A Dissertation
Submitted to the Faculty
Of
Xavier University
In Partial Fulfillment of the
Requirements for the Degree of
Doctor of Psychology
By
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December 15, 2006

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Motivation, global functioning, and stage of change as predictors of substance abuse treatment outcome in a public health residential treatment facility
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Life is a journey that I have not traveled alone. I’m grateful for this chance to recognize those that have walked alongside me throughout this chapter of my life.

First of all, I want to thank my family. My mom has supported me my entire life and has always been there to pick me up when I stumble to send me back on my way. My dad has encouraged and challenged me to become the best I can be, but never sent me out to achieve alone. I’ve looked up to my older brother Jeff since childhood, and have tried to follow his example always. My younger brother Greg has one of the strongest hearts and I have struggled to keep up with his energy and passion.

I also want to thank all my friends and mentors. To Ryan Heinen, Nathan Schrom, and the rest of the Beaver Brothers: we have climbed mountains, jumped off cliffs, and together pushed the limits of what a team can do together. To Vern Cronin, Roger Worm, Jeff Erickson and all others I met through Scouting: you were the first to trust me with responsibilities and accountability, and taught me to live up to high ideals. To Fred Rupp, Josh Green, and the Les Voyageurs program: I learned the importance of the small things in life and how to follow through with my goals and dreams. To Senseis Abell and Combo: you helped me realize my strength, confidence, potential, and my ability to thrive on my own.

Finally, I want to thank everyone at Xavier. My friends supported me, my professors challenged me, and Dr. Kenford kept me on track. You are all apart of my future successes, and I will never forget any of you.
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Chapter I

The United States is increasingly becoming a “drug culture”. Davidson and Neale (2001) point out that people use caffeine, nicotine, aspirin, and alcohol to help cope throughout the day with pain, stress or lack of energy. As the authors note, taking substances regularly, even legal substances such as tobacco and alcohol, comes with consequences, many of which can be fatal. The short-term benefits of substance use, however, are often what is seen and felt. Alcohol initially works as a stimulant helping people become more outgoing and happy; at higher doses it has calming and depressant effects that can elicit negative moods and emotions. Nicotine has been referred to as the “ultimate drug”, as it can be used to both stimulate and calm the mind and body. The problem of focusing on such short-term effects is that prolonged and habitual use has highly detrimental consequences. Prolonged alcohol use can lead to tissue and organ damage, malnutrition, cirrhosis of the liver, damage to the endocrine glands and pancreas, heart failure, hypertension, stroke, capillary hemorrhages, destroyed brain cells, and other neurological impairments (Davison & Neale).

Scope of Problem

Current estimates conclude that over half the population of the United States regularly uses substances (Substance Abuse and Mental Health Services Administration [SAMHSA], 2003c). While much of the public believes that substance abusers are low-income, urban, African American or Latino individuals with criminal records who are
dependent on welfare and use crack-cocaine (Cornelius, 2001), in actuality, substance abuse is a problem that cuts across all income levels and races. The Substance Abuse and Mental Health Services Administration (SAMHSA) conducted a survey using a 5-year sample design to obtain estimates of substance abuse and dependence for all 50 states and the District of Columbia. Samples of 856-964 participants were collected in 42 states and DC, while the remaining 8 states (including Ohio) provided samples of 3541 – 3711 participants to allow direct state estimates. The data was gathered through one-on-one interviewing and incorporated computer assisted methods. Participants were civilians 12 years and older who lived in the community (houses, apartments, condominiums, etc.), non-institutional group quarters (such as shelters, boarding houses, college dormitories, migratory workers' camps, halfway houses), and on military bases. Homeless persons not living in a shelter were excluded. Results indicated that almost one half (50.1%) of Americans aged 12 or older reported being current drinkers of alcohol - which is approximately 119 million people nationally when extrapolated from the obtained sample. Approximately 22.6% of persons aged 12 or older reported binge drinking (defined as five or more drinks on one occasion) at least once in the past 30 days - which is approximately 54 million people. Heavy drinking (defined as five or more drinks on the same occasion, on at least 5 different days in the past 30 days) was reported by 6.8% of the population aged 12 or older, which is approximately 16.1 million people. In general, more men reported alcohol use than women (57.3% of males and 43.2% of females). Caucasians reported the highest alcohol use compared to other ethnic groups, as 54.4% reported alcohol use in the past month, while African Americans reported the lowest rate (37.9%). Alcohol consumption rates were 44.4% for persons reporting two or more races, 42.0% for American Indians or Alaska Natives, 41.5%
for Hispanics, and 39.8% for Asian Americans. Overall, the rate of alcohol use was greater in those who were employed (61.2%) than those who were unemployed (57.0%). However, the rates for binge and heavy drinking were higher amongst those who were unemployed, with 35.0% of the unemployed reporting binge drinking and 13.3% reporting heavy alcohol use. Among the 16.1 million heavy drinkers aged 12 or older, 32.5% were also current illicit drug users (Substance Abuse and Mental Health Services Administration [SAMHSA]).

The same SAMHSA survey also collected data on current drug use in the United States. The survey estimated that 19.5 million Americans aged 12 or older are current users of illicit drugs, which represents 8.2% of the population aged 12 years old or older. Marijuana was the most commonly used illicit drug (14.6 million past month users, and 75.2 percent of current illicit drug users). An estimated 54.6% of current illicit drug users use only marijuana, 20.6% use marijuana and another illicit drug and the remaining 24.8% use another illicit drug but not marijuana. As with alcohol consumption, men were more likely to report using illicit drugs than women (10.0% and 6.5% respectively). The highest rates of illicit drug use were found among American Indians and Alaska Natives (12.1%), and persons reporting two or more races (12.0%). Caucasians reported an illicit drug use rate of 8.0%, while African Americans reported 8.7%, and Asian Americans reported 3.8% (Substance Abuse and Mental Health Services Administration [SAMHSA], 2003c).

Substance use and Mental Illness

Substance use diagnoses are among the most common mental health problems today. According to the National Comorbidity Study (Kessler, 1994), major depression and alcohol dependence are the two most prevalent psychological disorders. This study sampled
8098 respondents between the ages of 15 – 54 from 34 states. Participants were found using a multi-stage area probability sample of households within a stratified sample of 172 counties throughout the United States. Diagnoses were based on DSM-III-R criteria and were assigned following an in-depth interview given by professional field staff from the Survey Research Center of the University of Michigan. The study found that psychiatric disorders are not uniformly distributed but rather are concentrated in people who have a high degree of comorbidity. The results of this study found that approximately one in four respondents met diagnostic criteria for a lifetime substance abuse disorder, with men more likely to develop a substance use disorder than women (35.4% of men compared to 17.9% of women). Alcohol dependence or abuse was comorbid with a lifetime mental disorder in 52% of the participants, while a lifetime drug use disorder was comorbid with alcohol in 36% of participants. Among those with any lifetime drug abuse or dependence diagnosis, 59% met criteria for a comorbid mental disorder, and 71% met criteria for a lifetime alcohol use disorder. The author hypothesized that one reason for the high comorbidity rate between substance use and mental disorders is that alcohol and drugs can be used as self-medication for anxiety or affective disorders. However, when used in this way, substances provide only short-term relief and often actually exacerbate the psychiatric disorder (Kessler). Substance use disorders were not only comorbid with affective disorders, but also associated with the development of a secondary major depressive disorder. The results of the study support the wisdom of identifying and treating substance use and affective disorders in an integrated manner.

*Substance use among the Homeless*
Substance use disorders among the homeless are a growing problem. According to a National Survey of Substance Abuse Treatment Services report (Substance Abuse and Mental Health Services Administration [SAMHSA], 2003b), between 1997 and 2003 there has been an increase in the number of individuals who are homeless and have a drug or alcohol problem. This survey examined 13,623 homeless facilities across the United States and reported a one-day census (March 31, 2003) of 1,092,546 clients enrolled in substance abuse treatment. Approximately 8% of this population was under the age of 18. It was found that utilization of not-for-profit private shelters for substance abuse or mental health treatment purposes increased from 510,680 clients (55% of all clients in shelters) in 1997 to 615,410 clients (56% of those in shelters) in 2003. This represents an approximately 20% increase in services obtained from private non-profit organizations. While the SAMHSA cautions that this apparent increase might be due to improved reporting, during that same interval, nationally the number of homeless shelters increased by 25%, suggesting increases in the homeless population and service needs.

One of the difficulties faced by many homeless shelters is funding. The Alcohol and Drug Services Study Cost Study (Substance Abuse and Mental Health Services [SAMHSA], 2004) surveyed a nationally representative sample of 2395 treatment facilities to determine national trends in the costs of admitting and supporting clients in various types of treatment settings. The report indicated that the mean cost (calculated as all costs and expenditures for treatment during a 12-month period) for each new admission to a non-hospital, residential treatment facility is $3840. Daily cost to support an individual is estimated to be $76.13, covering the costs of food, staff, and treatment provided. This level of cost is often difficult for treatment facilities to meet as 61% of all facilities are based on a not-for-profit model,
and the government funds only 8% of treatment facilities (SAMHSA, 2003b). As such there are chronic funding issues for many facilities due to the limited federal and state support available. Despite the financial difficulties experienced by many homeless shelters, shelters offer an opportunity to make a lasting change in the lives of individuals with substance use and other psychological disorders.

Information about the scope of substance abuse in the homeless can found by examining the demographics of who enters substance abuse treatment. SAMHSA (2003a) compiles the Treatment Episode Data Set (TEDS) annually to examine the demographic characteristics and substance abuse patterns of individual’s admitted to publicly funded substance abuse treatment facilities across the United States. In 2000, TEDS found more than 120,000 admissions to substance abuse treatment centers were homeless at the time of admission, representing approximately 10% of all admissions to substance abuse treatment. Just over three-fourths (76%) of the homeless admissions were male, 53% were Caucasian, 30% African American; Veterans comprised a relatively high percentage (10%) of admissions. Alcohol was the primary substance of abuse for more than half (51%) of homeless admissions, with smoked (crack) cocaine abuse the second most frequent substance of abuse (17% of admissions). Alcohol was the primary substance of abuse for homeless admissions in all ethnic groups, except for African Americans, where smoked (crack) cocaine and alcohol were equivalent (37% of admissions).

Models of Treatment

Residential treatment centers have historically been the treatment of choice for many substance abuse disorders. While residential treatment centers have traditionally focused exclusively on the substance abuse and have not actively addressed issues of comorbidity
(Schmidt, 1991) it is increasingly recognized that compartmentalized treatment is not maximally effective and integrated treatment should be pursued (Kasprow, Rosenheck, Frisman & DiLella, 1999; Schmidt).

Schmidt (1991) argued that a common element of the dual diagnosis patient is failure to cleanly fit in the diagnostic understanding substance abuse held by either substance-abuse only programs or mental health only programs. As a result, many individuals have been left without easy access to services. Studying 18 substance-abuse only and mental health only agencies in two California counties over a period of 6 months, Schmidt found significant differences in treatment philosophy and approach between these types of programs. The substance treatment centers typically employed more paraprofessionals (recovered alcoholics and drug users). While this increased the staff’s ability to empathize and decreased the social distance associated with educational differences between patient and therapist seen at the mental health clinics, it reduced the staff’s capacity to effectively understand and treat comorbid psychological disorders. The substance-abuse-treatment centers were strongly influenced by Alcoholics Anonymous etiology and conceptualized the psychological distress and emotional symptoms experienced by patients as the result of the underlying chemical dependency; this was in marked contrast to the mental health treatment centers which conceptualized the chemical dependency as a coping mechanism for the psychological distress experienced and of secondary importance.

Different intervention techniques are employed by different types facilities to address what each program believes is the best way to categorize and treat the substance abuse that is occurring. It has been found that, in general, substance abuse centers put more emphasis on personal responsibility, use much more confrontation and hold abstinence as
the primary goal of treatment. In contrast, mental health centers traditionally feel ill-equipped to address substance abuse issues and have considered the psychiatric disorders as primary, offering supportive treatment and pharmacological interventions. Mental health clinics have been more likely than substance-abuse-only programs to endorse goals of “ego enhancement” and to be more tolerant of non-abstinence. (Kasprow et al., 1999; Schmidt, 1991).

