PREDICTORS OF MOTIVATION FOR CHANGE AMONG RUNAWAY SUBSTANCE ABUSING YOUTH

THESIS

Presented in Partial Fulfillment of the Requirements for

the Degree of Bachelor of Science in the School of Education

and Human Ecology of The Ohio State University

By

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2008

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ABSTRACT

Research consistently shows low motivation for change among adolescent samples, but little research identifies determinants of youth's motivation for change. As a subpopulation of adolescents, runaway youth are significantly understudied. The dearth of information directing intervention efforts with this highly vulnerable population complicates treatment efforts. In this study, 141 substance abusing youth (between the ages of 12 to 17) were recruited from a runaway shelter in Columbus, Ohio, and predictors of motivation to change substance use were examined. It was expected that greater motivation for change would be predicted by family cohesion, being an older female, higher substance use, and recent experience in therapy. Findings indicated that recent experience in therapy, substance abuse, and age predicted motivation to change but gender and family cohesion did not. Because higher levels of motivation are associated with greater treatment success, identifying variables that are associated with motivation for change can be useful for enhancing motivation for change.

ACKNOWLEDEGEMENTS

I wish to thank my advisor, Natasha Slesnick, for her endless support, encouragement, and writing assistance.

I also thank Suzanne Bartle-Haring for her statistical expertise and assistance with data analysis and interpretation.

I am grateful for the writing and statistical advice from my student peers, especially Denitza Bantchevska, Amber Letcher, J. Claire Cook, and Sara Hart.

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CHAPTER 1

INTRODUCTION

Runaway Youth

One in eight children is expected to run away from home before the age of 18, and an estimated 500,000 to 4 million youth run away from home each year in the United States (Kurtz, Jarvis, & Kurtz, 1991; Athey, 1995; Klein et al., 2000; Unger et al, 1998; Weiner & Pollack, 1997). A largely understudied population, runaway youth are defined as "away from home without the permission of his or her parents or legal guardian or is absent from home or place of legal residence at least overnight without permission" (Runaway and Homeless Youth Program/Title 45, 1999, p. 200).

Runaway youth experience greater risk for substance abuse than non-runaway youth (Whitbeck & Hoyt, 1998; Booth & Zhang, 1997). It is well established that runaway youth experience higher levels of alcohol and drug abuse than non-runaway youth (Dakof, Gale, Tejada, & Liddle, 2001; Peterson, Baer, Wells, Ginzler, & Garret, 2006). Alcohol use is common among runaway youth and an estimated 69-81% report alcohol use (Clements, Gleghorn, Garcia, Katz, & Marx, 1997; Kipke, 1997; McLean, Paradise, & Cauce, 1999; Van Leeuwen et al., 2004). In fact, Kipke (1997) classified more than 70% of runaway youth in her Los Angeles study as having alcohol or

substance abuse disorders. Booth and Zhang (1997) reported that 95% of runaway youth have tried drugs in their lifetime and on average, they have used four separate types of drugs (Booth & Zhang, 1997). Marijuana use is especially common, as Van Leeuwen et al. (2004) found that 69% of runaway youth had used marijuana in the past nine months. Many runaway and street youth use drugs consistently with 62%-78% of runaway youth who report using drugs one or more times in a three month period (Booth & Zhang, 1997; McLean, Paradise, & Cauce, 1999).

Furthermore, youth that have repeatedly run away are at greater risk than non-runaway youth for substance abuse. Using the National Longitudinal Survey of Youth, Whitbeck and Hoyt (1998) found that repeat runaways are seven to 12 times more likely to have substance abuse problems than non-runaways or those who have only run away once. Given that most runaway youth experience substance abuse, this paper seeks to increase treatment outcomes by focusing on motivation for change.

Motivation for Change

Motivation for change has been deemed responsible for behavior change and many studies have highlighted the importance of motivation in substance abuse recovery (Zhang, Harmon, Werkner, & McCormick, 2006; Freyer et al., 2005; DiClemente, Bellino, & Neavins, 1999; DiClemente, 1999; Pompi; 1994). In Fact, Miller (1996) asserts that motivation for change is a prerequisite for treatment attendance and outcomes. Researchers are becoming increasingly interested in determining motivation levels of substance abusers (DiClemente, Bellino, & Neavins, 1999; Simpson & Joe, 1993).

Substance abusers who participate in therapy experience differing levels of motivation for change (Carney & Kivlahan, 1995). People rated by therapists as having high levels of motivation for change are more likely to have better treatment outcomes than those with low levels of motivation for change (Brown & Miller, 1993). In fact, an outpatient treatment study of alcohol abusing adults found that motivational readiness for change at baseline was the most significant predictor for long-term decreased alcohol consumption (DiClemente, 1999). In a study of 390 veterans who abused alcohol and exhibited some form of psychosis, Zhang and colleagues found that participants with higher motivation to change at baseline had significantly decreased the severity of substance abuse nine months later (Zhang, Harmon, Werkner, & McCormick, 2006). These studies suggest that because motivation appears to be an important component in treatment success, focused effort towards enhancing motivation for change is important.

An adolescent's level of motivation for change also affects treatment engagement, participation, and completion (Miller, 1996). However, adolescents are difficult to engage in therapy and often fail to complete treatment (Beckman, 1980; Szapocznik, 1988; Pompi, 1994; Miller, 1996; DiClemente, 1999). Individuals with greater motivation for change are more likely to seek treatment, attend more treatment sessions, and actively participate in those sessions, which are all positively correlated with treatment outcomes (DiClemente & Scott, 1997; DiClemente, 1999; DiClemente, Bellino, & Neavins, 1999; Pompi, 1994; Szapocznik et al., 1988).

Many studies demonstrate that youth experience low levels of motivation for change (Pelkonen Marttunen, Laippala, Loennqvist, 2000; Pompi, 1994; Szapocznik et al., 1988). Szapocznik et al. (1988) found that among youth ages 12 and 21, 62% were

not willing to participate in drug abuse treatment. Once engaged, youth were unlikely to complete substance abuse treatment. Among youth in therapeutic communities who had begun treatment, Pompi (1994) found that one-third of participants left treatment within one month and the treatment completion rate was between 10-18%. Terminating treatment is a specific problem among substance abusing youth. Pelkonen and colleagues (2000) found that youth who completed fewer than 13 treatment sessions had higher rates of substance abuse was than those who completed 14 or more sessions. Because treatment participation is correlated to motivation for change, these studies suggest that youth with low motivation for change have poor treatment attendance and treatment outcomes (Pelkonen et al., 2000; DiClemente & Scott, 1997; DiClemente, 1999; DiClemente, Bellino, & Neavins, 1999; Pompi, 1994; Szapocznik, 1988).

Such severe treatment drop-out rates may occur because not all youth who enter treatment have high levels of motivation to change. Some youth enter treatment due to family pressures, and these less-motivated youth might still attend treatment but participate minimally or fail to change substance abuse behaviors (DiClemente, Bellino, & Neavins, 1999). Although therapy attendance is related to motivation for change, many other factors influence therapy engagement, attendance, and participation. In order to better understand the motivation process, it is important to examine variables that might predict motivation for change.

The Transtheoretical Model of Change

In order to examine predictors of motivation for change, the degree of an adolescent's motivation for change must be established. Historically, a person's degree of motivation was classified in one of two ways: motivated or unmotivated (Beckman,

1980). However, current theories of motivation suggest that motivation occurs on a continuum along which levels of motivation gradually progress from one extreme to the other (Miller & Tonigan, 1996). One such theory, Prochaska's (1979) Transtheoretical Model of Change, has received significant attention in the field. Originally created to promote addiction recovery, this model is useful for understanding treatment outcomes and provides a framework for classifying stages of motivation (DiClemente, 1999; Prochaska 1979; DiClemente, 1978; Prochaska & DiClemente, 1992; DiClemente & Prochaska, 1998).

The model originated when Prochaska (1979) created five stages of change based on existing therapy methods. He applied the model to smoking cessation, although since Prochaska's original study, the model has been extended to all types of addiction and abuse (DiClemente, 1978; DiClemente & Prochaska, 1998, DiClemente, 1994; DiClemente & Scott, 1997; Zhang et al., 2006). Because the Transtheoretical Model of Change is a well-researched theory of change that analyzes behavior change in relation to substance abuse or addiction, it may serve as a guide to understanding the process of behavior change and substance abuse recovery and will be used as the theoretical guide in the current study.

