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Enhancing Substance Abuse Treatment Engagement in Incarcerated Adolescents

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Abstract

The purpose of this study was to determine whether motivational interviewing (MI), compared with an attention control condition (relaxation training [RT]) enhances substance abuse treatment engagement in incarcerated adolescents. At the start of incarceration, adolescents were randomly assigned to individually administered MI or RT. Subsequently, therapists and adolescents ($N = 130$) rated degree of adolescent participation in the facility's standard care group-based treatments targeting crime and substance use. All adolescents received the facility standard care treatment after their individual MI or RT session. MI statistically significantly mitigated negative substance abuse treatment engagement. Other indicators of treatment engagement were in the expected direction; however, effect sizes were small and nonsignificant. These findings are significant, given concerns regarding the deleterious effects of treating delinquent adolescents in groups and the potential for adolescents to reinforce each other's negative behavior, which in turn may lead to escalated substance use and other delinquent behaviors after release.

Alcohol and marijuana abuse are prevalent problems in incarcerated youth. Neighbors, Kempton, and Forehand (1992) reported that 47% of their sample of 111 incarcerated youths met criteria for a diagnosis of alcohol or substance abuse or dependence. Of these 47%, 44% were diagnosed as having alcohol abuse or dependence alone or in conjunction with marijuana abuse or dependence. Teplin, Abram, McClelland, Dulcan, and Mericle (2002) conducted diagnostic assessment on 1,800 juvenile detainees and found 26% qualified for alcohol use disorder, whereas 45% qualified for marijuana use disorder. It is well known that many delinquents use alcohol or drugs before the commission of delinquent acts (Huizinga, Menard, & Elliott, 1989; National Institute of Justice [NIJ], 1997, 2003). Data compiled from 12 U.S. cities on youths ages 9–18 indicated that more offenses of every type

(violent, property, and drug) were committed by arrestees who tested positive for marijuana than for those testing positive for cocaine or methamphetamine (NIJ, 1997, 2003).

Thornberry, Tolnay, Flanagan, and Glynn (1991) found that treatment for drug offenders was available in less than 40% of the 3,000 public and private juvenile detention, correctional, and shelter facilities across the United States. When services are available, they are often provided to youths who are unmotivated for intervention (Melnick, De Leon, Hawke, Jainchill, & Kressel, 1997; Prochaska et al., 1994).

Juvenile delinquents are often treated in group settings with treatments largely untested in rigorous randomized trials (Zimpfer, 1992). There has been considerable concern regarding the destructive potential of group treatment for adolescents (Dishion & Kavanagh, 2003; Gifford-Smith, Dodge, Dishion, & McCord, 2005). In prevention groups for high-risk teens, groups contributed to an escalation in self-reported smoking and teacher reported delinquency over follow-up (Poulin, Dishion, & Burraston, 2001). Dishion, McCord, and Poulin (1999) have suggested that, during early adolescence, peer aggregation may reinforce problem behavior. Adolescents reinforce each other's delinquent behaviors during treatment through laughter, attention, winks, and nods that result in the iatrogenic effects of intervention groups. Counternormative talk and reference to delinquent activities may be reinforced through this deviancy training. This process can be characterized as negative treatment engagement, and such negative engagement has been found to mediate treatment outcome in adolescents (Gifford-Smith et al., 2005).

MI may be particularly suited to address negative treatment engagement or iatrogenic effects of treatment in that it reduces resistance (Amrhein, Miller, Yahne, Palmer, & Fulcher, 2003; Miller & Mount, 2001; Miller & Rollnick, 2002). The focus of MI is on reflecting for adolescents, in their own words, reasons to change problem behaviors while minimizing countertherapeutic behaviors and discussion. This therapeutic strategy is consistent with Bem's (1972) self-perception theory, which suggests that we learn about ourselves through hearing ourselves speak. Treatment engagement may be enhanced (or impacted) by either reducing negative engagement (e.g., talk that glorifies drug use) or by increasing positive engagement (e.g., discussion that seriously weighs the consequences of drug use). Front-loading group-based treatment with individual MI may address such engagement issues and encourage more productive group processes or inoculate individual adolescents against negative group process.

