BRIEF REPORT

Modeling Motivation Three Ways: Effects of MI Metrics on Treatment Outcomes Among Adolescents

Brittany C. Hall, David G. Stewart, Chris Arger, Dylan R. Athenour, and Jenell Effinger
Seattle Pacific University

The purpose of this study was to determine how three different measures of motivation (cognitive motivation, taking steps, and self-efficacy for change and maintenance) predict substance use outcomes after engaging in a Motivational Interviewing intervention. Participants were 225 high school students enrolled in Project Reducing the Effects of Alcohol and Drugs on Youth (Project READY), a NIDA-funded intervention initially developed with Motivational Interviewing (MI) principles for adolescents identified by schools as having problems with alcohol or other drug use. We measured motivation at multiple time points during the intervention in multiple methods. Cognitive motivation was assessed using a Decisional Balance matrix at Session 3 of treatment. We measured self-efficacy with the Situational Confidence Questionnaire, administered at 4-, 8-, 12-, and 16-week follow-ups. A measure of taking steps (SOCRATES, v. 8) was administered at intake and Session 8. We hypothesized that motivation would follow the Transtheoretical Model (TTM) pathway, and we proposed a model where cognitive motivation would predict self-confidence for change and taking steps toward change, and self-confidence and taking steps would predict substance use outcomes. We tested our model using path analysis in AMOS and found support for a motivational continuum predicting percent days abstinent at 16-week follow-up [$\chi^2 = 2.75$, $df = 7$, $p = .90$, CFI $= 1$, RMSEA (90% confidence interval) $= .00 - .03$]. This model demonstrates that motivational metrics predict unique outcomes at different time points and serve as important components of intervention.

Keywords: decisional balance, substance use, motivational enhancement, readiness for change

Within the context of substance use interventions, an individual's level of motivation to change behaviors has been found to be an important predictor of both treatment-seeking behavior and the ability to sustain changes (DiClemente, Schlundt, & Gemmell, 2004). Motivational enhancement therapies (such as motivational interviewing and other treatments with motivational components) are based on the premise that enhancing motivation to change behaviors is essential for effective treatment outcomes (Miller & Rollnick, 2013). In general, motivation can be conceptualized as readiness to change behaviors; however, there are a number of ways to measure this construct. The purpose of our study is to determine how cognitive motivation, taking steps toward change, and self-efficacy for change and maintenance predict 2-month substance use outcomes after motivational enhancement treatment. We explored how these unique measures of motivation, measured at different time points during treatment, related to the change process and mapped onto the Transtheoretical Model of Change proposed by Prochaska and DiClemente (1984).

Motivation as Cognition

The learned cognitive associations between situational cues and consequences, and/or behavior and consequences represent expectancies (Bolles, 1972; Tolman, 1932). Expectancies are specific to the individual and come from both personal experiences and vicarious learning (Simons, Dvorak, & Lau-Barraco, 2009). Both positive and negative expectancies have been shown to influence and/or predict substance use behavior (Gunn & Smith, 2010; Kuntsche, Wiers, Janssen, & Gmel, 2010). Most important to clinicians, however, is the finding that changes in expectancies are related to changes in motivation to use substances (Copeland & Brandon, 2000; Darkes & Goldman, 1993; Stacy, 1995). Many researchers utilize predetermined lists of expectancies (i.e., the Alcohol Expectancy Questionnaire [AEQ; Brown, Christiansen, & Goldman, 1987) to measure beliefs about alcohol use. While these lists have their advantages (i.e., they are normed and streamline the research process), they are also limited, because they do not capture participant-generated responses.

An alternative to fixed expectancy measures is the utilization of decisional balance as a measure of expectancies. Like expectancy theory, decisional balance is based on a model that assumes individuals believe there are advantages and disadvantages to

engaging in behavior. Decisional balance is used as a tool in motivational-based therapies to help individuals become more aware of the reasons they use substances by assessing both the cognitive expectancies about current behavior and the expectancies related to changing behavior (i.e., if I stop drinking then. . .). As an intervention, decisional balance may give rise to change (Apodaca & Longabaugh, 2009; Guo, Aveyard, Fielding, & Sutton, 2009), and may also be used to assess motivation to change and predict future behavior (Collins, Cary, & Otto, 2009; Velicer, DiClemente, Prochaska, & Brandenburg, 1985). However, simply being ready to change may not be helpful if an individual does not believe they can change.

