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Effectiveness of the Treatment Readiness and Induction Program for Increasing Adolescent Motivation for Change

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Abstract

Success in substance abuse treatment is improved by problem recognition, desire to seek help, and readiness to engage in treatment, all of which are important aspects of motivation. Interventions that facilitate these at treatment induction for adolescents are especially needed. The purpose of this study is to assess the effectiveness of TRIP (Treatment Readiness and Induction Program) in promoting treatment motivation. Data represent 519 adolescents from 6 residential programs who completed assessments at treatment intake (Time 1) and 35 days after admission (Time 2). The design consisted of a comparison sample ($n = 281$) that had enrolled in treatment prior to implementation of TRIP (standard operating practice) and a sample of clients that had entered treatment after TRIP began and received standard operating practice enhanced by TRIP ($n = 238$). Repeated measures ANCOVAs were conducted using each Time 2 motivation scale as a dependent measure. Motivation scales were conceptualized as representing sequential stages of change. LISREL was used to test a structural model involving TRIP participation, gender, drug use severity, juvenile justice involvement, age, race-ethnicity, prior treatment, and urgency as predictors of the stages of treatment motivation. Compared to standard practice, adolescents receiving TRIP demonstrated greater gains in problem recognition, even after controlling for the other variables in the model. The model fit was adequate, with TRIP directly affecting problem recognition and indirectly affecting later stages of change (desire for help and treatment readiness). Future studies should examine which specific components of TRIP affect change in motivation.

Keywords

Adolescents; substance use; motivation; intervention effectiveness

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1. Introduction

Substance use is a significant problem among youth in the United States (Aarons, Brown, Hough, Garland, & Woody, 2001; Gilvarry, 2000; Johnston, O'Malley, Bachman, & Schulenberg, 2008). Youth completing specialized treatment for their substance use show better follow-up outcomes (Williams, Chang, & Addiction Centre Adolescent Research Group, 2000; Winters, Latimer, & Stinchfield, 1999) in the areas of drug use, criminal activity, psychological adjustment, and school performance (Hser et al., 2001; Joe, Knight, Becan, & Flynn, 2014). While effective treatments exist, numerous studies have found that sizable individual differences in client responsiveness to treatment manifest even when administered with attention to protocol adherence (Dennis et al., 2004; Waldron, Slesnick, Brody, Turner, & Peterson, 2001). While these differences can be attributed to numerous individual and programmatic factors, client motivation to change (Titus & Dennis, 2006) and sufficient treatment tenure (Etheridge, Smith, Rounds-Bryant, & Hubbard, 2001; Pompei & Resnick, 1987; Williams et al., 2000) are considered to be pivotal.

Not surprisingly, adolescent clients often state that their substance use is not a problem. Furthermore, they show a lack of interest in taking personal responsibility for change, and often have insufficient internal motivation to respond favorably to treatment (Titus & Dennis, 2006). Because adolescents generally tend to pay more attention to the positive social effects of drinking and substance use, and less attention to the negative consequences that their use can have on family, school, physical, and psychological well-being (National Institute on Alcohol Abuse and Alcoholism, 2005), interventions are needed that focus on improving judgment and decision making, factors that have been hypothesized as crucial to internal motivation. It is anticipated that interventions aimed at improving general thinking skills – self-awareness, goal-directed thinking, and exploring negative consequences – might promote higher motivation to change. There is growing support that these interventions use stimulating and meaningful activities to increase motivation and preparedness for change immediately upon entry into treatment (DiClemente, Garay, & Gemmell, 2008).

The purpose of this study is to test the effectiveness of a new intervention for improving motivation for change, called the Treatment Readiness and Induction Program (TRIP). This is done by testing whether adolescents who received TRIP in addition to standard operating procedure (SOP) improved significantly more on motivation for change compared to those receiving only SOP. For the purpose of this study, motivation for change is defined by the Treatment Process Model (Simpson, 2004) and includes three elements – recognition of a substance use problem, desire for help with substance use, and readiness for treatment. This study extends research conducted by Knight and colleagues (Knight, Dansereau, Becan, Rowan, & Flynn, 2014) on the effectiveness of TRIP for improving decision making to include an examination of the extent to which TRIP promotes greater gains in motivation for change beyond that experienced with SOP alone.

1.1. Motivation for change models

Global models of change and the treatment process [e.g., the Transtheoretical Model (TTM; Prochaska, DiClemente, & Norcross, 1992), Integrative Recovery Model (De Leon, 1996), and the Treatment Process Model (Simpson, 2004)] recognize treatment readiness and client

responsiveness as key components of the change process. The progression of change, as conceptualized by the TTM, typically starts with pre-contemplation (unawareness of behavior), then progresses to contemplation (become aware, decide if action is desired), which leads to preparation (intent to change) and action (steps have been taken, receive reinforcement), and eventually maintenance (continuation of change). Stages represented by the Treatment Process Model correspond with the TTM starting with recognition of a substance use problem (i.e., contemplation), desire to seek help with substance use (i.e., preparedness), and readiness and commitment to treatment (i.e., action).

Significant relationships between stages of change and treatment outcomes have been documented. Adolescents who do not acknowledge that negative consequences result from their substance use (i.e., in the lower pre-action stages of change) are more likely to drop out of treatment prematurely than youth in more advanced, action-oriented stages of change (Callaghan et al., 2005). Conversely, youth in the action stages who show a desire for help with their substance use and a high level of readiness and commitment to the therapeutic process are more likely to engage in meaningful interactions with the clinical staff and other youth receiving treatment (Joe et al., 2014). Further, the later stages of change interrelate to promote positive treatment outcomes. Treatment readiness serves as a mediator of the relationship between desire for help in treatment and eventual treatment completion (Fickenscher, Novins, & Beals, 2006).

Behavioral change, as represented by these global models, is now more commonly understood as a cyclical or dynamic recovery process, rather than a linear progression across stages (White & Kelly, 2011). Adolescents with substance use problems can move forward, backward, and recycle through the stages of change (DiClemente, 2005), with many youth requiring multiple treatment episodes due to their severity of use (Dennis et al., 2004; Godley, Godley, & Funk, 2005). The revised Transtheoretical Model, referenced as intentional behavioral change (DiClemente, 2005), suggests that there is a 'constellation of tasks' that promote advancement between early and later stages of change. Cognitive/experiential activities (e.g., planning, organizing, and problem solving) can serve as 'engines' to facilitate mastery of stage specific tasks, which often necessitate a recycling through the stages (DiClemente et al., 2008). While there are engines that promote advancement through the stages of change, there are also cognitive/experiential factors that could serve as potential inhibitors to intentional behavioral change. For example, youth tend to place more value on the social rewards that accompany risky behavior, like substance use, rather than the potential negative consequences associated with use. Studies show that the tendency for youth to respond rashly when experiencing positive emotions (termed positive urgency) is connected with greater risky decision making (Zapolski, Cyders, & Smith, 2009) and behaviors such as substance use. Moreover, impulsive tendencies may also interfere with progress in treatment, especially motivation for change. Kazemi and colleagues found that impulsivity served as a barrier for college binge drinkers' intent to change, especially for those in the pre-contemplation stage (Kazemi, Wagenfeld, Van Horn, Levine, & Dmochowski, 2011). Furthermore, adolescents with high levels of impulsivity at treatment intake remain abstinent fewer weeks during treatment than clients with lower baseline levels of impulsivity (Stranger et al., 2011).