Dunn, DeRoo, and Rivara (2001) reviewed 29 randomized trials of MI in four domains (substance abuse, smoking, HIV, and diet/exercise). The strongest evidence for efficacy was found for substance abuse, for which MI improved rate of entry and retention in substance abuse treatment (Dunn et al., 2001). Brown and Miller (1993) found that adult clients who received pretreatment MI were rated as more involved in subsequent treatment than were control group clients. Aubrey (1998) provided a single assessment and feedback session based on MI to half of a group of adolescents about to start outpatient substance abuse services and compared them with the half that began outpatient treatment as usual. At the 6-month follow-up, the MI group attended more outpatient sessions and reported less heavy substance use than the comparison group (Aubrey, 1998). In a nonrandomized pilot study, Breslin, Li, Sdao-Jarvie, Tupker, and Ittig-Deland (2002) provided a four-session MI to adolescents presenting for addiction treatment (about 33% of the sample was involved in the juvenile justice system). At the 6-month follow-up, teens reduced use and adverse substance-related consequences and had increased confidence in high-risk situations, and more than half of the teens who were followed sought additional substance-related services after treatment (Breslin et al., 2002). Taken together, these data suggest that MI may be effective in enhancing treatment engagement.

A recent review suggested that brief interventions, including MI, are effective in reducing substance use in general (Tait & Hulse, 2003). Another review on the use of MI with adolescents concluded that MI decreases substance-related negative consequences, reduces substance use, and increases treatment engagement, with results particularly strong for those with heavier substance use patterns and/or less motivation to change (O'Leary-Tevyaw & Monti, 2004). Masterman and Kelly (2003) also indicated that MI may be a useful method of engaging adolescents and may be particularly well-suited to adolescents, given their sensitivity and resistance to adult attempts to control or direct their behavior (Marlatt & Witkiewitz, 2002).

MI (Miller & Rollnick, 2002) is ideally suited for correctional settings in that it is brief, can be used as a prelude to other treatments (Bien, Miller, & Boroughs, 1993; Brown & Miller, 1993), and has also been found effective as a stand-alone treatment for substance abuse (see Burke, Arkowitz, & Dunn, 2002; Colby et al., 1998; Monti et al., 1999). MI is well suited for settings with few resources and for persons who may be high in anger or hostility (Karno & Longabaugh, 2004; Waldron, Slesnick, Brody, Turner, & Peterson, 2001). As many as 40% of juveniles show significant anger when initially detained (Stein, Slavet, Gingras, & Golembeske, 2004).

The purpose of this study is to determine whether MI, compared with RT, enhances substance abuse treatment engagement in newly incarcerated adolescents. After being randomly assigned and receiving either MI or RT (both individually based), adolescents then received milieu and group-based standard care treatments (offered by the facility). This study moves the current body of research forward in that we examine an understudied population and treatment engagement, an understudied but potentially important construct in effecting change. Given that incarcerated adolescents may have little motivation to engage in treatment (Melnick et al., 1997; Prochaska et al., 1994) and given the potential iatrogenic effects of group-based treatments commonly used in juvenile justice settings, it is imperative that we examine methods of both mitigating negative treatment engagement (Gifford-Smith et al., 2005) and improving positive treatment engagement. As indicated earlier, MI may be ideally suited to address these important issues.

Method

Participants

The sample was recruited at a state juvenile correctional facility in the Northeast. Immediately after adjudication adolescents were identified as potential candidates for the study if they were between the ages of 14 and 19 years (inclusive) and were sentenced to the facility for between 4 and 12 months (inclusive). Consent was obtained from legal guardians, and assent was obtained from adolescents (adolescents 18 years or older provided consent). Adolescents and guardians provided permission for adolescent participation in a larger treatment outcome study, of which the present study is a part. Guardians and adolescents were informed that all information was confidential, except for plans to escape, plans to hurt self or others, or reports of child abuse.

