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**BEHAVIORAL ECONOMIC MEASUREMENT OF
MISTRUST: ASSOCIATIONS WITH TREATMENT SEEKING,
ENGAGEMENT, AND OUTCOME IN A SEXUAL OFFENDER
POPULATION WITH SUBSTANCE USE DISORDERS**

by

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BEHAVIORAL ECONOMIC MEASUREMENT OF MISTRUST: ASSOCIATIONS WITH TREATMENT SEEKING, ENGAGEMENT, AND OUTCOME IN A SEXUAL OFFENDER POPULATION WITH SUBSTANCE USE DISORDERS

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ABSTRACT

The purposes of this study were fourfold. First, we tested the relationship between participant performance on a computerized behavioral economic task, the Trust Game and participant performance on a self-report measure of trait-level trust. Second, we examined whether baseline trait-level trust was associated with motivation to seek treatment. Third, we examined the utility of each trust measure as a predictor of motivation to seek treatment, treatment engagement, and treatment outcome. Finally, we tested the relationship between trust and treatment condition (brief motivational intervention or psychoeducation) as predictors of treatment seeking, treatment engagement and treatment outcome. Participants were 20 males recruited from the Albuquerque Sex Offender Treatment Program, and Journeys Counseling, both in Albuquerque, New Mexico. Participants were randomized to a one-hour brief motivational intervention condition or a one-hour psychoeducation condition. Results suggest that there was a small to moderate positive correlation between a popular self-report measure of trust and a less widely

known behavioral economic measure. Results also indicate that higher-trust individuals may be

most likely to report changes in motivation to seek treatment if they are given a motivational

intervention.

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Introduction

Substance use disorders (SUD) are common, and carry with them substantial individual and societal costs. In the United States, it is estimated that alcohol and other drug use disorders affect 9.4% of the general population and 60-80% of individuals incarcerated or otherwise involved in the criminal justice system (Grant et al., 2006; Karberg & James, 2005; Kinlock, Sears, O'Grady, Callaman, & Brown, 2009). Data for the prevalence of SUDs among sexual offenders are less available, but Langevin & Lang (1990) found that among their sample of 461 male sex offenders, 52.1% had a moderate to severe alcohol problem and 19.9% had a moderate to severe drug problem, as assessed by the Michigan Alcoholism Screening Test (MAST) and the Drug Abuse Screening Test (DAST). Other studies using the same measures found that 56% to 69% of child molesters and rapists exhibited moderate to severe levels of alcohol problems, and 33% to 41% of child molesters and rapists exhibited moderate to severe levels of drug problems (Abracen, Looman, & Anderson, 2000; Looman, Abracen, DiFazio, & Maillet, 2004).

Substance use has also been implicated in sexual offender recidivism. According to the Center for Sex Offender Management (2015) roughly 12 to 24% of sex offenders will reoffend. A meta-analysis of 82 sex offender recidivism studies (total N = 29,450) found that in the average 5-6 year follow-up, 13.7% of sex offenders were arrested for another sexual offense, and 22.5% were arrested for a non-sexual offense. The authors caution that this is likely an underestimate, because these data relied only on acts for which the perpetrator was caught (Hanson & Morton-Bourgon, 2005). Subsequent work by Hanson and colleagues found that dynamic risk factors such as substance abuse, rejection of supervision, and collapse of social

supports were significant predictors of sex offender recidivism (Hanson & Morton-Bourgon, 2009; Hanson, Harris, Scott, & Helmus, 2007). Furthermore, a study of 1,215 sexual offenders released from prison between 1993 and 1997 found that prior diagnosis of an alcohol use disorder (AUD) more than doubled the odds of sexual recidivism, and prior diagnosis of another SUD almost tripled the odds (Langström, Sjöstedt, & Grann, 2004).

As a result, there has been an increased emphasis in recent years on research into sex offender treatments that additionally address substance use issues among those offenders with a history of substance abuse. Abracen and colleagues (2006) found that sex offenders who received both sex offender treatment and substance abuse treatment showed significantly lower levels of recidivism across all categories of crime than offenders who were not given this dual treatment modality. Others have shown that this type of multi-target treatment significantly reduces re-arrest rates, and extends the time until re-arrest for those who do offend subsequent to treatment (Kelly, Finney, & Moos, 2005; Swartz, Lurigio, & Slomka, 1996; Wexler, Falkin, & Lipton, 1990).

Although there is ample evidence to suggest that mandated substance abuse treatment clients fare as well or better than their non-mandated, self-referred counterparts (Anglin, Brecht, & Maddahian, 1989; Brecht, Anglin, & Wang, 1993; McSweeney, Stevens, Hunt, & Turnbull, 2007; Miller & Flaherty, 2000; Perron & Bright, 2008), and some evidence to suggest that these benefits persist past any period of probation or parole (Glaze & Bonczar, 2011; Kelly et al., 2005), most of this research has viewed substance abuse treatment as a homologous non-varying unit of therapy, making only broad distinctions, as between inpatient and outpatient. Less is known about the benefits of specific modalities of treatment. Ouimette, Finney, & Moos found no significant differences in substance use outcomes in a sample of veterans mandated to either

12-step or cognitive behavioral treatment. Importantly, however, these mandated veterans were a small subsample drawn from a larger study that employed a non-experimental non-randomized naturalistic design. Kinlock and colleagues (Kinlock et al., 2009) found no differences in treatment retention between mandated clients who received either a two-session motivational intervention or a two-session drug education intervention. These results, however, should be viewed in light of the fact that the first session in the MI condition was actually a clinician-delivered structured feedback session based on the results of the intake assessment, which may, among clients already mandated to treatment, evoke more resistance than motivation.

Given that the criminal justice system is responsible for up to 50% of all referrals to community based treatment programs (Farabee, Prendergast, & Anglin, 1998), optimal therapies for mandated populations remain an under-researched area. Though the two above studies cite no differences, there is a larger substance abuse literature that points to the potential efficacy of certain treatment modalities. For example, there is some evidence to suggest that a motivation-focused approach may be useful with coerced populations. Kelly and colleagues (2005) found significantly lower motivation to change in justice system-involved mandated substance abuse treatment clients when compared both to justice system-involved non-mandated clients and non-mandated clients with no justice system involvement. Similarly, Farabee and colleagues (1993) found that criminal justice-referred substance abuse outpatients scored significantly lower on measures of desire for help and readiness for treatment than their non-justice-referred counterparts. And indeed, Hester & Miller (1995) argued that clients entering treatment without an awareness of their substance use as problematic are likely to be less receptive to therapeutic intervention, and as such are more likely to benefit from nondirective feedback and less likely to benefit from direct challenges.

Motivational interviewing (MI) has been defined as a person-centered, collaborative counseling style that aims to enhance a client's motivation to change by exploring and addressing ambivalence (Miller & Rollnick, 2012). Importantly, this non-confrontational style of counseling has been shown to be differentially beneficial for clients who score high on measures of anger and for clients who score high on measures of psychological reactance – i.e., defensiveness, resistance to change, unwillingness to relinquish control or to be influenced by others (Brehm & Brehm, 1981; Karno, Beutler, & Harwood, 2002; Karno & Longabaugh, 2005; Project MATCH Research Group, 1997, 1998).

High levels of anger and high levels of reactance have been found in studies of criminal justice-involved (CJI) populations (Dowd, 2002), a finding that makes sense given Brehm's (1966) original conceptualization of reactance as arising from situations in which a person's perceived behavioral freedom is threatened, reduced, or eliminated. Additionally, research into the developmental correlates of reactance has demonstrated that persons evincing higher reactance tend to be less psychosocially healthy, less positive, less intimate, and of particular interest in the present study, less trusting (Dowd, Pepper, & Seibel, 2001).

If trust, or lack thereof, is hypothesized to be one of the developmental underpinnings of reactance, and motivational interviewing is differentially effective for high-reactance individuals, and reactance manifests at disproportionately high rates in CJI populations, there may be some benefit in stripping out reactance and a number of the hypothesized developmental correlates, and simply asking whether MI works differentially well with low-trust individuals in a CJI populations.