Stages of Change. In the Transtheoretical Model of Change (TMC), five distinct stages of change indicate motivation levels: *precontemplation, contemplation, resolution, action,* and *maintenance* (DiClemente & Prochaska, 1998). Each stage indicates the person's current level of motivation. The Transtheoretical Model of Change suggests that motivation for change occurs on a continuous scale and people progress from one stage to another. However, these stages are not always sequential, as a person

can progress to a more motivated stage of change or become less motivated (Zhang et al., 2006).

In the first stage of change, *precontemplation*, the person has not recognized the problem behavior and shows no interest in correcting the behavior. The next stage, *contemplation*, begins when the person evaluates their behavior and makes a conscious decision to initiate change. *Resolution* takes place when a plan is formed that identifies how the change process will begin. In the *action* stage of change, the plan is put into effect and behavior change occurs (DiClemente & Prochaska, 1998). For example, in *action*, one makes specific efforts to modify or stop substance use (Zhang et al., 2006). After three to six months of successful change, *maintenance* begins, where efforts focus on incorporating behavior change into one's lifestyle and preventing substance use from recurring (DiClemente & Prochaska, 1998, Zhang et al., 2006). The Transtheoretical Model asserts that treatment should be directed by the person's current stage of change (DiClemente & Prochaska, 1998). Thus, it is important to identify the stage of change recent to treatment.

Levels of Change. In addition to the five stages of change, the Transtheoretical Model of Change identifies five levels of change that might affect the change process. These levels include symptom/situation, maladaptive cognitions, interpersonal problems, systems/family problems, and intrapersonal conflicts (DiClemente & Prochaska, 1998). DiClemente and Prochaska (1998) refer to levels of change as multidimensional, as more than one dimension, or level, may contribute to a person's stage of motivation. For example, a symptom/situation multidimension is polydrug use, which is common among runaway youth. Polydrug use may complicate the adolescent's stage of motivation for

change because adolescents can be in one stage for one substance and at a different stage for another substance (Adlaf, Zdanowicz, & Smart, 1996; Greene, Ennett, & Ringwalt, 1997; DiClemente, 1994; DiClemente & Scott, 1997; DiClemente & Prochaska, 1998). Another dimension, family environment characteristics, can affect an adolescent's stage of change (DiClemente & Prochaska, 1998). For example, family support or connectedness may have an impact on an adolescent's stage of motivation for change. Understanding levels of change, like family support, may provide greater understanding of the factors that contribute toward an adolescent's stage of motivation for change.

Identifying an adolescent's stage of change is the first step in creating treatment strategies (DiClemente, Belliono, & Neavins, 1999). Because motivational readiness to change differs based on the current stage of change according to the Transtheoretical Model, it is essential to identify each stage to determine motivation levels (DiClemente, Bellino, & Neavins, 1999; Belding, Iguchi, Lamb, Lakin, & Terry, 1995; Carbonan, DiClemente, & Zweben, 1994). Characteristics of each stage have been well researched; however, little research exists that provides information as to why some people fall into different stages and what factors contribute to their motivational readiness.

Factors Contributing to Motivation

There are two types of factors that contribute to motivation: internal and external factors (Miller & Rollnick, 2002; Cunningham, Sobell, Sobell, & Gaskin, 1994). Internal factors are intrinsic thoughts and feelings, like passion, and lead to greater treatment involvement and retention (Miller & Rollnick, 2002). External factors include outside influences, like family pressure, financial incentives, or job-pressure. External factors tend to invoke change immediately but have little long-term effect on change, while

internal factors have a greater influence on one's level of motivation to change (Miller & Rollnick, 2002; Deci & Ryan, 1985; Deci & Ryan 1987; Ryan, Plant, & O'Malley, 1995). Both internal and external factors contribute to motivation levels and will be considered in the current study. In order to further understand the profound effects that motivation has on treatment, the present study has identified five predictors of motivation for change. External predictors include recent experience in therapy and family cohesion. Other predictors that may influence motivation for change include age, gender, and severity of substance abuse. Each of these factors is described below.

Predictors of Motivation for Change

Family Cohesion. The relationship between family cohesion and motivation for change has not been directly examined. However, existing research suggests that because adolescents are strongly influenced by their families, family cohesion may have an effect on an adolescent's change process (Dakof, Gayle, & Liddle; 2001). Family cohesion has been linked to treatment engagement, which is correlated with motivation for change (DiClemente & Scott, 1997; DiClemente, 1999; DiClemente, Bellino, & Neavins, 1999; Pompi, 1994; Szapocznik, 1988). Daykof, Gayle, and Liddle (2001) found that treatment engagement was higher in families experiencing connectedness. Thus, Daykof and colleagues' study indicates a potential relationship between family cohesion and motivation for change (DiClemente, 1999).

Age and Gender. In addition to family cohesion, age and gender have been identified as potential predictors of motivation for change. Many studies found that women are more likely than men to complete treatment for both drug and alcohol use (Barnet, 2006; Maglione, 2000; Freyer et al., 2005). An analysis of college students

receiving treatment for heavy alcohol use found that women were more likely than men to consider changing their drinking habits. Men were also more likely than women to drop out of substance abuse treatment within 90 days of beginning treatment (Barnett, 2006). Similarly, Maglione (2000) found out that 39.4% of women remained in substance abuse treatment for at least 90 days while only 27.6 % of men remained in treatment.

Similar to gender, age affects treatment participation, as both treatment completion and participation increase with age (Martinez-Raga et al., 2002; Maglione, 2000). An alcohol detoxification treatment study of 482 participants found that those who prematurely ended treatment were on average three years younger than those who completed treatment (Martinez-Raga, 2002). Furthermore, older participants were more likely to complete treatment than younger participants (Maglione, 2000; Freyer et al., 2005). Similarly, methamphetamine users participating in drug and alcohol treatment ages 24 and older had significantly higher rates of treatment completion than younger participants (Maglione, 2000).

While younger substance users may be more likely to seek help for alcohol and drug problems than older substance abusers, younger substance abusers are less likely to 'be ready for change.' A study that categorized motivation levels found that participants in the 'not ready for change and help seeking' category were younger than participants who were ready for change (Freyer et al., 2005).

However, in light of the previously discussed studies, literature analyzing the effects of age and gender on motivation for change is inconsistent. According to Peterson's (2006) study of runaway youth, neither age nor gender had an effect on the

level of engagement in therapy. Because engagement in therapy is a predictor of motivation for change, age and gender may have no impact on motivation for change (DiClemente, 1999). In sum, these studies suggest a relationship among age, gender, and motivation for change. Although, due to inconsistent results, additional research is necessary to further understand this relationship.

Severity of Substance Use. In addition to age and gender, motivation for change is correlated with severity of substance use. Research examining the relationship between severity of adolescent substance abuse and motivation for change suggests that more severe substance abuse is positively correlated with higher therapy attendance (Freyer et al., 2005). And, higher attendance indicates greater motivation for change (DiClemente et al., 1999). Freyer et al. (2005) found that among 2,337 high-risk substance users between ages 18-24, low severity of substance abuse was positively correlated with low motivation for change while participants with severe substance abuse reported greater levels of motivation for change. Severe substance abusers might have greater motivation to decrease their alcohol and drug use because severe substance abuse causes distress and influences decisions to reduce substance use (DiClemente et al., 1999).

However, other studies suggest a negative relationship between treatment attendance and severity of substance abuse. According to Maglione's (2000) study of methamphetamine users, severe substance abusers are more likely to drop out of treatment than less severe substance users. Thus, because failing to complete treatment is correlated with low motivation for change, it can be inferred that severe substance abuse might be associated with low motivation for change (DiClemente et al., 1999). As

research has identified both positive and negative relationships between severity of substance abuse and motivation for change, further analysis is necessary in order to fully understand their relationship.

Recent Experience in Therapy. The fifth predictor of motivation for change is recent experience in therapy. In a study of 285 homeless youth, Peterson and colleagues (2006) found that 69.4% of homeless youth had previously received some form of mental health treatment and 48% had received substance abuse treatment. Additionally, youth who had experienced previous substance abuse treatment were more likely to remain in treatment than youth with no previous treatment experience (Maglione, 2000; Simpson & Joe, 1993). Because motivation for change is positively correlated with treatment completion, recent experience in therapy might also be associated with motivation for change (DiClemente, 1999).