1.2. Adolescent Treatment Practices

Several highly innovative and effective practices and therapies for adolescents have emerged, including Multi-Dimensional Family Therapy (MDFT; Liddle, Rodriguez, Dakof, Kanski, & Marvel, 2005; Rowe & Liddle, 2006), Adolescent Contingent Reinforcement Approach (A-CRA; Godley et al., 2001; Dennis et al., 2004), Cognitive-Behavioral Therapy (CBT; Kaminer, Blitz, Burleson, & Sussman, 1998; Kaminer, Burleson, & Goldberger, 2002; Waldron et al., 2001), and Multisystemic Therapy (MST; Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998). These are often stand-alone, manualized interventions and are designed to be transportable with adequate training (Schoenwald & Hoagwood, 2001). They are effective for improving client outcomes (Bender, Springer, & Kim, 2006), are embraced by therapists (Godley & White, 2001), and provide excellent models for targeted interventions for adolescents. While these practices are often highly inventive, such multi-faceted interventions are often resource-intensive (i.e., staff time for training, funding for new staff) and may be difficult to incorporate into existing protocols. Therefore, the need exists for additional, empirically tested interventions for youth that easily interface with existing treatment programs and fit within available resources (McWhirter, 2008). For intervention adoption and implementation to occur, demands on programs have to be realistic and within the scope of existing facility and staffing resources (Flynn & Brown, 2011).

Tools to enhance motivation for change, including readiness training that help prepare individuals to take advantage of treatment (Aharonovich, Nunes, & Hassin, 2003; Wexler, Melnick, Lowe, & Peters, 1999), are becoming an integral part of the therapeutic process (DiClemente et al., 2008). There are a few evidence-based practices specifically developed for youth as induction tools to be administered during the initial phase of treatment. These include Motivational Interviewing (MI), Motivational Enhancement Therapy (MET; Henggeler et al., 1991, Liddle et al., 2001), and Brief Motivational Interventions (BMI; Dennis et al., 2004). In most applications, counselors are trained to work one-on-one with clients to increase motivation for change. While shown to be effective (Miller & Rollnick, 2002; Monti, Barnett, O'Leary, & Colby, 2001; Walker et al., 2006), group-based interventions are more prevalent in community-based treatment (Kaminer, 2005; Macgowan & Wagner, 2005; Stinchfield, Owen, & Winters, 1994). For these settings, group-facilitated readiness interventions that incorporate cognitive behavioral techniques and that can be integrated easily into standard practice are warranted.

1.3. The Treatment Readiness and Induction Program

The Treatment Readiness and Induction Program (TRIP; Bartholomew, Dansereau, Knight, Becan, & Flynn, 2012) is a package of effective tools and materials that is intended as a group-based treatment with a focus on increasing motivation for treatment by encouraging youth to think more clearly and systematically about their drug use and personal problems. Although the components of TRIP were originally developed with adult treatment samples, it has been adapted for use with adolescent clients (see Dansereau, Knight, & Flynn, 2013; Knight, Dansereau et al., 2014). Three primary strategies are used to achieve TRIP objectives – Mapping-Enhanced Counseling (MEC), experiential games and activities, and peer facilitation. MEC (Dansereau & Simpson, 2009) forms the core of TRIP and takes

advantage of spatial thinking to improve cognition and commitment to change. Activities include guide maps which are “fill in the blank” templates that “guide” thinking around a particular topic. Mapping focuses attention, facilitates communication, and visually illustrates concepts and ideas. Included in the National Registry of Evidence-based Programs and Practices (NREPP), mapping is particularly effective for clients with poor attention or cognitive functioning deficits (Czuchry & Dansereau, 2004) and leads to a more engaging counseling approach (Dansereau, Dees, Greener, & Simpson, 1995; Knight, Dansereau, Joe, & Simpson, 1994). Research on adult populations suggests that manual-driven interventions that utilize MEC in group settings are effective for promoting motivation and treatment induction and therefore might also be useful in adolescent populations. MEC, the use of experiential games and activities, and peer facilitation help to address the elements of motivation for change – problem recognition, desire for help, and treatment readiness – by building and strengthening cognitive competencies (Dawson & Gaure, 2010). These competencies include introspection, perspective-taking, exploration of negative behavior sequences, and exploration of peer/social factors and how they influence thinking and behavior.

TRIP consists of 8 modules that can be used in open groups (new members join throughout) or closed groups (group membership is predetermined and static) and is designed for delivery in the first 30 days of substance abuse treatment (orientation or induction phase). The 8 modules (1.5 hours each) are organized around 4 main themes: (1) Mapping (graphically enhanced analytic decision making), (2) Nudge (practice identifying, developing, and using cues and signals to shape personal thoughts and behavior), (3) Downward Spiral (understanding the consequences of drug use through an experiential board game), and (4) Work It (repetitive use of structured map templates or schemas to promote systematic decision making). TRIP uses a “back-door approach” to indirectly support motivation for change. For instance, instead of a clinician promoting problem recognition by sharing a list of the negative consequences of substance use, a youth participating in a Downward Spiral session actively plays the role of an individual who has decided to continue illicit drug use. As the game unfolds the client rolls the die, reads a card with a relevant scenario, and loses points related to the scenario including personal health, family support, legal status, or financial resources. Likewise treatment readiness is indirectly addressed through Work It sessions. The clinician first outlines the Work It guide map process with the client which involves stating a problem/issue, identifying options/choices for the issue, rating the choices by how the individual would feel after turning the choice into action, selecting a choice, identifying steps and roadblocks to turning the choice into an action, and examining the results after the action has been taken. Next the youth is encouraged to complete a guide map on a self-defined problem or issue. Through this process, clients explore alternatives and options, as well as pros and cons of various choices.

1.4. Current study

Nearly 1.0 million persons across the United States ages 12 and older received inpatient treatment in 2011 (Substance Abuse and Mental Health Services Administration, 2011), with a quarter of all adolescent residential centers self-identifying as Therapeutic Communities (TC; Drug Strategies, 2003). The TC’s “community as method” approach (De

Leon, 1997) is particularly well-suited to adolescents who are highly influenced by peers (Winters, 1999) and who respond well to supportive peer-initiated interaction.