Adolescents were included in the study if they met any of the following substance use screening criteria: (a) in the year before incarceration they used marijuana or drank regularly (at least monthly) or they binge drank (≥ 5 standard drinks for boys, ≥ 4 for girls) at least once; (b) they used marijuana or drank in the 4 weeks before the offense for which they were incarcerated; or (c) they used marijuana or drank in the 4 weeks before they were incarcerated.

All procedures that were utilized received Institutional Review Board approval. Of 149 adolescents approached for the study, 132 met screening criteria and completed our consent procedure. Of those 132, 2 adolescents dropped out of the study before completing the initial assessment, leaving 130 adolescents enrolled at baseline.

The baseline sample ($N = 130$) comprised the following racial/ethnic background: 28.5% Hispanic, 34.6% African American, 30.8% White, 0.8% Asian American, 3.8% Native American, and 1.5% self-identified as other. Most were boys (90.0%), average age was 17.16 years ($SD = 1.09$), and on average the sample had been incarcerated 2.92 times before the current incarceration ($SD = 3.17$). In the previous year, 62.3% and 86.9% qualified for alcohol and marijuana use disorders, respectively.

Procedure

Facility program description—This is the state's sole juvenile correctional facility and charges range from simple truancy to murder. It has been estimated that about 1,000 to 1,200 adolescents per year are detained at the facility, about 500 to 600 adolescents per year are adjudicated to the facility, and annual recidivism is about 35%. Adolescents receive group treatment as well as individualized attention (as indicated) on a variety of topics (sex-offending, drug dealing, reducing crime, developing empathy, preventing violence, anger management, etc.).

Adolescents routinely attend psychoeducational group treatment for substance use/abuse. This is the facility's standard care substance abuse treatment. Enrollment usually begins shortly after adjudication. This treatment, which is native to the facility and administered by facility staff, is designed to provide appropriate counseling and rehabilitative services for residents of the facility. Treatment goals include increased knowledge of negative effects of alcohol, tobacco, and other drugs, and accompanying change in attitude regarding the use of these substances. The program, which meets twice weekly for 8 weeks for 60 min per session, includes an education/prevention component that provides youths with information on the effects of alcohol, tobacco, and other drugs. The curriculum includes overviews of the physical, psychological, and social consequences of drugs, including HIV risk; defense mechanisms such as denial, and an introduction to AA; overview of coping skills; and treatment resources that are available after release. Each group has about 10–12 participants at any one time. Groups are didactic as well as interactive. Videotapes are also used as part of the education process. As needed, groups may focus on conflict resolution, anger management, communication, gang participation, drug dealing, and independent living.

Medical, dental, psychiatric, and psychological care is available to adolescents, and the facility houses its own education department. More in-depth substance abuse services are available as indicated, and Alcoholics Anonymous (AA) is also available on a weekly basis. Community religious organizations also have a relationship with the facility. Limited vocational programming is available for adolescents as are transitional services that include substance use counseling, case management, mentoring and other services.

Assessment—The assessments consisted of 60- to 90-min interviews conducted by a trained bachelor's (BA/BS) or master's (MA)-level research assistant. Research assistants had about 20 hr of training with 2 hr of group and 1 hr of individual supervision per week. In vivo observations were conducted regularly by a licensed clinical psychologist. All assessment data were reviewed by a licensed clinical psychologist or MA-level project member. Record reviews were completed following completion of the assessments.

Assessments occurred at baseline (shortly after adjudication), and at the conclusion of the facility's standard care substance treatment, approximately two months after adjudication.

Data at the 2-month follow-up had $N = 130$ (as indicated above, baseline also had $N = 130$). Average length between baseline session and the 2-month follow-up was 61.0 days (standard deviation = 17.2). Facility staff received a \$10 grocery store gift certificate for every 10 ratings of adolescent engagement that were completed (see measures).