Implications

Understanding factors that contribute toward motivation may lead to more positive treatment outcomes, as therapists can enhance intervention methods by identifying the adolescent's stage of motivation for change recent to treatment. Rollnick (2002) suggests that counselors should provide different counseling methods according to the adolescent's present stage of change. For example, in the precontemplative stage, the therapist's goal is to increase the adolescent's perception of risk caused by their substance abuse (Peterson et al., 2006). Intervention effectiveness can be enhanced by basing treatment on the person's stage of change (Perz, DiClemente, & Carbonari, 1996; Prochaska, DiClimente, Velicer, & Rossi, 1993; Velicer et al., 1993).

The Present Study

Based upon existing literature and studies guided by the Transtheoretical Model of Change, higher motivation for change appears to be associated with positive treatment outcomes (Bellino, & Neavins, 1999; DiClemente, 1999). However, upon an exhaustive review of literature, it is evident that predictors of motivation are not yet clearly identified. Research has focused on increasing the level of motivation for change but fails to explore predictors of motivation recent to treatment (Miller & Tonigan, 1996; DiClemente, 1999). Additionally, the present study examined runaway youth; a lesser researched and underserved population.

In the current study, it was hypothesized that among runaway substance abusing youth, family cohesion, recent experience in therapy, and substance abuse would predict higher motivation for change. Specifically, higher family cohesion, recent experience in therapy, and substance use was expected to predict higher motivation for change. It was also predicted that older adolescents would have greater motivation for change than younger adolescents and that females would have greater motivation for change than males.

CHAPTER 2

METHOD

Overview of Design

A total of 164 youth were recruited through a runaway shelter in Columbus, Ohio between January 2005 and August 2007 as part of a larger randomized clinical trial longitudinally examining therapy outcomes among substance abusing runaway youth. Hence, all youth in this sample agreed to the possibility of treatment. Of the 164 youth in the original clinical trial, the current study removed 23 youth due to missing data and four because they were significant outliers. Thus, n=141. As the current study examines baseline motivation, only data from the baseline assessment will be examined.

Participants

In order to be eligible for the study, youth were between the ages of 12 and 17, were staying at the runaway shelter, had the legal option to return home, and met DSM-IV criteria for substance abuse or dependence. The participants were on average 15.5 years old (SD=1.2 years). The sample included fewer males than females, 44% (n=62) male and 56% (n=79) female. Most youth were African American (52.5%) or White/non-Hispanic (33.3%), while only 4.3% were American Indiana Alaskan Native and 2.1% were Hispanic. The average number of previous runaway episodes was 3.34 (SD=6.2).

Independent samples t-test was used to test for possible mean differences between males and females on lifetime runaway episodes, drug use, alcohol use, recent experience in therapy, and family cohesion (see Table 2). The only significant difference was that males reported higher levels of family cohesion than did females ($t(139)=2.667$, p=.009). Analysis of Variance (ANOVA) was used to examine differences between adolescent ethnic groups (African American, White non-Hispanic, Hispanic, and other) on the same outcome variables (see Table 2). A significant difference was found between recent experience in therapy due to ethnicity/racial group ($F(7,133)=2.494$, p=.046) in which Hispanic adolescents had the most treatment sessions in the past three months (M=2.55 sessions, SD=3.3), and African American adolescents had the fewest (M=.77 sessions, SD=1.38).

Procedure

A research assistant (RA) engaged and screened youth who resided at the runaway shelter for participation, utilizing the eligibility criteria as a guide. If the youth met preliminary eligibility criteria and was interested in participating in the study, their parent or legal guardian was contacted and engaged into the study. Upon obtaining the parent or legal guardian's consent, assent was to be obtained from the youth and an assessment was scheduled with the youth within 24 hours (when possible). During the assessment interview, the RA administered the Computerized Diagnostic Interview Schedule for Children (CDISC; Shaffer, 1992) sections on alcohol, marijuana and other substances to the youth to determine formal eligibility. If the youth did not meet criteria for a drug or alcohol use disorder, he or she continued with treatment as usual through the shelter. Otherwise, the youth continued with the assessment as described below. They were told

that the assessment would take up to three hours and that they would receive a $40 gift card at the end of participation. RA's administered the assessment instruments which included both semi-structured, structured, and self-report formats. Youth were given a choice to complete the assessment in one full session or in two sessions on separate days. All procedures were approved by The Ohio State University's Institutional Review Board.

Measures

Eligibility. The RA administered the Computerized Diagnostic Interview Schedule for Children (CDISC; Shaffer, 1992), a computerized comprehensive diagnostic interview based on DSM IV criteria. CDISC diagnoses alcohol, tobacco, and other substance abuse and dependence and was used to determine formal eligibility.

Predictor Variables

Sample Characterization. A demographic questionnaire was administered to assess age, gender, and number of recent runaway episodes. The participants' age and gender were used as predictor variables of motivation for change.

Substance Use. The Form 90 Drug and alcohol interview (Miller, 1996**)** is a semi-structured questionnaire assessing drug use in major categories as well as alcohol use. The Form 90-D drug interview, which was developed from the form 90-A alcohol interview, has shown test-retest reliability with kappa's ranging from .74 to 1.0 (Tonigan, Miller, & Brown, 1997). The current study used the Form 90-D Intake Form (Form 90 DI), which is a structured interview that allows for daily recall of all drug and alcohol use and has proven good reliability and validity (Westerberg, Tonigan, & Miller, 1998; Tonigan, Miller, & Brown, 1997; Slesnick & Tonigan, 2002). In the recent 3 month

assessment period, percent days of alcohol and drug use and percent days of emotional, alcohol, and drug treatment (recent therapy experience) were used as predictor variables.

*Family Environment***.** The Family Environment Scale (FES; Moos & Moos, 1986) is a family assessment instrument that uses 90 true-false questions to measure the social-environmental characteristics of families. These include Cohesion, Expressivity, Conflict, Independence, Achievement-Orientation, Cultural-Religious Emphasis, Organization, and Control. The scale has internal consistencies ranging from .61 to .78 and test-retest reliability from .73 to .86. Of the FES's ten subscales, cohesion, "the extent to which family members are concerned and committed to the family and the degree to which family members are helpful and supportive of each other" (Fowler, 1981) was used as a predictor variable in the current study.

Outcome Variable

Motivation for Change. The Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES) (Miller & Marlatt, 1984) was created to parallel the stages in the Transtheoretical Model of Change and tests for three stages of motivation: readiness, ambivalence, and taking steps (Miller, & Tonigan, 1996). The SOCRATES has proven reliable with correlations ranging from .83 to .99 and internal consistency ranging from .87 to .96. All three stages identified in the SOCRATES were used as outcome variables in this study for both drug and alcohol use.

Overview of Analysis

Data were analyzed using logistic and multinomial regression models and ANOVA. Data were entered into SPSS in order to determine if correlations exist between the predicting variables and the outcome variables.

CHAPTER 3

RESULTS

Because SOCRATES measures motivation for change on a continuous scale, both two-step cluster and K-means cluster analysis were used to differentiate between the three outcome variables. When analyzing alcohol abuse, three clusters were present. These included taking steps (n=38, 27%), recognition/ambivalence, (n=85, 60.3%), and precontemplation (n=18, 12.8%). Precontemplation was included as a category because these scores were significantly lower than taking steps and recognition/ambivalence scores and indicated a level of motivation far lower than ambivalence scores. Multinomial regression was used to examine the relationship between predictor variables and the three alcohol motivation stage clusters. Likelihood ratio tests identified two predictors that contributed toward motivation for change: alcohol use (p=.000) and recent experience in therapy (p=.003; see Table 3). Significant predictors accounted for 29.1% of the variability, as Nagelkerke r^2=.291.

For drug use, two clusters were present, taking steps (n=57, 40.4%) and ambivalence (n=84, 59.6%). Youth with the highest mean score for motivation for change were included in the taking steps cluster. Youth in the ambivalence cluster had low scores for all stages of motivation for change. Logistic regression was then used to

examine the relationship between the predictor variables and drug ambivalence and taking steps, or drug motivation for change. Significant predictors accounted for 23.8% of the variability, as Nagelkerke r^2=.238. The likelihood ratio was 162.975.