The current study involves adolescents receiving substance abuse treatment in 6 community-based residential programs across the United States. The selection of residential TC programs for participation in the current study afforded researchers the opportunity to examine the effectiveness of TRIP when interfaced into a peer-emphasis standard operating practice. The main research question relates to differences between clients who received TRIP compared to those who received SOP in terms of level of motivation as defined by the 3 elements in the treatment process model. Because participants were not randomly assigned to these respective groups, it is important to control for potential baseline differences between the participant groups on factors that might possibly affect the study's outcomes. Demographic and baseline covariates – including gender, age, race-ethnicity, drug use severity, previous juvenile-justice involvement, and prior treatment – were selected based on indications that these factors have the potential to influence the degree to which a client is motivated in the treatment process (Austin, Hospital, Wagner, & Morris, 2010; Barnett et al., 2002; Catalano, Hawkins, Wells, Miller, & Brewer, 1990; Crowley, Mikulich, MacDonald, Young, & Zerbe, 1998; Fickenscher et al., 2006; Melnick, De Leon, Hawke, Jainchill, & Kressel, 1997; Rivers, Greenbaum, & Goldberg, 2001; Wise, Cuffe, & Fischer, 2001). Without controlling for these influences, it may be more difficult to associate outcomes to TRIP.

Three primary hypotheses are proposed. First, it is hypothesized that clients who participate in TRIP will report a greater increase in treatment motivation after 35 days in treatment than clients who receive standard operating practice (controlling for covariates and urgency). Second, urgency (a sub-measure of impulsivity that addresses the tendency to act rashly when experiencing extreme emotions) is expected to moderate the effectiveness of TRIP, with high urgency youth benefiting less from TRIP than low urgency youth. Highly impulsive youth may have a more difficult time resonating with the TRIP modules. For instance, these youth may not readily internalize the negative consequences of drug use that are explored through the Downward Spiral game. Third, in accordance with models on stages of change, it is expected that TRIP's primary impact will be on improving problem recognition, the first element in the change sequence. The components of TRIP, are designed to improve recognition of a problem through Downward Spiral and Mapping activities and thus motivation for change early in the treatment process, thereby impacting the initial stages more so than the distal stages of change that involve the desire to seek help and openness to treatment opportunities.

2. Method

2.1. Procedures

Data were collected as part of an ongoing research project funded by the National Institute on Drug Abuse (NIDA; Grant R01DA013093). Institutional Review Boards at the research institution and the parent agencies for participating treatment programs reviewed and approved research protocols. Participating programs entered into a Qualified Service Organization Agreement (QSOA) with the research team whereby screening and assessment

services, data analysis and reporting, and all training and curriculum materials were provided at no cost in exchange for de-identified treatment episode, assessment, and curriculum attendance data.

Program participation occurred in two phases (1) assessment only and (2) assessment and curriculum. Throughout the project, programs were granted access to the Texas Christian University (TCU) Adolescent Screening and Assessment Package (TCU-ASAP) via an online assessment system developed and managed by the research team. In addition to providing a mechanism for data collection, the online system produced automated real-time client-level assessment reports for staff to use in client documentation and treatment planning (Knight, Becan, Landrum, Joe, & Flynn, 2014). In phase 2, program staff were trained on the Treatment Readiness and Induction Program (TRIP; Bartholomew et al, 2012) and clients were placed in TRIP groups upon completion of intake assessments. Participants entering treatment during the assessment only phase were classified as the standard operating practice (SOP) group; whereas clients with treatment admission dates after program implementation of the TRIP curriculum were classified as the TRIP group.

2.1.1. Implementation—Initial assessment training began in late 2010, and data sharing began in early 2011. Throughout the data collection period, programs shared de-identified treatment episode and assessment data with the research team using the online system. Each treatment facility and each facility assessment coordinator were assigned identification numbers. Program staff assigned identification numbers to newly enrolled clients. These client identification numbers were used by staff to create online client accounts, schedule and administer assessments, and link assessment responses across time. To protect client confidentiality, names and identifying information associated with client IDs were known only to program staff and not shared with the research team. Clients responded to assessment items on their own while their computer use was monitored by staff. Facilitators were available to assist when questions or problems arose. Assessments were administered at intake (Time 1) and at Day 35 into treatment (Time 2). Assessment coordinators received in-depth training on how to log-in, setup client accounts, monitor and facilitate an assessment session, stop and start a session, track progress over time, print reports, and troubleshoot when problems arose. The assessment only phase continued for 7-11 months before TRIP was implemented at each facility ($M = 9$ months).

The TRIP curriculum was first introduced to program administrators in late 2011, and then introduced to key treatment staff prior to program implementation. Program administrators attended a 1-day meeting on the overall approach (rationale for TRIP, introduction to TRIP manual and activities) and were asked to carefully consider which of their clinical staff should be trained on TRIP and how the curriculum would best be implemented at their facility (e.g., 2 weekly sessions over 4 weeks, 4 weekly sessions over 2 weeks, etc.). A “train-the-trainer” model was used whereby two clinical staff (identified by program administrators) attended a 2-day training on implementing TRIP curriculum in its entirety. The training covered the use of Mapping-Enhanced Counseling, an overview of session content, how to facilitate session activities, how to train and utilize peer mentors, and strategies for implementing the curriculum at their particular site. Attendees were responsible for conducting TRIP groups at their agencies and for training additional staff to

ensure that the TRIP curriculum would continue in the event of staff turnover. Continuing education credits for training participation were provided.

Participating programs received all materials needed to implement TRIP (manual, Downward Spiral game, and a flash drive with all curriculum and training materials). The 100 page TRIP manual includes (1) a syllabus outline and rationale for each module; (2) a detailed description, time needed, and materials list for each activity; and (3) a clinical script for session facilitation, along with clinical prompts and processing questions. The detailed facilitator's manual enables clinicians with varying levels of experience to facilitate or co-facilitate sessions after a brief orientation to the session. Each 90-minute module is structured to shift the interaction platform between lecture, didactic, individual, and group every 25 minutes.

TRIP sessions were integrated into clinical practice at each facility approximately one month after the staff training. The integration of TRIP sessions into clinical practice typically involved a displacement of less structured time, rather than a replacement of current clinical programming. New clients who enrolled following TRIP implementation were strongly encouraged and expected to attend TRIP sessions, although exemptions were given to clients who were both re-admitted to the facility and who had previously participated in the TRIP curriculum (approximately 2 clients per month across programs). One of the programs served as the training and implementation pilot and therefore received curriculum training and began conducting groups earlier than the other programs. Curriculum facilitation continued between 6 and 12 months with the goal of each facility completing at least 10 cycles of the 8 curriculum modules using an open-enrollment process. Information on group attendance and fidelity to curriculum content were reported by group facilitators after each TRIP session using fidelity checklists (see Knight, Dansereau et al., 2014).

2.1.2. Facility sample—Eight adolescent community-based residential substance abuse treatment programs in 3 states were recruited in 2010, with assistance from regional Addiction Technology Transfer Centers (ATTCs). Residential programs were targeted because the restrictive environment provided greater control for extraneous influences (home life, peers), and greater likelihood of retention and session attendance. Six of the eight participating programs are represented in these data. The two programs that were excluded were done so due to organizational problems. One program lost funding from their parent organization and closed within the first month after staff training on the TRIP curriculum. The remaining program was dropped from analyses due to a lack of allocation of facility resources, resulting in inconsistent facility implementation of the TRIP curriculum ($n = 6$ clients with complete data). The two excluded programs reported a higher proportion of clients who were male, Black/African American, and had a prior treatment episode when compared with the youth enrolled in the six agencies included in the study.