Study interventions—Interventions were about 90 min at baseline and about 60 min at booster. Adolescents were randomly assigned to and received intervention (MI or RT) shortly after the baseline assessment to prepare them for the facility standard care treatment. For both interventions (MI and RT), research counselors had about 56 hr of manualized training, with 2 hr of group and 1 hr of individual supervision per week. All study intervention files were reviewed by a licensed clinical psychologist or a MA-level project member. Research counselors were 2 men and 2 women; all 4 were Caucasian; 1 had an MA degree, and 3 had BA/BS degrees. Each research counselor conducted both intervention types. In vivo observations were conducted by a licensed clinical psychologist to maintain intervention fidelity.

MI—As is consistent with MI, the intervention is modified as appropriate to be meaningful for each adolescent and his or her interest in changing. The intervention, administered by research counselors, consists of four components: establishing rapport, assessing motivation for change, motivational enhancement, and establishing goals for change. The first component, establishing rapport, aims to present the counselor as empathic, concerned, nonauthoritarian, and nonjudgmental, elements essential to MI (Miller, 1995). Next, level of motivation to change is assessed by asking questions about the adolescent's likes and dislikes about using alcohol and marijuana. Counselors can then tailor the MI to these personalized pros and cons while keeping in mind the adolescent's readiness for changing alcohol/marijuana use.

Motivation is enhanced by utilization of the MI strategies of individualized feedback, examining decisional balance, and providing information and advice. Feedback consists of four sections: (a) information about the adolescent's pattern of alcohol and marijuana use and how she/he compares with same age and gender peers; (b) information about the characteristics of dependence on alcohol and marijuana; (c) feedback regarding alcohol- and marijuana-related consequences (e.g., health, social, academic/work, and legal) are provided (this section also includes an estimate of the amount of money the adolescent spends on alcohol and marijuana as applicable); (d) feedback about the adolescent's prominent alcohol- and marijuana-related outcome expectancies are presented, and information is provided to address their veracity. For each of the feedback topic areas, the counselor reviewed the feedback with the youth, asked for the youth's reaction, and provided further information when relevant.

Research counselors next examined the adolescents' decisional balance. This is designed to develop the adolescent's sense of discrepancy between current behavior and future goals, and it serves to increase the adolescent's ambivalence about current behavior. Other portions of the MI are devoted to instilling a sense of self-efficacy should the adolescent decide to make behavior changes. The final phase of the intervention involves helping adolescents determine, what if anything, they would like to do differently with regard to their alcohol/marijuana use and associated risky behaviors (e.g., illegal activity, sex). This includes identifying goals for behavior change, exploring barriers to these changes, and providing strategic advice. A "goals sheet" is used which includes items that reflect various stages of readiness to change. The standard care treatment offers an avenue by which goals may be addressed, and research counselors and adolescents reviewed use of standard care to address goals.

RT—RT, administered by research counselors, is designed to control for the effects of attending individual intervention. Participants are instructed in relaxation and meditation. Adolescents receive feedback in use of the relaxation techniques and they receive handouts on relaxation. Research counselors maintain rapport and provide generalized advice to stop criminal and risky activities and use of alcohol/marijuana.

Measures

Record review—The record review was used to enhance truthfulness of self-reported alcohol/marijuana use and illegal activity. Adolescents were informed at the start of the study that records would be reviewed to verify self-reports. Records contained health and legal information regarding substance use history and charges. Record review was conducted at baseline only.

Background questionnaire—Sociodemographic information was recorded including age, gender, race, number of years of school completed, and parent/guardian educational level. This questionnaire was administered at baseline.

Structured Clinical Interview for DSM-IV (SCID-I)—This diagnostic interview was developed by First, Gibbon, Spitzer, and Williams (1996) and is reliable and valid. Modules for alcohol and marijuana abuse and dependence were administered. It was completed at baseline.