Motivation as Self-Efficacy

Adults with higher levels of self-efficacy have significantly better treatment outcomes than those with a perceived low ability to make a change in their substance use (Litt, Kadden, Kabela-Cormier, & Petry, 2008; Stephens, Wertz, & Roffman, 1995). Similarly, adolescents with greater levels of perceived self-efficacy have better treatment outcomes than adolescents who doubt their ability to make changes (Burleson & Kaminer, 2005). Self-efficacy, as defined by Bandura's (1977) Social Learning Theory, is an individual's confidence in their ability to implement and maintain a specific behavior. In the context of substance use interventions, self-efficacy is an individual's belief that they can reduce their substance use, resist use during tempting situations, and maintain these changes over time. Previous research has demonstrated the predictive power of the belief that one can resist use in the face of temptation (Kavanagh, Sitharthan, & Sayer, 1996; Reilly et al., 1995).

Motivation as Taking Steps Toward Change

The goal of motivationally based substance use interventions is twofold. First, in motivational enhancement-based substance use interventions the clinician seeks to understand the client's motivation to change. Second, the clinician seeks to increase this motivation so that meaningful behavior changes can be made. Measures of taking steps are associated with greater motivation for change of substance use behaviors (Carey, Maisto, Carey, & Purnine, 2001; Miller & Tonigan, 1996).

Current Study

In this study, we examined how cognitive motivation, self-efficacy, and taking steps toward change affect treatment outcomes in adolescents participating in a school-based intervention. We hypothesized a model where cognitive motivation predicted taking steps toward change and self-efficacy for change when controlling for initial motivation. Subsequently, we predicted that taking steps toward change and self-efficacy would predict substance use during follow-up (i.e., Session 8, 12, 16). Prochaska and DiClemente's (1984) stages of change model suggests a continuum through which an individual transitions before making a commitment to change. Self-efficacy for change and taking steps directed at change are concepts theoretically associated with later stages of change including Action and Maintenance, and would be expected to temporally follow cognitions about

change (Precontemplation and Contemplation stages). Specifically, we predicted that taking steps toward changing substance use behavior and self-efficacy to abstain would follow an individual's cognitive motivation, and therefore demonstrate an individual's progression of motivation for change later reflected in substance use outcomes, with respect to time. Cognitive motivation was assessed within the first four sessions of treatment, as this portion of the intervention was motivationally based. Self-efficacy was assessed throughout treatment and during follow-up, as this is an ongoing process affecting treatment outcomes, and taking steps was assessed at intake and Session 8 to provide the participant sufficient time to engage in change behaviors following participation in four sessions of active motivational enhancement and four sessions of monitored follow-up.

Method

Participants

Participants ($N = 225$) were high school students in the greater Seattle area, enrolled in Project READY, a Motivational Interviewing intervention developed to reduce adolescent substance use. Participants were self-referred or identified by school staff as problem alcohol and/or substance users. All students had engaged in substance use within the previous 3 months prior to treatment entry and were therefore considered to be higher-risk individuals; they were not evaluated for substance dependence or abuse diagnoses, because the intervention targeted any reduction in use. Participants in the intervention were allowed to take gradual steps toward reducing their substance use and meeting their desired goals as the intervention was not abstinence based. The intervention included four active MI sessions with 4 weeks of monitored follow-up where clients checked in about their negotiated change plan. The first four sessions included: (1) assessment (2) feedback pertaining to substance use risk and goal setting (3) decisional balance and (4) change planning exercises. Participants completed follow-up assessments at 8, 12, and 16 weeks following treatment initiation. Students were recruited from seven schools. Nearly half ($n = 124$) of students were from four comprehensive high schools in the same district, the remaining students were from smaller alternative schools across three districts. There were no significant differences by site in study variables by time and site analyzed in a repeated measures GLM test. The average adolescent in our study was 16 years old, consumed 30 standard drinks of alcohol per month, drank an average of 5.6 drinks per drinking day, and used marijuana 13 days per month. The average percent days abstinent per month at intake was 44%. Within the sample, 32% of participants were female. Five percent of the sample identified as Black or African American, 15% Asian or Pacific Islander, 13% Hispanic, 1% American Indian or Alaska Native, 55% White or Caucasian, and 11% of the sample identified race or ethnicity in multiple categories.