Recall that greater family cohesion, recent experience in therapy, and substance abuse were expected to predict motivation for change. It was also expected that older adolescents and females would have higher levels of motivation for change than younger adolescents and males. Both drug and alcohol results will be presented in four sections according to each hypothesis.

Family cohesion. It was expected that higher family cohesion would predict greater motivation for change. However, there was no relationship between family cohesion and alcohol taking steps (p=.307, β=-9.052). There was also no relationship between family cohesion and drug motivation (p=.864, β=-.015). That is, results indicated that family cohesion did not predict drug or alcohol motivation for change.

Substance use. The second hypothesis expected substance use to predict greater motivation for change. Alcohol use did predict both alcohol taking steps (p=.003, β= .133) and alcohol recognition/ambivalence (p=0.000, β=.185). Although alcohol use predicted taking steps and and recognition/ambivalence, alcohol use did not predict precontemplation. These results indicate that greater levels of alcohol use, or more severe alcohol use, predicted motivation for change. Similarly, drug ambivalence was negatively associated with drug use (p=0.000, β=-.021). Youth in the ambivalence stage of motivation for change were likely to have low levels of drug abuse. Conversely, youth with higher levels of drug use were likely to be in the taking steps stage of motivation for

change. Among youth using drugs and alcohol, stages of motivation for change increased as drug and alcohol use increased.

Age and gender. It was predicted that females would have greater motivation for change than males and that older adolescents would have greater motivation for change than younger adolescents. Gender was not a predictor of alcohol taking steps (p=.218, β=-.566) or drug motivation for change (p=.315, β=-.404). Age, however, was a predictor for alcohol taking steps (p=.032, β= .465); being older predicted higher scores on alcohol taking steps. Although, age was not drug motivation for change (p=.416, β=.147).

Recent experience in therapy. Finally, it was expected that recent experience in therapy would predict motivation for change. Recent experience in therapy (p=.003, β= .234), was a predictor of alcohol taking steps. Additionally, drug ambivalence was negatively associated with recent experience in therapy (p=.017, β= -.210). That is, youth in both the drug and alcohol taking steps stage of motivation for change were more likely to have had recent experience in therapy.

CHAPTER 4

DISCUSSION

Many researchers suggest that motivation for change leads to better treatment outcomes, although factors that contribute toward motivation have been less studied (Brown & Miller, 1993; DiClemente, 1999; Zhang, Harmon, Werkner, & McCormick, 2006). This study adds to existing literature by examining predictors of an adolescent's degree of motivation for change. Identifying predictors of change readiness can provide opportunities for early intervention and specific treatment methods that can improve intervention effectiveness.

Recall that family cohesion, recent experience in therapy, substance use, age, and gender were expected to predict motivation for change. Specifically, youth with higher rates of family cohesion, substance abuse, and recent experience in therapy were expected to have higher levels of motivation for change than youth experiencing these predictors at lesser degrees. Older adolescents and females were also expected to have greater motivation for change than males and younger adolescents. Of the five predictors of motivation for change examined, three were significant predictors of drug and/or alcohol motivation for change: substance abuse, age, and recent experience in therapy. Two factors, family cohesion and gender, were not statistically significant predictors of

motivation for change. The outcomes, motivation to change drug and alcohol use, are presented below in five sections according to each hypothesis.

Family cohesion. It was hypothesized that family cohesion would predict higher motivation for change, however, this was not found. Although the relationship between family environment characteristics and an adolescent's motivation for change has not been well researched, one study (Dakof, Gayle, & Liddle, 2001) found that treatment engagement was higher among families experiencing connectedness.

Possibly, the instrument used to measure family cohesion in this study was not sensitive to variability in family cohesion among runaway youth who tend to report low levels of family cohesion. In the current sample, the mean family cohesion score was 4.2, while Moos and Moos (1994) identified 6.73 as the mean family cohesion score in a normative sample. Further, more than 90% of the sample scored seven or lower, indicating a stark contrast from the normative sample. Because family cohesion scores in the runaway sample differ drastically from normative samples, a separate measure may be necessary to more accurately determine variability in family cohesion among runaway youth.

Severity of substance use. The second hypothesis was that higher substance use would predict higher motivation for change. Results supported this hypothesis in regard to both drug and alcohol use. Higher alcohol use predicted both moderate and high levels of motivation for change but it did not predict precontemplation. Also, higher drug use predicted higher motivation to change drug use.

These findings are supported by the existing literature. Freyer and colleagues (2005) found that youth with higher rates of substance abuse were more likely to attend

treatment than youth with lower rates of substance abuse. If treatment attendance indicates motivation for change (DiClemente et al., 1999), it might be inferred that youth with higher rates of substance abuse have greater motivation for change than youth with lower rates of substance abuse. Overall, these findings suggest that identifying the severity of an adolescent's substance abuse can provide insight into the adolescent's stage of motivation for change.

Recent experience in therapy. The third hypothesis that recent experience in therapy would predict higher alcohol and drug motivation for change was supported. Similarly, other studies found that previous experience in therapy was associated with better treatment retention (Maglione, 2000; Simpson & Joe, 1993). Again, recall that those with higher treatment attendance rates had higher levels of motivation for change than those with lower treatment attendance rates (DiClemente, 1999). Thus, these studies provide an indirect link between previous experience in therapy and motivation for change. The current study extends previous research by showing a direct link between recent experience in therapy and motivation for change.

Age. It was predicted that older adolescents would have greater motivation for change than younger adolescents. This hypothesis was partially supported; motivation to change alcohol use increased with age. Interestingly, age did not predict motivation to change drug use. Only one study was found that examined the relationship between age and motivation for change. Freyer and colleagues (2005) found that youth in the 'not ready for change and help seeking' category were younger than youth who were 'ready for change.' Other researchers have linked age to treatment attendance and completion, suggesting that older youth have higher motivation for change. Specifically, Martinez-

Raga and colleagues (2002) found that participants who prematurely ended alcohol detoxification treatment were an average of three years younger than participants who completed treatment.

The current study's findings suggest a difference in motivation for change between adolescent alcohol users and adolescent drug users. Alcohol use is more common among younger adolescents than drug use and some research suggests that adolescents are exposed to alcohol, compared to drugs, at younger ages (Greene, Ennett, & Ringwalt, 1997). Since adolescents might have longer exposure to the negative effects of alcohol use, motivation to change alcohol use might increase with time. In regard to drug use, this effect might occur but at older ages than assessed in this study. Future studies should further examine differences between motivation to change alcohol use and motivation to change drug use.

Gender. It was predicted that females would have higher motivation for change than males. However, gender was not a predictor of motivation to change drug or alcohol use. These findings are in contrast to other research. Many studies identified a relationship between gender, treatment participation and completion, and motivation for change (Barnet, 2006; DiClimente, 1999). Both Freyer et al. (2005) and Maglione (2000) found that women were more likely to remain in treatment than men. Further, Barnett (2006) found that female college students were more likely than men to consider changing substance use habits. However, these studies did not examine the relationship between gender and motivation for change among adolescents. Possibly, female and male adolescents are more similar to one another than female and male adults because of similar developmental struggles associated with being a runaway youth.

Limitations

Although the current study identified significant predictors of motivation for change, some limitations exist. First, The Stages of Change Readiness and Treatment Eagerness Scale measured three stages of motivation for change - ambivalence, recognition, and taking steps - on a continuous scale (Miller & Marlatt, 1984). Although Miller and Tonnigan (1996) indicated little overlap between stages of motivation for change, youth fell into more than one stage in the current study. Cluster analysis was used to control for overlap between outcome variables, but an instrument using a categorical scale is recommended for future studies in order to categorize discrete variables. Second, examining whether any lifetime experience in therapy predicts motivation to change can provide a more thorough understanding how therapy experience predicts motivation for change. Third, the study's sample size (n=141) was small, limiting variability and statistical power to detect differences. Finally, because the study was conducted among runaway youth, generalizability of findings to other adolescent populations is limited.