Behavior ratings—Each adolescent receives points for her or his behavior; this system is native to the facility. Points are recorded by facility staff and reflect engagement in facility milieu. Up to 100 points/week can be accumulated and these points impact upon allowance and privileges. Points may be earned for school behavior, being helpful on the unit, completing chores, and engaging in treatment. Points are also deducted for discipline problems. Points are collected for 2 weeks at both baseline and after the adolescent has been on the unit for 2 months (immediately before and after the facility standard care treatment). Average number of points per day is used in the analyses.

Treatment Participation Questionnaire (TPQ)—The adolescent version consists of 21 items at baseline and 26 items at follow-up, and the social worker version consists of 15 items.¹ Items reflect attitudes and behaviors toward facility group and milieu substance treatment. For the adolescent version, principal components analyses (PCA) revealed positive and negative engagement scales, whereas the social worker PCA revealed a negative engagement scale (Stein, Colby et al., 2004). Items are rated on a Likert scale (1 = Disagree strongly to 6 = Agree strongly). An average score (range 1 – 6) across items is calculated for each scale. Sample items from the adolescent versions include “I think a lot about the good and bad things about substance use” (positive engagement) and “I like to joke in treatment when they begin discussing substance use” (negative engagement). The scales have concurrent, divergent, and predictive validity (Stein, Colby, et al., 2004). Adolescents fill out TPQs shortly after treatment milieu begins (baseline) and about 2 months into the milieu. This 2-month period generally reflects the conclusion of the facility's standard care treatment. Social workers also complete the TPQ after adolescents have been at the facility for about 2 months. They are intimately involved in the adolescent's therapeutic progress.

Intervention fidelity—O'Leary-Tevyaw and Monti (2004) detailed this fidelity measure. Adolescents complete evaluation forms assessing whether certain core components of the

¹Copies of the TPQ are available from L. A. R. Stein.

interventions occur. This includes three items assessing the therapeutic relationship (perceived rapport, empathy, self-efficacy). Responses for each of the three relationship items are rated on a scale ranging from 1 (strongly disagree) to 4 (*strongly disagree*). An average relationship rating is obtained. The relationship items assess core elements of MI and should be rated more highly in MI than in RT.

Specific elements of each protocol (MI or RT) are assessed, as is the perceived utility of each (0 = topic not introduced to 3 = topic very useful, across 10 items). An average usefulness rating is obtained for elements pertaining to MI and for those pertaining to RT. On the MI fidelity form, adolescents in MI rated MI-specific elements as well as elements specific to RT. Therefore, adolescents in MI should rate MI-specific elements of the protocol more highly on the scale than RT-specific elements. On the RT fidelity form, adolescents in RT rated RT-specific elements as well as elements specific to MI. Therefore, adolescents in RT should rate RT-specific elements of the protocol more highly than MI-specific elements. MI-specific elements include a discussion of likes and dislikes regarding substance use, whereas RT-specific elements include practicing tensing and relaxing muscle groups.

Analyses

Because behavior ratings were negatively skewed, these data were transformed with procedures indicated in Tabachnick and Fidell (1996): Each behavior rating value was subtracted from the largest score + 1 in the distribution. A square-root transformation was then applied. This transformation necessitates reversing the direction of interpretation so that low scores on the transformed behavior rating indicate good ratings and high scores indicate poor ratings.

Compared with RT, we sought to determine whether MI enhanced treatment engagement in facility standard care for incarcerated adolescents. Repeated measures analysis was not selected as the analytic approach because we did not have social worker ratings at baseline (they did not know adolescents well enough to rate). As a result, analysis of covariance (ANCOVA) was chosen to test the hypothesis. For each dependent variable (DV), an ANCOVA was performed; therefore, we used the conservative Bonferroni correction (Howell, 1992) ($.05/4 = .013$). DVs at 2-month assessment were unit behavior ratings, positive and negative scales from the adolescent TPQ, and the social worker negative TPQ scale. For each ANCOVA, the covariate was the corresponding baseline measure of the DV, and the independent variable (IV) was intervention condition. Because social workers did not know adolescents well enough at baseline to provide ratings, the corresponding adolescent negative TPQ scale at baseline was used as the covariate for the ANCOVA involving the social worker negative TPQ scale. Outcome analyses were adequately powered (0.80) for α set at .013 and effect size in the medium range (Cohen, 1988; Borenstein, Rothstein, & Cohen, 2000).