Staffing size for the six programs varied, with an annual median of 13 staff with direct client contact. These clinical teams included full time, part time, and contractual social workers, case managers, clinical supervisors, and therapists who serve an average of 25 to 100 clients daily ($M = 57$). Programs were located in rural, suburban, and urban areas. Planned length of

stay varied across programs ranging from 30 days to 12 months. The actual average length of stay for participants across all facilities was 88 days. Most programs were affiliated with a parent organization. They were private non-profit modified therapeutic communities, and described the treatment philosophy as a cognitive-behavioral model.

2.1.3. Participant sample—Assessment data represent 519 adolescents enrolled in 6 community-based treatment programs in 2011 and 2012 who completed assessments at admission (Time 1) and again at Day 35 (Time 2). Two treatment programs represent the majority of the client sample (70%, $n = 255$ and 107), with the other four programs representing the remaining 30% of the client sample ($n = 65, 42, 28$, and 22). Participants were mostly male (63%) and older than 16 (62%; see Table 1). The most frequently reported race-ethnicity was Hispanic (53%), followed by Caucasian (26%), and Multiracial (10%), with 5% of the sample identifying as African American. The majority reported prior substance abuse treatment (66%) and scored within the high severity range on the TCU Drug Screen II (72%; Knight, Simpson, & Hiller, 2002). Over half (59%) reported juvenile justice involvement within the 30 days immediately prior to admission (i.e., probation, drug court, or juvenile detention). When asked which substance caused them the most problems, marijuana was reported most frequently (31%), followed by no problem drug (19%), and alcohol (11%). Among clients reporting marijuana as their problem drug, 58% reported daily use, 22% reported weekly use, and 5% reported monthly use. Among clients reporting alcohol as their primary substance, 28% reported daily use, 26% reported weekly use, and 18% reported monthly use. Among clients reporting “no drug” as causing the most problems, 47% reported daily use of marijuana, 5% reported daily use of alcohol, and 4% reported daily use of Heroin, Cocaine, or Sedatives. Chi-square analyses indicate that client demographics vary significantly by treatment program on gender, age, Caucasian ethnicity, drug use severity, juvenile justice involvement, and prior treatment; providing additional support for including program membership and client demographics as covariates in analytic models examining the effectiveness of TRIP.

Criteria for inclusion in the SOP group were (1) enrollment in treatment 60 or more days prior to program implementation of TRIP (to avoid possible exposure to program preparations for curriculum implementation), and (2) no attendance at a TRIP session during treatment. Criteria for inclusion in the TRIP group included (1) enrollment on the day of or after program implementation of TRIP, (2) completion of the Time 1 assessment prior to attendance at a TRIP session, and (3) sufficient exposure to TRIP content as defined as attendance at 4 or more (at least half) of the TRIP sessions prior to completion of the Time 2 assessment. Chi-square analyses indicate no significant differences between the TRIP and SOP groups on demographic measures.

There were 1,549 participants with assessment data at Time 1 or Time 2. Of those participants, 659 completed assessments at both Time 1 and Time 2 and had data on the variables used in the current study. Loss of Time 1 data was due primarily to scheduling issues (e.g., limited access to computers at some facilities early in the project) or early discharge within the first week of treatment. The lower completion rate for Time 2 assessments was due to a combination of treatment-specific factors (e.g., early discharge due to physical altercations, leaving against medical advice) and non-treatment factors (e.g., staff

forgetting to schedule Time 2, shifting of responsibility for Time 2 assessments from one staff member to another). Of the remaining 659 participants, 281 meet inclusion criteria for the SOP group and 238 meet inclusion criteria for the TRIP group. The final study sample represents 519 participants. Demographic differences were examined between clients included ($n = 519$) and excluded ($n = 1030$) in the participating 6 agencies. Slightly fewer clients included in the study were male, Hispanic, and reported high drug use severity; while slightly more clients included reported previous involvement with the justice system and significantly more clients were Caucasian. Overall, the number of clients excluded from the study by facility is proportionate to the total sample by facility. The two larger facilities represent 59% of the excluded sample ($n = 364$ and 241), with the other four smaller facilities representing the remaining 41% of the excluded sample ($n = 58, 88, 94, 185$). Early dropout (less than 30 days in treatment) accounted for 31% of the excluded data, with a missed administration accounting for 47% of the excluded data.

2.2. Measures

Participants completed the TCU Adolescent Screening and Assessment Package (ASAP) covering substance use severity (TCU Drug Screen II; Knight et al., 2002); demographics and preceding risk factors (RSKFORMs; Knight et al., 2002); psychosocial functioning, motivation, and engagement (Client Evaluation of Self and Treatment; CEST; Garner, Knight, Flynn, Morey, & Simpson, 2007; Joe, Broome, Rowan-Szal, & Simpson, 2002); general thinking (THKFORMs; Knight, Becan et al., 2014), criminal thinking (CTS; Knight, Garner, Simpson, Morey, & Flynn, 2006); and family and peer relationships and functioning (Family, Friends, and Self Form; FFS; Simpson & McBride, 1992). Most demographic and risk factor items were yes/no or multiple choice. Scale items included response options along a 5-point Likert-type scale (*disagree strongly* = 1, *uncertain* = 3, and *agree strongly* = 5). Some items were reverse-scored, thus the response value was reflected by subtracting the raw response from 6. Scale scores (with the exception of Social Desirability) were computed by averaging response items (after reflecting reversed items) and multiplying the average by 10. For all scales, higher scores indicated higher levels of the measured construct (e.g., higher problem recognition).

2.2.1. Demographic and baseline covariates—Drug use severity information was collected using the TCU Drug Screen II (TCUDS II Form; Knight et al., 2002). The first 12 items utilized yes/no response options to questions paralleling substance abuse/dependence diagnostic criteria from the Diagnostic Statistical Manual (DSM; American Psychiatric Association, 2000). Sample questions include “Did you use larger amounts of drugs or use them for a longer time than you planned or intended?” and “Did you ever keep taking a drug to avoid withdrawal symptoms or keep from getting sick?” Responses were coded as *No* = 1 or *Yes* = 2 and scored by summing individual or multiple part items. Based on the scoring criteria the scale was coded as 9 items. Scores range from 9 to 18, with 12 and above indicating relatively severe substance-related problems. These scores were dichotomized to represent low drug use severity (scores less than 12) and high drug use severity (scores 12 or greater). The 3 items used to determine prior juvenile justice involvement were from the RSK Forms and asked whether participants had been on probation, involved in drug court, or in juvenile detention in the 30 days immediately prior to treatment admission. A *Yes*

response to any of the 3 items indicated juvenile justice involvement. A *No* response to all of the 3 items indicated no juvenile justice involvement. Age was dichotomized into younger (< 16) or older (≥ 16) age groups. Race-Ethnicity was dichotomized into Caucasian or non-Caucasian (including all other ethnicities). Prior treatment history reflected participant responses to 2 items assessing whether or not clients had ever been treated for drug or alcohol problems. A *Yes* response to either item indicated a history of prior treatment and a *No* response to both items indicated no history of prior treatment.