Conclusions

The current findings showed that recent experience in therapy and higher substance abuse predicted greater motivation to change alcohol and drug use. Also, age predicted motivation to change alcohol use but not drug use. The relationship between substance abuse, recent experience in therapy, age, and motivation for change has significant therapeutic implications. By understanding adolescent stages of motivation, intervention efforts can be specifically targeted to increase motivation levels among those likely to experience lower levels of interest in changing these high risk behaviors. A

motivation enhancing program targeted towards less-severe substance abusing youth, found in this study to have lower levels of motivation, might have important preventative utility. That is, increasing motivation levels when youth might be just beginning experimentation with alcohol and drug use might prevent individual, family and school problems associated with the possible progression to higher levels of alcohol and drug use. Similarly, younger adolescents and those with little recent experience in therapy might also benefit from interventions targeted at enhancing motivation to change alcohol and drug use. Research focused on identifying strategies to increase motivation among these vulnerable subgroups of youth might be worthy of future study.

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APPENDIX A

MEASURES

Demographic Interview (Adolescent)

Pretreatment

DEMOGRAPHICS:

1. Gender: M / F

2a. Date of Birth: _____ 2b. Age: _____

3. Ethnic Group (Check one for subject, subject's birth mother, and subject's birth father):

Adolescent	Adolescent's Birth Mother	Adolescent's Birth Father	
_____(1)	_____(1)	_____(1)	American Indian or Alaskan Native
_____(2)	_____(2)	_____(2)	Asian, Asian American, or Pacific Islander
_____(3)	_____(3)	_____(3)	Black or African-American
_____(4)	_____(4)	_____(4)	Hispanic, Cuban
_____(5)	_____(5)	_____(5)	Hispanic, Mexican
_____(6)	_____(6)	_____(6)	Hispanic, New Mexican (or Spanish American)
_____(7)	_____(7)	_____(7)	Hispanic, Puerto-Rican
_____(8)	_____(8)	_____(8)	Hispanic, Other Latin American
_____(9)	_____(9)	_____(9)	White, not of Hispanic origin
_____(0)	_____(0)	_____(0)	Other

If other ethnic group please specify:

Adolescent: _____

Mother: _____

Father: _____

4. Last Grade Completed: _____

Current GPA: _____ Special Ed: LD, BD_____

Currently enrolled? Yes / No School: _____

5. In the last year, what was your primary living arrangement? (Check one)::

____ (1) Alone in own house or apartment
____ (2) With spouse, domestic partner, or children in own house or apartment
____ (3) In a house or apartment with a friend or friends
____ (4) With parent(s) or guardian(s) in their house or apartment
____ (5) Homeless or living in temporary shelter
____ (6) With other relatives (specify) _____
____ (7) With foster parents
_____(8) In jail
_____(9) Other (specify)_____
_____

6. How many persons, including yourself were living in your home when you were growing up?
_____ Persons

7. Have you ever been:

a. Placed in a foster home? Yes / No
b. Placed in a group home? Yes / No
c. Kept in juvenile detention? Yes / No
d. Kept in jail overnight? Yes / No
e. A ward of the state? Yes / No

8. For how many years were you raised by:

Years

1. _____ Both of your birth parents
2. _____ Birth mother only
3. _____ Birth mother plus partner (not birth father)
4. _____ Birth father only
5. _____ Birth father plus partner (not birth mother)
6. _____ Other relatives (grandparents, aunt or uncle, etc.)
7. _____ Adoptive parents
8. _____ Foster parents
9. _____ Institutions (group home, hospital, detention, shelter)
10. _____ Other (Specify)

9. How many brothers or half-brothers do you have?

_____ Number of full brothers (both parents in common) _____ Number of half brothers (one common parent)

10. How many sisters or half-sisters do you have?

_____ Number of full sisters (both parents in common) _____ Number of half sisters (one common parent)

11. How many children do you have?

_____ Biological sons

_____ Biological daughters

Are you currently expecting a baby (you or your partner is pregnant)? When is the baby due? _____

12. How many times have you been married? _____times(s).
13. How many times has the primary caretaker been married? _____time(s).

14. Current Marital Status (Check one):

Adolescent	Primary Caretaker _____	Adolescent=s Birth Parents
___(1) Single, never been married	___(1) Single, never been married	___1) Never married
___(2) Currently legally married	___(2) Currently legally married	___2) Currently married
___(3) Cohabiting with partner	___(3) Cohabiting with partner	___3) Cohabiting
___(4) Separated but still married	___(4) Separated but still married	___4) Separated but still married
___(5) Divorced	___(5) Divorced	___5) Divorced
___(6) Widowed	___(6) Widowed	___6) Widowed

15. Employment Status (Check one for client and one for primary caretaker):

	Adolescent	Primary Caretaker	Other Adult Family Member
(1) Work 40+ hours a week	____	____	____
(2) Fewer than 40 hours a week	____	____	____
(3) Homemaker	_____	_____	_____
(4) Retired	_____	_____	_____
(5) Unemployed	_____	_____	_____
(6) Student	_____	_____	_____ ____

What is the adolescent's primary occupation (**whether or not he/she is currently employed**)?

Adolescent _____

Primary Caretaker _____

Other Adult Family Member_____

16. What is your total **annual** family income?

_____0-$5,000 _____$5,001- $15,000 _____$15,001- $30,000

_____$30,001- $45,000

$45,001- $60,000 _____$60,001- $75,000 _____$75,001 or above

17. What is each of your highest level of education?

Adolescent	Primary Caretaker	Other Adult Family Member	
_____	_____	_____	0) Unknown
_____	_____	_____	01) First grade
_____	_____	_____	02) Second grade
_____	_____	_____	03) Third grade
_____	_____	_____	04) Fourth grade
_____	_____	_____	05) Fifth grade
_____	_____	_____	06) Sixth grade For GED recipients, check the
_____	_____	_____	07) Seventh grade number of years of formal
_____	_____	_____	08) Eighth grade education actually completed
_____	_____	_____	09) Ninth grade (do not check 12)
_____	_____	_____	10) Tenth grade
_____	___	_____	11) Eleventh grade
_____	_____	_____	12) High school graduate (not GED)
_____	_____	_____	13) One year full-time post secondary
_____	_____	_____	14) Two years full-time post secondary
_____	_____	_____	15) Three years full-time post secondary
_____	_____	_____	16) Four years full-time post secondary: college graduate
_____	_____	_____	17) One year full-time post-graduate
_____	_____	_____	18) Two year full-time post-graduate
_____	_____	_____	19) Three years full-time post graduate
_____	_____	_____	20) Four years full-time post graduate
_____	_____	_____	21) Five years full-time post graduate

____	____	____	22) Six years full-time post-graduate
____	____	____	23) Seven years full-time post graduate
____	____	____	24) Eight years full-time post graduate
____	____	____	25) Nine years full-time post graduate
____	____	____	26) Ten years or more full time post-graduate

18. What degrees do family members have?

Adolescent	Primary Caretaker	Other Family Member	
____	____	____	0) No degree
____	____	____	1) Graduate Equivalent Degree (GED)
____	____	____	2) High School Diploma
____	____	____	3) Trade School Certificate
____	____	____	4) Associate Degree
____	____	____	5) Bachelors Degree
____	____	____	6) Masters Degree
____	____	____	7) Doctoral Degree
____	____	____	8) Unknown

LEGAL:

19. Have you ever been ARRESTED? Yes / No How many times? _____

List incidents (from most recent); include charges, date, status (conviction, probation), and whether alcohol or other drugs were involved:

	Charge	Date	Status	Alcohol/Drugs
A.				
B.				
C.				
D.				

20. Do you have a JPPO/Case Worker/Case manager? Yes / No Which? _____

21. Are you involved in a GANG? Yes / No
Have you been ranked in? Yes / No
Which gang are you a member of? _____
How often are you involved in fights? _____

PREVIOUS RUNAWAY EPISODES:

22. How many times have you run away? _____

Please list all times you have runaway, where you ran from, where you stayed and reason for running.

