53	3.48 [b] *SD* = 4.71	11.07 [a] *SD* = 10.08	6.76 [b] *SD* = 9.03
Promoting Scale Total Score				
Attenders	1.32 [a] *SD* = 2.52	1.03 [a] *SD* = 2.71	2.89 [a] *SD* = 3.50	1.53 [b] *SD* = 3.06
Non-attenders	2.33 [a] *SD* = 3.40	1.30 [a] *SD* = 2.92	2.04 [a] *SD* = 3.30	2.40 [a] *SD* = 3.79

[a] , [b] Pretreatment and posttreatment values within condition that do not share a superscript differ significantly at $p < .05$.

Table 5

Regression coefficients for pretreatment partner behaviors predicting marijuana use at baseline and 4-month follow-up

	B	SE B	β
Baseline Marijuana Use (N = 218)			
Supportive	0.03	0.05	0.05
Criticizing	-0.08	0.05	-0.12
Promoting	0.29	0.12	.17*

Note. R^2 = .04, p < .05

* p < .05, ** p < .01

	B	SE B	β
4-Month Marijuana Use (N = 184)			
Supportive	0.09	0.1	0.08
Criticizing	-0.02	0.12	-0.01
Promoting	0.19	0.26	0.05

Note. R^2 = .01, p > .05

* p < .05, ** p < .01

Table 6

Regression analysis for posttreatment partner behaviors predicting 4-, 7-, 13-, and 16-month marijuana use

	B	SE B	β
4-month Marijuana Use (N = 159)			
Supportive	-0.3	0.1	-.25**
Criticizing	0.67	0.14	.39**
Promoting	0.75	0.27	.21**

Note. R^2 = .18, p < .01
* p < .05, ** p < .01

	B	SE B	β
7-month Marijuana Use (N = 102)			
Supportive	-0.16	0.11	-0.15
Criticizing	0.45	0.18	.25*
Promoting	1.1	0.33	.32**

Note. R^2 = .17, p < .01
* p < .05, ** p < .01

	B	SE B	β
13-month Marijuana Use (N = 99)			
Supportive	-0.16	0.13	-0.14
Criticizing	0.51	0.2	.27*
Promoting	0.73	0.4	0.18

Note. R^2 = .10, p < .05
* p < .05, ** p < .01

	B	SE B	β
16-month Marijuana Use (N = 101)			
Supportive	-0.23	0.13	-0.19
Criticizing	0.66	0.21	.34**
Promoting	0.37	0.37	0.1

Note. R^2 = .11, p < .01
* p < .05, ** p < .01

Appendix A

Demographic Information

Please answer the following questions as completely as possible. Thank you.

1. Sex: (Please check) (1)____Female (2)____Male

2. Age: _____years

3. Current relationship status: (Please check)

(1)____Single
(2)____Married
(3)____Living with partner
(4)____Divorced or separated
(5)____Widowed

4. How many years of school have you completed?

_____ years

5. Do you have (check all that apply):

(1)___GED or High School Equivalency Diploma
(2)___Regular High School diploma
(3)___Associate degree
(4)___College (Bachelor's) degree
(5)___Master's degree
(6)___Doctoral degree

6. Race (Please check):

(1)___White
(2)___Black
(3)___Native American
(4)___Asian
(5)___Hispanic
(6)___Other (specify)_____

7. What is your current employment status (check only one of the following categories)?

(1) ____ Employed full time
(2) ____ Employed part time
(3) ____ Unemployed, seeking work
(4) ____ Unemployed, not seeking work (homemaker, student, retired, disabled, etc.)

8. Please circle the number that best describes the type of job you currently have. If you do not have a job, circle 1.

   1 None

   2 professional or managerial (doctor, teacher, manager, architect, engineer, executive, etc.)

   3 clerical or sales (bookkeeper, office worker, salesperson)

   4 skilled or technical worker (mechanic, electrician, baker, carpenter, medical technician, etc.)

   5 semi-skilled worker (construction, driving, general labor, etc.)

   6 unskilled

   7 other (please specify) _____

9. What was your family's income (to the nearest thousand dollars) over the past year?

   $_____

10. What was your personal income (to the nearest thousand dollars) over the past year?

    $_____

11. In the last twelve months have you fallen behind in paying your bills?

    (1)____Yes (2)____No

12. Check the category that best described where you presently live.

    (1)____own house
    (2)____apartment or rented house
    (3)____room
    (4)____institution
    (5)____no fixed address (e.g., hotels)
    (6)____other_____

13. Please indicate on the line below how many times you moved in the past year

    _____

14. Please check the category below that best described how frequently you had contact with members of your family over the past year.