Other differences that have been noted between substance-use-only and mental health centers include how the programs conceptualize client motivation for treatment. Most substance-use-only centers hold that individuals can only benefit from treatment when they enter freely and are motivated to have their life be different. This movement towards recovery is predicated upon having reached the lowest point of life – e.g., to have “hit bottom”. This experience is felt to be necessary as it strips away the last illusions about the effects of substance use and allows the individual to rebuild their life on a foundation of abstinence. To ensure that recovery proceeds, substance-use-only treatments have limited tolerance for behaviors that are perceived to put the individual at risk for relapse contrast - such as “denial”, “manipulation” or “game-playing”. In contrast, mental health agencies have viewed their patients as chronically disturbed individuals who may be enticed into treatment and, while motivation to change is helpful, it is neither sufficient nor necessary. As a result, staff at these centers engage in less active confrontation and are more tolerant of disruptive behaviors (Kasprow et al., 1999; Schmidt, 1991).

Newer models of integrated treatment have sought to actively address both the emotional and substance abuse issues conjointly. In a recent study examining patient perceptions of integrated treatment and substance-abuse-only treatment, Kasprow et al.
(1999), found distinct differences. In their sample of homeless veterans, participants rated the substance-abuse-only programs as significantly more controlling, problem oriented, focused on increasing expressions of anger and as providing more practical problem solving strategies than the integrated treatment. However, moderately better outcomes in retention and outcome were seen with integrated treatment. A higher percentage of those in the substance-abuse-only treatments left treatment without consulting the staff than those in the integrated treatment (32.8% v. 22.3% of those who had a dual diagnosis, and 26.5% v. 21.0% of those who did not have a dual diagnosis). Those in the substance-abuse-only treatments also had a higher percentage of participants (39.3% v. 29.0% of those with a dual diagnosis, and 38.3% v. 23.7% of those without a dual diagnosis) that were discharged to other institutions for further treatment than did the integrated treatment. Treatment effects in a number of outcome areas were assessed for all participants. The outcome areas reviewed included: alcohol and drug consumption rates and associated problems, housing status, employment status, clinical improvement, and any follow-up treatment that occurred. There were similar clinical outcomes reported for both the integrated and substance-abuse-only programs in reduction of alcohol problems, drug problems and psychiatric problems related to the dual diagnosis. However, there were significant differences in social and vocational realms, with those in the integrated treatment showing more improvement than those in the substance-abuse-only treatment. This was true for both the dually diagnosed (61.3% vs. 47.8%) and those with only a substance use disorder (61.9% vs. 41.4%). There was also better compliance with the integrated treatment, and participants in integrated programs had faster returns to independent community living (Kasprow et al.).

*Elements of Treatment*
The shift towards providing integrated mental health and substance use treatment has been accompanied by a change in how substance use disorders are conceptualized. The emerging model for understanding and treating alcoholism and drug dependence conceptualizes these disorders as chronic disease states. Substance abuse is increasingly being understood as a cyclical pattern that does not have a distinct “cure”; rather, the goal is to maintain ever-longer periods of remission. This conceptualization moves away from the idea that relapse equals failure, and instead defines success as decreasing the amount of time spent using substances --which is seen as inevitable -- and increasing the time spent in sobriety (White, 2000). From this model follows the belief that there is no one “best” way to treat substance use; rather, there are multiple approaches which can be effective.

Many treatment approaches revolve around group involvement. One of the major benefits of a group approach to treatment is that it is cost effective. One therapist is able to address the needs of several group members, and given the high prevalence of substance abuse at homeless shelters, it can be much less expensive than one-on-one treatment. Group treatments can include the same types of activities and treatment approaches as individual sessions, allowing group treatment to be as flexible and comprehensive as individual treatment (Marques & Formigoni, 2001). Other benefits include the opportunity to decrease the isolation experienced by those suffering from alcoholism, increase compliance, and comparable efficacy as individual treatment. For example, Washington and Moxley (2003) found that group participation helped to increase substance abusing women’s readiness and desire to change their lifestyles and behavior patterns through their interactions in the group treatment.
While multiple approaches have been supported, one aspect of most successful treatments is assessing and targeting underlying cognitive structures related to drugs and drug use. For example, studying a sample in treatment for marijuana abuse, Baker et al. (2002) found that teaching effective coping strategies, determining other reinforcing activities, and identifying high-risk situations were essential tools to make changes in substance use lasting. Wunschel and Rohsenow (1993) delineated adaptive and maladaptive cognitive coping strategies. Maladaptive strategies were "self-taught" and centered on keeping to oneself, blaming oneself, and wishful thinking. These strategies were associated both with higher pretreatment dependence and increased relapse at six-month follow up. The authors argued that effective treatment must include teaching substance abusers new strategies which can be used in a variety of situations. Interventions that seek to countercondition substance abusers by focusing on the subjective "positive" effects of the substances - and what they are trying to cover up - give the abuser greater control over the problem and a better chance to change. Bartholomew, Hiller, Knight, Nucatola, and Simpson (2000) point out that men may be at particular risk to perceive as positive the distraction qualities of substances, as many have difficulty acknowledging their needs, fears, and concerns due to social norms and factors. However, as these authors note, frank exploration of sexuality, societal expectations and stereotypes, as well as their needs in relationships, can lead to important changes in substance abusing men’s knowledge and attitudes.

Predictors of Successful Treatment

Research has consistently shown that length of treatment is strongly related to successful substance abuse treatment outcomes (Lang & Belenko, 2000; Nuttbrock, Ng-
Mak, Rahav & Rivera, 1997; Simpson, Joe, & Brown, 1997; Zhang, Friedmann, & Gerstein, 2003). In order for an individual to receive therapeutic benefit from a treatment, they must stay a sufficient period of time in the therapeutic process (Simpson, Joe, & Brown). Individuals who complete residential treatment programs are far more likely to reduce usage or attain and maintain sobriety in cocaine-crack use, alcohol use, and heroin use than those who terminate treatment prematurely. Those who stay for longer periods of time in treatment are also less likely to be arrested and are more likely to be employed (Simpson et al.). Long-term residential treatment appears to be more beneficial than short-term residential treatment, outpatient treatment, and methadone maintenance treatments for those abusing substances (Zhang et al.). Research conducted by Nuttbrock et al. demonstrated that clients with comorbid mental illnesses, such as depression and chronic hostility, were able to benefit from remaining in therapeutic communities that offer the support and services that they need. While this study found that mental illness alone was not a good predictor of who would stay in treatment, the authors found that premature termination was most likely for individuals who had mental health issues and symptoms that were not severe enough to be excluded from treatment, but were near the threshold for exclusion from the program. Lang and Belenko found that those who left treatment were more likely than those who stayed in treatment to have psychological difficulties such as depression, anxiety, and violent behavior. The authors also found that non-completers had more familial problems, fewer years of legitimate employment, a younger age of drug use onset, fewer close friends, and lower social conformity than treatment completers. These findings imply that better screening for psychological issues may help identify clients who are at risk for premature termination and would allow programs to develop retention strategies.
Another predictor of success in treatment and of treatment seeking behavior is motivation. Ryan, Plant and O’Malley (1995) conceptualize motivation as having both internal and external Perceived Locus of Causality (PLOC), which reside on a continuum. This continuum extends from purely external determinants (forced into treatment with no internal desire to receive treatment) to purely internal determinants (self-referred to treatment with internal desire to change, without any outside precursors or consequences). However, most determinants fall in between these extreme points and include both internal and external pressures. Though motivation theoretically lies on a continuum, people will classify their motivation as either internal or external as a result of their individual circumstances. This does not mean that classifying motivation in one of these categories implies that the other is not present; rather, this means the individual is more in touch with either the internal or external aspect. The more internal the person’s motivation is, the more ownership he or she takes of the change process, which in turn makes the changes more likely to be lasting and meaningful. Cahill, Adnioff, Hosig, Muller, and Pulliam (2003) used this type of motivational model to assess individuals before and after substance abuse treatment. The authors used an assessment instrument that measured both internal and external motivation. The instrument was designed to pick out which aspect of motivation was more prominent in the individual. The authors found that while individuals seeking substance abuse treatment reported both high internal and external motivations, mean external motivation scores were lower than mean internal motivation scores. While all these men were self-referred -- which may have reduced the degree of external motivators pressuring them to attend treatment -- the authors postulated that both internal and external motivation were high due to the severity of drug use the participants reported upon intake to
the program. Self-reported source of motivation (whether internal or external) was not related to treatment completion as premature terminators and treatment completers did not differ on motivational source at intake. However, it was found that motivational influences changed over treatment. Participants who completed treatment continued to report high levels of internal motivation but the degree of external motivation reported dropped significantly. The authors offered several reasons for the external motivators becoming less relevant over time including internalization of the forces originally experienced as external, actual changes in the external forces' stance or pressure and/or diminished memory/salience of the external pressure. Regardless of the reason, external motivators appeared to be powerful initially in treatment, but their impact diminished as treatment progressed. Internal motivation was more related to long-term success.

Motivation is a necessary component to instigate or seek change, but it is not sufficient alone for long term change to occur (Cahill et al., 2003). Cox, Blount, Bair, and Hosier (2000) argue that motivation to change drug using behavior occurs when the individual perceives alternatives to drugs or alcohol as satisfying and does not expect that the process of stopping drug use will be unbearable. In other words, the effects of current use need to be perceived by the individual as worse than the discomfort making a change would cause. However, the life stressors and situations associated with use that prompt individuals to engage in treatment are complex and vary greatly between individuals. Proschaska and DiClemente (1988) have shown that the decision and ability to enact behavioral change has discrete stages, and change occurs only when interventions match the individual's current stage. Their Trans-Theoretical Model (TTM) includes the stages of change model, which begins with a pre-contemplation stage, in which the client is not
personally aware that there is a problem. The client then progresses to the contemplation stage, in which the client becomes aware of the problem, and begins thinking about change but is not yet ready to make a change for up to six months. Next, comes the preparation stage. This is when the client has decided change is necessary and intends to take action within one month. Following this is the action stage, when concrete steps are taken to make a change. Finally, the client enters the maintenance stage, in which gains are consolidated in order to prevent relapse. Relapse itself is not regarded as a stage, but is conceptualized as a movement back to the initial stages of pre-contemplation or contemplation. The TTM is a dynamic process, in which a client can move forward or backwards in a non-linear fashion and can be applied to any change that an individual is looking to make (Rollnick, Heather, Gold, & Hall, 1992). Individuals benefit from interventions only when interventions “match” the individual’s current stage of change. Prochaska, Velicer, DiClemente and Fava (1988) identified ten processes of change that target individuals in different ways, and provide ways to reach clients that are having difficulty recognizing and ultimately committing to a change. Five of these processes are experiential and five are behavioral. The interventions selected need to be tailored to the individual’s specific needs in order to help them address their particular blocks and facilitate movement through the stages of change.

Indicators of Success

While there is general agreement that there are multiple pathways to the final common outcome of “success”, there is less agreement about what should be considered a successful treatment outcome. Most of the substance abuse-only treatment agencies believe that complete abstinence from psychoactive substances is a necessary prerequisite for
recovery, and therefore the client needs to be completely clean of all drugs or alcohol (Schmidt, 1991). However, increasingly, in mental health based agencies, complete abstinence is not the final goal for all clients, and in some cases controlled drinking is considered a success.

Arndt, Black, Schmucker and Zwick (2004) reviewed 29 substance user treatment programs and 1374 client admissions in Iowa to assess post-treatment outcomes to answer the question of what should be considered "success". A variety of outcomes were assessed including abstinence, overall consumption rate, number of hospitalizations, number of arrests, employment status (fulltime, part-time, or unemployed), and income. It was found that only total abstinence was associated with decreased hospitalizations, decreased legal involvement, increased fulltime employment, and increased income. However, it was noted that participants who reduced consumption but did not become totally abstinent were more likely to be poly-substance users and had higher rates of drugs and/or alcohol use at admission. Therefore, while total abstinence was associated with better outcomes, more severe admissions were less likely to attain total abstinence.