Recent MI research has moved beyond simply studying the technical components of the modality (e.g., evocation of change talk) and toward an investigation of the relational components (e.g., accurate empathy, collaborative spirit) thought to enhance therapeutic alliance between clinician and client (Miller & Moyers, 2015; Miller & Rose, 2009). Therapeutic alliance has been shown to positively impact treatment engagement and treatment outcome, and this effect is at least partially explained by increased bonding between clinician and client; that is, increases in confidence, attachment, acceptance and mutual trust (Ackerman & Hilsenroth, 2003; Bachelor, 1995; Brown & O'Leary, 2000; Lambert & Barley, 2001; Richardson, Adamson, & Deering, 2012).

Trust can perhaps be most usefully defined in this context as a "psychological state comprising the intention to accept vulnerability based on positive expectations of the intentions or behavior of another" (Rousseau, Sitkin, Burt, & Camerer, 1998, p. 395). Trait-level, or static trust can best be conceptualized as a stable, enduring pattern of interpersonal cognition related to the Eriksonian early childhood development of a person's view of the world as a safe and certain place in which needs will be met (Erikson, 1950). State-level, situational, or dynamic trust is best understood as a fluid level of faith in the intentions or behavior of another based on the outcomes of repeated interpersonal interactions or exchanges (King-Casas et al., 2005; Rousseau et al., 1998). In both cases, certain conditions must exist for trust, or mistrust, to arise, namely risk or uncertainty, and interdependence (Cook, 2005; Rousseau et al., 1998).

Unfortunately, the very conditions necessary for trust or mistrust to exist – vulnerability, risk or uncertainty, and interdependence - can make the accurate measurement of this construct among coerced or mandated individuals an uncertain endeavor. Demand effects, or 'faking good' on the part of individuals involved with the criminal justice system, are a confounding

source of potential bias in this type of research (K. Knight, Hiller, Simpson, & Broome, 1998; McLellan et al., 1996; Mieczkowski, Barzelay, Gropper, & Wish, 1991). Moreover, there is evidence to support the positive association between level of trust and level of self-disclosure (Wheeless & Grotz, 1977), such that, in the present study, an attempt to measure trust by self-report might be confounded by a participant's comfort with self-disclosure, which may be influenced specifically by the level of the construct (trust) being measured.

To circumvent what would appear to be something of a psychometric Gordian knot, many researchers interested in trust and reciprocity have begun to look to the fields of behavioral economics and game theory for less biased ways to measure the construct (Holm & Nystedt, 2008; King-Casas et al., 2005, 2008; Kishida, King-Casas, & Montague, 2010; Ray, King-Casas, Montague, & Dayan, 2009). Of specific interest in this study is a 10-round computer simulation version (King-Casas et al., 2005) of the Investor-Trustee Game (Berg, Dickhaut, & McCabe, 1995) in which trust is operationalized as the number of dollars (out of $20) an investor is willing to give an unknown trustee at the beginning of each round, knowing that the trustee will triple the money but has full discretion over how much to give back to the investor at the end of each round. Although substance abuse researchers have been employing behavioral economic techniques for more than a decade (cf. Bickel & Marsch, 2001; MacKillop et al., 2010; MacKillop & Murphy, 2007; Perry & Carroll, 2008; Tucker, Vuchinich, & Rippens, 2002; Yi, Buchhalter, Gatchalian, & Bickel, 2007) these investigations have dealt almost exclusively with delay discounting, demand curve analysis, and relative reinforcement efficacy. Very little research in this field has applied behavioral economic analysis to potential personality characteristics as predictors of outcome, and we know of no substance abuse research that has employed a behavioral economic measure of trust.

This investigation is part of a larger study: "Increasing Sexual Offender's Motivation to Engage in Mandated Substance Abuse Treatment: A Brief Motivational Intervention, proposed by Julie Brovko, M.S. to satisfy her dissertation requirements.

The overarching aim of this parent study was to test the efficacy of a brief motivational intervention for sexual offenders mandated to substance abuse treatment. In the larger study, it was hypothesized that participants randomized into the brief motivational intervention condition would show greater motivation to seek treatment, greater treatment engagement, and better substance use outcomes, at follow-up, than those participants in the control condition.

Specific Aims and Hypotheses

Aim 1. The first aim of this study was to test the relationship between participant performance on a computerized behavioral economic task, the Trust Game (Berg et al., 1995) and participant performance on a self-report measure of trait-level trust, the Interpersonal Trust Scale (Rotter, 1967).

Aim 2. The second aim was to examine whether baseline trait-level trust was associated with motivation to seek treatment. It was hypothesized that there would be a positive correlation between trust and motivation to seek treatment, as measured by the Treatment Needs and Motivation Scale (TCU MOTForm; Simpson, Joe, Knight, Rowan-Szal, & Gray, 2012), especially on specific items within the scale that connote interdependence and vulnerability, e.g., 'You need help with your drug use', 'You need help with your emotional troubles', 'You need individual counseling sessions,' , 'You need group counseling sessions'.

Aim 3. The third aim was to examine the utility of each trust measure as a predictor of motivation to seek treatment, treatment engagement, and treatment outcome.

Aim 4. The fourth aim was to test the relationship between trust and treatment condition (brief motivational intervention or psychoeducation) as predictors of treatment seeking, treatment engagement and treatment outcome. It was hypothesized that lower-trust individuals would benefit more from the motivational intervention.

Method[1]

Participants

Participants were recruited from the Albuquerque Sex Offender Treatment Program, and Journeys Counseling, both in Albuquerque, New Mexico. These programs currently treat roughly 180 convicted sexual offenders who have been court mandated for treatment due to their sexual offense. Approximately 80% of the programs' clients have a history of substance abuse and, as such, are mandated to substance abuse treatment in addition to treatment for their sexual offense. The majority of clients are Hispanic or White (less than 10% of the clients are African American) and most clients are between 25 and 40 years old. Substance abuse treatment is cognitive behavioral in nature and takes roughly 6 months to complete but the timeline is flexible depending on client needs. For the current study, 20 adult male participants were recruited using announcements at the start or the end of treatment groups (see Appendix A). All participants were convicted of a sexual offense and also mandated to substance use treatment.

Inclusion criteria. Participants were included if: (a) they were 18 years of age or older; (b) they were male; (c) they had been sentenced to receive treatment for a sexual offense as well

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[1] Sections adapted from "Increasing Sexual Offender's Motivation to Engage in Mandated Substance Abuse Treatment: A Brief Motivational Intervention, a dissertation study by Julie Brovko, M.S.)

as for substance use; and (d) they were available to participate in follow-up assessment one month after their baseline assessment.

Exclusion criteria. Individuals were excluded from the study if they were not conversationally proficient in English, because all measures were administered in English and required participants to be fluent in English. Participants also were excluded if: (a) they were unable to provide contact information for the follow-up assessment; (b) they were unable to schedule a follow-up assessment; (c) they screened as actively psychotic; (d) they were under 18 years of age; or (e) they were scheduled to complete their substance use treatment within three weeks of the study intervention. If a participant attempted or completed an assault against any member of the study staff he would have been removed from the study, but there were no instances of attempted assaults against study staff.

Measures

Initial contact information form (CIF_I). A contact information sheet was provided to potential participants interested in learning more about the study. This information was used to contact the participant for screening and to schedule a meeting for consent and baseline assessment. Contact information included: (a) participant's name; (b) participant's email address; (c) participant's telephone numbers (i.e., cellular phone, home phone, and work phone); and (d) telephone number and name of a friend or family member who could contact the participant.

Blood Alcohol Content (BAC). Because individuals under the influence of alcohol may not be able to make informed decisions, give consent, or provide accurate information, BAC was assessed using a breathalyzer at each meeting with study staff. Participants with a BAC below

0.05 were allowed to continue with the study procedures. Participants with a BAC of 0.05 were asked to wait 30 minutes and then retested to see if their BAC fell below 0.05. Participants still with a BAC over 0.05 would have been asked to reschedule their appointment for a time when their BAC is below 0.05, but there were no instances of this situation.