2.2.2. Treatment Motivation scales—The treatment motivation scales are a part of the CEST (Garner et al., 2007; Joe et al., 2002), and include Problem Recognition, Desire for Help, and Treatment Readiness (all alphas > .80; Knight, Becan et al., 2014). The Problem Recognition Scale comprised 10 items (e.g., “Your drug use is a problem for you”), and measured acknowledgement of substance use-related problems. Desire for Help comprised 6 items (e.g., “You need help dealing with your drug use”), and assessed awareness of the need for change. Treatment Readiness comprised 8 items (e.g., “This treatment gives you a chance to solve your drug problems”), and assessed recognition that treatment provides an opportunity for change. Motivation was assessed at Time 1 and 2.

2.2.3. Positive Urgency scale—The Positive Urgency scale adapted from Cyders et al., 2007 (alpha = .82; Knight, Becan et al., 2014) was included in the THK Forms and administered at Time 1. This scale comprised 6 items (e.g., “When I am really excited, I tend to not think of the consequences of my actions”), and assessed the tendency to behave rashly when experiencing positive emotions. The scale was dichotomized based on a median split (low/high urgency).

2.2.4. Social Desirability scale—The Social Desirability scale was adapted from Crowne and Marlowe, 1960 (alpha = .69; Knight, Becan et al., 2014). This scale was comprised of 11 items (e.g., “You are always willing to admit it when you make a mistake”) and served as an indicator of possible response bias. Scores were computed by recoding the response (e.g., *Agree Strongly* or *Agree* = 1; *Uncertain*, *Disagree*, or *Disagree Strongly* = 0), then summing items resulting in scores ranging from 0 to 11. Higher scores indicated higher possibility of response bias. The Time 1 measure of social desirability was included as a covariate in the analysis of covariance models.

2.3. Analytic plan

Hypotheses 1 and 2 were examined simultaneously using SAS (SAS, 2003) with separate repeated measures analysis of covariance (ANCOVA) models with each of the three motivation scales as dependent variables and Group (SOP versus TRIP) and Urgency (low versus high) as independent variables. In addition, due to program differences in client demographics, the following pre-treatment variables were included as covariates (gender, age, drug use severity, race-ethnicity, prior juvenile justice involvement, prior treatment, and social desirability). Because youth receiving services within the same treatment program are likely to share common variance (Raudenbush & Bryk, 2002), additional analyses using SAS PROC MIXED (SAS, 2003) were used to examine potential influence of program membership on TRIP effectiveness.

LISREL (Jöreskog & Sörbom, 2004) was used to test the path model proposed in hypothesis 3. The initial model included a path from each Time 1 to Time 2 motivation measure, a direct path from experimental group to problem recognition, and a path from each early stage of the change process at Time 2 to the next stage at Time 2 (i.e., from problem recognition to desire for help, from desire for help to treatment readiness). All covariates that were significant at $p < .1$ from the ANCOVA analyses, conducted for Hypotheses 1 and 2, were included in the path analysis with paths to Time 2 motivation measures. Models were tested for good fit (Schumacker & Lomax, 2010). A non-significant chi-square estimate is rare when sample sizes are large (Bentler & Bonett, 1980; Jöreskog, 1981), therefore the other measures of fit were considered for judging the adequacy of the models. Values of .05 to .08 for the root mean square error of approximation (RMSEA) estimate, a value of less than .05 for the standardized root mean square residual (SRMR), along with a value close to 1 for the normed fit index (NFI), the goodness of fit index (GFI), and the comparative fit index (CFI) were used as criteria for good fit. Additional analyses using a within-covariance matrix to remove between treatment facility differences were used to test the structural equation model (Joe et al., 2014) and to provide generalizability of the findings.

3. Results

3.1. Hypothesis 1: Change in motivation

The first hypothesis proposed that clients who participated in the standard operating practice enhanced by the TRIP curriculum (TRIP group) would show greater gains in motivation beyond that observed in clients who participated only in SOP (SOP group). See Table 2 for treatment motivation means by these two groups.

3.1.1. Problem Recognition—As anticipated, there were no significant differences between the SOP group and the TRIP group on problem recognition at Time 1; however, the TRIP group was significantly higher than the SOP group at Time 2 ($t(507) = 13.72, p < .0002$). In the repeated measures analysis of covariance that adjusted for potential background differences, hypothesis 1 was also supported. The latter analyses showed that while problem recognition increased over time among clients in both groups [$F(1,507) = 20.06, p < .0001$], there was also significant time by experimental group interaction [$F(1,507) = 4.19, p = .042$] showing that increases in problem recognition were greater for TRIP clients compared to the increase for SOP clients. These results also identified that some covariates were significant. These were gender [$F(1,507) = 13.19, p = .0003$], drug use severity [$F(1,507) = 14.44, p = .0002$], age [$F(1,507) = 5.05, p < .026$], and urgency [$F(1,507) = 4.07, p < .045$]. Males gained more than females, those with lower drug use severity gained more than higher severity, younger clients gained more than older clients, and those with less urgency gained more than those higher in urgency.

3.1.2. Desire for Help—As with problem recognition, there were no significant differences between the SOP only group and the TRIP group at Time 1. Like problem recognition, clients in the TRIP group reported significantly higher unadjusted desire for help ratings than clients in the SOP group at Time 2 ($t(507) = 7.28, p < .008$). While youth

in both groups showed significant overall gain in desire for help from Time 1 to Time 2 [$F(1,507) = 7.18, p < .008$], the TRIP group did not gain significantly more than the SOP group when adjusted for the covariate profile. Importance for the inclusion of gender, drug use severity, and urgency were manifested by significant time by gender [$F(1,507) = 4.25, p < .04$], time by drug use severity [$F(1,507) = 6.96, p < .009$], and time by urgency [$F(1,507) = 7.07, p < .009$] interactions. Males gained significantly more on desire for help than females, those lower in drug use severity gained more than those who reported higher severity, and clients with low urgency gained more than those with high urgency.

3.1.3. Treatment Readiness—Consistent with the initial analyses of problem recognition and desire for help, there were no significant differences at Time 1 between the SOP and TRIP groups on treatment readiness. However, unlike the analyses of the other two measures of motivation, there was no significant difference between the two groups on treatment readiness at the Time 2 measurement. Although treatment readiness significantly increased over time for both groups [$F(1,507) = 6.24, p < .013$], the increase was not significantly greater in the TRIP group than in the SOP only group. All in all, the analysis of covariance found the increase in treatment readiness was largely unaffected by the covariates. There was one exception; the effects of time by drug use severity [$F(1,507) = 10.12, p < .002$]. Additionally, time by juvenile justice involvement [$F(1,507) = 3.45, p < .064$], and time by age [$F(1,507) = 3.23, p < .074$] were nearly significant. Overall, low severity clients gained more than high severity clients, youth without previous juvenile justice involvement tended to gain slightly more than youth with previous involvement, and younger clients tended to gain slightly more than older clients.