Substance abuse treatment outcome has implications for society as well as the individual. Groppenbacher, Batzer, and White (2003) examined a sample of Veterans in Hawaii to determine how treatment affected hospitalizations and arrests - both of which have high financial costs for society. Results showed an overall 30% reduction for the sample in hospital visits in the two years following the residential treatment compared to the two years prior to treatment, with 66% of the men who completed treatment having zero hospitalizations in the two years after treatment. There was also a 30% reduction in arrests compared to the two years prior to treatment, with 62% of treatment completers having zero hospitalizations in the two years after treatment.
arrests in the two years after treatment. The decrease in illegal activity may actually be greater than appears as many arrests were due to outstanding warrants that participants were encouraged to resolve by their outpatient treatment providers. While the results of this study are very encouraging, they should be viewed with some caution as the sample was not representative of Hawaii or the nation as a whole.

Based on the findings in the literature, the current study posits to examine how motivation, level of global functioning, and readiness to change are related to premature treatment termination. The study will also examine how motivation, global functioning, and stage of change vary across treatment and how these constructs are related to overall outcome.
Chapter II

Rationale and Hypothesis

Prochaska and DiClemente (1988) proposed a trans-theoretical model (TTM) for measuring motivation in terms of how ready a person is to change. The model progresses from pre-contemplation (not being aware of the problem) to contemplation (aware of the problem but not ready to make a change for six months), preparation (intend to take action within one month), action (taking concrete steps to change), and ultimately maintenance (consolidating gains to prevent relapse). Relapse itself is not regarded as a stage, but is conceptualized as a movement back to the initial stages of pre-contemplation or contemplation (Rollnick, et al., 1992). Research has consistently shown that length of treatment is strongly related to successful substance abuse treatment outcomes (Lang & Belenko, 2000; Nuttbrock, Ng-Mak, Rahav & Rivera, 1997; Simpson, Joe, & Brown, 1997; Zhang, Friedmann, & Gerstein, 2003). Individuals who complete residential treatment programs are far more likely to attain and retain sobriety than those who terminate prematurely (Simpson, et al.). Identifying clients who are at risk for premature termination would allow programs to develop retention strategies. Prochaska and DiClemente have shown that the decision and ability to enact behavioral change has discrete stages. Individuals benefit from interventions only when interventions “match” the individual’s current stage of change.
Research by Ryan, Plant and O’Malley (1995) conceptualize motivation for making change as having both internal and external perceived locus of causality (PLOC), which reside on a continuum that extends from purely external consequences (forced into treatment by an outside source with no internal desire to receive treatment) to purely internal consequences (self-referred to treatment with internal desire to change, without any outside precursors), and includes in-between points where a participant perceives varying degrees of internal and external pressures. While theoretically all motivators contain elements of external and internal forces, individuals subjectively classify or acknowledge motivations as coming from without or within. The more internal the person’s motivation is, the more ownership he or she takes of the change process, which in turn makes the changes more likely to be lasting and meaningful.

The following hypothesis will be tested:

1) It is hypothesized that lower global functioning, higher motivation, and more advanced placement on the trans-theoretical stage of change will be related to less premature termination. Specifically:

1a) Lower levels of global functioning, as indicated by a higher total score on the Outcome Questionnaire-45, will be related to less premature termination.

1b) Higher internal motivation, greater confidence in treatment, and more help seeking attitudes, as measured by the Treatment Motivation Questionnaire, will be related to less premature termination.

1c) A more progressed stage of change (contemplation or action), as measured by the Readiness to Change Questionnaire, will be related to less premature termination.
2) It is hypothesized that as treatment progresses participants will acknowledge and report lower global functioning, report higher motivation for treatment, and will progress toward the “action” and “maintenance” stages of change. Specifically:

2a) As treatment progresses, there will be a decrease in acknowledged global functioning, as measured by an increase in the total score of the Outcome Questionnaire-45.

2b) As treatment progresses, there will be an increase in motivation for treatment, as measured by the Treatment Motivation Questionnaire.

2c) As treatment progresses, there will be a move in stage of change towards the “action” or “maintenance” stages, as measured by the Readiness to Change Questionnaire.

3) It is hypothesized that motivation and stage of change will predict global functioning at intake. Higher motivation and more a progressed stage of change will be related to a lower level of reported global functioning (i.e., higher symptomatic distress). Higher self-reported symptomatic distress is expected due to reduced denial and minimization of the effects of substance in those ready to make changes. Specifically:

3a) Higher motivation, as measured by the Treatment Motivation Questionnaire, will predict lower global functioning, as measured by a higher score on the Outcome Questionnaire-45.

3b) A more progressed stage of change, as measured by the Readiness to Change Questionnaire, will predict lower global functioning, as measured by a higher score on the Outcome Questionnaire-45.
4) It is hypothesized that lower levels of global functioning, higher motivation, and higher stage of change will predict progression through treatment. Progression through treatment is operationally defined as moving through the four Substance Abuse Management Services (SAMS) program stages over time. All residents enter Stage 1 at admission. The goal in the first stage is for residents to learn to tolerate peers and a new life routine, thereby beginning the process of decreasing isolation and avoidance. The goal in the second stage is to increase verbal interaction with peers, to give and get support, and receive dental and health care services. The goal of the third stage is to establish, develop, and use off site sources of support for wellness and abstinence. The goal in the fourth stage is to solidify a life routine that is healthy, peer relationships supporting abstinence, and move to a home supporting wellness and abstinence. Specifically:

4a) Lower levels of global functioning, as measured by the Outcome Questionnaire-45, will predict progression through the SAMS stages over time.

4b) Higher motivation, as measured by the Treatment Motivation Questionnaire, will predict progression through the SAMS stages over time.

4c) More progressed stage of change, as measured by the Readiness to Change Questionnaire, will predict progression through the SAMS stages over time.

5) Finally, since addiction is best understood as a chronic disease with periods of remission and exacerbation, it is hypothesized that individuals who successfully completed treatment but have relapsed and are returning to the program will retain some treatment gains and will present with higher global functioning, greater motivation and more readiness to change compared with first-time residents. Specifically:
5a) Individuals returning to the program after a relapse are predicted to have a higher level of reported/acknowledged symptomatic distress, as measured by the Outcome Questionnaire-45, than first time program residents.

5b) Individuals returning to the program after a relapse are predicted to have higher levels of motivation, as measured by the Treatment Motivation Questionnaire, than first time program residents.

5c) Individuals returning to the program after a relapse are predicted to have a more progressed stage of change, as measured by the Readiness to Change Questionnaire, than first time program residents.
Chapter III

Method

Program Description

The Mt. Airy homeless shelter is owned by the city of Cincinnati and administered by the Hamilton County Jobs and Family Services. The Alcoholism Council of the Cincinnati Area operates the Substance Abuse Management Services (SAMS) program. The shelter receives around 600 admissions per year, which averages to approximately 5-7 referrals each week. There are 65 beds at the shelter, and the shelter typically runs at full capacity. There are 18 placements at the shelter reserved for veterans who do not receive services from the SAMS program, as well as a few placements that are left open for emergency admissions. The average stay at Mt. Airy is 34 days, but the range is 12 hours to 16 months. The compliance percent for the program is mid to high 90’s, and only 1-2% of residents are discharged for being non-compliant. Typically 25-35% of the residents have previously lived at the shelter, but have returned due to relapse or deciding they were not ready to go out on their own. Many of the residents feel their relapse and return indicates failure, but the staff at Mt. Airy work to reinforce returning, seeing it is a sign of wellness. By returning, participants are lessening the time spent abusing substances and reducing the harm of their relapse. These men live in the worst areas of town, most have criminal records, over half are functionally illiterate, and all have issues dealing with abusing substances. The majority experience isolation and avoidance, having lost all emotionally
significant relationships and beneficial experiences with authority figures, which is seen to be at the crux of their depression and abuse of substances. The staff does not necessarily try to eliminate resident’s bad behaviors, as these behaviors have been adaptive and kept them alive in the worst sorts of environments imaginable. Instead the goal is to teach new behaviors that offer alternatives for dealing with difficult situations and new ways of perceiving the world (R. McBrady, personal communication December 10, 2004).

The SAMS program used by the shelter to treat residents suffering from addictive disease has four parts. Residents attend treatment groups and receive points based on their degree of participation. The points are earned as followed: 1 point for coming to the group for any period of time but not speaking; 1.5 points for coming to the group for a period and speaking; 2 points for attending the whole group but not speaking; and 3 points for attending the whole group and speaking. Points are earned to advance to higher levels in the SAMS treatment, which allows for greater responsibilities and goals. Each phase of treatment has a different goal. The goal in the first phase is for residents to utilize safe and stable housing in order to learn how to tolerate peers and a new life routine, thereby beginning the process of decreasing isolation and avoidance. The goal in the second phase is to increase verbal interaction with peers, to give and get support, establish a life routine, and receive dental and health care services. The goal of the third phase is to establish, develop, and use off site sources of support for wellness and abstinence. The goal in the fourth phase is to solidify a life routine that is healthy, peer relationships supporting abstinence, and move to a home supporting wellness and abstinence (R. McBrady, personal communication December 10, 2004).
Participants

Participants for this study will be 100 men, ages 18 – 65 (typical mean age = 40), all of whom are residents at the Mt. Airy homeless shelter. In order to detect moderate effect sizes, a minimum sample of 83 is needed (Cohen, 1992). To ensure effect detection, a sample size of 100 participants was chosen. The demographic composition of residents at Mt. Airy is typically around 85% African American and 15% are Caucasian, and it is believed that these demographics will remain consistent during the data-gathering period. The participants will not be paid for their participation. The men eligible for this study include all men who meet the criteria for treatment at Mt. Airy, but exclude those who are referred to Mt. Airy through the Veterans Administration, as they receive treatment at the VA.

Procedure

Participants will be recruited during the intake to the Mt. Airy homeless shelter for six months, or until 100 participants are gathered. Each new resident at Mt. Airy undergoes the same intake procedure. The Mt. Airy staff member conducting the interview will review informed consent by reading it to the participant. The participant will have a comprehensive interview that complies with the Ohio Department of Alcohol and Drug Addictive Services (ODADAS) requirements and examines the participant's current substance use, substance abuse history, medical history, employment history, education, legal history, and psychiatric functioning. At intake, the Outcome Questionnaire-45 (OQ-45), the Treatment Motivation Questionnaire (TMQ), and the Readiness to Change questionnaire will be administered. In keeping with established procedure at Mt. Airy, all assessment materials will be read to participants. The order of the measures will be counterbalanced across participants. After
approximately 30, 60 and 90 days of treatment, the OQ-45, TMQ, and Readiness to Change Questionnaire will be administered again. At the end of 30-40 days, many of the participants should be completing Stage I of the SAMS program. This period of time also marks the average amount of time residents stay at the shelter. After 60-75 days, many of the participants should be completing Stage II of the SAMS program and will begin the process of moving towards leaving the shelter. The end of the treatment period will be 90 days, at which point, the participants will fill out the OQ-45, TMQ and Readiness to Change Questionnaire a final time. At the end of 90-100 days, the participants should be finishing Stage III, and should be moving towards solidifying the knowledge gained at Mt. Airy.

In order to ensure confidentiality, each participant will be assigned an identification number. A master list linking names and numbers will be kept in a locked file cabinet at the Mt. Airy shelter. All assessment materials will only have the ID number written on them and will be transported from the Mt. Airy shelter to Xavier University where they will be kept in a locked file cabinet.

Materials

Interview

A comprehensive diagnostic interview will be conducted at the intake of the resident. This is the Mt. Airy Shelter’s standard interview and includes a historical account of the residents’ life, what substances are abused, the current impact the substance use has on the resident’s life, the resident’s interpersonal situation, medical history, employment history, educational attainment, legal history, and psychiatric functioning, and gathers demographic variables on participants. The areas of the interview that will be used in this study are: drug (or drugs) used, age of first use, client perception of substance abuse, highest grade
completed, arrests, marriage status, children, and any psychological diagnoses (see Appendix A).