    (1)___Daily
    (2)___Weekly
    (3)___Monthly
    (4)___Less than monthly
    (5)___None

15. Check the response that best described whether or not you could return to love with members of your family.

    (1)___Does not apply
    (2)___Yes
    (3)___Uncertain
    (4)___No

16. Please indicate on the line below how many <u>months</u> you were employed full time or part time during the past year.

    _____

17. Please indicate on the line below how many job changes you have made in the past year.

    _____

18. Check the response that described your current legal status.

    (1)___no problems
    (2)___awaiting trial
    (3)___on probation or parole

19. Please indicate on the line below approximately how many <u>days</u> of work you missed over this past year due to use of alcohol or drugs. Enter 0 if none.

    _____

20. Indicate on the line below how many <u>days</u> of the past year you spent in jail or prison. Enter 0 if none.

    _____

21. Please indicate on the line below how many arrests and convictions you had for alcohol and drug offenses over the past year.

    _____

Appendix B

Participant Marijuana Use Information

In answering the following question concerning your use of drugs, please remember that your responses are protected by a Certificate of Confidentiality from the federal government.

22. How old were you when you first tried marijuana?

    _____ years

23. How many years have you used marijuana in total in your life?

    _____ years

24. Has there been a time in your life when you used marijuana on a daily or near daily basis for at least a month?

    (1)___Yes (2)___No

    If you answered yes, how old were you when you first used marijuana on a daily or near daily basis for at least a month?

    _____ years

25. In the past 90 days, how many days did you smoke marijuana at least once?

    _____ days

26. In the past 90 days, on a typical day when you smoked marijuana, about how many times per day did you smoke?

    (0) _____ not at all
    (1) _____1 smoking occasion per day of use
    (2) _____2-3 smoking occasions per day of use
    (3) _____4-5 smoking occasions per day of use
    (4) _____6 or more smoking occasions per day of use

27. On a typical weekday when you smoke marijuana, what time of day do you usually smoke? Check as many time periods as apply.

    _____ 8:00am to noon
    _____ 12:00 noon to 5:00pm
    _____ 5:00pm to 9:00pm
    _____ 9:00pm to 12:00 midnight
    _____ 12:00 midnight to 8:00am

28. On a typical weekend day when you smoke marijuana, what time of day do you usually smoke? Check as many time periods as apply.

_____ 8:00am to noon
_____ 12:00 noon to 5:00pm
_____ 5:00pm to 9:00pm
_____ 9:00pm to 12:00 midnight
_____ 12:00 midnight to 8:00am

29. In a typical week in the last 90 days, how often did you smoke marijuana just before or during your work hours? If you are not employed, how often did you smoke marijuana before or during the time you were carrying out other responsibilities? (Check one.)

(0) _____ Never during work hours
(1) _____ Once a week
(2) _____ Two or three days a week
(3) _____ Four or more days a week

30. How do you usually smoke marijuana? (Check one.)

(1) _____ joints
(2) _____ pipes
(3) _____ both joints and pipes

31. In the past 90 days, on a typical day when you smoke marijuana, about how many joints did you smoke? If you don't smoke joints try to estimate how many average sized joints you could roll from the amount you smoked in a pipe.

_____ joints (OK to use fractions, e.g. 1/4, 1/3, 1/2, etc.)

32. In the past 90 days, how much marijuana did you smoke in terms of its weight? Use either the ounces or the grams category below.

_____ ounces

_____ grams

33. How much did lack of access to marijuana influence the amount you smoked during the past 90 days?

(1) ____Not at all, I didn't have any trouble getting access
(2) ____Somewhat, I would have smoked a little more if I had easier access
(3) ____Quite a bit, I would have smoked a lot more if I had easier access

34. How much did the cost of marijuana influence the amount you smoked during the past 90 days?

(1) ____Not at all, cost didn't keep me from smoking as much as I wanted
(2) ____Somewhat, I would have smoked a little more if it was cheaper
(3) ____Quite a bit, I would have smoked a lot more if it was cheaper

35. Is there urine testing program in your workplace for employees at your level?

(0) ____Not applicable, I'm not currently employed (Skip to question #39)
(1) ____Yes, currently
(2) ____No, but one is going to start
(3) ____No, there was a program but it has been discontinued
(4) ____No

36. Has your employer ever asked you to submit a urine sample to be tested for the presence of drugs?

(1) ____Yes
(2) ____No

37. In the past 12 months, has your employer randomly selected employees at your level for urine tests for the presence of drugs?