Final Contact Information Form (CIF_F). A contact information sheet was provided to participants at the baseline assessment. This information was used to contact the participant for scheduling and to remind them about the follow-up assessment. Contact information collected was similar to that collected with the CIF_I and included: (a) participant's name; (b) participant's email address; (c) participant's telephone numbers (i.e., cellular phone, home phone and work phone); (d) telephone number and name of a friend or family member who could contact participant. Additional information collected also included: (a) street address; and (b) mailing address.

Demographics. A modified version of the CASAA Demographic Interview Form (CASAA Research Division, 1997) was used to collect demographic information about the participant. The form includes items about the participant's sex, age, ethnicity, income, and education level. Additional questions were included about the participants' ethnic and racial categories as defined by the National Institutes of Health as well as the length of mandated treatment and the number of times the participant had been in substance use treatment.

Interpersonal Trust Scale (ITS). The ITS (Rotter, 1967) was administered to participants to assess trait-level trust/mistrust. The ITS measures an individual's general tendency to trust different groups of people, and also measures an individual's general optimism about society. The ITS is comprised of 25 items (12 trust and 13 mistrust items). Statements are

rated on a one to five Likert scale from (1) strongly agree, to (5) strongly disagree. The 12 trust items are reverse scored. Higher total scores indicate higher levels of trust. Statements include: "Most people can be counted on to do what they say they will do," "A large share of accident claims filed against insurance companies is phony," and "Even though we have reports in newspapers, radio, and T.V., it is hard to get objective accounts of public events." Internal consistency based on split-half reliability, corrected by the Spearman-Brown formula, has been reported as 0.76 for this scale. In the present study, split-half reliability, corrected by the Spearman-Brown formula, was 0.78, and Cronbach's alpha for the scale was 0.86.

Trust Game. A modified computer version of the Trust Game (Berg, Dickhaut, and McCabe, 1995) was used as a behavioral economic measure of the amount of trust a participant (investor) extends to an anonymous second player (trustee) in an investment scenario. The game consists of ten identical rounds in each of which the participant will decide how much of a $20 initial pot of money to give to the second player. The participant is instructed that any amount given will triple when it gets to the second player, who will then have the opportunity to send back any portion of that tripled amount to the participant investor. Trust is measured as the total amount invested over 10 rounds of the game. There are no established psychometric data for this game. In the present study, Cronbach's alpha for the measure was 0.95, and odd-even internal consistency reliability was 0.94.

Readiness Ruler. A modified version of the Readiness Ruler (LaBrie, Quinlan, Schiffman, & Earleywine, 2005) was used to assess self-reported (explicit) motivation to change alcohol/drug use. Statements are rated on a one-to-ten Likert scale. Statements include, "Right now, how important is it for you to make a change in your alcohol/drug use?" "Right now, how confident are you that you can make a change in your alcohol/drug use if you decided to?" and

"Right now, how ready are you to make a change in your drug/alcohol use?" The questions were modified to ask about motivation to change drug and alcohol use specifically to address the needs and topic of the current study. The Readiness Ruler has been shown to be a reliable and valid assessment measure (LaBrie et al., 2005).

Treatment Needs and Motivation (TCU MOTForm). The TCU MOTForm, developed at Texas Christian University (Joe, Broome, Rowan-Szal, & Simpson, 2002) , is a 36 item self-report questionnaire containing five subscales that have been used to assess a participant's (explicit) motivation to engage in treatment in addition to a participant's perception of his own treatment needs. Scales include problem recognition, desire for help, treatment readiness, pressures for treatment, and treatment needs. Participants are asked to rate the extent to which they agree with statements including "You need help dealing with your drug use," "You are ready to leave this treatment program," and, "Your drug use is going to cause your death if you don't quit soon." This measure was demonstrated to have good internal consistency and construct validity (Joe et al., 2002), and strong concurrent validity with the Addiction Severity Index (Pankow et al., 2012). In the present study, Cronbach's alpha for the measure was 0.94.

Structured Clinical Interview for DSM-IV Diagnoses (SCID): Substance Use Disorders Module E. Module E of the SCID-IV (First, Spitzer, Gibbons, & Williams, 2002) was used to assess lifetime and current substance use disorder. The SCID-IV has been updated to reflect changes made in the Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition (American Psychiatric Association [DSM-5], 2013), however the updated version was not available at the time study data were collected. The updated version dropped criterion E4 (legal consequences) from the assessment and added a new craving criterion. Therefore, criterion E4 was dropped from analyses. A craving criterion was added to the assessment, and was

included in analyses. Module E contains 11 criteria to be scored. With the one criterion dropped, and the craving criterion added, there were a total of 11 diagnostic criteria to be scored. Examples of the criteria include 'persistent desire or unsuccessful efforts to cut down or control substance use' and 'important social, occupational, or recreational activities are given up or reduced because of alcohol use.' The SCID-IV Module E is valid and reliable, with test-retest kappa scores ranging between good (.64; Lobbestael, Leurgans, & Arntz, 2011) and excellent (1.00; Zanarini et al., 2000).

Alcohol and Substance Use Form 90-QFV, Form 90-QFV30, Form 90-DI and Form 90-DF (Form 90). The purpose of the Form 90 is to assess the quantity, frequency and variability of drug and alcohol use using a semi-structured interview. The Form 90-QFV assesses the quantity, frequency and variability of alcohol use and the Form 90-DI assesses drug use. The Form 90-QFV is the version used at baseline assessment. It generated the quantity and frequency of alcohol used 90 days prior to the baseline assessment as well as the 90 days prior to the crime of record. At follow up, the Form 90-QFV30 was used. It generated the quantity and frequency of alcohol used in the 30 days between the intervention and the follow up. The Form 90-DI was used to assess drug use 90 days prior to the baseline assessment as well as 90 days prior to the crime of record. The Form 90-DF was used at the follow up assessment to assess drug use in the time between the baseline assessment and the follow up assessment. The Form 90 is a structured interview developed by the Matching Alcoholism Treatments to Client Heterogeneity (MATCH) Research Group (Miller, 1996). The reliability and validity of this measure (Tonigan, Miller, & Brown, 1997) has been demonstrated in clinical populations (Grant, Tonigan, & Miller, 1995).

Therapist rating of client motivation. The purpose of this measure was to assess participant motivation from the perspective of the therapist. In order to assess this construct,

Scale C of the TCU MOTForm was modified such that questions were directed toward the

therapist, inquiring about the participant. Attempts were made, when possible, to keep the item

as similar to the original item as possible. For example, in the original TCUMotform, question 2

reads: "You need to be in treatment now." The modified version of the questionnaire reads:

"Your client believes that he needs to be in treatment right now." In the present study,

Cronbach's alpha for the measure was 0.84.

Group Engagement Measure (GEM). A modified version of the GEM (Macgowan,

1997) was administered to therapists to behaviorally assess motivation to engage in substance

use treatment. The original GEM was modified by removing two subscales ("contracting," and

"working on own problems") and adding a question about homework completion. This

questionnaire was modified based on a review by Tetley, Jinks, Huband, and Howells (2011),

which identified the important dimensions of treatment engagement. A homework completion

question was added so that the modified measure included all important treatment engagement

dimensions defined in the Tetley et al. (2011) paper. The original version of the GEM is reliable

with subscale coefficient alphas ranging from .72 to .98. In the present study, Cronbach's alpha

for the 9-item measure was 0.86.

Procedures

Recruitment. Recruitment took place at the Albuquerque Sexual Offender Treatment

Program and Journeys Counseling offices in Albuquerque, New Mexico. Announcements (see

Appendix A) from study staff were used in recruitment efforts. Flyers were posted in the

treatment program offices and announcements were made either before or after group therapy

sessions. Those interested in participating in the study were asked to fill out a Contact

Information Sheet (CIF_I) and told that they would be contacted at a later time for a phone screen.