**Outcome Questionnaire-45**

The Outcome Questionnaire 45 (OQ-45) is a paper and pencil assessment tool used to measure outcomes of therapy or other interventions over time (Mueller, Lambert, & Burlingame, 1998). The OQ-45 measures three broad concept areas: symptomatic distress, interpersonal functioning, and social role performance. The OQ-45 is meant to be a test-retest measure, and has strong reliability, even across a short period of time, $r = 0.84$. This level of reliability is adequate and consistent with other brief self-report measures that are widely used for outcome evaluation, such as the Beck Depression Inventory and the Symptom Checklist 90-Revised (Lambert et al., 1996). The OQ-45 has shown good concurrent validity with more specific measures of the domains measured by the OQ-45, as well other outcome measures that are used in practice today (Mueller, et al.). A confirmatory factor analysis conducted by Mueller et al. supported the three-factor fit. The OQ-45 has 45 questions that are measured on a five-point (0 = Always, 4 = Never) likert-type scale (see Appendix B).

**Treatment Motivation Questionnaire**

The Treatment Motivation Questionnaire (TMQ) is a 26-item paper and pencil self-report measure that is measured on a seven-point likert-type scale (1 = Not at all True, 7 = Very True). The measure focuses on a patient’s motivation for receiving and participating in treatment. The measure analyzes motivation based on four measures: internal motivation, external motivation, interpersonal help seeking, and confidence in treatment. The TMQ has internal coefficients for the four motivational areas between .70 and .98, and has been found
to be related to the number of sessions attended by a patient as well as clinician’s rating of a client’s involvement in the therapy process (Ryan, Plant & O’Malley, 1995) (see Appendix C).

**Readiness to Change Questionnaire**

The Readiness to Change Questionnaire was developed based on Prochaska and Diclemente’s stages of change theory. The questionnaire is a paper and pencil self-report measure consisting of 12 items and is measured on a 5-point likert-type scale (-2 = Strongly Disagree, +2 = Strongly Agree). The questionnaire assesses the client’s current stage (pre-contemplation, contemplation, or action) regarding their intention to change drug or alcohol use. A sample item related to the pre-contemplation stage is: *I don’t think I drink to much*; a sample item related to the action stage is: *I have just recently changed my drinking habits.* This questionnaire shows strong test-retest reliability for categorization in each stage (pre-contemplation = 0.82, contemplation = 0.86, and action = 0.78). The internal consistency for each stage is also strong (pre-contemplation = 0.73, contemplation = 0.80, and action = 0.85). This measure also was significantly related to other self-report measures related to substance abuse (Rollnick, Heather, Gold, & Hall, 1992) (see Appendix D).
Chapter IV

Proposed Analyses

Prior to any analyses, all variables will be examined for normalcy. Any non-normal distributions will be transformed as necessary. Any outliers more than three standard deviations above the mean will be recoded to the highest value within three standard deviations. The demographic variables of drug/s used, age of first use, client perception of substance abuse, highest grade completed, number of previous arrests, marriage status, number of children, and any psychological diagnoses will be assessed to determine any relationship they may have with premature termination and/or the assessment instruments. All analyses will be conducted as specified below and then rerun controlling for demographic variables that show a relationship with premature termination and/or the assessment instruments.

Listed below are the hypotheses. Following each hypothesis are the proposed analyses and rationale.

Hypothesis 1: It is hypothesized that higher values on measures of stage of change, acknowledged poor global functioning, and motivation will be related to less premature termination, as higher internal motivation, greater confidence in treatment, more help seeking attitudes, and advanced stage of change indicates the client is ready to engage in the difficult change process.
Hypothesis 1 will be tested using logistic regression with premature termination (leaving within the first 14 days) as the outcome variable. Logistic regression will be used because the outcome variable is dichotomous. The analyses will have two stages: First, univariate tests will be conducted to assess the individual relationship of each variable with premature termination. Second, a combined model including all three variables will be tested to assess the amount of shared and unique variance in predicting outcome associated with each variable. All three variables will be entered simultaneously.

**Hypothesis 2:** It is hypothesized that as treatment progresses participants will report lower global functioning, report higher motivation for treatment, and will progress toward the “action” and “maintenance” stages of change.

A One-Way ANOVA will be used to assess change in the OQ-45 and the TMQ, and a Chi-square classification test will be conducted to test for movement within the Readiness to Change Questionnaire. The ANOVA will assess change across the different time periods (intake, 30, 60, and 90 days) for the OQ-45 and TMQ, while the Chi-square Classification test will assess for change in the Readiness to Change Questionnaire at the different time periods. Correlations at each time point will be conducted in order to determine how the instruments relate to each other.

**Hypothesis 3:** It is hypothesized that motivation and stage of change will predict acknowledged global functioning at intake.

Multiple regression will be used to assess relationship between Stage of Change, TMQ score and symptom distress. The dependent variable will be overall score on the OQ-45. Multiple regression will be used as the OQ-45 is a continuous outcome variable; both Stage of change and TMQ scores will be entered at the same time.
**Hypothesis 4:** It is hypothesized that lower levels of acknowledged global functioning, higher motivation, and higher stage of change will predict progression through treatment.

Polychotomous logistic regression will be conducted using the SAMS program stage (levels 1 - 4) as the outcome variable, and stage of change, motivation score, and acknowledged symptomatic distress (OQ-45) as predictor variables. Polychotomous logistic regression will allow classification across the four categories of outcome.

**Hypothesis 5:** It is hypothesized that individual's who successfully completed treatment but have relapsed and are returning to the program will retain some treatment gains and will present with greater motivation and more readiness to change compared with first-time residents.

Between sample *t*-tests will be conducted on the motivation and global functioning measures, and Chi Square tests will be conducted on the readiness to change questionnaire.
References


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Appendix A

Alcoholism Council of the Cincinnati Area, NCADD
Recovery Health Access Center (RHAC)
Diagnostic Assessment Form

Name: ___________________________ SS#: _______________________
Address: ___________________________ Apt #: _______________________
City: ___________________________ State: ___________________________ Zip Code: ___________________________
Date of Birth: ___/___/____ Marital Status: ___ Married ___ Single ___ Divorced ___ Separated ___ Widowed

Presenting problem/reason for assessment

______________________________
______________________________
______________________________

Alcohol/Drug Use History

Age of first use: ________ What?: ___________________________ Where did you get it? ___________________________

<table>
<thead>
<tr>
<th>Chemical/Drug</th>
<th>Amount/Method</th>
<th>Frequency</th>
<th>Age of 1st use</th>
<th>Age of last use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cocaine/Crack</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marijuana</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tranquilizers: Valium, Xanax, Advil, etc...</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Narcotics: Percocet, Vicodin, Tylenol 3-4, etc...</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amphetamines: (speed)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hallucinogens: (Acid, LSD, mushrooms) etc...</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalants</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heroin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Use History (continued)

1. Yes [ ] no 1. I have used alcohol or drugs alone.
2. Yes [ ] no 2. I have used alcohol or drugs to help me sleep.
3. Yes [ ] no 3. I have hidden alcohol or drug usage.
4. Yes [ ] no 4. Family members have expressed concern about my usage.
5. Yes [ ] no 5. I have been physically abusive to others while under the influence.
6. Yes [ ] no 6. I have continued to use after I intended to stop.
7. Yes [ ] no 7. I have had thoughts of using when I should have been focusing on something else.
8. Yes [ ] no 8. I have felt shame or guilt as a result of using.
9. Yes [ ] no 9. I have taken more medication than was prescribed.
10. Yes [ ] no 10. I have forgotten what I did while under the influence.
11. Yes [ ] no 11. I have used after promising to quit.
12. Yes [ ] no 12. I have driven while under the influence.
13. Yes [ ] no 13. I have been arrested while under the influence.
15. Yes [ ] no 15. Friends have expressed concern about my usage.
16. Yes [ ] no 16. I have been verbally abusive to others while under the influence.
17. Yes [ ] no 17. It is difficult to enjoy a social function if there is nothing to drink/use.
18. Yes [ ] no 18. I have wanted to feel more control over my usage.
19. Yes [ ] no 19. I have switched from liquor to beer or one drug to another to feel more in control of my use.

History of Treatment for Alcohol and other Drug Abuse (If no treatment, check here ________)

<table>
<thead>
<tr>
<th>Name of Program Specify In-Patient or Out-Patient</th>
<th>Date</th>
<th>Length of Stay</th>
<th>How long did you stay clean/sober?</th>
<th>How would you rate your experience?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chemical Dependency Symptomatology (check all symptoms which have occurred):

- Withdrawal (seizures, tremors)
- Hallucinations
- Use as medication
- Personality change
- AM use
- Switch Substance
- Attempts to control
- Guilt about use
- Suicide attempts
- Drop in tolerance
- Loss of control
- Increased tolerance
- Binge Use
- Preoccupation
- Injection
- Family history of use
- Blackouts
- Guilt about use
- Binge Use
- Preoccupation
- Injection
- Family history of use
- Blackouts
- Guilt about use
- Binge Use
- Preoccupation
- Injection
- Family history of use
- Blackouts

Clients Perception of Substance Abuse/Dependency

- Precontemplation
- Contemplation
- Preparation

Unaware or under aware of the problem and no intention to change behavior in the foreseeable future.
Aware that a problem exists, are seriously thinking about it, but made no commitment to take control of their use.
Aware of problem and participating in alcohol/drug program.

Medical History

Date of your last physical exam: __________________________ Pap Smear: __________________________ Breast Exam: __________________________

Name of clinic or primary care physician: __________________________________________ Phone: __________________________

Have you been hospitalized within the last five years? [ ] Yes [ ] No If yes, how many times?: __________________________
Reason: __________________________________________________________________________

Have you been to the emergency room in the past year? [ ] Yes [ ] No If yes, how many times?: __________________________
Reason: __________________________________________________________________________
Current health concerns: [ ] Yes [ ] No Explain ________________________________

Are you currently receiving SSI/SSDI? [ ] Yes [ ] No If no, have you ever applied for SSI/SSDI? [ ] Yes [ ] No

Do you suffer from or have a medical history of any of the following? (Check yes or no for each question)

[ ] Yes [ ] No 1. Nervousness/Anxiety [ ] Yes [ ] No 17. Nausea
[ ] Yes [ ] No 2. High Blood Pressure [ ] Yes [ ] No 18. Ulcers
[ ] Yes [ ] No 3. Seizures/Convulsions [ ] Yes [ ] No 19. Sleep Problems
[ ] Yes [ ] No 4. Difficulty Concentrating [ ] Yes [ ] No 20. Vomiting Blood
[ ] Yes [ ] No 5. Frequent Colds/Infections [ ] Yes [ ] No 21. Appetite Problems
[ ] Yes [ ] No 6. Difficulty Remembering [ ] Yes [ ] No 22. Tremors/Shaking
[ ] Yes [ ] No 7. Chronic Fatigue Syndrome [ ] Yes [ ] No 23. Nose Bleeds
[ ] Yes [ ] No 8. Weakness or Tiredness [ ] Yes [ ] No 24. Heart Problems
[ ] Yes [ ] No 9. Head Injuries [ ] Yes [ ] No 25. Hearing Problems
[ ] Yes [ ] No 10. Sexually Transmitted Disease [ ] Yes [ ] No 26. Liver Problems
[ ] Yes [ ] No 11. Hepatitis [ ] Yes [ ] No 27. Stomach Problems
[ ] Yes [ ] No 12. Tuberculosis [ ] Yes [ ] No 28. Persistent Cough
[ ] Yes [ ] No 13. Female Problems [ ] Yes [ ] No 29. Stroke
[ ] Yes [ ] No 14. Asthma [ ] Yes [ ] No 30. Cancer
[ ] Yes [ ] No 15. Infectious Mononucleosis [ ] Yes [ ] No 31. Diabetes
[ ] Yes [ ] No 16. Meningitis [ ] Yes [ ] No 32. Headaches

Current Medications (If no medications, check here ______)

<table>
<thead>
<tr>
<th>Medications (prescribed &amp; over the counter)</th>
<th>Reason for taking Medication</th>
<th>Dosage (# of times a day)</th>
<th>How long have you been taking this medication?</th>
<th>Do you take medication as prescribed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td>wks/mos/ys</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td>wks/mos/ys</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td>wks/mos/ys</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td>wks/mos/ys</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Allergies