Procedure

This study was approved by a northwest university Institutional Review Board committee before implementation. All participants were recruited and consented at the high school with a Project READY counselor. Participants received eight sessions of a struc-

tured motivational, school-based intervention (Project READY). Although Project READY is a school-based intervention, it is not affiliated with any high school or school district, and all participant information is confidential. Treatment sessions were delivered in an individual format by clinical psychology doctoral-level students who received intensive MI training and weekly supervision from a licensed clinical psychologist. Interventionists were also trained in MI adherence and coding practices to reinforce treatment fidelity. Assessments were administered by a Project READY counselor who also provided the treatment intervention. Potential threats to internal validity regarding counselor bias were mitigated by utilizing standardized assessments and assessment procedures (the same counselor collected assessment feedback during intake and all follow-up sessions).

Recruitment

Participants were self-referred or were recommended to Project READY by teachers or school counselors, because of suspected alcohol and/or substance use. Students were screened by a READY counselor at intake for alcohol and substance use; individuals who denied a history of use within the previous 3 months were excluded from the study.

Measures

Cognitive motivation. Cognitive motivation and readiness for change of current alcohol and substance use behavior was assessed using Decisional Balance during Session 3 (see Appendices A and B). The decisional balance measure in this study provided spaces for the participant to list the pros and cons of current substance use behavior and the pros and cons of substance use-related behavior change. Decisional Balance was administered by a Project READY counselor during Session 3. After prompting participants, verbal responses generated by participants were transcribed (i.e., written) verbatim by the interventionist for current substance using behavior and/or for changing current substance using behavior.

A cognitive motivation score was created for each participant by summing the items generated on the Decisional Balance form under the pro and con columns according to the method outlined by Collins and colleagues (2009). Each pro or con received one point. Cognitive motivation was calculated by adding the total number of cons of current substance use with the total number of pros of behavior change (these categories elicit change talk), and the sum was divided by the total number of pros of current use and cons of change.

Self-efficacy for change. How confident an individual was to resist the urge to drink or use substances in common tempting situations was assessed using the Situation Confidence Questionnaire (SCQ; Annis, 1984, 1987). The SCQ was administered at the end of treatment at Session 4, and again at follow-up Sessions 8, 12, and 16 weeks following treatment initiation. The SCQ scores were averaged across follow-up (8, 12, and 16 weeks) to create a posttreatment self-efficacy variable. The SCQ is a self-report measure with 49 items. Respondents answer questions regarding situations or events in which use is common. Respondents rate how confident they currently feel they would be able to resist using alcohol and drugs in each situation. Item response choices range from 0% (*not at all confident*) to 100% (*very confident*). The measure was validated for use with adolescent populations, and a confirmatory factor analysis affirmed an eight-factor structure and

demonstrated high internal consistency with Cronbach's alphas ranging between .89 and .96 (Kirisci & Moss, 1997). We found an α of .98 for the SCQ in our sample. Scores reflect how confident an individual felt averaged across all follow-ups.