	Date	Ran From (e.g. home):	Where Stayed:	Reasons for Running:	How Long Homeless:
A.					
B.					
C.					
D					

MENTAL HEALTH TREATMENT:

23. Have you ever been hospitalized, INPATIENT, for SUBSTANCE abuse treatment?
Yes / No
Describe: How many times?_____
Where, when, duration of stay:

24. Have you ever been hospitalized, INPATIENT, for EMOTIONAL difficulties? Yes / No
Describe: How many times?_____
Where, when, duration of stay:

25. Have you ever received OUTPATIENT treatment for ALCOHOL/DRUG issues?
Yes / No
Describe where, when, duration of treatment:

26. Have you ever received OUTPATIENT treatment for other EMOTIONAL problems? Yes / No
Describe where, when, duration of treatment:

27. Have there been times when you couldn't remember what you did while drinking?
Yes / No
(e.g., your friends told you later what you did, or you woke up not knowing how you got somewhere)
About how often has this happened to you?

___almost every time I drink ___most of the times that I drink
___about half of the times that I drink ___less than half of the times that I drink
___once in a while ___once or twice in my lifetime

28. Is there evidence that DETOX is needed? Yes / No

ASSESSMENT OF DANGER:

29. Have you ever tried to harm yourself, commit SUICIDE, or placed yourself in dangerous or life-threatening situations? Yes / No
How many times? _____
A) Please describe when, reasons, what happened (hospitalized?):

B) Have you had thoughts of harming yourself recently (in the last few weeks)? Yes / No
Do you have a plan? Y / N Describe:

Do you have access to what you need to do that? Y / N Describe:

What are your reasons for wanting to die?

What stops you from killing yourself?

30. **HOMICIDAL IDEATION:** Is there anyone you seriously want to harm? Yes / No

Do you have a plan? Y / N Describe

Do you have access to what you need to do that? Y / N Describe:

Who is this person?

Do you know how to find this person? Y / N Describe (address/phone)
What stops you from harming this person?

31. Has anyone ever touched you SEXUALLY in a way that made you feel uncomfortable
OR hurt you OR was against your will? Yes / No
How many times? _____
Is this happening currently? Yes / No
Was the abuse reported to the authorities? Yes / No
Describe the circumstances (when, who, duration of abuse):

32. Has anyone ever hurt you PHYSICALLY (enough to leave marks or bruises or burns)? Yes / No

Is this happening currently? Yes / No
Was the abuse reported to the authorities? Yes / No
Describe the circumstances (when, who, duration of abuse):

HOMELESS EXPERIENCES:

33. Over the last 30 days, how many nights did you spend:

	Nights
a. In your own room or apartment?	_____
b. With family members in their home?	_____
c. With friends in their home?	_____
d. In a shelter of mission?	_____
e. In abandoned buildings or Asquats?@	_____
f. In jail?	_____
g. Someplace else indoors, such as in a bus or train station, or at an airport?	_____
h. Someplace outdoors, such as on the street, or in a park or alley?	_____
i. Anyplace I haven=t mentioned?	_____ Please specify: _____

34. When was the last time you lived in an apartment, room, or house (other than a shelter) for 30 consecutive days or longer?

___ Within last month
___ 1-6 months ago
___ 7-12 months ago
_____ 1-3 years ago
_____ More than 3 years ago

35. Where and with whom did you live? _____
36. How old were you when you left there the last time? _____ years old.
37. Why did you leave or were you asked to leave? _____

38. Altogether, how many different times have you not had a place to live? That is, times when you didn't have a room, apartment or home where you could sleep. _____ times.
38a. How old were you the first time you did not have a place to live? _____ years old.

39. What is the main reason you do not have a place to live right now? _____

40. In the past 30 days was:
    a. Getting enough to eat a problem for you? Yes / No
    b. Getting clothes a problem for you? Yes / No
    c. Getting medical care a problem for you? Yes / No
    d. Finding a place where you could clean up a problem for you? Yes / No

41. In the last 12 months, have you had any physical health problems you needed medical care for that you did not get? Yes / No
    a. What were the main reasons you didn't receive medical care for (this/these) problems?
    _____

INCOME SOURCES AND OTHER SUPPORTS:

42. During the last 30 days, did you get any money from:
    a. A full or part-time job? Yes / No
    b. Doing any other kind of work, including day labor, seasonal, minimum wage or pick up work? Yes/No
    c. Friends? Yes / No
    d. Relatives? Yes / No
    e. Panhandling? Yes / No
    f. Clothing and other personal possessions that you sold? Yes / No
    g. Collecting and selling bottles and cans? Yes / No
    h. The sale of your blood or plasma? Yes / No
    i. Dealing drugs? Yes / No
    j. Prostitution? Yes / No
    k. An agency or program? Yes / No
    l. Stealing? Yes / No
    m. Anything else I haven=t mentioned? Yes / No Specify: _____

VICTIMIZATION EXPERIENCES:

43. Now I=d like to ask about any crimes that may have been committed against you. In the last 12 months, have you been:
    a. Assaulted or physically attacked? Yes /No
    b. Robbed, that is, was something taken from you by someone who threatened you with violence if you didn't give it to them? Yes / No
    c. Burglarized, that is, has someone broken into your room or apartment and taken some of your property? Yes / No
    d. Have you been raped? Yes / No
    e. Have you been sexually assaulted, other than rape? Yes / No
    f. Have you been the victim of another crime? Yes / No
    Specify:_____

44. In order to keep yourself from being harmed in any way, do you:
    a. Carry a weapon? Yes / No
    Specify:_____
    b. Stay away from certain places? Yes / No
    c. Stay away from people? Yes / No
    d. Sleep during the day and stay awake at night? Yes / No
    e. Make sure you=re always with someone you can trust? Yes / No
    f. Do you do anything else to keep from being harmed? Yes / No

Specify:_____

C-DISC Report Form

Dx	**Positive**	**Negative**
PTSD		
Major Depression		
Dysthymic Disorder		
Conduct Disorder		
Schitzophrenia		
Oppositional Defiant Disorder		
Conduct Disorder		
Alcohol Use Disorders	XXXXXXX	XXXXX
Alcohol Abuse		
Alcohol Dependence		
Nicotine Dependence		
Marijuana Use Disorders	XXXXXXX	XXXXX
Marijuana Abuse		
Marijuana Dependence		
Other Substance Use Disorders (specify below)	XXXXXX	XXXXXX
~		
~		
~		
Other Dx (specify below)	XXXXXX	XXXXXX
~		
~		
~		

Form 90-DI

DRUG USE ASSESSMENT (Intake)

1. For period from _____/ _____/ _____through _____/_____/___
_
2. Number of days in this assessment period: _____/ _____/ _____

3. This is: (0) Pretreatment

4. ___(1) Male ___(2) Female

5. Current body weight in pounds: ____/ _____/ ____

6. Weight was obtained by: __(1) weighing or ___(2) self-report

7. This interview was conducted:

___(1) on site ___(2) by telephone
___(3) home visit ___(4) other location

8. Presenting drug _____

"I'd like to begin by reminding you that whatever you say here is confidential. In this first interview, I am going to be asking you some specific questions about your drug use in the 90 days before your last use. I'll be asking about drugs that were prescribed for you as well as others that you have used during this period. [Place calendar in front of client.] *Here is a calendar to help you remember this period of time. First of all, when was the last time that you used any drug?* [Drug is as defined above; count back 89 days and cross out with Xs the days preceding this period.] *So the period I'm going to be asking you about is from* [beginning date,] *up through* [end date]."
"I realize that this is a long period of time to remember things that happened, so we will use this calendar to help you identify events that occurred during this period. Notice that a few events are already printed on the calendar. [Point out some specific events already printed on the calendar.] *Were there any particularly memorable things that happened during this time - any birthdays, illnesses or accidents, anniversaries, parties, hospitalizations, vacations, changes in your work or at home, things like that?"* [Record on calendar.]
"Now the rest of the questions that I will ask you are also about this time period from up through _____. I'll be asking you about your drug use in a few minutes, but first I'd like to know about a few other things. Feel free to take your time in answering, since it is important for you to remember as accurately as you can. Let me know if you're not sure what I am asking, or what I mean by a particular question. OK?"

TREATMENT / INCARCERATION / LIVING EXPERIENCES

"During this period, how many days did you spend in a hospital or treatment program where you stayed overnight?" [Mark days on calendar]

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____

Total days in residential treatment during this period:
[Sum of 9 + 10 + 11 + 13 + 14 + 15. Do not include 12] 16. _____

"During this period, did you spend any time in jail or prison?" [Mark days on calendar]

17. _____

18. _____

"During this period, where did you live? How many days did you live in:" [Do not record on calendar unless useful as memory aids.]