Do you have any allergies to any food or drugs? [ ] Yes [ ] No If yes, what? __________________________

Do you have any allergies to anything? [ ] Yes [ ] No If yes, what? __________________________

Nutritional

Do you have any special dietary needs? [ ] Yes [ ] No If yes, what? __________________________

What is your typical diet? __________________________
Employment History
Currently employed?: (Please circle) Yes No Full Time Part Time Student?: Yes No Full Time Part Time
Where: ____________________________ How Long: ______________________________

Last Job: ____________________________ Where: ____________________________

Length of Employment: ____________________________ Reason for Leaving: ____________________________

How many jobs have you had in the past year?: ____________________________ Past 5 Years?: ____________________________

What is your major barrier to employment?: ____________________________

Military Service (if no military service, check here ___)
[ ] Yes [ ] No Branch: ____________________________ Dates of Service: ____________ to ____________

Type of discharge: [ ] Honorable [ ] Dishonorable [ ] Other than Honorable

Comments: ____________________________

Education History
Highest Grade: ______ Did you graduate?: [ ] Yes [ ] No [ ] Regular [ ] Special Education [ ] Gifted

College or Vocational School?: [ ] Yes [ ] No Degrees: ____________________________

Are you interested in continuing your education?: [ ] Yes [ ] No In what?: ____________________________

Legal History (if no arrests, check here ___)
Have you ever been arrested? [ ] Yes [ ] No Do you currently have legal charges pending?: [ ] Yes [ ] No
If yes, what are the charges?: ____________________________

Are you on Probation/Parole?: [ ] Yes [ ] No [ ] Probation [ ] Parole City/County: ____________________________

Name of your Probation or Parole Officer: ____________________________ Phone #: ____________________________

Have you ever been convicted or charged with the following?: [ ] Yes [ ] No

Please circle: DUI assault arson sexual battery domestic violence

Mental Status Screen
General Observations
Appearance: [ ] Meticulous [ ] Normal [ ] Dirty [ ] Age Appropriate

Comments: ____________________________

Attitude: [ ] Pleasant [ ] Negative [ ] Mistrustful [ ] Defiant [ ] Angry [ ] Unremarkable

Comments: ____________________________
General Observations (continued)

Motor Activity:  [ ] Normal  [ ] Hyperactive  [ ] Hypoactive  [ ] Tics  [ ] Tremors  [ ] Motor Retarded  [ ] No Coordination

Comments: __________________________________________________________________________________________

Affect:  [ ] Appropriate  [ ] Inappropriate  [ ] Anxious  [ ] Blunted  [ ] Flat  [ ] Elevated  [ ] Intense  [ ] Constricted

Comments: __________________________________________________________________________________________

Mood:  [ ] Appropriate  [ ] Depressed  [ ] Angry  [ ] Manic  [ ] Apathetic  [ ] Agitated  [ ] Happy

Comments: __________________________________________________________________________________________

Speech and Verbal Skills

Speech:  [ ] Coherent  [ ] Incoherent  [ ] Loud  [ ] Soft  [ ] Stammering  [ ] Pressured

Comment: __________________________________________________________________________________________

Rate of Speech:  [ ] Normal  [ ] Slow  [ ] Fast

Comments: __________________________________________________________________________________________

Responses:  [ ] Normal  [ ] Non Responsive  [ ] Brief  [ ] Overly Detailed

Comments: __________________________________________________________________________________________

Articulation Difficulties:  [ ] None  [ ] Moderate  [ ] Serious

Comments: __________________________________________________________________________________________

Vocabulary:  [ ] Average  [ ] Above Average  [ ] Below Average

Comments: __________________________________________________________________________________________

Spontaneity:  [ ] Appropriate  [ ] Inappropriate  [ ] Absent

Comments: __________________________________________________________________________________________

Thought Content and Process

Thought Content:  [ ] Rational  [ ] Abstract  [ ] Tangential  [ ] Concrete

Judgment:  [ ] Absent  [ ] Limited  [ ] Fair  [ ] Good

Insight:  [ ] Absent  [ ] Limited  [ ] Fair  [ ] Good

Memory:  [ ] Variable  [ ] Poor  [ ] Fair  [ ] Good

Hallucinations:  [ ] None  [ ] Auditory  [ ] Visual

Orientation:  [ ] Time  [ ] Place  [ ] Person  [ ] Situation

Attention/Concentration:  [ ] Absent  [ ] Limited  [ ] Fair  [ ] Good

Abnormalities:  [ ] Ideas of Reference  [ ] Ambivalence  [ ] Obsessive  [ ] Flashbacks

[ ] Suicidal Ideation  [ ] Homicidal Ideation  [ ] Delusions (specify)  [ ] Phobias (specify)

Comments: __________________________________________________________________________________________

- 5 -
Estimated Level of Intelligence: ____________________________

Psychiatric History  (If no psychiatric history, check here ________)

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Family History  (if living alone, check here ________)

List anyone (Spouse or significant other, children, and others) currently living in the household

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<th>History of CD or Mental Health Problems</th>
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Describe client's family of origin, including who he/she felt closest to and most distant from:

____________________________________________________________________________________

____________________________________________________________________________________

Any family history of substance abuse?  [ ] Yes  [ ] No  Who?: ____________________________  Treatment: [ ] Yes  [ ] No

Describe cultural worldview (How does the client see the world?):

____________________________________________________________________________________

What were recreational activities as a child?:

____________________________________________________________________________________

What do you do for leisure and entertainment?

____________________________________________________________________________________
History (continued)

Out of Home Placements: [ ] Yes [ ] No
[ ] Foster Care # of Times: _____ Reason: _____________________________
[ ] To Other Family Members # of Times: _____ Reason: _______________________
[ ] Individual in any Children's Services Case as Youth # of Times: _____ Reason: ______________________________
[ ] Individual in any Children's Services Case as Adult # of Times: _____ Reason: ______________________________
Comments: (When/What Age/Where/Outcome) ________________________________

History of Physical/Sexual Abuse: (If no abuse, check here ________)
Were you ever physically or sexually abused?: [ ] Yes [ ] No Which one?: __________________________ How old?: _________
What happened?: __________________________
Who was the perpetrator?: __________________________ Was it reported?: [ ] Yes [ ] No
What happened as a result of the report?: __________________________

Sexual History
Sexually active?: [ ] Yes [ ] No Beginning at what age?: ________ Sexual Orientation?: __________________________
Sexual Dysfunction or Problems?: [ ] Yes [ ] No What?: __________________________
Comments: __________________________

Current method of birth control?: __________________________

Religious or Spiritual Orientation
What is your present religious affiliation?: [ ] Catholic [ ] Jewish [ ] Protestant (specify denomination if any) _________________
[ ] None, but I believe in God [ ] Atheist or Agnostic [ ] Other (include 12 step programs such as A.A. or N.A.)

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Strengths and Assets (Check all that apply)

[ ] Ability to engage [ ] Good physical health
[ ] Support of friends [ ] Good insight
[ ] Support of family [ ] No mental illness
[ ] Marketable work skills [ ] Stable living arrangements
[ ] Support system [ ] Stable income
[ ] Religious/spiritual involvement [ ] No violent relationships
[ ] Motivated for treatment [ ] No legal problems
[ ] Cognitive skills [ ] High school/college graduate
[ ] Good Judgment

[ ] Other strengths and assets comments:

Weaknesses/Barriers (Check all that apply)

[ ] Denial [ ] Lacks insight
[ ] Difficult to engage [ ] Lacks impulse control
[ ] Health problems [ ] Lacks judgment
[ ] Physical limitations [ ] Chaotic environment
[ ] Cognitive limitations [ ] Homeless
[ ] No supportive friends [ ] No means of income
[ ] No supportive family [ ] Mental illness
[ ] Lacks a support system [ ] Domestic violence
[ ] Lacks work skills [ ] Legal problems

[ ] Other weaknesses and barriers comments:

Housing History

Have you ever resided in transitional housing?: [ ] Yes [ ] No

Have you ever experienced homelessness?: [ ] Yes [ ] No
Assessment Summary and Recommendations:
DSM Diagnosis (Complete all Axis)

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Treatment Recommendations: (Include need for additional evaluations and or special requirements due to physical impairment)

Level of Care:

Clinician's Signature and Credentials: ________________________________
Date: __________________

Supervisor's Signature and Credentials, if necessary: ________________________________
Date: __________________
Appendix B

To obtain a copy of the Outcome Questionnaire – 45 please contact:

OQ Measures, LLC
PO Box 521047
Salt Lake City, UT 84152-1047
Appendix C

The TMO Scale

This questionnaire concerns people's reasons for entering treatment and their feelings about treatment. Participation is voluntary, so you do not have to fill it out if you don't want to. Different people have different reasons for entering treatment, and we want to know how true each of these reasons is for you. Please indicate how true each reason is for you, using the following scale:

1 2 3 4 5 6 7
not at all true somewhat true very true

A. I came for treatment at the shelter because:

1. I really want to make some changes in my life.

1 2 3 4 5 6 7
not at all true somewhat true very true

2. I won't feel good about myself if I don't get some help.

1 2 3 4 5 6 7
not at all true somewhat true very true

3. I was referred by the legal system.

1 2 3 4 5 6 7
not at all true somewhat true very true

4. I feel so guilty about my problem that I have to do something about it.

1 2 3 4 5 6 7
not at all true somewhat true very true

5. It is important to me personally to solve my problems.

1 2 3 4 5 6 7
not at all true somewhat true very true
B. If I remain in treatment it will probably be because:

6. I'll get in trouble if I don't.

1  2  3  4  5  6  7
not at all true somewhat true very true

7. I'll feel very bad about myself if I don't.

1  2  3  4  5  6  7
not at all true somewhat true very true

8. I'll feel like a failure if I don't.

1  2  3  4  5  6  7
not at all true somewhat true very true

9. I feel like it's the best way to help myself.

1  2  3  4  5  6  7
not at all true somewhat true very true

10. I don't really feel like I have a choice about staying in treatment.

1  2  3  4  5  6  7
not at all true somewhat true very true

11. I feel it is in my best interests to complete treatment.

1  2  3  4  5  6  7
not at all true somewhat true very true

C. Rate each of the following in terms of how true each statement is for you.
12. I came to treatment now because I was under pressure to come.
   
   1 2 3 4 5 6 7
   not at all true somewhat true very true

13. I am not sure this program will work for me.
   
   1 2 3 4 5 6 7
   not at all true somewhat true very true

14. I am confident this program will work for me.
   
   1 2 3 4 5 6 7
   not at all true somewhat true very true

15. I decided to come to treatment because I was interested in getting help.
   
   1 2 3 4 5 6 7
   not at all true somewhat true very true

16. I'm not convinced that this program will help me stop drinking.
   
   1 2 3 4 5 6 7
   not at all true somewhat true very true

17. I want to openly relate with others in the program.
   
   1 2 3 4 5 6 7
   not at all true somewhat true very true

18. I want to share some of my concerns and feelings with others.
   
   1 2 3 4 5 6 7
   not at all true somewhat true very true
19. It will be important for me to work closely with others in solving my problem.

1 2 3 4 5 6 7
not at all true somewhat true very true

20. I am responsible for this choice of treatment.

1 2 3 4 5 6 7
not at all true somewhat true very true

21. I doubt that this program will solve my problems.

1 2 3 4 5 6 7
not at all true somewhat true very true

22. I look forward to relating to others who have similar problems.

1 2 3 4 5 6 7
not at all true somewhat true very true

23. I chose this treatment because I think it is an opportunity for change.

1 2 3 4 5 6 7
not at all true somewhat true very true

24. I am not very confident that I will get results from treatment this time.

1 2 3 4 5 6 7
not at all true somewhat true very true

25. It will be a relief for me to share my concerns with other program participants.

1 2 3 4 5 6 7
not at all true somewhat true very true
26. I accept the fact that I need some help and support from others to beat my problem.