Taking steps toward change. An individual's readiness for change, conceptualized as taking steps toward changing problem behavior, was measured using the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES; Miller & Tonigan, 1996). The SOCRATES was administered at intake and Session 8. The authors have identified a three-factor structure: Ambivalence, Recognition, and Taking Steps. This study utilized the Taking Steps factor from a 19-item short form, which refers to actions that the individual has taken to change his or her drinking behavior. Participants respond to items on a 5-point Likert scale ranging from 5 (*strongly agree*) to 1 (*strongly disagree*). The Taking Steps factor consists of eight items and accounts for the largest item response variance (27%). The factor has demonstrated good internal consistency on the short form (α = .83; α = .92 in the current sample). The scale has been validated specifically for use with adolescents who use substances (Maisto, Chung, Cornelius, & Martin, 2003). The SOCRATES was administered in Project READY during intake and Session 8.

Alcohol and substance use. Quantity and frequency of alcohol and substance use was measured using the Customary Drinking and Drug Use Record (CDDR; Brown et al., 1998). The CDDR is a 101-item interviewer-administered measure that assesses for current and previous lifetime alcohol and substance use. In this study, participants responded to questions regarding use within the previous 4 weeks. The CDDR examines four domains related to alcohol and substance use including level of involvement, withdrawal characteristics, psychological/behavioral dependence symptoms, and negative consequences. The measure has been normed with a clinical and nonclinical adolescent/young adult population (ages 13–22 years old; Brown et al., 1998). Cronbach's alphas with the adolescent/young adult population were reported separately for alcohol and drug use among both the clinical and nonclinical samples, respectively, for the psychological/behavior dependence domain (α = .72−.89, α = .78−.85) and withdrawal (α = .90−.94, α = .80−.90) due to lack of endorsement of items by the nonclinical sample (Brown et al., 1998). The CDDR was administered in this study at Sessions 4, 8, 12, and 16. Scores were calculated for each participant by averaging the percent days abstinent from alcohol and all other substance use across all follow-ups (8, 12, and 16 weeks after treatment initiation).

Results

We tested our hypotheses using path analysis in AMOS and found support for our overall motivation model [$\chi^2 = 2.75$, $df = 7$, $p = .90$, CFI = 1, RMSEA (90% confidence interval) = .00 – .03]. See Figure 1 for illustration of the model and associated standardized beta weights. The correlation of motivational measures was accounted for by entering each construct as measured at initial and follow-up time periods. School site differences were not observed in main effects testing by time, nested by site, and so were not included in the model. Decisional Balance at Session 3 significantly predicted average Situational Confidence and SOCRATES action score at Session 8 follow-up, when controlling for intake motivation (SOCRATES action scores at Session 1).
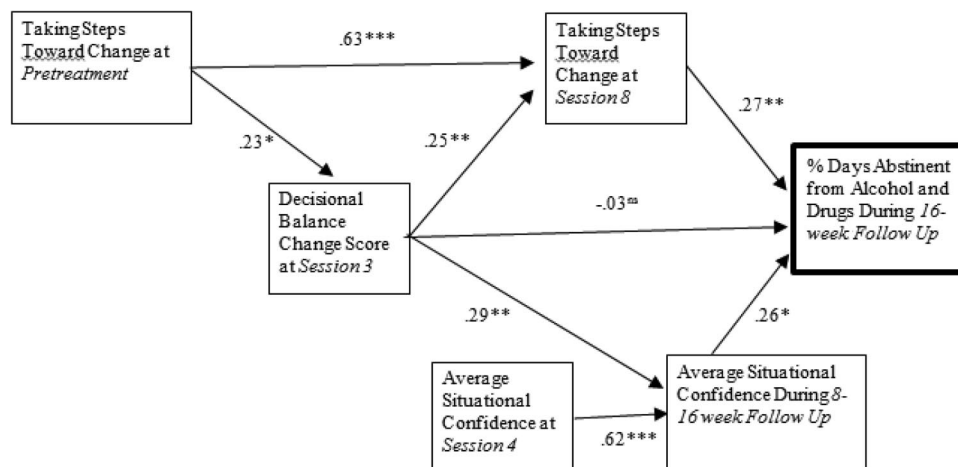
Figure 1. Path model with standardized β coefficients of motivational constructs across time predicting percentage of days abstinent from alcohol and drugs during 16-week follow-up. *Note:* ns = non significant, * $p < .05$, ** $p < .01$, *** $p < .001$.