Results

Manualized fidelity procedures indicated [a] adolescents in MI rated elements of RT as less useful than elements of MI, $t(68) = 19.53, p < .001$; [b] adolescents in RT rated elements of MI as less useful than elements of RT, $t(60) = 23.25, p < .001$; and [c] Adolescents rated the therapeutic relationship significantly better (e.g., warmth, ease of discussion, instilling hope) in MI than in RT, $t(111) = 2.03, p < .05$.

ANCOVAs are shown in Table 1. A significant effect for the adolescent negative TPQ scale was obtained: $F(1, 127) = 7.49, p < .007$, and $f = 0.24$ for a medium effect size (Cohen, 1988). The other DVs produced small or small-medium effect sizes in the expected

direction, but none reached significance at the 0.05 p - level.² At 2 months into incarceration, the RT group showed significantly more negative engagement, compared with the MI group.

Discussion

Results indicate interventions were delivered with a high degree of fidelity and that MI fosters a better therapeutic relation than RT. Results also indicate that MI can be used to enhance adolescent treatment engagement during incarceration. Specifically, MI appears to affect engagement largely by decreasing negative engagement in treatment. Although this study did not find that MI increased positive treatment engagement statistically significantly, effect sizes were in the expected direction. Because MI is a relatively brief treatment, it may be ideal for settings with few resources. This study indicates that juvenile correctional settings should consider front-loading treatment programs with individual MI. This study also indicates that it is important to distinguish between types of treatment engagement (positive and negative).

There could be several reasons why statistically significant effects were not obtained for negative treatment engagement as rated by social workers, positive treatment engagement as rated by adolescents, and behavior ratings as rated by unit staff. The teen treatment participation questionnaire has somewhat different items than the social worker version because only adolescents can answer questions regarding their thoughts and feelings toward treatment. Similarly, adolescents are likely more familiar with their own behavior than social workers may be, as social workers track up to 40 adolescents at a time.

Lack of improvement in positive treatment engagement may be related to the setting in which the study took place. It may be that during incarceration, adolescents feel there is relatively little over which to be positive. Conversely, they may feel there is much over which to be negative, especially as time progresses. As a result, there could be more ability to impact negative engagement and reduce it. With regard to behavior ratings, the persons providing these ratings were not clinically trained. In addition, the MI and RT focused on substance use and related delinquent behaviors, whereas the behavior ratings were more broadly focused (e.g., use of profanity, engaging in chores) and merely included therapeutic engagement among many behaviors. Behavior ratings include engagement in the overall treatment milieu. It may be that our intervention (aimed specifically at reduction of substance use) did not carry over into all aspects of the milieu that are tapped with the behavior ratings.

The literature indicates that MI is effective for adolescent substance abusers and that it may be of assistance in getting persons involved in treatment programming (Dunn et al., 2001; O'Leary-Tevyaw & Monti, 2004; Tait & Hulse, 2003). MI may be a useful method of engaging adolescents and may be particularly well suited to adolescents, given their sensitivity and resistance to adult attempts to control or direct their behavior (Masterman & Kelly, 2003; Marlatt & Witkiewitz, 2002). Perhaps one of the mechanisms by which MI is effective for adolescents is by affecting use of or interest in other treatments and services. These findings (that MI affects treatment engagement) are consistent with previous literature and extend the literature by suggesting one avenue through which MI may affect substance