19. _____

20. _____

21. _____

22. _____

Lines 18 + 19 + 20 + 21 + 22 must equal Line 2 _____

"During this period, how many days were there [not including hospital or detox days] *when you saw a doctor, nurse, nurse-practitioner, or physician's assistant for any kind of medical care?"*
[Do not record on calendar unless useful as memory aids.]

23. _____

"During this period, on how many days did you have a session with a counselor or therapist?" [Do not record on calendar unless useful as memory aids.]

total number of days for drug problems (EXCEPT alcohol)

24. _____

If treatment was received, describe briefly:

25. _____

If treatment was received, describe briefly:

26. _____

If treatment was received, describe briefly:

"During this period, on how many days did you attend a Twelve-Step meeting like NA, CA, *or* AA*?*:
[Do not record on calendar unless useful as memory aids.]

27. _____

[enter 0 if none]

OTHER ACTIVITIES

[Do not enter activity days on the calendar unless they appear to be of value for recalling drinking.]

WORK: *"How many days have you been paid for working during this period?"*
WORK days 28. _____

EDUCATION: *"How many days have you been in*

school or training during this period?"

EDUCATION days 29. _____

RELIGIOUS ATTENDANCE: *"On how many days during this time did you attend a worship service or other religious celebration?"*

RELIGIOUS ATTENDANCE days 30. _____

MEDICATIONS

"During this period, on how many days did you take any medications prescribed by a physician?" [Do not enter medication days on the calendar unless they appear to be of memory value.]

31. _____
specify:

32. _____

33. _____
specify:

34. _____
specify:
maintaining / stabilizing drugs (e.g., methadone)
serotonin uptake inhibitors (make sure not for depression)

35. _____
specify:
drug antagonists / blockers

36. _____
specify:

DRUG ASSESSMENT
Card Sort

"Now I am going to show you this set of cards. Each card names a kind of drug that people sometimes use. I'd like you to sort them into two piles for me. In one pile here [indicate position and use marker card] *I'd like you to place those cards that name a kind of drug that you have tried at least once in your life. In the other pile* [indicate position and use marker card]*, place the cards that name the types of drugs that you have never used at all."*

[Give cards to client IN NUMERICAL ORDER - with Alcohol on top, Tobacco next, Marijuana next, and so on. When the sorting has been completed, take the pile on the right, and check all these categories a "NO" in the LIFETIME USE column below. For convenience, record here the client's CURRENT AGE: _____

DRUG TYPE	Lifetime Use Ever?	Age at First Use	Lifetime weeks of Use
Alcohol (al)	( ) 0 No ( ) 1 Yes		
Tobacco (to)	( ) 0 No ( ) 1 Yes		
Marijuana/Cannabis (ma)	( ) 0 No ( ) 1 Yes		
Tranquilizers (tr)	( ) 0 No ( ) 1 Yes		
Sedatives/Downers (do)	( ) 0 No ( ) 1 Yes		
Steroids (sd)	( ) 0 No ( ) 1 Yes		
Stimulants/Uppers (up)	( ) 0 No ( ) 1 Yes		
Cocaine (co)	( ) 0 No ( ) 1 Yes		
Hallucinogens (ha)	( ) 0 No ( ) 1 Yes		
Opiates (op)	( ) 0 No ( ) 1 Yes		
Inhalants (in)	( ) 0 No ( ) 1 Yes		
Other Drugs (xx)	( ) 0 No ( ) 1 Yes		
	Total Yes:		

Then continue with the "Yes" pile:

"Now for each of these types of drugs, I'd like you to give me an estimate of how

long you have used them in your lifetime. What I will want to know is: about how many weeks during your lifetime have you used each type of drug at least once. Let's start with _____ [Use first YES card from numerical sequence]. *How many weeks, during your lifetime, would you say that you used* _____ *at least once?"*

[Record responses on the chart on Page 5. Convert all responses into weeks. Year = 52 weeks if used every week. Month = 4 weeks. etc. Repeat the query for each YES drug card. Then give YES pile back to client.

Periods of Abstinence

"Now I'd like to ask you about your drug use during this same period we were discussing before. The things already recorded on the calendar here may help you to remember better. I'm not asking here about drugs that were prescribed

for you for medical problems, like antibiotics, stomach or blood pressure medicine. I'm asking about drugs not prescribed for you, although I do want to know about any medication prescribed for pain, or to help you relax or sleep. I will also ask you about your use of alcohol. First of all, were there any periods of days during this time when you used <u>no</u> drugs (including alcohol) at all?"

[Mark all abstinent days with a capital "A" on calendar.]

37. Date of first drug use during period: _____/ _____/ _____
    Drug: _____

38. Date of last drug use during period: _____/ _____/ _____
    Drug: _____

Give back the YES pile and say:

Now I'd like you to sort these cards again, to say which kinds of drugs you have used at least once during the period we've been talking about on this calendar, from _____ *up through* _____. *If you used the drug at least once during this time, put it in a pile on the left here, and if you never used it at all during this period, put it on the right."* [Alternatively, if there are few cards, simply ask: "*Which of these have you used at least once during this period we've been talking about?"*]

For each NO card in this sort, print a zero (0) under "Total Days Use in Period" on the USE PATTERN CHART on Page 7. For the remainder, proceed with the CALENDAR instructions on Page 8

USE PATTERN CHART

Drug Classes		Used in this period ?	Total Days	1	2	3	Oral Ingest	Smoke	Nasal Inhale	Needle	Other
Alcohol	al							------	------	------	
Tobacco	to									------	
Marijuana/ Cannabis	ma									------	
Tranquilizer	tr							------	------		
Sedatives/ Downers	do							------	------		
Steroids	sd							------	------		
Stimulants / Uppers	up										
Cocaine	co										
Hallucinogens	ha										
Opiates	op										
Inhalants	in						------	------		-------	
Other Drugs	xx										
Total	12										

Use Categories:

1 = Single use
2 = Several uses
3 = Steady or heavier use

Enter days of each type of use. 1 + 2 + 3 must equal Total Days of use.

Enter days of each route of administration (use rules from manual). These must total at least to the number of days of use, but total may be higher if multiple routes of administration were used on the same day.

If OTHER route of administration, specify drug(s) and route here:

"Now I'd like to ask you about each of the drugs that you have used during this period. I'd want to get an idea of what your pattern of use was during this period of time for each of these drugs. We'll use this calendar to make it easier. Let's start with _____. When were you using _____ during this period?

Proceed drug by drug, entering drug codes for each day of use. For a day on which alcohol, marijuana, and cocaine were used, for example three codes would be entered into the box for that day: al, ma, co. Using different colored pencils for different drugs can be helpful. Using the calendar, carefully count the total number of days of use during the assessment period for each drug class, and put this information on the USE PATTERN CHART (Page 5).

"Now I'm going to go back through these drugs once again and ask you two more questions about each. For each one, I will tell you the total number of days that you said you used this drug during this period, and I will want to know how many of those days you think fell into each of these three categories." [Show use categories]

"*According to the calendar we did, you used _____on a total of ____days during this period. Help me divide those days up among these three categories. On how many of those ____ days would you say that you used _____only once? How many of those days did your use fall in between? And that would mean that on _____ days your use of _____fell in this third category - does that seem right? And how did you give yourself (take) _____ during this period of time we have been talking about? Any other way?* If more than one route of administration for a drug class, ask:

"*According to the calendar we did, you used _____ on a total of ____days during this period. On how many of those _____days would you say that you gave yourself* __[drug]__ *by* ___[route]___*?*

Repeat for each drug class. Be sure you have accounted for all days of use. The total across routes of administration should be at least the same as the number of days of use, although the total may be higher if multiple routes are used on the same day.

Fill in the information on the Use Pattern Chart. Be sure 1+2+3 totals to the number of days of use. When you have completed the calendar for all drug classes used, show the subject the CONFIDENCE SCALE and ask:

> *"Now I'd like you to tell me, using the line, how confident you feel about the information you've given me about your drug use. How accurate do you think you have been in estimating your drug use on this calendar? I'm not asking if you got each drug on the exact days you used it. But overall, how accurate is this calendar in showing <u>how much</u> you used drugs during this period?*

Circle the subject's response below.