      Screening. Study staff screened participants by phone. Study staff conducting screenings were located in a private office at CASAA. If interested individuals met inclusion criteria and did not meet exclusion criteria, they were scheduled for consent and a baseline assessment.

      Baseline procedures. Participants were given the choice to complete all study procedures at the Albuquerque Treatment for Sexual Offenders offices or at the Center on Alcoholism, Substance Abuse and Addictions (CASAA). Baseline procedures began with assessing BAC and reviewing the consent form with participants.

      Assessment of BAC. Before potential participants were asked to review and sign the consent form, they were asked to give a breath sample to assess their blood alcohol content (BAC). It was explained that the purpose of the BAC assessment was to determine if participants were under the influence of alcohol because alcohol might negatively impact their ability to consent to the study. Potential participants were told that the results of this assessment would be kept confidential and that their therapists and their probation officer would not be informed of the results. They also were told that if their BAC was over 0.05, they would be asked to reschedule their baseline assessment. Though no instances were reported, plans were in place such that if BAC was 0.05, participants would be asked to wait 30 minutes and then be retested to determine if their BAC has dropped to below 0.05. If their BAC was then under 0.05, they would continue with informed consent. After any questions about the assessment and confidentiality of their BAC were answered, potential participants verbally agreed to or declined the BAC assessment. If participants chose not to take the test but agreed to take it at a later date,

they were rescheduled. If they chose not to take the test and did not want to take it at a later time, they were thanked for their interest in the study and the appointment was terminated. If they agreed to the assessment, it was administered immediately.

Informed consent. After it was determined that a participant's BAC was under 0.05, study staff verbally reviewed the consent form and study procedures. Potential participants were given the chance to have their questions about the study answered by study staff. Participants were subsequently asked to read and sign the consent form. Following the signed consent, participants began their initial assessment battery.

Initial assessment battery. The following questionnaires and measures were administered: (1) CIF_final; (2) Readiness Ruler; (3) Demographics; (4) SCID; (5) Interpersonal Trust Scale; (6) TCU Motform; (7) Form-90DI; (8) Form-90 QFV; (9) WAT; and (10) Trust Game. The participant's substance use therapist was asked to complete the GEM and Therapist Rating of Client Motivation questionnaires on the same day the participant baseline assessment was completed. Additional measures not relevant to the current study also were administered.

Randomization. Participants were randomized to either the intervention condition or the control condition at baseline. In order to determine each participant's treatment condition a randomization table generated in Excel was used.

Intervention. Depending on randomly assigned condition, participants received a motivational interviewing brief intervention or an educational intervention. The duration of each intervention was approximately 60 minutes. All motivational interviewing brief interventions were delivered by one clinical psychology graduate student trained in motivational interviewing brief interventions. The educational intervention was delivered by one of two graduate students

trained in the educational intervention. Both graduate students were supervised by Dr. Kamilla Venner. For supervision, training, and fidelity purposes, all interventions were audio taped. Study staff alternated so that the staff member completing the intervention was not the same staff member who conducted the initial or follow-up assessment battery.

The motivational interviewing (MI) brief intervention was developed to include discussions about the role of substances in the participant's crime of record, attitudes toward substance use treatment, and thoughts about future substance use. Participants were reminded at the start of the intervention that it was to be recorded for the purposes of therapist supervision and fidelity to the intervention delivery guidelines. Participants were also again reminded that all information that they gave was to be kept confidential unless they expressed intent to harm themselves or another person. Finally, participants were reminded that this information would not be shared with their therapist or their probation officer. To ensure that the therapy session adhered to the spirit of MI, the structure of the session was designed to be fluid. A general outline of the MI therapy session is included in Appendix B. This outline includes the topics that the therapist attempted to cover in each session.

The control condition was an educational session utilizing a Power Point presentation focused on drug and alcohol use. Participants were reminded at the start of the session that it would be recorded for the purposes of supervising the therapists and to make sure that the intervention was being delivered properly. Sessions were audio recorded to ensure control condition consistency. Participants also were reminded that all information that they gave would be kept confidential unless they expressed intent to harm themselves or another person. Finally, they were reminded that this information would not be shared with their therapist or their probation officer. Following these reminders, participants reviewed a Power Point presentation

on a study laptop. The Power Point presentation provided educational information about: marijuana, alcohol, heroin, methamphetamine, cocaine, lysergic acid diethylamide (LSD), mushrooms, and 3,4-methylenedioxymethamphetamine (MDMA). When participants were halfway through the Power Point presentation, they were asked a series of questions about the information that they read. After the participants finished the Power Point presentation, they were asked the same series of questions about what they read. Finally, therapists asked the participants if they had any additional questions about the Power Point content. Therapists purposely did not follow up on participant self-disclosure during this intervention. See appendix C for an outline of the control condition protocol.

Post-intervention assessment battery. Following both the MI and the education intervention, therapists administered post-intervention questionnaires. These questionnaires include: (1) Readiness Ruler; (2) TCU MOTForm; (3) WAT; (4) Satisfaction Survey. The participant's substance use therapists also were asked to complete Therapist Rating of Client motivation and the GEM at the conclusion of the participant's next substance use therapy session.

Initial assessment and intervention compensation. After participants finished completing all post-intervention questionnaires, they were thanked, compensated with a $25 gift card for the baseline assessment, and between $20 and $40 extra depending on their performance on the computerized trust game. Their follow-up appointment was then scheduled.

Follow-up procedures. Participants were scheduled for follow-up assessment four to six weeks after their intervention was complete. All efforts were made to schedule follow up assessments at four weeks. Participants had the choice to complete follow up meetings at

CASAA or at the Albuquerque Sexual Offender Treatment Program offices. At the start of the

follow up assessment, participants were greeted and reminded of confidentiality procedures.

Specifically, they were reminded that the information that they gave would not be shared with

their substance use treatment therapist or their probation officer. Next, the participant's BAC was

assessed. If results showed that their BAC was over 0.05, they would have been asked to

reschedule their appointment. If BAC was 0.05, participants would have been asked to wait 30

minutes and then be retested to determine if their BAC was below 0.05. If their BAC was then

under 0.05, they would have continued their appointment. All participant BAC measurements in

this study were below 0.05, therefore the above protocol was never implemented. After

answering any questions that the participant may have had, the following questionnaires were

administered: (1) Readiness Ruler; (2) TCU MOTForm; (3) Form-90 DF; (4) Form-90 QFV30;

(5) WAT; (6) Satisfaction Survey. Within one week of the follow up assessment battery

appointment, participants' substance use treatment therapists also were asked to complete the

GEM and Therapist Rating of Client Motivation questionnaires. Following the completion of

questionnaires, study staff answered any questions that the participant may have had,

compensated them with a $20 gift card and provided them with a list of community resources

that provide substance use treatment and treatment for other mental health issues (see Appendix

D).

Confidentiality

To protect the confidentiality of participants, all study materials were kept in a locked file

cabinet, inside of a locked office at CASAA. Furthermore, because sensitive and personal

information was collected, a request for a Federal Certificate of Confidentiality was submitted to

NIH for this study. Unfortunately, due to an administrative backlog at the NIH, this certificate

was never issued, and so all documents linking participant names with participant data have since been destroyed in an effort to assure permanent confidentiality.

Data Analysis

Data management. The distributions of the relevant scales were examined visually and potential outliers and non-normality were investigated. One outlier value on the behavioral economic trust task was identified. Although winsorization would have been a potentially appropriate procedure in this case, consultation with two experienced statisticians led us to include the non-winsorized data in the analyses, as it represented full and attentive effort on the part of the participant, and is also potentially representative of how at least 1 in 20 participants might perform with repeated resampling from the population. Certain analyses were run with both winsorized and non-winsorized versions of the trust game data. Neither version was significantly more correlated or more predictive than the other. Internal consistencies of all relevant scales in the sample were examined and are reported in Table 1.