1  2  3  4  5  6  7
not at all true  somewhat true  very true

This measure is available in the common domain.
Appendix D

To obtain a copy of the Readiness to Change Questionnaire, please contact:

Dr. Nick Heather
Center for Alcohol and Drug Studies
Plummer Court, Carliol Place
Newcastle upon Tyne
NE1 6UR
United Kingdom
February 9, 2006

Benjamin K. Jurek, M.A.
2540 Madison Rd., Apt. 18
Cincinnati, OH 45208

RE: Protocol #0373-3 Motivation, global functioning, and stage of change as predictors of substance abuse outcome in a public health residential facility

Dear Mr. Jurek,

The IRB received your response to the IRB’s recent letter. You made the requested changes. Your protocol is approved in the expedited category. Approval expires 2/9/07. A progress report must be filed with XU’s IRB by the expiration date. A form is enclosed for your convenience. The form is also available at www.xu.edu/IRB/IRBforms.htm.

If there are any adverse events or modifications to the protocol, please notify the IRB immediately.

I wish you every success with your research.

Sincerely,

Robert C. Baumiller, S.J.
Chair and Administrator

RCB: nm

Enclosures: Progress Report Form
Approved Informed Consent Document

cc: Dr. Susan Kenford, ML 6411
Appendix F

Institutional Review Board

INFORMED CONSENT DOCUMENT

You are being asked to volunteer to participate in a project conducted through Xavier University and the Mt. Airy Shelter. The staff will review with you, in detail, the purpose of the project, the procedures to be used, and the possible benefits and risks of participation. You may ask him/her any questions you have to help you understand the project.

If you decide to participate in the project, please sign this form in the presence of the person who explained the project to you. You will be given a copy of this form to keep.

If you have questions at any time during this study, you may contact Ben Jurek at (513) 378-7672, Dr. Susan Kenford (513) 745-3451 or the Chair of Xavier University's Institutional Review Board at 513-745-2870.

The purpose of this study is to determine what factors contribute to residents' length of stay at Mt. Airy Shelter and their progress through the program. The study is designed to look at how motivation, interest in making life changes and overall health, emotional and social functioning are related progress and involvement in the Mt. Airy Shelter program.

You were selected for this study because you are currently seeking services at the Mt. Airy Shelter. If you decide to participate, you will complete a set of three (3) questionnaires four (4) times during your stay at Mt. Airy. The first set will be completed today as part of your intake. The other sets will be completed after approximately 30, 60 and 90 days at Mt. Airy. Completing these surveys should take between 30 – 45 minutes. All questionnaires will be read to you. Some of the questions may seem personal in nature. Occasionally, some individuals find answering personal questions mildly uncomfortable. This potential discomfort is the only known risk associated with participating in this study. You have the right to not answer any question and to withdraw from the study at any time. If you decide to withdraw from the study, you have the right to request all your data be destroyed.

There are no direct benefits to you for your participation in the study. You will not be paid or otherwise compensated; however, your participation and the information you provide will be used to help others who come to the shelter at a later time. Deciding to participate or not participate will have no effect on the treatment you receive and how you are treated by the Mt. Airy staff. Additionally, deciding not to participate will have no effect on any future services you may receive from Xavier University.

All of your responses will be kept confidential other than answers that indicate you are at risk for harm to yourself or others. Such information, and only that information, will be shared with facility staff. Your responses will only be seen by study personnel and Mt. Airy Staff. When the study is completed, results will be given in the form of average scores; no individual names or scores will be reported. Your confidentiality will be maintained by assigning you an identification number. Your name will not be recorded on any of the study questionnaires. During the 4 months that you are enrolled in the study, a record of your number will be kept at Mt. Airy Shelter so that the same number can be used each time you complete the questionnaires. At the end of the study, the record linking your name and number will be destroyed. All questionnaire data will be stored in a locked location at Xavier University.

MY SIGNATURE ON THIS DOCUMENT INDICATES I HAVE READ OR BEEN EXPLAINED THIS INFORMATION AND CONSENT TO PARTICIPATION. I understand also that it is not possible to
identify all potential risks in an experimental procedure, and I believe that reasonable safeguards have been taken to minimize both the known and potential but unknown risks.

_________________________________________  _____________
Signature                                      Date

_________________________________________  _____________
Witness                                       Date

EXPIRATION DATE  ________________________
Chapter V: Dissertation

Abstract

Previous research has demonstrated that the constructs of motivation, level of global functioning, and readiness to change are related to substance abuse treatment outcome. These constructs were used to predict premature termination from a residential substance abuse treatment program for homeless men. Results indicated that the constructs were unrelated to premature termination or treatment outcome for the sample. However, premature termination was positively related to the presence of a documented mental illness. Overall, the findings suggest that homeless men do not vary significantly in their levels of motivation, readiness to enact change and overall global functioning, and that shelter resources may be better spent assessing and targeting mental illness rather than general constructs such as motivation and global functioning.
Motivation, global functioning, and stage of change as predictors of substance abuse treatment outcome in a public health residential treatment facility

Many argue that the United States can be accurately described as a “drug culture”. Davidson and Neale (2001) point out that people use caffeine, nicotine, aspirin, and alcohol to help cope with pain, stress or lack of energy. While substances are effective at ameliorating discomfort and changing mood in the moment, the problem of focusing on short-term effects is that prolonged and habitual use can have highly detrimental consequences. For example, prolonged alcohol use has been associated with tissue and organ damage, malnutrition, cirrhosis of the liver, damage to the endocrine glands and pancreas, heart failure, hypertension, stroke, capillary hemorrhages, destroyed brain cells, and other neurological impairments (Davison & Neale).

Prevalence Estimates

Current estimates conclude that over half the population of the United States regularly uses substances (Substance Abuse and Mental Health Services Administration [SAMHSA], 2005b). While much of the public believes that substance abusers are low-income, urban, African American or Latino individuals with criminal records who are dependent on welfare and use crack-cocaine (Cornelius, 2001), in actuality, substance abuse is a problem that cuts across all income levels and races.

Results of a survey conducted by the Substance Abuse and Mental Health Services Administration (SAMHSA, 2005b) indicated that slightly over one-half (51.8%) of Americans aged 12 or older reported being current drinkers of alcohol - which is approximately 126 million people nationally when extrapolated from the obtained sample. In general, more men reported alcohol use than women (58.1% of males and 45.9% of
females). Caucasians reported the highest alcohol use compared to other ethnic groups, as 56.5% reported alcohol use in the past month, followed by those self-describing as two or more races (47.3%). African Americans ranked fifth among all racial and ethnic groups for alcohol consumption (40.8%). Approximately 16 million alcohol users qualified as heavy drinkers (consuming 5 or more drinks on 5 or more days in the past 30 days), 32% were also current illicit drug users (SAMHSA).

According to SAMHSA data, 8.1% (19.7 million) of Americans aged 12 or older are current users of illicit drugs. Marijuana was the most commonly used illicit drug. Approximately 74% of current illicit drug users report using marijuana. Approximately 54% use only marijuana, around 20% use marijuana and another illicit drug and the remaining 26% use another illicit drug but not marijuana. As with alcohol consumption, men were more likely to report using illicit drugs than women, 10.2% and 6.1% respectively (SAMHSA, 2005b).

Substance use and Mental Illness

Substance use diagnoses are among the most common mental health problems in United States at this time. According to the National Comorbidity Study (Kessler, 1994), major depression and alcohol dependence are the two most prevalent psychological disorders. Kessler found that psychiatric disorders are not uniformly distributed but rather are concentrated in people with a high degree of comorbidity: in this study approximately one in four respondents met diagnostic criteria for a lifetime substance use disorder (encompassing both substance abuse and dependence), with men more likely to develop a substance use disorder than women (35.4% of men compared to 17.9% of women). Alcohol dependence or abuse was comorbid with a lifetime mental disorder in 52% of the
participants, while a lifetime drug use disorder was comorbid with alcohol use or
dependence in 36% of participants. Among those with any lifetime drug abuse or
dependence diagnosis, 59% met criteria for a comorbid mental disorder, and 71% met
criteria for a lifetime alcohol use disorder. Kessler hypothesized that one reason for the high
comorbidity rate between substance use and mental disorders is that alcohol and drugs can
be used as self-medication for anxiety or affective disorders. However, when used in this
way, substances provide only short-term relief and often actually exacerbate the psychiatric
disorder (Kessler). The results of the study support the wisdom of identifying and treating
substance use and mental illnesses in an integrated manner.

Substance use among the Homeless

According to a National Survey of Substance Abuse Treatment Services report
(SAMHSA, 2005a), between 2000 and 2005 there was an increase in the number of
individuals who are homeless and have a drug or alcohol problem. This survey examined
13,428 homeless facilities across the United States and reported a one-day census
(rep resenting March 31, 2005). On that day, 1,081,049 clients were enrolled in substance
abuse treatment, which represented an increase of approximately 80,000 substance-using,
homeless, individuals from 2000 levels. Approximately two-thirds (69%) of all clients in
treatment on March 31, 2005, were in facilities with a primary substance-abuse-treatment
focus. An additional 24% were in facilities with a dual focus of mental health and substance
abuse treatment. Nationally, the number of treatment facilities of all kinds stayed relatively
constant, with a decrease of less than 1% from 2004. Overall, the results illustrated a slight
increase in substance using homeless individuals, and a slight decrease in homeless shelters
with treatment capability. However, the number of homeless individuals who sought
substance abuse or mental health treatment from not-for-profit private shelters remained largely constant from 2000 (55%, or 552,092 residents) to 2006 (56%, or 595,633 residents).

One of the difficulties faced by many homeless shelters is funding. The Alcohol and Drug Services Study (ADSS) Cost Study (SAMHSA, 2004) surveyed a nationally representative sample of 2395 treatment facilities to determine national trends in the costs of admitting and supporting clients in various types of treatment settings. The report indicated that the mean cost (calculated as all costs and expenditures for treatment during a 12-month period) for each new admission to a non-hospital, residential treatment facility was $3840.00. Daily cost to support an individual was estimated to be $76.13, covering the costs of food, staff, and treatment provided. These significant costs lead to chronic funding issues for many facilities due to the limited federal and state support available. Such funding and financial difficulties are concerning as shelters may not be able to continue offering the opportunities for individuals with substance use and other psychological disorders to make lasting changes in their lives.

Information about the scope of substance abuse in the homeless can found by examining the demographics of those who enter substance abuse treatment. SAMHSA compiles the Treatment Episode Data Set (TEDS) annually to examine the demographic characteristics and substance abuse patterns of individual’s admitted to publicly funded substance abuse treatment facilities across the United States. In 2004 (the most recent data available), TEDS found more than 230,500 admissions to substance abuse treatment centers were homeless at the time of admission, representing approximately 12.3% of all admissions to substance abuse treatment. Alcohol was the primary substance of abuse for a sizable proportion (29.6%) of homeless admissions, with smoked (crack) cocaine abuse the second
most frequent substance of abuse (18.2% of admissions) (SAMSA, 2006). In 2000, a TEDS survey found that just over three-fourths (76%) of the homeless admissions were male, 53% were Caucasian, 30% African American; veterans comprised a relatively high percentage (10%) of admissions. Alcohol was the primary substance of abuse for homeless admissions across all ethnic groups, except for African Americans, where smoked (crack) cocaine and alcohol accounted for an equivalent number (37%) of admissions (SAMSA, 2003).

Models of Treatment

Residential treatment centers have historically been the treatment of choice for substance abuse disorders. While residential treatment centers have traditionally focused exclusively on the substance abuse and have not actively addressed issues of comorbidity (Schmidt, 1991) it is increasingly recognized that compartmentalized treatment is not maximally effective and integrated treatment should be pursued (Kasprow, Rosenheck, Frisman & DiLella, 1999; Schmidt).

Schmidt (1991) argued that a common element of the dual-diagnosis patient is failure to cleanly fit the diagnostic understanding held by either substance-abuse-only programs or mental-health-only programs. As a result, historically, many individuals have been left without easy access to services. Schmidt found substantial differences between the philosophy and approaches of substance abuse and mental health centers. Substance treatment centers typically employed more paraprofessionals (recovered alcoholics and drug users) than did mental health treatment centers. While this increased the staff’s ability to empathize and decreased the social distance associated with educational differences between patient and therapist, it reduced the staff’s capacity to effectively understand and treat comorbid psychological disorders. Schmidt found most substance abuse treatment centers
were strongly influenced by the Alcoholics Anonymous model and conceptualized the psychological distress and emotional symptoms experienced by patients as the result of the underlying chemical dependency; this was in marked contrast to the mental health treatment centers, which conceptualized the chemical dependency as a coping mechanism for the underlying psychological distress and of secondary importance. In general, substance abuse centers were found to put more emphasis on personal responsibility, used much more confrontation and held abstinence as the primary goal of treatment. In contrast, mental health centers have felt ill-equipped to address substance abuse issues; many centers do not actively address a substance disorder beyond offering supportive treatment and pharmacological intervention. Mental health clinics have been more likely than substance-abuse-only programs to endorse goals of "ego enhancement" and to be more tolerant of non-abstinence (Kasprow et al., 1999; Schmidt).