5	4	3	2	1
Very Accurate		Fairly Accurate		Not at all Accurate

CATEGORIES FOR DAYS OF USE

(1) Single use. On this day you used the drug only once.

Examples: One alcoholic drink
One cigarette
One dose

(2) Medium use. On this day you used the drug more than once, but not steadily or heavily.

Examples: 2-4 drinks
2-9 cigarettes
Two doses of other drugs

(3) Heavier use. On this day you used the drug more heavily than the "medium" category.

Examples: 5 or more drinks
10 or more cigarettes (half a pack or more)
Three or more doses of other drugs

WAYS OF TAKING DRUGS

Orally Eating, drinking, swallowing, placing the drug under the tongue, chewing, dipping

Smoking Lighting and smoking the drug

Inhaling Snorting, breathing in the drug (but not smoking)

Injecting Taking a drug by needle; injecting under the skin or into a vein

CONFIDENCE SCALE

5	4	3	2	1

Very Accurate	Fairly Accurate	Not at all Accurate

Personal Drug Use Questionnaire
(SOCRATES 8D)

INSTRUCTIONS: Please read the following statements carefully. Each one describes a way that you might (or might not) feel *about your drug use*. For each statement, circle one number from 1 to 5, to indicate how much you agree or disagree with it right now. Please circle one and only one number for every statement.

	NO! Strongly Disagree	**No** Disagree	**?** Undecided or Unsure	**Yes** Agree	**YES!** Strongly Agree
35264.I really want to make changes in my use of drugs.	1	2	3	4	5
35265.Sometimes I wonder if I am an addict.	1	2	3	4	5
35266.If I don't change my drug use soon, my problems are going to get worse.	1	2	3	4	5
35267.I have already started making some changes in my use of drugs.	1	2	3	4	5
35268.I was using drugs too much at one time, but I've managed to change that.	1	2	3	4	5
35269.Sometimes I wonder if my drug use is hurting other people.	1	2	3	4	5
35270.I have a drug problem.	1	2	3	4	5
35271.I'm not just thinking about changing my drug use, I'm already doing something about it.	1	2	3	4	5
35272.I have already changed my drug use, and I am looking for ways to keep from slipping back to my old pattern.	1	2	3	4	5
35273.I have serious problems with drugs.	1	2	3	4	5
35274.Sometimes I wonder if I am	1	2	3	4	5

	NO! Strongly Disagree	**No** Disagree	**?** Undecided or Unsure	**Yes** Agree	**YES!** Strongly Agree
in control of my drug use.					
35275.My drug use is causing a lot of harm.	1	2	3	4	5
35276.I am actively doing things now to cut down or stop my use of drugs	1	2	3	4	5
35277.I want help to keep from going back to the drug problems that I had before.	1	2	3	4	5
35278.I know that I have a drug problem.	1	2	3	4	5
35279.There are times when I wonder if I use drugs too much.	1	2	3	4	5
35280.I am a drug addict.	1	2	3	4	5
35281.I am working hard to change my drug use.	1	2	3	4	5
35282.I have made some changes in my drug use, and I want some help to keep from going back to the way I used before	1	2	3	4	5

Personal Drinking Questionnaire
(SOCRATES 8A)

INSTRUCTIONS: Please read the following statements carefully. Each one describes a way that you might (or might not) feel *about your drinking*. For each statement, circle one number from 1 to 5, to indicate how much you agree or disagree with it *right now*. Please circle one and only one number for every statement.

	NO! Strongly Disagree	**No** Disagree	**?** Undecided or Unsure	**Yes** Agree	**YES!** Strongly Agree
35283.I really want to make changes in my drinking.	1	2	3	4	5
35284.Sometimes I wonder if I am an alcoholic.	1	2	3	4	5
35285.If I don't change my drinking soon, my problems are going to get worse.	1	2	3	4	5
35286.I have already started making some changes in my drinking.	1	2	3	4	5
35287.I was drinking too much at one time, but I've managed to change my drinking.	1	2	3	4	5
35288.Sometimes I wonder if my drinking is hurting other people.	1	2	3	4	5
35289.I am a problem drinker.	1	2	3	4	5
35290.I'm not just thinking about changing my drinking, I'm already doing something about it.	1	2	3	4	5
35291.I have already changed my drinking, and I am looking for ways to keep from slipping back to my old pattern.	1	2	3	4	5
35292.I have serious problems with drinking.	1	2	3	4	5
35293.Sometimes I wonder if I am	1	2	3	4	5

	NO! Strongly Disagree	**No** Disagree	**?** Undecided or Unsure	**Yes** Agree	**YES!** Strongly Agree
in control of my drinking.					
35294.My drinking is causing a lot of harm.	1	2	3	4	5
35295.I am actively doing things now to cut down or stop drinking.	1	2	3	4	5
35296.I want help to keep from going back to the drinking problems that I had before.	1	2	3	4	5
35297.I know that I have a drinking problem.	1	2	3	4	5
35298.There are times when I wonder if I drink too much.	1	2	3	4	5
35299.I am an alcoholic.	1	2	3	4	5
35300.I am working hard to change my drinking.	1	2	3	4	5
35301.I have made some changes in my drinking, and I want some help to keep from going back to the way I used to drink.	1	2	3	4	5

APPENDIX B

TABLES

	Times Runaway			Drug Use			Alcohol Use			Recent Therapy			Family Cohesion		
Adolescent Ethnic Group	Mean	SD	n	Mean	SD	n	Mean	SD	n	Mean	SD	n	Mean	SD	n
African American	3.82	8.07	55	41.41	34.24	74	3.77	5.24	74	.65	1.38	74	4.45	2.32	74
Hispanic	3.43	3.95	7	66.73	37.27	11	5.79	5.98	11	2.55	3.3	11	4.45	2.5	11
White, not of Hispanic origin	2.55	2.5	31	37.69	35.26	47	5.32	9.34	47	1.74	4.46	47	3.94	2.47	47
Other	3.00	1.69	3	49.69	33.82	9	4.52	5.36	9	.77	1.56	9	3.33	1.32	9
Gender															
Male	3.88	8.3	51	38.05	32.05	62	38.05	32.1	62	0.97	2.75	62	4.79	2.36	62
Female	2.87	2.77	50	46.3	37.37	79	46.3	37.4	79	1.05	3.21	79	3.75	2.23	79

Table 1. *Descriptive Statistics of Gender and Ethnic Group Runaway Adolescents by Times Runaway, Drug Use, Alcohol Use, Recent Therapy, and Family Cohesion*

Note. Times Runaway is number of lifetime runaway episodes

n_{male}=62, n_{female}=71

	Gender		Ethnic Group	
	t	*p*	*F*	*p*
Times Runaway	0.891	0.375	0.297	0.84
Drug Use	-1.383	0.169	2.230	0.087
Alcohol Use	-.681	0.497	.613	0.608
Recent Therapy	-.162	0.872	3.235	.024*
Family Cohesion	2.667	0.009**	.924	0.413

Table 2. *Gender and Ethnic Group of Runaway Adolescents by times Runaway, Drug Use, Alcohol Use, Recent Therapy, and Family Cohesion*
*$p < .05$. **$p < .01$
$n_{male}=62$, $n_{female}=71$

Predictor	-2 Log Likelihood	χ^2	*p*
Age	222.450	5.029	.081
Alcohol use	237.766	20.345	.000**
Recent Therapy	228.750	11.328	.003**
Cohesion	220.501	3.080	.214
Gender	219.306	1.885	.390

Table 3. *Model Fitting Results of Multinomial Regression Analysis of Alcohol Motivation for Change*
*$p < .05$. **$p < .01$

	Alcohol Motivation Clusters				Drug Motivation Clusters	
	Taking Steps		Recogition		Ambivalence	
Predictor	β	*p*	β	*p*	β	*p*
Alcohol use	.133	.003*	.185	.000*	-	-
Drug Use	-	-	-	-	-.021	.000*
Age	.465	.032*	.114	.663	.147	.416
Recent Therapy	.234	.003*	.074	.534	-.210	.017*
Cohesion	-9.052	.307	-.13	.317	-0.015	0.864
Gender	-.566	.218	.125	.831	-0.404	.315

Table 4. *Summary of Multinomial Regression Analaysis of Alcohol Motivation for Change and Logstic Regression Analysis of Drug Motivation for Change*
*$p < .05$. **$p < .01$