Hypothesis testing. Aim one examined the relationship between the ITS, a self-report measure of trust, and the Trust Game, a behavioral economic measure of trust. Bivariate correlations were used to determine the relationship between the two trust measures.

Aim two examined whether baseline trait-level trust was associated with baseline motivation to seek treatment. Due to the unsuitability of factor analytic techniques given the small sample size, a principal component analysis was run to ascertain whether the hypothesized trust-influenced items on the TCU MOTForm, for example: 'You need help with your drug use,' 'You need help with your emotional troubles,' 'You need individual counseling sessions,' formed a principal component in this particular sample. Linear regression was planned to

determine whether either measurement of trust was significantly associated with scores on these criteria of motivation to seek treatment. Correlations between the two trust measures were planned to determine whether scores on the measures should be entered into the same regression equation (correlation coefficient < .40) or in separate regression equations (correlation coefficient > .40).

Aim three examined the utility of each baseline measure of trust as a predictor of motivation to seek treatment, treatment engagement, and treatment outcome, all measured post-intervention. Bivariate correlations were used to explore which measure of trust had more utility as a predictor of motivation to seek treatment, treatment engagement, and treatment outcome, measured by post-intervention scores on the TCU MOTForm; GEM and the Therapist Rating of Client Motivation; and Form-90 DF and Form-90 QFV30, respectively.

Aim four examined the relationship between trust and treatment condition as predictors of motivation to seek treatment, treatment engagement and treatment outcome. A series of three regression equations were planned, one for each outcome of interest:

Treatment Condition + Trust + Treatment Condition x Trust → Outcome

Motivation to seek treatment was measured by post-intervention scores on the TCU MOTForm. Treatment engagement was measured by post-intervention scores on the GEM and the Therapist Rating of Client Motivation. Treatment outcome was measured by scores on the Form-90 DF and Form-90 QFV30 administered at follow-up.

Results

Sample Characteristics

Recruitment for this study occurred from April to July, 2015. Our target sample size was 80. Approximately 115 sexual offenders were approached, 40 completed the initial contact form, 34 were screened, 24 were eligible, 22 consented and 21 completed all phases of the study. Analyses include only 20 participants, as data from one participant were not used due to low reading ability and a likelihood that his data were invalid.

Importantly, 19 of these 20 participants reported abstinence from all substances (except tobacco) in the 90 days prior to baseline assessment, and 20 of the 20 participants reported abstinence from all substances (except tobacco) in the period from baseline to follow-up assessment. As such, all analyses which aimed to investigate substance use as an outcome were dropped from the study.

Tables 2, 3, and 4 summarize the baseline demographic sample characteristics by intervention modality. Mean age of participants was 41.8 (SD = 10.6). Sixty-five percent of participants identified as Hispanic. Thirty-five percent were employed full time, 20% were employed part time, 45% were either unemployed, disabled, or did not report employment status. Forty percent of participants did not have a high school diploma, 10% stopped after high school, 50% had some college, and no participant had a 4-year degree. Level of education was the only baseline variable for which a statistically significant difference between the groups was apparent (p=0.016). Mean years of education in the brief motivational intervention (BMI) group was 13.2 years; mean years of education in the psychoeducation control (PC) group was 10.3 years. Though not statistically significant, the other noteworthy mean difference between the groups

related to income level, whereby the average annual income for the BMI group was approximately $10,000 and the average annual income for the PC group was approximately $20,000.

Participants, on average, had been in substance abuse treatment 2.6 (SD = 2.5) times. Of note, participants on average had been in their current round of substance abuse treatment for 25.3 (SD = 19.0) months at the time of their baseline assessment.

Aim One – Association between Trust Measures

Aim one examined the relationship between the ITS, a self-report measure of trust, and the Trust Game, a behavioral economic measure of trust. The Pearson correlation coefficient (r) for the association between the ITS and the Trust Game was 0.22. The correlation between the ITS and a winsorized version of the Trust Game which reduced one participant's total score down to the value of the next highest participant score was 0.342.

Aim Two –Association of Trust with Baseline Motivation to Seek Treatment

Aim two examined whether baseline trait-level trust was associated with baseline motivation to seek treatment. A principal component analysis was conducted to ascertain whether the five hypothesized trust-influenced items on the TCU MOTForm, for example: 'You need help with your drug use,' 'You need help with your emotional troubles,' 'You need individual counseling sessions,' formed a principal component in this particular sample. They did not. That is to say, across the nine principal components with eigenvalues > 1.0, all five items of interest loaded most heavily on the first principal component, but not markedly more heavily than 17 other items which also loaded primarily on the first principal component. As such, simple bivariate correlations were run to investigate the association between the ITS and

the sum of the hypothesized trust-influenced items on the baseline TCU MOTForm (r = -0.603, p = .006) and the association between the Trust Game scores and the sum of the hypothesized trust-influenced items on the baseline TCU MOTForm (r = -0.224, p = .343). The significance of the first result should be viewed in the context of an analysis that created a 16 by 16 correlation matrix in which a large number of comparisons (256) were made. As such, the significant correlation may be the result of a Type I error. Additionally, both correlations are in the opposite direction as that hypothesized, such that in our sample lower trait-level trust predicted *higher* endorsement of items which connote interdependence and vulnerability.

Aim Three - Trust as a Predictor of Treatment Motivation and Engagement

Aim three examined the utility of each baseline measure of trust as a predictor of motivation to seek treatment and treatment engagement, as measured post-intervention and at follow-up. Bivariate correlations were used to explore which measure of trust had more utility as a predictor of motivation to seek treatment and treatment engagement as measured by post-intervention and follow-up scores on the TCU MOTForm, GEM and the Therapist Rating of Client Motivation. Neither measure of trust was a particularly good predictor of client motivation or treatment engagement. All correlations were non-significant, with coefficients ranging from -0.32 to 0.12. However, one measure of trust, the ITS, was a significant and positive predictor of the change in client reported motivation to seek treatment from baseline to immediately post-intervention, as measured by the mean difference in TCUMOTForm scores measured at baseline and post-intervention (r = 0.483, p = .036). This result indicates that participants entering the intervention with higher trait-level trust were more likely to report higher levels of motivation to seek treatment at the end of the intervention than at baseline. The result, again, should be viewed in the context of an analysis in which a large number of comparisons were run, such that a p-

value of .006 does not reach the Bonferroni-corrected threshold (.05/256=.000195) below which the result is not more likely to have occurred by chance.

Aim Four – Treatment Condition by Trust Interactions as Predictors of Outcome

Aim four examined the relationship between trust and treatment condition as predictors of motivation to seek treatment and treatment engagement. A series of regression analyses was planned, all taking the general form:

Treatment Condition + Trust + Treatment Condition x Trust → Outcome

Motivation to seek treatment was measured by post-intervention scores on the TCU MOTForm. Treatment engagement was measured by post-intervention scores on the GEM and the Therapist Rating of Client Motivation. Treatment condition was dummy coded as .5 (BMI) and -.5 (PC). All independent and dependent variables entered into the models were first z-scored as a way of mean centering. Table 5 provides a summary of the regression models and the associated R^2 for each model. No independent variable in any of the nine models was significant predictor of outcome, and none of the prediction models were statistically significant. Model R^2 ranged from .026 to .292. Model R^2 was generally higher in those models predicting therapist rating of participants' group engagement in ongoing treatment (GEM).

To follow up on the Aim Three finding that the ITS was a significant predictor of the change in client reported motivation to seek treatment from baseline to immediately post-intervention, a regression model similar to those outlined above was run with change in TCUMOTForm scores from pre to post-intervention as the dependent variable. The prediction model was statistically significant, $F(3, 15) = 3.398$, $p = .046$, and accounted for approximately 40% of the variance in mean change scores from pre to post on the TCUMOTForm. The

interaction between treatment condition and ITS score appeared to be driving this relationship (B = .702, p = .056).