²Alternate repeated measures analyses (RMA) were also conducted without the social worker negative TPQ scale. For the social worker negative scale, ANCOVA was performed as described in the analysis section. These analyses yielded similar results to those presented in the results section. A significant Intervention $\times$ Time interaction was obtained for the adolescent negative TPQ scale, indicating that the MI group had less negative treatment engagement over time, compared with the RT group. No other interactions were significant; however, a significant effect for time was found for unit behavior ratings, indicating that over time, behavior on the unit improves significantly. Of course, as presented in the results, the ANCOVA for the social worker negative scale produced nonsignificant results.

reduction (by reducing negative engagement in services). Future studies must elucidate whether reducing negative treatment engagement mediates ultimate treatment outcomes after release from incarceration. That MI can reduce negative treatment engagement also extends the literature concerning the iatrogenic effects of treating delinquent adolescents in groups. A recent review by Gifford-Smith et al. (2005) illustrates the pressing concern for understanding and managing negative treatment engagement in adolescents treated in the juvenile justice system. This study provides a potential avenue to address such pressing concerns.

Although results are promising, several limitations exist. We recommend cross-validation in other settings to see if results can be replicated (e.g., in prison or in day treatment settings). We also recommend larger samples of girls and accessing larger samples to increase power for smaller effect sizes.

Studying treatment engagement is important, given recent concerns regarding the negative (or iatrogenic) effects of group treatments for delinquent adolescents. Contradictory results regarding whether adolescent group treatments produce iatrogenic effects have been found in the literature (see Dennis et al., 2004; Dishion et al., 1999; Garrett, 1985; Poulin et al., 2001; Waldron et al., 2001). These contradictory results may be in part because of the variety of methods used to assess negative and positive group treatment engagement. This study used multimethod and multi-informant techniques. The present investigation suggests that (a) it is important to examine *type* of engagement (positive and negative), and (b) steps may be taken to mitigate negative engagement in treatment (including group treatment) for incarcerated adolescents. Again, future investigations may address whether affecting treatment engagement affects ultimate outcomes for substance abuse and crime.

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Table 1

Motivational Interviewing vs. Relaxation Training: Analysis of Covariance for Four Dependent Variables (DVs)

Measure	Motivational Interviewing		Relaxation Training		<i>F</i> (1, 127)	<i>f</i>
	Covariate ^{<i>a</i>}	DV ^{<i>b</i>}	Covariate ^{<i>a</i>}	DV ^{<i>b</i>}		
Social worker TPQ-negative ^{<i>c</i>}						
<i>M</i>	2.34	2.79	2.50	3.03	2.21	0.14 ^{<i>d</i>}
<i>SD</i>	0.78	0.77	0.87	0.87		
Adolescent TPQ-negative						
<i>M</i>	2.34	3.14	2.50	3.68	7.49 ^{<i>**</i>}	0.24 ^{<i>e</i>}
<i>SD</i>	0.78	1.02	0.87	1.10		
Adolescent TPQ-positive						
<i>M</i>	3.93	4.09	3.85	3.85	2.17 ^{<i>*</i>}	0.14 ^{<i>d</i>}
<i>SD</i>	0.91	1.01	0.97	0.96		
Behavior Ratings						
<i>M</i>	7.09	5.49	7.27	5.98	1.24 ^{<i>*</i>}	0.10 ^{<i>f</i>}
<i>SD</i>	2.99	2.36	2.93	2.40		

Note. Independent variable is treatment condition (Motivational Interviewing vs. Relaxation Training) with $N = 130$ and Bonferroni correction of .05/4 = 0.013 (Howell, 1992). TPQ = Treatment Participation Questionnaire.

^a Covariates correspond to scores on measures at baseline assessment.

^b Dependent variable (DV(s)) correspond to scores on measures 2 months into incarceration.

^c Covariate = baseline level of the negative adolescent TPQ scale was used since social workers did not know adolescents well enough at baseline to rate.

^d Small-medium effect size (Cohen, 1988).

^e Medium effect size (Cohen, 1988).

^f Small effect size (Cohen, 1988).

* $p > 0.05$.

** $p \leq 0.007$.