3.1.4. Addressing between treatment facility variation—To examine the potential effects of shared variance due to program membership on the findings, additional analyses were conducted. Intraclass correlation coefficients (ICC; Snijders & Bosker, 1999) were calculated for each Time 1 and Time 2 Motivation Scale to provide information on the degree to which variation in motivation ratings is determined by program membership. The proportion of variance reflecting program differences include Problem Recognition_{Time 1} = 10%, Desire for Help_{Time 1} = 8%, Treatment Readiness_{Time 1} = < 1%, Problem Recognition_{Time 2} = 9%, Desire for Help_{Time 2} = 14%, and Treatment Readiness_{Time 2} = 9% with most of the variation occurring at the client level. PROC MIXED was used to test the effect of treatment condition on motivation while controlling for program membership in these multilevel analyses. The Time 2 measure served as the dependent variable and group, covariates, and the corresponding Time 1 measure were entered as independent variables. Program membership was entered as a fixed effect in the model. Results were similar to findings from the repeated measures ANCOVA model. While the main effect of group on problem recognition was significant [$F(4,503) = 10.44, p < .05$], neither the effect of intervention group on desire for help nor on treatment readiness was significant.

3.2. Hypothesis 2: Effect of urgency on TRIP participation on motivation

The second hypothesis stated that urgency would serve as a moderator of the relationship between experimental group and motivation, with high urgency clients showing lesser gain than low urgency clients. Separate repeated measures ANCOVAs were conducted for each

of the three motivation scales. See Table 3 for treatment motivation means over time by group and by urgency.

The results were mixed. The 3-way interaction of time $\times$ experimental group $\times$ urgency was not significant for problem recognition or for treatment readiness. However, there was support for this hypothesis in the analysis of desire for help, as manifested in the significant three-way interaction [$F(1,507) = 4.53, p < .034$; see Figure 1]. An examination of simple effects on this 3-way interaction shows that adolescents who report low level urgency at Time 1 report lower levels of desire for help at intake than do higher urgency adolescents. The lower urgency adolescents gained significantly more than the higher urgency adolescents from Time 1 to Time 2 regardless of TRIP participation. These results provide partial support for hypothesis 2 in relation to desire for help.

3.3. Hypothesis 3: Integrating the effect of experimental group across motivation measures

Hypothesis 3 postulated a test of the integrated relationship between the motivation variables (problem recognition, desire for help, and treatment readiness), including the effects of TRIP and the potential covariates. A structural equation model was developed based on the following basic relationships and was estimated using LISREL (version 8.71):

1. Time 2 measurements should be related to Time 1 measurements. That is, time should be modeled; specifically, for each of the motivation measures, its Time 1 measure should directly affect the Time 2 measurement. This follows from previous research that earlier measurements are related to later measurements of the same behavior.
2. The intervention should affect problem recognition at Time 2. In our analyses of covariance, it was found that the TRIP group had significantly greater problem recognition scores at Time 2 than the SOP group.
3. The covariates (measured at Time 1 and significant at or below $p < .10$) should be differentially related to the Time 2 motivation variables. The relationships modeled are based on the findings from the analyses of covariance that were performed for each of the 3 motivation variables: (a) gender, drug use severity, age, and urgency should directly impact problem recognition, (b) gender, drug use severity, and urgency should directly impact desire for help, and (c) drug use severity, juvenile justice involvement, and age should directly impact treatment readiness.
4. The measurements of all three motivation variables at Time 2 would indicate from the inter-correlation matrix (see Table 4) that they are related to each other. The interrelationships among the Time 2 motivation variables, along with the stages of change model and the cross-sectional data structure for the current paper, would suggest the appropriateness for testing a bi-directional relationship. Two options were tested, (a) recursive model with unidirectional paths between Time 2 motivation measures and (b) non-recursive model with bi-directional paths between Time 2 motivation measures.

3.4. Recursive/unidirectional model

The initial model tested the fit of the recursive model, with unidirectional paths between Time 2 motivation measures. The overall fit indices suggested a poor fit for the unidirectional model of motivation [$\chi^2(14) = 84.45, p < .00000$; RMSEA = .099 (.080, .120); SRMR = .025], although the CFI = .977; NFI = .973; and GFI = .974 values showed appropriate fit. Comparison of LISREL estimates to values in the inter-correlations matrix suggested suppressor effects; that is, 4 coefficients manifested an inverse relationship to treatment motivation in the path analyses (but were positively correlated with treatment motivation measures); specifically, drug use severity on both desire for help and treatment readiness, urgency on desire for help, and age on treatment readiness. Subsequently, these 4 paths were removed from subsequent models. Resulting models included positive urgency, age, and drug use severity to problem recognition only, gender to both problem recognition and desire for help, and juvenile justice involvement to treatment readiness.

The fit indices for the proposed recursive model with the 4 paths removed, also suggested poor fit [$\chi^2(18) = 116.48, p < .00000$; RMSEA = .104 (.086, .122); SRMR = .037; CFI = .968; NFI = .963; and GFI = .964]. Modification indices showed a projected reduction in χ^2 with the addition of non-recursive paths between later stages and earlier stages of change (i.e., from treatment readiness to desire for help, and from desire for help to problem recognition).

3.5. Non-recursive/bi-directional model

With these 2 non-recursive paths added, the indices of overall fit suggested a “good fit.” Although the minimum fit function chi-square was significant [$\chi^2(16) = 42.00, p < .00039$], the RMSEA was .057 (.036, .078), the SRMR was .025, the CFI was .991, the NFI was .987, and the GFI was .987. The significant paths in this analysis are shown in Figure 2. First, paths between Time 1 and Time 2 motivation variables were positive and significant. Second, the hypothesized path from the experimental group variable to problem recognition at Time 2 was significant and in the direction expected, where clients in TRIP had higher scores than clients in SOP alone. Third, the non-recursive relationships hypothesized between adjoining “stages of change” motivation measurements at Time 2 were positive and significant. Finally, covariate relationships were confirmed while accounting for a non-recursive model of motivation for change. Males were significantly higher than females on problem recognition, higher urgency was related to higher problem recognition, younger adolescents had higher problem recognition than older adolescents, and lower juvenile justice involved clients were significantly higher on treatment readiness. None of the covariates were significantly related to desire for help.

To examine the potential influence of program membership, additional analyses were conducted. The overall fit indices from the within-covariance matrix analysis using LISREL also suggested a “good fit.” Although the minimum fit function chi-square was significant [$\chi^2(16) = 45.05, p < .00014$], the normed χ^2 was 2.63. More importantly, the RMSEA was .060 (.040, .081), the SRMR was .024, the CFI was .991, the NFI was .986, and the GFI was .986. The similarity of the within-covariance analysis results to the correlation analysis supports the viability of this model across treatment facilities. The estimated paths for the

structural model based on the within-covariance matrix are presented in Figure 3. The results show that any between group differences that may have existed among the six treatment sites did not affect the results found in the final structural model.