Discussion

The purpose of the current study was to investigate the influence that trait-level trust exerts on motivation to seek treatment, treatment engagement, and treatment outcome in a population of sexual offenders, before and after a brief intervention for substance use disorder. The study had four aims. Aim one tested the relationship between two measures of trust, one self-report, the other behavioral economic. Aim two examined whether baseline trait-level trust was associated with baseline scores on specific motivation measure items that involve vulnerability or openness with individuals or groups of individuals in a treatment setting. Aim three tested the utility of both trust measures as predictive of later motivation to seek treatment and engagement in treatment. Aim four investigated the relationship between trust and treatment condition as predictors of later motivation to seek treatment and treatment engagement.

Findings from aim one indicate that there was a small to moderate positive correlation between a popular self-report measure of trust and a less widely known behavioral economic measure. Given that each measure of trust had extremely high internal consistency reliability in our sample, it might be possible to argue that while each does a good job of accurately reflecting *something*, the two measures might be accurately reflecting two different things, two different constructs with only minimal overlap. This finding echoes similar findings in the field of economics (Bellemare & Kröger, 2007; Glaeser, Laibson, Scheinkman, & Soutter, 1999; Holm & Nystedt, 2008) indicating that in situations where real financial incentives exist (as they did in our study), performance on a behavioral economic trust game correlates only weakly with

survey-reported measures of trust. One the one hand this discrepancy might be explained by the trust game tapping constructs related to, for example appetite for risk; on the other hand, because our participants were told they may be playing with a real human being or they may be playing with a computer, it could be the case that for those who believed they were playing a human being, other social relational factors, like reciprocity, fairness or kindness (Holm & Nystedt, 2008) may have influenced their performance.

The finding from aim two analyses - that lower trait-level trust predicted higher endorsement of assessment items which connote vulnerability, openness, or interaction with others - was opposite our initial hypothesis, and also one of the few statistically significant findings in this study. The strong negative correlation, however, could just as aptly be described as indicating that higher trust predicted lower endorsement on those items, namely 'You need help with your drug use', 'You need help with your emotional troubles', 'It is urgent that you find help immediately for your drug use', 'You need individual counseling sessions', and 'You need group counseling sessions.' As such, the fact that participants had, on average, already been involved in SUD treatment for 25 months at baseline may be playing a role in this finding. Specifically, its plausible to suggest that over the course of two years in treatment, higher trust individuals had engaged more in treatment, benefitted more from treatment, and come to a point at which a question like 'Do you need help with your drug use?' could easily and honestly be answered 'No. I think I'm doing pretty well these days.' Equally plausible (and equally speculative) is the possibility that the questions themselves were confusing, given that most participants had been in treatment for a long period of time. An item like 'You need group counseling sessions' could, on the one hand provoke the response 'Yes, I think they've been quite helpful,' but on the other hand provoke the response 'No, I'm getting two group sessions a

week as it is, I think I'm good.' The TCUMOTForm was designed and evaluated using a prison-based treatment population (Simpson et al., 2012), and subsequent use of the scale in research has primarily involved this same specific population, or samples drawn from programs lasting less than two years (Knight et al., 2016; Pankow et al., 2012). The scale items were not designed for SUD clients with longstanding, current involvement in outpatient treatment, and may, therefore, not be applicable to them.

As well as being weakly correlated with each other, both measures of trust were, as Aim three analyses revealed, weakly correlated with post-intervention and follow-up measurements of motivation to seek treatment and treatment engagement. Indeed some of the correlations were slightly negative. As such it is fair to say that baseline trait-level trust, as measured in our sample, had little to no predictive value with respect to a participant's later thoughts and actions regarding involvement in SUD treatment. One obvious and appropriate explanation of this lack of an effect is simply that trust is at best a small contributing factor, one of a wide range of personality and contextual influences on thought and behavior. Relatedly, with respect to behavior in context, it could be that situational or state-level trust is as important or more important than a personality-level, steady-state attitudinal trust (Cook, 2005; Mayer, Davis, & Schoorman, 1995; Schlenker, Helm, & Tedeschi, 1973; Scott, 1980).

Aim four employed a series of regression models to investigate whether level of trust, treatment condition (BMI or PE), and the interaction between trust and treatment condition predicted later motivation to seek treatment or treatment engagement. Generally, these models performed poorly, though the models predicting engagement in treatment, as measured by the therapist reported Group Engagement Measure did seem to account for roughly 20% of the

variance in that outcome of interest. Treatment condition alone, independent of trust or any interaction between trust and treatment condition, seemed to drive this relationship.

Post-hoc power analyses were run to determine how large of a sample would have been necessary for some of the observed relationships to be statistically significant. Given that, as stated, most of the prediction models accounted for very little variance in outcome, it is not surprising that the estimated sample sizes necessary for these results to be given any statistical credibility were large, ranging from 248 to 440, depending on the model. However, as already noted, the models predicting participants' later engagement in group treatment were stronger, and post hoc power analyses of these models suggest that a sample size of between 28 and 36 participants may have been large enough to achieve significance.

Follow-up analyses of a similar prediction model with pre-post change in motivation to seek treatment as the dependent variable of interest did achieve significance, however the prediction ran counter to our original hypothesis. We had hypothesized that low-trust individuals would benefit more from a brief motivational intervention than psychoeducation. The analysis seemed to indicate, however, that it was in fact the higher-trust individuals who were most likely to report changes in motivation to seek treatment if they were given the motivational intervention.

This study had several unique strengths, posing a novel question, and seeking a novel approach to answering that question, using not only self-report measures of personality traits, but also a behavioral economic measure. We know of no extant studies that have employed a behavioral economic approach to measuring personality factors in the context of psychotherapy, only a small number that have employed this approach with clinical populations more generally

(Franzen et al., 2011; King-Casas et al., 2008; Kishida et al., 2010), and only one that has used a behavioral economic approach (the prisoner's dilemma game) to measure underlying personality characteristics in a SUD population (Yi et al., 2007). Additional strengths of the study include the uses of a randomized control trial design, and the use of an empirically supported treatment, delivered by well-trained and well-supervised clinicians.

Further, some of the shortcomings of this study may in fact serve to elucidate future considerations in working with this particular under-researched population. The extremely high self-reported rates of abstinence among participants both before and after the study may be viewed in three different ways, all deserving of future investigation. First, it is possible that the treatment centers from which the participants were recruited are very effective in delivering substance abuse treatment services, and therefore, active ingredients in these programs should be investigated. Second, and perhaps more likely, a fairly extreme sampling bias may have been involved, such that only abstinent persons from these treatment centers felt comfortable enrolling in the study. Third, and relatedly, because of the severe contingencies – return to jail/prison for violation of probation/parole – associated with continued and admitted substance use in this population, it may be the case that participants did not, despite assurances of confidentiality, feel comfortable revealing recent substance use. Research into improved study designs to address these last two issues is warranted.

Additional limitations include a small sample size and associated low power to detect differences, as well as a design that lacked substantial impact in the particular sample recruited. The supposition that one 45-minute brief motivational intervention would have any meaningful impact among a group of participants who had already been in SUD treatment for an average of more than two years deserves careful reconsideration at the design stage. This study, and the

parent study, would perhaps have benefitted from restricting participant eligibility to those entering, or in the very early stages of, SUD treatment.

In conclusion, the current study adds to the large and growing literature looking at substance abuse from a behavioral economic perspective. Additionally, it suggests the feasibility of employing behavioral economic measures in the context of psychotherapy research. One can imagine, for example a similar study in which the trust game is paired with the Working Alliance Inventory, with both measures being administered to client and therapist, in an attempt to gain additional perspective on the role that trust and reciprocity play in the therapeutic alliance (Moyers, personal communication). Finally, the current study quite clearly highlights some of the challenges in researching coerced or mandated CJI populations, and suggests areas in which study design would benefit from innovation and improvement.