(1) ____Yes
(2) ____No

38. To what extent does the possibility of mandatory urine testing have an influence on your marijuana use?

1	2	3	4	5
No Influence		Moderate Influence		Very Strong Influence

39. Do you receive any income from selling marijuana?

(1) ____Yes
(2) ____No

If yes, please indicate approximately how much income per month:

$_____

Appendix C

Partner Marijuana Use Information

In this questionnaire, the questions concern communication patterns between you and your spouse, partner, or significant other and your perceptions of his or her marijuana, alcohol, and other drug use. We will use the term "partner" to refer to this person throughout the questionnaire. If you do not have a spouse, partner, or significant other at this time, please indicate below and skip this questionnaire.

_____ Not currently in a relationship with a spouse, partner, or significant other.

1. Please identify your relationship with the person to whom you will be referring in this questionnaire:

   _____Spouse _____Partner or Significant Other

2. Do you live in the same household as your partner?

   _____Yes _____No

3. How many days in a typical week do you see your partner?
   (Enter a number from 0 to 7 in the blank)

   _____days

4. On a typical day when you see your partner, how many hours do you spend with him/her?

   _____hours

5. Is your partner a current marijuana user?

   _____Yes _____No (Skip to #8)

6. In the past 90 days, how many days did your partner smoke marijuana at least once?

   _____ days

7. If yes, in the past 90 days, on a typical day when your partner smoked marijuana about how many times per day did he/she smoke?
   (Place a check by the response that best answers this question for your partner)

   (0) _____ not at all
   (1) _____1 smoking occasion per day of use
   (2) _____2-3 smoking occasions per day of use
   (3) _____4-5 smoking occasions per day of use
   (4) _____6 or more smoking occasions per day of use

8. Which of the following describes your partner's marijuana use status?

(4) _____ Current user with no plans to quit.
(3) _____ Current user trying to quit.
(2) _____ Used to use marijuana but quit within the last two years.
(1) _____ Used to use marijuana but quit more than two years ago.
(0) _____ Has never been a marijuana user.

Appendix D

Primary Communication Inventory

Below is a list of questions on communication between you and your spouse or partner. Using the scale described here, fill in the blank space next to each question with the number which best represents the extent to which you and your partner behave in a specified way.

1 = Never
2 = Seldom
3 = Occasionally
4 = Frequently
5 = Very frequently

____9. How often do you and your partner talk over pleasant things that happen during the day?

____10. How often do you and your partner talk over unpleasant things that happen during the day?

____11. Do you and your partner talk over things you disagree about or have difficulties over?

____12. Do you and your partner talk about things that in which you are both interested?

____13. Does your partner adjust what he/she says and how he/she says it to the way you seem to feel at the moment?

____14. When you start to ask a question, does your partner know what it is before you ask?

____15. Do you know the feelings of your partner from his/her facial and bodily gestures?

____16. Do you and your partner avoid certain subjects in conversation?

____17. Does your partner explain or express himself/herself to you through a glance or gesture?

____18. Do you and your partner discuss things together before making an important decision?

____19. Can your partner tell what kind of day you have had without asking?

____20. Your partner wants to visit some close friends or relatives. You don't particularly enjoy their company. Would you tell him/her this?

____21. Does your partner discuss matters of sex with you?

____22. Do you and your partner use words which have a special meaning not understood by outsiders?

____23. How often does your partner sulk or pout?

____24. Can you and your partner discuss your most sacred beliefs without feelings of restraint or embarrassment?

1 = Never
2 = Seldom
3 = Occasionally
4 = Frequently
5 = Very frequently

____25. Do you avoid telling our partner things that put you in a bad light?

____26. You and your partner are visiting friends. Something is said by the friends which causes you to glance at each other. Would you understand each other?

____27. How often can you tell as much from the tone of voice of your partner as from what he/she actually says?

____28. How often do you and your partner talk with each other about personal problems?

____29. Do you feel that in most matters your partner knows what you are trying to say?

____30. Would you rather talk about intimate matters with your partner than with some other person?

____31. Do you understand the meaning of your partner's facial expressions?

____32. If you and your partner are visiting friends or relatives and one of you starts to say something, does the other take over the conversation without the feeling of interrupting?