Situational Confidence averaged across follow-ups (i.e., 8, 12, and 16 weeks after treatment initiation), when controlling for Situational Confidence during active intervention at Session 4, and SOCRATES action at Session 8 each significantly predicted percent days abstinent at 16-week follow-up. We controlled for Session 4 Situational Confidence, because we hypothesized that self-efficacy would change as participants took steps toward change and engaged in relapse prevention (Sessions 5–8 and throughout follow-up). Decisional Balance did not directly predict percent days abstinent at 16-week follow-up, which follows our hypothesis that motivation occurs along a continuum that begins with cognitive motivation and develops into taking steps toward change and self-confidence to implement change. When examined together, these three forms of motivation interact to predict substance use outcomes. This model demonstrates that motivational metrics serve as important components of intervention and are also predictive of outcomes in an adolescent school-based sample.

Discussion

This study provides further support for the link between motivation metrics and substance use outcomes among adolescents participating in MI interventions. We found that cognitive motivation predicted taking steps toward change and self-efficacy. Results also showed self-efficacy averaged across follow-ups and taking steps toward change examined at Session 8 predicted substance use outcomes 16 weeks following treatment initiation, when controlling for intake motivation. Consistent with the TTM, our findings support a chronological motivation change process that begins with cognitive expectancies in favor of change (Contemplation), followed by action oriented behaviors aimed at decreasing substance use (Action), and self-efficacy to implement effective changes (Action and Maintenance) to create tangible reductions in substance use. Therefore, an implication of the current study is the utilization of motivation metrics to assess client progress along the behavioral change continuum as well as subsequent treatment planning.

While, our findings suggest that cognitive expectancies in favor of change may be linked to substance use outcomes through taking

steps directed at change and self-efficacy to implement change, we speculate that alternative motivation pathways may also lead to reductions in substance use. For example, it is likely that taking steps toward change may increase the salience of positive expectancies for change over time. Future studies, should explore divergent pathways to better understand how motivation metrics are related to substance use outcomes.

Our study confirms previous research involving motivation and substance use outcomes. Collins and colleagues (2009) utilized an interview assessment format of decisional balance to predict substance use outcomes among college students participating in a MI intervention; our study is the first study to our knowledge to successfully incorporate this decisional balance method to predict substance use outcomes among a sample of adolescents participating in a school-based MI intervention. Our results suggest that an interview assessment format of decisional balance may be both an effective intervention component as well as an accurate predictor of future motivation and substance use behaviors. A pair of studies conducted by Maisto and colleagues found that the SOCRATES factor taking steps assessed at baseline predicted 12-month alcohol use outcomes among a cohort of adolescents participating in outpatient treatment for an alcohol use disorder (Maisto et al., 2003; Maisto et al., 2011). Similarly, we found that taking steps toward change predicted substance use outcomes with adolescents participating in treatment (4 months following treatment initiation in our study).

While our study demonstrates further support for the relationship between motivation metrics and substance use outcomes, limitations should be noted. Our results are consistent with theoretically derived motivation constructs of the TTM, however these findings should be replicated using a random control trial design that includes a time-lagged intervention control group. Second, because of time constraints we were unable to examine each of our motivation constructs at all time points. Future studies should comprehensively and consistently assess motivation in order to control for temporal changes in predictor variables on substance use outcomes. Similarly, the Decisional Balance and the SCQ were not administered at baseline, which prevented us from investigating how participants weighed the pros

and cons of change and how confident they felt in resisting using in certain situations preintervention. Therefore, future studies should also seek to administer these measures at intake in order to explore changes in motivation as a direct result of intervention participation. Third, we only calculated the frequency of the four decisional balance fields when examining decisional balance proportion scores. Future studies should also take into consideration the importance of each of the participant-generated responses to provide a more accurate marker of motivation. Lastly, Project READY counselors administered both the intervention and follow-up assessments; therefore, it is feasible that participants may have biased responses on follow-up measures to appease interventionists. Notwithstanding limitations, our results support the usage of motivation metrics for predicting substance use among adolescents participating in motivational interviewing interventions.