Tables

Table 1. Internal Consistency of Key Measures

Measure	Cronbach's alpha (# of items)
Interpersonal Trust Scale	0.86 (25)
Trust Game	0.95 (10)
TCUMOTForm - Baseline	0.94 (35)
TCUMOTForm – Follow-up	0.95 (35)
Therapist Rating of Client Motivation – Follow-up	0.84 (8)
Group Engagement Measure – Follow-up	0.86 (9)
Hypothesized Trust-Dependent TCU Subscale	0.73 (5)

Table 2. Age, Income, and Treatment History

Variable	Description	Control	Intervention	Total
		M (SD)	M (SD)	M (SD)
Age	Years	38.3 (9.4)	45.2 (10.6)	41.8 (10.6)
Income	Dollars	$19,999	$9,948	$14,969
		(15,883)	(7,471)	(13,133)
Substance Abuse Treatment	Total months in substance abuse treatment	25.3 (22.0)	25.3 (16.1)	25.3 (19.0)
Number of times in treatment for substance abuse	Total number times participant has been in substance abuse treatment	3.3 (3.2)	1.9 (1.4)	2.6 (2.5)

Note. There were no significant differences between the groups

Table 3. Gender and Ethnicity

Variable	Description	Control	Intervention	Total
		N (%)	N (%)	N (%)
Gender	Male	10 (100)	10 (100)	20 (100)
Ethnicity	Hispanic	8 (80)	5 (50)	13 (65)
	Not Hispanic	2 (20)	5 (50)	7 (35)
Race	American Indian or Alaska Native	6 (60)	2 (20)	8 (40)
	White	0 (0)	2 (20)	2 (10)
	Other ethnic group	3 (30)	6 (60)	9 (45)
	Missing	1 (10)	0 (0)	1 (5)

Note. There were no significant differences between the groups

Table 4. Education and Employment

Variable	Description	Control	Intervention	Total
		N (%)	N (%)	N (%)
Education	Completed 6th grade	2 (20)	0 (0)	2 (10)
	Completed 9th grade	1 (10)	1 (10)	2 (10)
	Completed 10th grade	3 (30)	1 (10)	4 (20)
	High school graduate	2 (20)	0 (0)	2 (10)
	Two years post secondary	2 (20)	7 (70)	9 (45)
	Three years post secondary	0 (0)	1 (10)	1 (5)
Employment	40 hours per week	6 (60)	1 (10)	7 (35)
	Less than 40 hours per week	2 (20)	2 (20)	4 (20)
	Disabled	0 (0)	2 (20)	2 (10)
	Unemployed	2 (20)	4 (40)	6 (30)
	Missing	0 (0)	1 (10)	1 (5)

Note. There was a significant differences between the groups in number of years of education completed

Table 5. Summary of Aim 3 Regression Models

Predictors	Dependent Variable	Model R^2
Tx +ITS + Interaction term	TCUMOTForm	.063
Tx +ITS + Interaction term	TRCM	.026
Tx +ITS + Interaction term	GEM	.228
Tx + TG + Interaction term	TCUMOTForm	.060
Tx + TG + Interaction term	TRCM	.064
Tx + TG + Interaction term	GEM	.292
Tx + R1 + Interaction term	TCUMOTForm	.101
Tx + R1 + Interaction term	TRCM	.121
Tx + R1 + Interaction term	GEM	.268

Note. Tx = Treatment condition; ITS = Interpersonal Trust Scale total score; TG = Trust Game total points given over 10 rounds; R1 = Trust game points given in first round; TCUMOTForm = Treatment Needs and Motivation Form; TRCM = Therapist Rating of Client Motivation scale; GEM = Group Engagement Measure

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Appendix A

"A graduate student at the University of New Mexico is conducting a study looking at the thoughts, feeling and experiences of sexual offenders who have been mandated to substance abuse treatment. Participants will meet with study staff to fill out questionnaires and talk about their experiences. In exchange for their time participants will be compensated with 50 dollars in Target gift cards. If you are interested in learning more about participating, please leave your name and phone number on one of these sheets and someone will get back to you."

Appendix B

The goals of the BMI intervention are to increase the participant's motivation to engage in mandated substance abuse treatment and to decrease his substance use. During the session, the therapist should elicit and reinforce participant speech regarding concerns about current use, reducing substance use, and engaging more fully in mandated substance abuse treatment. Additionally, the therapist should explore whether the client is ready to set and commit to goals around engaging in treatment and decreasing substance use. If the client is willing to set goals, these should be explored. If the client is not ready, the therapist should work with the client to explore how they may go about changing their engagement in treatment and decreasing their substance use if and when they are ready to change.

INTRODUCTION

The purpose of this section is to introduce the therapist to the participant and lay out the goals and expectations of the session.

Hi! My name is XXX. I am a graduate student in clinical psychology at the University of New Mexico. It is nice to meet you.

Thank you for coming in today. I want to start by reminding you that everything you say in this session is completely confidential. That means that this information will not be shared with anyone, including Bonnie or Linda unless you express intent to harm yourself or someone else. Do you have any questions about that?

Great. We have about 50 minutes to chat today and I want to let you know that the reason I am here is to talk with you about issues surrounding your drug/alcohol use and the substance use treatment that you attend with Bonnie and Linda. I am not here to make you do something that you don't want to do. So, before we begin, what questions do you have for me?

THOUGHTS ABOUT SUBSTANCE USE

The purpose of this section is to gather information about the participant's substance use.

I would like to get an idea of what your substance use has been like? (they can choose time period)

What do you think about your substance use?

If it is okay with you, I would like to hear about a time you were using most.

What is your substance use like now?

The purpose of this section is to try to elicit change talk around reducing or stopping substance use.

What have been the not-so-good things about your substance use?

What concerns, if any, do you have about your substance use?

What concerns have others had about your substance use?

Why might you want to cut down on drinking / drug use?

What would happen if you did not cut back?

What might be the worst thing that could happen if you did not cut back?

How would you know if your substance use became a problem?

What would be the signs that your substance use is a problem?

The purpose of this section is to encourage the participant to talk about thoughts about substance involvement in crime of record.

What role, if any, did substance use play in your crime of record?

What was your substance use like before you were sentenced?

[if don't see a connection or seems really touchy] Why do you think substance use treatment was part of your sentencing?

If participant does not see benefit to cutting back, use reflections and emphasize autonomy.

You are ok with your substance use at this time.

You are not seeing any reason to worry about your substance use.

You are in the driver's seat – you get to choose your path.

THOUGHTS ABOUT SUBSTANCE USE TREATMENT

The purpose of this section is to gather information about the participant's thoughts around substance use treatment.

How do you feel about being mandated to drug / alcohol treatment?

The purpose of this section is to discuss ways the participant sees benefit to attending treatment.

What might be the best thing that would happen if you complete treatment?

How do you think treatment has or will benefit you?

What are some things that you like about treatment?

What would happen if you did not attend treatment?

What might be the worst thing that happened if you did not attend treatment?

If participant does not see benefit to attending treatment, use reflections and emphasize autonomy.

This feels like a waste of time to you.

You hate being here.

What you don't like about it is... Is there anything that you find useful from this treatment program?

What could be beneficial about it?

You think treatment is ridiculous. You don't see any concern. But, given that you have to be here, what can you get out of this?

Have you attended treatment in the past? What was helpful about it?

What would keep you from going to treatment?

What else can you do to keep yourself away from substances?

If the client cannot give any example of what could happen if he did not attend treatment, use Ask-provide-Ask formula.

Ask: Do you mind if I talked to you about some consequences that others have mentioned to me?

Ask: I thought of a few things that could happen. Would you like to hear them?

Provide: Others have mentioned that they are worried about drinking for the rest of their lives and how expensive that would be.

Provide: Some people are worried about going back to jail or prison because of drinking or not attending treatment.

Provide: You mentioned that you are trying to stay on good terms with your PO. Is it possible that not going to treatment would upset her?

Ask: What do you think about what I just said?

Ask: How does that apply to you?

Ask: Do you ever feel that way?

The purpose of this section is to gather information about the participant's plans for substance use after treatment ends.

I would like to know more about your thoughts on using in the future.

What are your plans for substance use after you are no longer mandated?

How important would it be for you to cut back on substance use after you are no longer mandated?