Newer models of integrated treatment have sought to actively address both the psychological and substance abuse issues conjointly. In a recent study examining patient perceptions of integrated treatment and substance-abuse-only treatment, Kasprow et al. (1999), found distinct differences. In their sample of homeless veterans, participants rated the substance-abuse-only programs as significantly more controlling, problem oriented, focused on increasing expressions of anger and as providing more practical problem solving strategies than the integrated treatment. However, moderately better outcomes in retention and outcome were seen with integrated treatment. A higher percentage of individual's in the substance-abuse-only treatments left treatment without consulting the staff than did individuals in the integrated treatment. Substance-abuse-only treatments also had a higher percentage of participants who were discharged to other institutions for further treatment.
than did the integrated treatment. Both types of programs produced similar clinical outcomes for reduction of alcohol problems, reduction of drug problems and reduced psychiatric problems related to the dual diagnosis. However, significant differences between the programs were seen in social and vocational realms, with those in the integrated treatment showing more improvement than those in the substance-abuse-only treatment. This was true for both the dually diagnosed and those with only a substance use disorder. Integrated programs also produced better compliance and participants showed faster returns to independent community living.

**Elements of Treatment**

The shift towards providing integrated mental health and substance use treatment has been accompanied by a change in how substance use disorders are conceptualized. The emerging model for understanding and treating alcoholism and drug dependence conceptualizes these disorders as chronic disease states. Substance abuse is increasingly being understood as a cyclical pattern that does not have a distinct “cure”; rather, the goal is to maintain ever-longer periods of remission. This conceptualization moves away from the idea that relapse equals failure, and instead defines success as decreasing the amount of time spent using substances -which is seen as inevitable - and increasing the time spent in sobriety (White, 2000). From this model follows the belief that there is no one “best” way to treat substance use; rather, there are multiple approaches which can be effective.

Many treatment approaches revolve around group involvement. One of the major benefits of a group approach to treatment is that it is cost effective. One therapist is able to address the needs of several group members and it can be much less expensive than one-on-one treatment. Group treatments can include the same types of activities and treatment
approaches as individual sessions, allowing group treatment to be as flexible and comprehensive as individual treatment (Marques & Formigoni, 2001). Other benefits include the opportunity to decrease the isolation experienced by those suffering from alcoholism and increase treatment compliance. Group treatments have shown comparable efficacy to individual treatment (Washington & Moxley, 2003).

While multiple approaches have been supported, one aspect of most successful treatments is assessing and targeting underlying cognitive structures related to drugs and drug use. For example, studying a sample in treatment for marijuana abuse, Baker et al. (2002) found that teaching effective coping strategies, determining other reinforcing activities, and identifying high-risk situations were essential tools to make changes in substance use last over time. Wunschel and Rohsenow (1993) delineated adaptive and maladaptive cognitive coping strategies. Maladaptive strategies were “self-taught” and centered on keeping to oneself, blaming oneself, and wishful thinking. The authors argued that effective treatment must include teaching substance abusers new strategies that can be used in a variety of situations. Interventions that seek to counter-condition substance abusers by focusing on the subjective “positive” effects of the substances - and what they are trying to cover up - give the abuser greater control over the problem and a better chance to change. Bartholomew, Hiller, Knight, Nucatola, and Simpson (2000) argued that men may be at particular risk to perceive as positive the distraction qualities of substances, as many have difficulty acknowledging their needs, fears, and concerns due to social norms and factors. However, as these authors note, frank exploration of sexuality, societal expectations and stereotypes, as well as personal needs in relationships, can lead to important changes in substance abusing men’s knowledge and attitudes.
Predictors of Successful Treatment

Research has consistently shown that greater length of treatment is strongly related to successful substance abuse treatment outcomes (Lang & Belenko, 2000; Nuttbrock, Ng-Mak, Rahav, & Rivera, 1997; Simpson, Joe, & Brown, 1997; Zhang, Friedmann, & Gerstein, 2003). In order to receive a therapeutic benefit from treatment, an individual must stay a sufficient period of time in the therapeutic process (Simpson et al.). Individuals who complete residential treatment programs are far more likely to reduce usage or attain and maintain sobriety from cocaine/crack, alcohol, and heroin than those who terminate treatment prematurely (Simpson et al.). Long-term residential treatment has been shown to be more efficacious than short-term residential treatment, outpatient treatment, and methadone maintenance treatment (Zhang et al.). Research conducted by Nuttbrock et al. demonstrated that clients with comorbid mental illnesses, such as depression and chronic hostility, were able to benefit from remaining in therapeutic communities that offered the support and services that they need. Lang and Belenko found that those who left treatment were more likely than those who stayed in treatment to have psychological difficulties such as depression, anxiety, and violent behavior. These authors also found that non-completers had more familial problems, fewer years of legitimate employment, a younger age of drug use onset, fewer close friends, and lower social conformity than treatment completers. These findings imply that better screening for psychological issues may help identify clients who are at risk for premature termination and would allow programs to develop retention strategies.

Another predictor of treatment seeking behavior and subsequent success in treatment is motivation. Ryan, Plant and O’Malley (1995) developed a model of motivation centered

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on how much individual's perceive the events of their life to be under their own or other's control. These authors argued that motivation is best understood as a continuum which is anchored by external and internal perceived-locus-of-control (PLOC). This continuum extends from purely external determinants (i.e., forced into treatment with no internal desire to receive treatment) to purely internal determinants (i.e., self-referred to treatment with internal desire to change, without any outside precursors or consequences). However, most determinants fall in between these extreme points and include both internal and external pressures. Though motivation theoretically lies on a continuum, people will classify their motivation as either internal or external as a result of their individual circumstances. This does not mean that classifying motivation as “internal” or “external” implies that the other is not present; rather, this means the individual is more in touch with either the internal or external aspects of their motivators. Cahill, Adnioff, Hosig, Muller, and Pulliam (2003) used this motivational model to assess men before and after substance abuse treatment. The authors assessed both internal and external motivation, and identified which aspect of motivation was more prominent in the individual. Self-reported source of motivation (whether internal or external) was not related to treatment completion as premature terminators and treatment completers did not differ on motivational source at intake. However, it was found that motivational influences changed over treatment. Participants who completed treatment continued to report high levels of internal motivation but the degree of external motivation reported dropped significantly. The authors offered several reasons for the external motivators becoming less relevant over time including internalization of the forces originally experienced as external, actual changes in the external forces’ stance or pressure and/or diminished memory/salience of the external pressure.
Regardless of the reason, external motivators appeared to be salient initially in treatment, but their impact diminished as treatment progressed. Internal motivation was more related to long-term success.

Motivation is a necessary component to instigate or seek change, but it alone is not sufficient for long term change to occur (Cahill et al., 2003). Cox, Blount, Bair, and Hosier (2000) argue that motivation to change drug using behavior occurs when the individual perceives alternatives to drugs or alcohol as satisfying and does not expect that the process of stopping drug use will be unbearable. In other words, the effects of current use need to be perceived by the individual as worse than the discomfort making a change would cause. Individuals with seemingly identical situations and motivators may, in fact, be in very different places in terms of readiness to make life-style changes. Proschaska and DiClemente (1988) have shown that the decision and ability to enact behavioral change has discrete stages. Their trans-theoretical model (TTM) includes the stages of change model, which begins with a pre-contemplation stage, and progresses through contemplation, preparation, action, and finally maintenance stages. Relapse itself is not regarded as a stage, but is conceptualized as movement back towards the initial stages of pre-contemplation and/or contemplation. The TTM describes a dynamic process, in which a client can move forward or backwards in a non-linear fashion; the TTM can be applied to any change that an individual is looking to make (Rollnick, Heather, Gold, & Hall, 1992). Individuals benefit from interventions only when interventions “match” the individual’s current stage of change. Thus, correctly identifying an individual’s stage of change is an important first step for treatment. For example, if an individual is denying the existence of a problem, intervening with interventions that support a change would not be beneficial, whereas the
same intervention would be appropriate for an individual who identifies with the action stage.

Based on previous findings about the importance of motivation, level of global functioning, and readiness to change, the current study seeks to investigate how these constructs are related to premature treatment termination. The study will also examine how motivation, global functioning, and stage of change vary across treatment and how these constructs are related to overall outcome.

Method

Program Description

The Mt. Airy homeless shelter is owned by the city of Cincinnati and administered by the Hamilton County Jobs and Family Services. The Alcoholism Council of the Cincinnati Area operates the Substance Abuse Management Services (SAMS) program. The shelter receives around 600 admissions per year, which averages to approximately 5-7 referrals each week. There are 65 beds at the shelter, and the shelter typically runs at full capacity. There are 18 placements at the shelter reserved for veterans who do not receive services from the SAMS program, as well as a few placements that are left open for emergency admissions. The average stay at Mt. Airy is 34 days, but the range is 12 hours to 16 months. The compliance percent for the program is mid to high 90's, and only 1-2% of residents are discharged for being non-compliant. Typically 25-35% of the residents have previously lived at the shelter, but have returned due to relapse or deciding they were not ready to go out on their own. Many of the residents feel their relapse and return indicates failure, but the staff at Mt. Airy work to reinforce returning, seeing it is a sign of wellness. By returning, participants are lessening the time spent abusing substances and reducing the
harm of their relapse. These men live in the worst areas of town, most have criminal records, over half are functionally illiterate, and all have issues dealing with abusing substances. The majority experience isolation and avoidance, having lost all emotionally significant relationships and beneficial experiences with authority figures, which is seen to be at the crux of their depression and abuse of substances. The staff does not necessarily try to eliminate resident’s bad behaviors, as these behaviors have been adaptive and kept them alive in the worst sorts of environments imaginable. Instead the goal is to teach new behaviors that offer alternatives for dealing with difficult situations and new ways of perceiving the world (R. McBrady, personal communication December 10, 2004).

The SAMS program used by the shelter to treat residents suffering from addictive disease has four parts. Residents attend treatment groups and receive points based on their degree of participation. The points are earned as followed: 1 point for coming to the group for any period of time but not speaking; 1.5 points for coming to the group for a period and speaking; 2 points for attending the whole group but not speaking; and 3 points for attending the whole group and speaking. Points are earned to advance to higher levels in the SAMS treatment, which allows for greater responsibilities and goals. Each phase of treatment has a different goal. The goal in the first phase is for residents to utilize safe and stable housing in order to learn how to tolerate peers and a new life routine, thereby beginning the process of decreasing isolation and avoidance. The goal in the second phase is to increase verbal interaction with peers, to give and get support, establish a life routine, and receive dental and health care services. The goal of the third phase is to establish, develop, and use off site sources of support for wellness and abstinence. The goal in the fourth phase is to solidify a life routine that is healthy, peer relationships supporting abstinence, and move to a home
supporting wellness and abstinence (R. McBrady, personal communication December 10, 2004).

Participants

Participants for this study were 100 men, ages 21 - 62 (M = 43.52), all of whom were residents at the Mt. Airy homeless shelter. In order to detect moderate effect sizes, a minimum sample of 83 was needed (Cohen, 1992). To ensure effect detection, a sample size of 100 participants was chosen. Sixty two percent of the participants were African American, 28% were Caucasian, 9% were bi-racial, and 1% was Hispanic. The participants were not paid for their participation. The men eligible for this study included all non-veteran, shelter residents. Those who were referred to the homeless shelter through the Veterans Administration were excluded as they receive treatment at the VA.