____33. During your relationship, have you and your partner, in general, talked most things over together?

Appendix E

Relationship Satisfaction

34. In general, are you satisfied with your relationship with your partner? Please circle the number on the scale below that best describes your degree of satisfaction.

1	2	3	4	5	6	7
Completely Unsatisfied						Completely Satisfied

Appendix F

Partner Interaction Questionnaire

Please indicate in the first column, using the scale below, how often your spouse or partner has done each of the following behaviors in the past month.

0 = never occurred (0 times)
1 = occurred rarely (1 or 2 times)
2 = occurred a few times (3 -6 times)
3 = occurred often (7 or more times)

In the second column, please rate how helpful you think these events would be to you while you are trying to stop smoking marijuana. Use the following scale to rate each event. If an event has happened more than once, rate how unhelpful or helpful it was on average. If an event has not happened, rate it according to how helpful or unhelpful you think it would be if it occurred.

1 = unhelpful
2 = neither helpful nor unhelpful
3 = helpful

During the past month my partner:	Occurrence	Helpfulness
35. Complimented my not smoking marijuana	_____	_____
36. Mentioned the health risks associated with smoking marijuana	_____	_____
37. Talked me out of smoking marijuana	_____	_____
38. Complained about my irritableness (as a result of not smoking marijuana)	_____	_____
39. Commented on the amount of money spent on marijuana	_____	_____
40. Commented on my lack of willpower	_____	_____
41. Planned with me how we would use the money saved from not buying marijuana	_____	_____
42. Offered me marijuana to smoke	_____	_____
43. Asked about my progress in the treatment program	_____	_____

During the past month my partner:		Occurrence	Helpfulness
44.	Refused to participate in an activity with me that would keep me from smoking marijuana	_____	_____
45.	Suggested exercises for me to do to help me not smoke marijuana	_____	_____
46.	Left marijuana or paraphernalia lying around	_____	_____
47.	Refused to let me smoke marijuana in the house	_____	_____
48.	Made a special effort to keep the home environment calm	_____	_____
49.	Congratulated me for my decision to quit through a program	_____	_____
50.	Helped me think of positive substitutes for my smoking marijuana	_____	_____
51.	Mentioned being bothered by marijuana smoke	_____	_____
52.	Criticized my laziness when smoking marijuana	_____	_____
53.	Commented that we don't communicate when I smoke marijuana	_____	_____
54.	Celebrated my quitting with me	_____	_____
55.	Expressed interest in learning about the treatment program	_____	_____
56.	Criticized my smoking marijuana	_____	_____
57.	Expressed indifference about my quitting	_____	_____
58.	Mentioned that quitting must be difficult	_____	_____
59.	Expressed doubt about my ability to quit/stay quit	_____	_____

Occurrence
0 = never occurred (0 times)
1 = occurred rarely (1 or 2 times)
2 = occurred a few times (3 -6 times)
3 = occurred often (7 or more times)

Helpfulness
1 = unhelpful
2 = neither helpful nor unhelpful
3 = helpful

During the past month my partner:	Occurrence	Helpfulness
60. Mentioned that I was losing weight by not smoking marijuana	_____	_____
61. Mentioned the health benefits of stopping smoking marijuana	_____	_____
62. Helped me to calm down when I was feeling stressed or irritable	_____	_____
63. Told me to stick with it	_____	_____
64. Expressed confidence in my ability to quit/remain quit	_____	_____
65. Helped me to use positive substitutes for smoking marijuana	_____	_____
66. Expressed pleasure at my efforts to quit	_____	_____
67. Participated in an activity with me that kept me from smoking marijuana	_____	_____
68. Made an effort to keep smoking paraphernalia out of sight	_____	_____
69. Refrained from smoking marijuana in my presence	_____	_____
70. Asked me to quit smoking	_____	_____
71. Smoked marijuana in my presence	_____	_____
72. Criticized my joining a program to help me quit smoking marijuana	_____	_____
73. Commented that smoking sets a bad example for children	_____	_____

During the past month my partner:	Occurrence	Helpfulness
74. Mentioned mising my being tolerant or laid back when smoking marijuana	_____	_____
75. Criticized me for not being dependable when smoking marijuana	_____	_____
76. Mentioned missing my sense of humor when I was smoking marijuana	_____	_____
77. Commented that when smoking marijuana, I was not a responsible driver	_____	_____
78. Commented that I'm a better parent when I'm not smoking marijuana	_____	_____
79. Said I'm more pleasant to be with when I'm not high	_____	_____
80. Appreciated the house or my clothes not smelling like marijuana	_____	_____