GOALS AND PLANS TO MAKE CHANGES

The purpose of this section is to encourage Commitment Language from the participant around engaging in substance use treatment and substance use in the future. The therapist will also want to discuss discrete goals with the participant. They can be written on a form and handed to the participant at the end of the session.

What might be the next step for you?

What would be a good outcome for your substance use/treatment?

What would you like to see happen?

The following are examples of possible goals to help the therapist facilitate this section:

Abstinence

Complete treatment

Mindfulness

Help others

Distress tolerance

Decrease substance use/moderate

Make no changes

Goals should be specific, measurable, achievable, realistic, time-limited

Are there any barriers or obstacles to XXX? How will you work around those?

What will you do if XXX happens?

If there anyone who can help you with XXX? How? Who are they?

How confident are you that you can achieve XXX?

If the client does not want to change, at all

Talk about pros/cons

Use the readiness ruler

When would you know that your substances were causing a problem?

Elicit, provide, elicit

SUMMARY AND THANKS

The purpose of this section is to summarize what the client and therapist discussed in the session.

Summarize client's thoughts and feelings about substance use.

Summarize client's thoughts and feelings about mandated treatment.

Summarize client's goals.

Check in with the participant to make sure that summary is correct.

Thank participant for time and give follow up questionnaires.

The following are examples of summaries:

Our time is almost up so I just want to make sure that I have a complete picture of what we talked about. We talked a lot about alcohol and drugs and it is important for you to stay clean so that you do not go back to jail. You are upset that treatment for substances has been mandated but you think the mindfulness and distress tolerance could be helpful for you. Even though you do not want to be forced to treatment, you think that it could help and you try to complete each session. In the future, you want to stay away from all drugs and only drink every once in awhile. But, that is only after you are legally allowed to. How did I do?

Our time is almost up so I just want to make sure that I have a complete picture of what we talked about. We talked a lot about alcohol and drugs and how you do not think they are a problem for you. You want to stay out of jail and move on with your life but you do not like being forced to go to a treatment that you do not find helpful. You will continue to go because you have to but you are looking forward to the day that it is all over and you can try to move on with your life. How did I do?

Thanks again for participating in this study. I appreciate your time and it was really nice to meet you. I have a few more questionnaires for you to fill out. Before you get started on them, do you have any questions for me?

Appendix C

The goal of the educational intervention is to increase the participant's knowledge about substances and substance use. During the session, the therapist should attempt to discourage self disclosure from the participant. If the participant attempts self-disclosure, the therapist should try to redirect the conversation as quickly as possible to factual information from the PowerPoint.

INTRODUCTION

The purpose of this section is to introduce the therapist to the participant and lay out the goals and expectations of the session.

Hi! My name is XXX. I am a graduate student in clinical psychology at the University of New Mexico. It is nice to meet you.

Thank you for coming in today. I want to start by reminding you that everything you say in this session is completely confidential. That means that this information will not be shared with anyone, including Bonnie or Linda unless you express intent to harm yourself or someone else. Do you have any questions about that?

Great. We have about 50 minutes together today and I want to let you know that the reason I am here is to educate you about drug/alcohol use. I also want to let you know that we are going to record this session to make sure that I am doing my job properly. The audio recording will be kept confidential. So, before we begin, what questions do you have for me?

Ok. We are going to get started. I have a PowerPoint presentation for you to look through. It contains information about drugs and alcohol. Please read through each slide. When you are through, you can press this key to move to the next slide. About half way through, you will come to a slide that asks you to stop and get my attention. Please let me know when you get to that slide. Do you have any questions?

ANSWER QESTIONS ABOUT THE FIRST HALF OF THE PRESENTATION

1. What substances did you read about?

2. What did you learn from the slides?
3. What did you read about that you already knew?
4. Do you have any questions about what you read?

REVIEW THE SECOND HALF OF THE PRESENTATION

Ok. Are you read to review the second half of this presentation? When you are through, please let me know.

ANSWER QUESTIONS ABOUT THE SECOND HALF OF THE PRESENTATION

1. What substances did you read about?
2. What did you learn from the slides?
3. What did you read about that you already knew?
4. Do you have any questions about what you read?

WRAP UP AND THANKS

You just reviewed a presentation about some common substances that people sometimes use. Slides covered topics like effects of the substances and the implications of their use. Thanks again for participating in this study. I appreciate your time and it was really nice to meet you. I have a few more questionnaires for you to fill out. Before you get started on them, do you have any questions for me?

Appendix D

Community Treatment Resources

Alcohol and Substance Abuse Referrals

Addictions & Substance Abuse Program (ASAP)

2600 Yale SE

Albuquerque, NM 87106

http://hospitals.unm.edu/bh/asap/overview.shtml

(505) 994-7999

Services: Substance abuse treatment; ambulatory detoxification; opioid replacement

(methadone/buprenorphine treatment); some services specifically tailored towards women.

Albuquerque Health Services (formerly Metamorphosis)

112 Monroe Street NE

Albuquerque, NM 87108

(505) 260-9917

Services: Substance abuse treatment, detoxification, methadone maintenance, suboxone program, outpatient, etc.

MATS Detox Program

5901 Zuni Rd SE

Albuquerque, NM 87108

(505) 468-1555

Services: Detoxification only.

New Mexico Solutions

707 Broadway NE, Suite 500

Albuquerque, NM 87102

http://newmexicosolutions.com

(505) 268-0701

Services: Outpatient individual, family, child, and adult; outpatient psychiatric assessment and treatment; outpatient chemical dependency counseling; adult & adolescent intensive outpatient; group therapy, etc.

Pathways

2551 Coors Blvd. NW

Albuquerque, NM 87120

 (505) 338-3320

http://www.pathwaysnm.org

Services: Sliding scale fee; substance abuse treatment, outpatient, partial hospitalization/day

treatment.

Relevancy, Inc.

2727 San Pedro NE, Suite 120

Albuquerque, NM 87110

(505) 830-1038 Service/Intake

Services: Coping skills, specialized crack cocaine treatment, group treatment offerings, dual

diagnosis treatment, family therapy, couples counseling, adolescent services, random drug screening, etc.

Turquoise Lodge (State of NM Department of Health)

5901 Zuni SE

Albuquerque, NM 87108

http://turquoiselodge.org/

(505) 841-8978 Service/Intake

Services: Medically managed and monitored inpatient chemical dependency detoxification and rehabilitation treatment.

A New Awakening

600 First Street NW #200,

Albuquerque, NM 87106

http://www.anewawakening.com/

505-224-9124

Services: outpatient individual, group and family therapy.

Endorphin Power company

509 Cardenas SE

Albuquerque, NM 87108

http://www.endorphinpower.org/

505-268-3372

Services: transitional housing

Meetings/12-Step Programs

For each of these programs, check the listed websites for meeting days and times, and locations (throughout the week and throughout Albuquerque).

Adult Children of Alcoholics

Meetings for adults who grew up "in alcoholic or otherwise dysfunctional homes."

http://www.allone.com/12/aca/

Al-Anon

Meetings for friends and families of people who drink. Within this group is Alateen,

specifically for teenagers who are affected by others' drinking.

http://www.nmal-anon.org/Meetings_Albuquerque.htm

(505) 262-2177

Alcoholics Anonymous

Meetings for people who have a desire to stop drinking.

http://www.albuquerqueaa.org/

(505) 266-1900

Cocaine Anonymous

Meetings for people who a desire to stop using "cocaine and all other mind-altering

substances."

(505) 344-9828

Narcotics Anonymous

Meetings where "anyone who feels that they may have a problem with drugs is welcome."

http://riograndena.org/

 (866) 885-6562

Other Community Resources

ABQ Shelter for Victims of Domestic Violence (505) 247-4219

Albuquerque Rape Crisis Center (505) 266-7711

Common Bond (505) 891-3647

Gamblers Anonymous (505) 260-7272

Gay & Lesbian Information Line (505) 891-3647

UNM Manzanita Center (505) 277-7311

UNM Women's Resource Center (505) 277-3716