4. Discussion

The present study provides additional evidence for the effectiveness of a cognitive-based intervention called the Treatment Readiness and Induction Program (TRIP). It was designed to increase treatment motivation especially among adolescents during their induction phase of substance use treatment through modules addressing issues of judgment and decision making. The effectiveness of TRIP on problem recognition and desire for help was further elaborated upon in modeling the phases of motivation as described in the Transtheoretical Model (Prochaska et al., 1992) and the TCU Treatment Process Model (Simpson, 2004). Findings from the current study suggest that TRIP, which incorporates strategies for helping youth identify personal problems and for making connections between drug use and its consequences, does indeed increase problem recognition beyond that accomplished through standard operating practice.

Problem recognition serves, in the current study, as the first step in the stages of change and as a critical element in promoting movement to subsequent stages. Participation in TRIP produces greater gains in early stages of the individual change process (i.e., problem recognition, desire for help), and has the potential to affect later stages of change (i.e., treatment readiness) indirectly through these earlier stages. The lack of direct effectiveness of TRIP on promoting treatment readiness corroborates earlier conclusions that the influences on motivation for change and motivation for treatment are not identical (Freyer et al., 2004) and may support the stages of change model that suggests gains in earlier stages of change provide the framework for later stages. Furthermore, the current study documents that there may be a bi-directional relationship between the individual stages of change. While problem recognition typically precedes a desire to seek help and readiness for treatment, the model fit was improved by adding non-recursive paths between the later and earlier stages of change. Activities in TRIP may encourage active revisiting of earlier stages of the change process as techniques for staying motivated fluctuate (DiClemente, 2005). Findings regarding the bi-directional stages of change and the effectiveness of TRIP for promoting problem recognition exist even when controlling for program membership and potential client-level covariates. The results controlling for program approximated the models not controlling for program membership, suggesting that the effectiveness of TRIP for influencing motivation are not program specific.

While TRIP serves as a facilitator to intentional behavior change, positive urgency or the tendency to respond rashly when experiencing extreme positive emotions serves in the current study as an inhibitor to desire for help. Specifically, while low urgency clients gained more desire for help than high urgency clients regardless of TRIP participation, TRIP clients with lower urgency gained more desire for help than SOP clients with lower urgency. TRIP had the added benefit for improving desire for help for those with a lower propensity to act rashly under extreme positive emotions. This result strengthens earlier research suggesting that a tendency to act impulsively, particularly in response to intense positive

emotion, negatively interacts with early stages of motivation (Kazemi et al., 2011) and the treatment process (Stranger et al., 2011).

4.1. Clinical implications

TRIP is strategically designed to augment programming as a “front-loading” curriculum package to enhance the motivation for change during the first weeks of substance use treatment. Consistent with the Transtheoretical Model, it targets earlier stages facilitating improved problem recognition through structured activities and practice in systematic thinking and decision making. According to DiClemente, movement through the process of change necessitates “personal reevaluation and not simply information, motivation and not simply education, commitment and preparation and not simply getting advice” (DiClemente, 2005, p. 8).

The TRIP sessions promote advancement through the processes of change by incorporating Mapping-Enhanced Counseling techniques with activities that are relevant to the everyday concerns of adolescents, that encourage reevaluation of faulty thinking processes, and that strategically utilize peer interaction to promote session engagement. For example, playing the Downward Spiral board game, adolescents learn to identify with and reflect upon the negative consequences of substance use. In this process, common faulty cognitions (including the perception that experimentation with substances is a normal activity during adolescence and the perception of invulnerability to the negative consequences of drug use) are explored as part of the game’s fictional scenarios, but youth also verbalize similarities in their own stories as part of the game. Sharing among peers can help teens explore peer values by concretely raising consciousness of the status quo and facilitating natural engagement in a risk reward analysis; both processes critical to gains in the early stages of the change process (DiClemente, 2005). Through these and other activities, TRIP engages youth in perspective taking, exploration of negative behavior sequences, and active problem-solving practice. Indeed, Knight, Dansereau et al. (2014) found that TRIP (involving cognitive techniques), is effective for promoting general decision making and use of strategies to guide thinking. Future studies are needed to examine the path between motivation and decision making in relation to the effectiveness of TRIP.

4.2. Limitations and future directions

Several potential limitations should be noted. First, data for this study include only adolescents from community-based residential treatment centers. Second, the current study represents a naturalistic design of pre- and post-intervention attitudes toward treatment and therefore interpretation of causal relationships are not warranted. For instance, this study does not take into account the effect of additional contact time (i.e., hours in treatment) that TRIP clients may have received as compared to clients who did not receive TRIP. Third, data for this study represent clients who completed both the Time 1 and Time 2 assessment, allowing for the examination of change in motivation. Therefore, data on clients who left treatment prior to the follow-up assessment were excluded, thus severely constraining the generalizability of findings to those that stay in treatment long enough to be assessed at follow-up. Future studies are warranted to examine the effectiveness of TRIP at retaining clients in treatment. Fourth, it is important to note the limitations of conducting a naturalistic

study that involved the coordination of assessment completion among already overtasked clinical staff. Overall, non-completion of assessments accounted for approximately half of the excluded clients. Fifth, while there are benefits to allowing rolling enrollment with an open-group format (especially within community-based residential treatment settings), there are also empirical and clinical challenges. Fluctuations in group composition have the potential to negatively influence session participation and group cohesion, ultimately impacting treatment engagement. Subsequent studies could counter the empirical challenges of open-group processes using techniques such as a multiple membership statistical model (Paddock & Savitsky, 2013). A benefit of the open-group format, however is that it may be more realistic in terms of existing treatment practices and thus it enables examination of how session order might impact TRIP effectiveness. For example, do clients who begin with highly experiential sessions (e.g., Downward Spiral) report greater gains on problem recognition than clients whose first sessions are more analytical in focus (e.g., Work It)? Studies are also needed to examine whether TRIP promotes engagement as a replication of the Treatment Process Model (Joe et al., 2014). All in all, interventions aimed at increasing motivation for change should have direct benefits in terms of treatment compliance and engagement because greater desire for help is related to increased compliance among adolescents (Wong, Hser, & Grella, 2002). Future studies are also needed to explore ways of modifying TRIP to better address treatment readiness. Is it beneficial to repeat exposure to certain sessions (e.g., Work It) for clients with lower treatment readiness? Or are certain TRIP sessions best suited for youth who have obtained a certain “threshold” for treatment readiness?

In conclusion, the current study provides support for the effectiveness of the Treatment Readiness and Induction Program on improving treatment motivation, specifically problem recognition, among adolescents early in residential substance abuse treatment. The findings show that the effects of TRIP on later stages of motivation occur indirectly through improving problem recognition among adolescents. This indirect effect on later stages of change may be fundamental to adolescent treatment as adolescent clients often state that their substance use is not a problem. Current results also support the cyclical, bi-directional nature of the stages of change model, suggesting that strategies aimed at increasing problem recognition may have clinical utility through the recovery process. The TRIP curriculum, which incorporates evidence – based practices and is designed specifically for youth, has been shown to easily interface within existing treatment and within available resources and staffing demands. It can help improve problem recognition as a first step in moving adolescents forward in treatment.