References

Annis, H. M. (1984). *Situational Confidence Questionnaire, short form*. Toronto, Canada: Addiction Research Foundation.

Annis, H. M. (1987). *Situational Confidence Questionnaire, short form*. Toronto, Canada: Addiction Research Foundation.

Apodaca, T. R., & Longabaugh, R. (2009). Mechanisms of change in motivational interviewing: A review and preliminary evaluation of the evidence. *Addiction, 104,* 705–715. doi:10.1111/j.1360-0443.2009.02527.x

Bandura, A. (1977). *Social learning theory*. Oxford, UK: Prentice Hall.

Bolles, R. C. (1972). Reinforcement, expectancy, and learning. *Psychological Review, 79,* 394–409. doi:10.1037/h0033120

Brown, S. A., Christiansen, B. A., & Goldman, M. S. (1987). The Alcohol Expectancy Questionnaire: An instrument for the assessment of adolescent and adult alcohol expectancies. *Journal of Studies on Alcohol, 48,* 483–491.

Brown, S. A., Myers, M. G., Lippke, L., Tapert, S. F., Stewart, D. G., & Vik, P. W. (1998). Psychometric evaluation of the customary drinking and drug use record (CDDR): A measure of adolescent alcohol and drug involvement. *Journal of Studies on Alcohol, 59,* 427–438.

Burleson, J. A., & Kaminer, Y. (2005). Self-efficacy as a predictor of treatment outcome in adolescent substance use disorders. *Addictive Behaviors, 30,* 1751–1764. doi:10.1016/j.addbeh.2005.07.006

Carey, K. B., Maisto, S. A., Carey, M. P., & Purnine, D. M. (2001). Measuring readiness-to-change substance misuse among psychiatric outpatients: I. Reliability and validity of self-report measures. *Journal of Studies on Alcohol, 62,* 79–88.

Collins, S. E., Carey, K. B., & Otto, J. M. (2009). A new decisional balance measure of motivation to change among at-risk college drinkers. *Psychology of Addictive Behaviors, 23,* 464–471. doi:10.1037/a0015841

Copeland, A. L., & Brandon, T. H. (2000). Testing the causal role of expectancies in smoking motivation and behavior. *Addictive Behaviors, 25,* 445–449. doi:10.1016/S0306-4603(99)00003-9

Darkes, J., & Goldman, M. S. (1993). Expectancy challenge and drinking reduction: Experimental evidence for a mediational process. *Journal of Consulting and Clinical Psychology, 61,* 344–353. doi:10.1037/0022-006X.61.2.344

DiClemente, C. C., Schlundt, D., & Gemmell, L. (2004). Readiness and stages of change in addiction treatment. *The American Journal on Addictions, 13,* 103–119. doi:10.1080/10550490490435777

Gunn, R. L., & Smith, G. T. (2010). Risk factors for elementary school drinking: Pubertal status, personality, and alcohol expectancies concurrently predict fifth grade alcohol consumption. *Psychology of Addictive Behaviors, 24,* 617–627. doi:10.1037/a0020334

Guo, B., Aveyard, P., Fielding, A., & Sutton, S. (2009). Do the transtheoretical model processes of change, decisional balance and temptation predict stage movement? Evidence from smoking cessation in adolescents. *Addiction, 104,* 828–838. doi:10.1111/j.1360-0443.2009.02519.x

Kavanagh, D. J., Sitharthan, T., & Sayer, G. P. (1996). Prediction of results from correspondence treatment for controlled drinking. *Addiction, 91,* 1539–1545. doi:10.1111/j.1360-0443.1996.tb02257.x

Kirisci, L., & Moss, H. B. (1997). Reliability and validity of the Situational Confidence Questionnaire in an adolescent sample: Confirmatory factor analysis and item response theory. *Measurement and Evaluation in Counseling and Development, 30,* 146–155.

Kuntsche, E., Wiers, R. W., Janssen, T., & Gmel, G. (2010). Same wording, distinct concepts? Testing differences between expectancies and motives in a mediation model of alcohol outcomes. *Experimental and Clinical Psychopharmacology, 18,* 436–444. doi:10.1037/a0019724

Litt, M. D., Kadden, R. M., Kabela-Cormier, E., & Petry, N. M. (2008). Coping skills training and contingency management treatments for marijuana dependence: Exploring mechanisms of behavior change. *Addiction, 103,* 638–648. doi:10.1111/j.1360-0443.2008.02137.x

Maisto, S. A., Chung, T. A., Cornelius, J. R., & Martin, C. S. (2003). Factor structure of the SOCRATES in a clinical sample of adolescents. *Psychology of Addictive Behaviors, 17,* 98–107. doi:10.1037/0893-164X.17.2.98

Maisto, S. A., Krenek, M., Chung, T., Martin, C. S., Clark, D., & Cornelius, J. (2011). A comparison of the concurrent and predictive validity of three measures of readiness to change alcohol use in a clinical sample of adolescents. *Psychological Assessment, 23,* 983–994. doi:10.1037/a0024136

Miller, W. R., & Rollnick, Stephen. (2013). *Motivational interviewing: Helping people change* (3rd ed.) New York, NY: Guilford Press.

Miller, W. R., & Tonigan, J. S. (1996). Assessing drinkers' motivation for change: The Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES). *Psychology of Addictive Behaviors, 10,* 81–89. doi:10.1037/0893-164X.10.2.81

Prochaska, J. Q., & DiClemente, C. C. (1984). *The transtheoretical approach: Crossing traditional boundaries of change*. Homewood, IL: Dorsey Press.

Reilly, P. M., Sees, K., Shopshire, M. S., Hall, S. M., Delucchi, K. L., Tusel, D. J., . . . Piotrowski, N. A. (1995). Self-efficacy and illicit opioid use in a 180-day methadone detoxification treatment. *Journal of Consulting and Clinical Psychology, 63,* 158–162. doi:10.1037/0022-006X.63.1.158

Simons, J. S., Dvorak, R. D., & Lau-Barraco, C. (2009). Behavioral and inhibition activation systems: Differences in substance use expectancy organization and activation in memory. *Psychology of Addictive Behaviors, 23,* 315–328. doi:10.1037/a0015834

Stacy, A. W. (1995). Memory association and ambiguous cues in models of alcohol and marijuana use. *Experimental and Clinical Psychopharmacology, 3,* 183–194. doi:10.1037/1064-1297.3.2.183

Stephens, R. S., Wertz, J. S., & Roffman, R. A. (1995). Self-efficacy and marijuana cessation: A construct validity analysis. *Journal of Consulting and Clinical Psychology, 63,* 1022–1031. doi:10.1037/0022-006X.63.6.1022

Tolman, E. C. (1932). *Purposive behavior in animals and men*. Oxford, UK: Appleton-Century.

Velicer, W. F., DiClemente, C. C., Prochaska, J. O., & Brandenburg, N. (1985). Decisional balance measure for assessing and predicting smoking status. *Journal of Personality and Social Psychology, 48,* 1279–1289.

(*Appendices follow*)

Appendix A

Decisional Balance of Current Behavior

Decisional Balance

Under the advantages column, please record what you think are the advantages/pros/positives of continuing to use alcohol/drugs as you are now. Under the disadvantages column, please record what you think are the disadvantages/cons/negatives of continuing to use alcohol or drugs as you are now. Please record only one advantage/disadvantage per line.

Advantages	Disadvantages
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.
8.	8.
9.	9.
10.	10.

Appendix B

Decisional Balance of Change Behavior

Decisional Balance

Under the disadvantages column, please record what you think are the disadvantages/cons/negatives of making changes to your use of alcohol/drugs. Under the advantages column, please record what you think are the advantages/pros/positives of changing your use of alcohol or drugs. Please record only one advantage/disadvantage per line.

Disadvantages	Advantages
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.
8.	8.
9.	9.
10.	10.