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Highlights

- Compared to standard operating practice, clients that receive the Treatment Readiness and Induction Program (TRIP) demonstrated greater gains in problem recognition.
- TRIP had added benefits for improving desire for help for those with a low propensity to act rashly under extreme positive emotions.
- Current results support the cyclical, bi-directional nature of the stages of change model, suggesting that strategies aimed at increasing problem recognition may have clinical utility through the recovery process.

Figure 1.

Three-way interaction of Time $\times$ Treatment Group $\times$ Positive Urgency with Desire for Help as the dependent variable.

Note: Numbers without parentheses represent mean scores, while numbers with parentheses represent standard errors.

Figure 2.
Estimated model for relationship between group and stages of change using correlational matrices.

Figure 3. Standardized estimates for relationship between group and stages of change using within covariance matrices.

Table 1
Sample Demographics

	Participants (<i>N</i> = 519)	SOP (<i>n</i> = 281)	TRIP (<i>n</i> = 238)
	<i>n</i> (% of Sample)	<i>n</i> (% of SOP)	<i>n</i> (% of TRIP)
Gender			
Males	327 (63)	175 (62)	152 (64)
Females	192 (37)	106 (38)	86 (36)
Race-Ethnicity			
Hispanic	276 (53)	148 (53)	128 (54)
Caucasian	136 (26)	62 (22)	74 (31)
Multiracial	53 (10)	34 (12)	19 (8)
African American	54 (5)	21 (7)	7 (3)
Age Group			
16 and older	320 (62)	173 (62)	147 (62)
15 and under	199 (38)	108 (38)	91 (38)
Prior Treatment Episodes			
Prior Treatment	342 (66)	182 (65)	160 (67)
No Prior Treatment	177 (34)	99 (35)	78 (33)
Drug Use Severity			
High Severity	372 (72)	205 (73)	167 (70)
Low Severity	147 (28)	76 (27)	71 (30)
Juvenile Justice Involved			
Involved	308 (59)	162 (58)	146 (61)
Non-Involved	211 (41)	119 (42)	92 (39)
Problem Drug			
Marijuana	160 (31)	95 (34)	65 (27)
No Problem Drug	100 (19)	53 (19)	47 (20)
Alcohol	57 (11)	29 (10)	28 (12)
Methamphetamines	46 (9)	24 (8)	22 (9)
Cocaine	39 (8)	19 (7)	20 (9)
Downers (Other than Heroin)	36 (7)	20 (7)	16 (7)
Heroin	33 (6)	16 (6)	17 (7)
Amphetamines and Other Uppers	23 (4)	13 (5)	10 (4)
Other or Unknown	25 (5)	12 (4)	13 (5)

Table 2
Treatment Motivation Means over Time by Group

	TRIP Group (<i>n</i> = 238)	
	Time 1 <i>M</i> (<i>SE</i>)	Time 2 <i>M</i> (<i>SE</i>)
Problem Recognition	29.88 (.55)	35.14 (.57)
Desire for Help	33.21 (.59)	37.32 (.54)
Treatment Readiness	31.77 (.59)	34.92 (.48)
	SOP Group (<i>n</i> = 281)	
	Time 1 <i>M</i> (<i>SE</i>)	Time 2 <i>M</i> (<i>SE</i>)
Problem Recognition	29.01 (.55)	32.92 (.54)
Desire for Help	32.12 (.55)	35.79 (.51)
Treatment Readiness	31.43 (.55)	34.25 (.45)

Note: Means and standard error are estimated controlling for covariates.

Table 3
Treatment Motivation Means over Time by Group and Positive Urgency

	TRIP Group			
	Low Positive Urgency (<i>n</i> = 117)		High Positive Urgency (<i>n</i> = 121)	
	Time 1 <i>M</i> (<i>SE</i>)	Time 2 <i>M</i> (<i>SE</i>)	Time 1 <i>M</i> (<i>SE</i>)	Time 2 <i>M</i> (<i>SE</i>)
Problem Recognition	28.16 (.82)	34.61 (.81)	31.60 (.82)	35.68 (.81)
Desire for Help	33.04 (.71)	38.50 (.66)	33.37 (.92)	36.14 (.84)
Treatment Readiness	30.79 (.82)	34.50 (.68)	32.74 (.83)	35.33 (.69)
	SOP Group			
	Low Positive Urgency (<i>n</i> = 149)		High Positive Urgency (<i>n</i> = 132)	
	Time 1 <i>M</i> (<i>SE</i>)	Time 2 <i>M</i> (<i>SE</i>)	Time 1 <i>M</i> (<i>SE</i>)	Time 2 <i>M</i> (<i>SE</i>)
Problem Recognition	27.58 (.74)	31.80 (.73)	30.44 (.78)	34.04 (.77)
Desire for Help	32.09 (.68)	35.93 (.62)	32.15 (.83)	35.65 (.77)
Treatment Readiness	30.88 (.74)	34.10 (.61)	31.88 (.74)	34.39 (.65)

Note: Means and standard error are estimated controlling for covariates.

Table 4

Intercorrelation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. G	1.00														
2. AG	-0.04	1.00													
3. DUS	0.00	0.02	1.00												
4. JJI	-0.13	0.07	0.07	1.00											
5. PT	0.07	0.03	0.25	0.12	1.00										
6. CA	0.01	0.04	0.08	-0.04	0.05	1.00									
7. SD, T1	-0.10	0.00	-0.26	0.00	-0.21	-0.04	1.00								
8. PU, T1	0.14	-0.01	0.31	0.06	0.23	0.10	-0.51	1.00							
9. PR, T1	0.03	0.06	0.40	0.10	0.21	0.06	-0.21	0.32	1.00						
10. DH, T1	0.02	0.06	0.29	0.06	0.13	0.03	-0.08	0.23	0.84	1.00					
11. TR, T1	-0.04	0.09	0.23	0.04	0.07	0.02	0.06	0.08	0.63	0.74	1.00				
12. PR, T2	-0.10	-0.01	0.26	0.03	0.13	0.10	-0.16	0.23	0.63	0.56	0.41	1.00			
13. DH, T2	-0.07	0.05	0.16	-0.02	0.07	0.09	-0.04	0.09	0.49	0.54	0.43	0.83	1.00		
14. TR, T2	-0.00	0.02	0.09	-0.09	0.05	0.00	0.06	0.00	0.35	0.42	0.50	0.54	0.72	1.00	
15. EG	-0.02	0.00	-0.03	0.04	0.03	0.06	-0.05	0.06	0.06	0.05	0.00	0.16	0.12	0.05	1.00

Note: T1 = Time 1, T2 = Time 2; G = Gender, AG = Age Group, DUS = Drug Use Severity, JJI = Juvenile Justice Involved, PT = Prior Treatment, CA = Caucasian, Social Desirability = SD, PU = Positive Urgency, PR = Problem Recognition, DH = Desire for Help, TR = Treatment Readiness, EG = Experimental Group