Of the 100 men recruited in this study, 77% of program participants reported sobriety as their goal for treatment and 58% reported their substance use led to their homelessness (see Figures 1 and 2). The majority of men were single/never married (61%) (see Figure 3), and the primary problem substances reported were crack (41%) and alcohol (40%) (see Figure 4). Thirty five percent of the men had a documented mental illness, and the mean number of children these men had was 1.43 (see Table 1). Twenty three percent of the men did not complete high school, 32% completed high school or a GED, and 4% finished a four year college degree (Figure 6).

The average stay of the participants in this study was 47 days (see Table 1). Of the 100 participants, 16% left prior to completing 14 days of treatment; of these, 8 left due to a "failure to return" (FTR) which is when a resident leaves the shelter on pass and never comes back. For more information about discontinuation and treatment progression, please
see Table 2. Only 19% of study participants completed Stage 3 of the Mt. Airy treatment program. For information regarding the reasons for termination of treatment refer to Table 3. The majority of participants (52%) reported having used substances within one week of coming to the shelter, and a small portion (7%) of the sample reported not having used substances in over one year. For further information about participants’ last use prior to treatment, refer to Figure 7.

Procedure

Participants were recruited during their intake at Mt. Airy homeless shelter. One participant refused at the beginning of treatment, and two participants declined to continue with the study after the baseline data was gathered. Each new resident at Mt. Airy undergoes the same intake procedure. The Mt. Airy staff member who conducted the interview reviewed informed consent by reading it to the participant. The participant received a comprehensive interview that complies with the Ohio Department of Alcohol and Drug Addictive Services (ODADAS) requirements and that examined the participant’s current substance use, substance abuse history, medical history, employment history, education, legal history, and psychiatric functioning. At intake, the Outcome Questionnaire-45 (OQ-45), the Treatment Motivation Questionnaire (TMQ), and the Readiness to Change questionnaire were administered. In keeping with established procedures at Mt. Airy, all assessment materials were read to participants. The order of the measures was counterbalanced across participants. After 30, 60 and 90 days (plus or minus five days) of treatment, the OQ-45, TMQ, and Readiness to Change Questionnaire were administered again. Mt. Airy Staff estimated that at the end of 30-40 days, the participants should be completing Stage I of the SAMS program, which is also the estimated average period of
time of time residents stay at the shelter. After 60-75 days, remaining participants should be completing Stage II of the SAMS program, and the end of 90-100 days, the participants should be finishing Stage III.

Materials

Interview

A comprehensive diagnostic interview was conducted at the intake of the resident. This is Mt. Airy Shelter's standard interview and includes a historical account of the residents' life, what substances were abused, the current impact the substance use on the resident's life, the resident's interpersonal situation, medical history, employment history, educational attainment, legal history, psychiatric functioning, and other demographic variables. The areas of the interview used in this study were: drug (or drugs) used, age of first use, time of last reported use, client perception of substance abuse, client goal, highest grade completed, history of arrests, marital status, number of children, and psychological diagnoses.

Outcome Questionnaire-45

The Outcome Questionnaire 45 (OQ-45) is a paper and pencil assessment tool used to measure outcomes of therapy or other interventions over time (Mueller, Lambert, & Burlingame, 1998). The OQ-45 measures three broad concept areas: symptomatic distress, interpersonal functioning, and social role performance. The OQ-45 is meant to be used in a test-retest manner, and has strong reliability, even across a short period of time. The OQ-45 had excellent internal consistency at baseline ($a = .93$). This level of reliability is adequate and consistent with other brief self-report measures that are widely used for outcome evaluation, such as the Beck Depression Inventory and the Symptom Checklist 90-Revised.
(Lambert et al., 1996). The OQ-45 has shown good concurrent validity and strong positive correlations with measures of the three domains measured by the OQ-45, as well as positive correlations with other outcome measures that are used in practice today (Mueller et al., 1998). A confirmatory factor analysis conducted by Mueller et al. supported the three-factor fit. The OQ-45 has 45 questions that are measured on a five-point likert-type scale ranging from 0 (Always) to 4 (Never).

**Treatment Motivation Questionnaire**

The Treatment Motivation Questionnaire (TMQ) is a 26-item paper and pencil self-report measure that uses a seven-point likert-type scale ranging from 1 (Not at all True) to 7 (Very True). The measure focuses on a patient’s motivation for receiving and participating in treatment. The measure analyzes motivation within four contexts: internal motivation, external motivation, interpersonal help seeking, and confidence in treatment. The TMQ has been found to be positively related to the number of sessions attended by a patient as well as clinicians’ ratings of clients’ involvement in the therapy process (Ryan et al., 1995). Internal coefficients for the four motivational areas in this study were between .63 and .98, and has

**Readiness to Change Questionnaire**

The Readiness to Change Questionnaire is based on Prochaska and DiClemente’s stages of change theory. The questionnaire is a paper and pencil self-report measure consisting of 12 items and is measured on a 5-point likert-type scale ranging from -2 (Strongly Disagree) to +2 (Strongly Agree). The questionnaire assesses the client’s current stage (pre-contemplation, contemplation, or action) regarding their intention to change drug or alcohol use. A sample item related to the pre-contemplation stage is: I don’t think I drink
too much; a sample item related to the action stage is: I have just recently changed my drinking habits. This questionnaire shows strong test-retest reliability for categorization in each stage (pre-contemplation = 0.82, contemplation = 0.86, and action = 0.78). The internal consistency for each stage is also strong (pre-contemplation = 0.73, contemplation = 0.80, and action = 0.85). This measure has been found to be significantly related to other self-report measures related to substance abuse (Rollnick et al., 1992). In this study, the internal consistency of the Readiness to Change Questionnaire was moderately strong (α = .63).

Results

Prior to running statistical analyses, all variables were assessed for normalcy. The internal motivation subscale of the TMQ was negatively skewed, while the three other subscales of the TMQ were positively skewed. In order to correct for this, the TMQ subscales were converted to Z-scores and normalized.

Multiple Regression was used to assess the relationship between stage of change, motivation and global functioning. The dependent variable was global functioning - operationally defined as OQ-45 total score. A regression model was developed by entering the internal motivation score, external motivation score, help seeking behavior score, confidence in treatment, and current stage of change in one together. After the initial entry, non-significant factors were removed iteratively until only significant predictors were left. The final model contained two elements. External motivation was significantly related to global functioning (β = -.33, p < .01) with greater external motivation related to a lower level of global functioning. Confidence in treatment was inversely related to global
functioning (β = .27, p = .01), indicating that higher confidence in treatment was associated with lower level of reported global functioning.

Bivariate correlations were conducted to determine how the measures were related to each other. A number of significant relationships were found. The strongest relations were seen between external motivation and help seeking behavior (r = .68, p < .01) and external motivation and confidence in treatment (r = .44, p < .01). Other significant correlations are found in Table 4.

In order to test the hypothesis that a more advanced reported stage of change, acknowledged lower global functioning, and greater motivation are related to less premature termination (as defined by leaving the program before completing 14 days of treatment), logistic regression was used as the dependent variable – premature termination - was dichotomous. Univariate analyses were run first, and then the constructs were placed into a model. Univariate tests showed that stage of change was not significantly related to premature termination (β = -.11, p = .75), nor was acknowledged global functioning (β = .02, p = .31), internal motivation (β = -.06, p = .84), external motivation (β = -.11, p = .90), help seeking behaviors (β = -.37, p = .69), or confidence in treatment (β = -.30, p = .74).

Table 5 provides odds ratios for the constructs listed above. A model was developed comprised of total OQ-45 Score, total Motivation Score, and Stage of Change to predict premature termination. As with the univariate tests, none of the predictors were significantly related to outcome. Table 6 provides odds ratios for the elements of this model.

As only 16 individuals had left by 14 days, it was believed that there may not have been adequate power to detect reasons for premature termination. In order to gain greater
power, the same statistical analyses were done with the dependent variable changed to Failure-to-Complete-Stage-1. This increased the premature termination group to 16 from 29. However, the increased power did not alter the results and none of the predictors were related to outcome (see Table 7). The data on the 8 individuals who left due to an FTR prior to the completion of 14 days was also analyzed, but the predictors were not related to premature termination.

Polychotomous logistic regression was conducted to test if stage of change, motivation score, and acknowledged global functioning would predict progress in treatment as measured by the final stage of the program completed. The dependent variable was final Stage and had four levels. It was found that none of the baseline predictors were associated with progression across stages (see Table 8).

A One-Way ANOVA and Chi Squared Classification Tests were used to assess progression over time of acknowledged global functioning, motivation level, and stage of change. Across the three measurement times (30, 60, and 90 days) it was found that reported global functioning did not change \( (F(3,9) = 1.47, p = .31) \). Internal motivation did not change \( (F(3,9) = 4.01, p = .14) \), nor did external motivation \( (F(3,9) = 2.33, p = .14) \), help seeking behaviors \( (F(3,9) = 1.56, p = .27) \), and confidence in treatment \( (F(3,9) = .28, p = .64) \). Tables 9 and 10 show the means, ranges, and standard deviations of the OQ-45 and a composite TMQ score across the measurement times. A 4-Related Samples Chi Square Test was used to examine the hypothesis that stage of change would progress throughout treatment. Results showed there was no significant movement, \( \chi^2 = .69, p = .88 \). Examination of the data revealed a disproportionate number of participants in the action stage at baseline. Therefore, the finding that individuals did not progress to a higher stage of
change is likely due to the fact that individuals were already classified in the action stage at onset.

Finally, to determine if there were differences between individuals who had been in treatment at the shelter previously and those who were first time clients on the three primary constructs assessed, between samples t-tests and a 2-Independent Samples Chi Square Test were conducted. The OQ-45 did not differ between first time and returning residents ($t(98) = .67, p = .50$), nor was there a difference for internal motivation ($t(97) = -.74, p = .46$), external motivation ($t(98) = -1.34, p = .18$), help seeking behavior ($t(98) = -1.32, p = .19$), or confidence in treatment ($t(98) = -.08, p = .94$) between the groups. No difference in stage of change between those returning to treatment and those entering treatment for the first time was found ($\chi^2 = .01, p = .93$). A Chi-Square Classification Test indicated that both groups had disproportionate numbers of individuals classified as in the action stage.

Given that none of the hypothesized constructs were able to predict premature termination, further analyses on a number of demographic variables were conducted using univariate logistic regression to determine if any could predict premature termination. For these analyses, premature termination was operationally defined as leaving prior to completing Stage One. One demographic variable was found to be related to premature termination. Documented history of mental illness showed a positive relationship with premature termination ($\beta = 1.01, p = .03$, Odds Ratio = 2.73).

Discussion

The current results indicate that, contrary to predictions, the constructs of global functioning, motivation, and stage of change were not effective in determining which
individuals in this sample would leave treatment prematurely. However, as predicted, several of the constructs were related to one another at baseline.

Both internal and external motivation were negatively related to global functioning. This implies that reporting a higher degree of global functioning is related to decreased motivation to engage in treatment. In this sample individuals who were highly motivated, demonstrated by consistently high motivation across the realms in the motivational questionnaire; there was a positive correlation between internal and external motivation scores and both showed comparable relations with the other motivation components. In understanding the negative relation between external motivation and global functioning, it may be that individuals with lower functioning are noticed by others, who in turn prompt them into treatment. Alternatively, being prompted by others may result in a decrease in reported global functioning. Regarding the connection between internal motivation and distress, it may be that more self-awareness of distress leads to an increased desire to make changes to reduce the subjective discomfort being experienced.

It was found that confidence in treatment was positively related to global functioning at intake, and higher levels of confidence were associated with higher levels of reported functioning. This implies that the individuals who expected the most from their treatment were experiencing the greatest ability to function. It may be that individual’s with higher functioning felt that they had less to lose and so trusting the program presented low risk. In turn, those with lower levels of global functioning may have felt that their situations were more complicated and severe and may have not trusted that the treatment program would be able to help them.

Contrary to predictions, the Readiness to Change questionnaire was not related to
any of the other measures. Also contrary to predictions, none of the construct measures showed the expected patterns across assessment points. It was hypothesized that global functioning, as measured by the OQ-45, would decrease across treatment as individuals became more in touch with their issues and decreased their denial; it was thought motivation would increase, and that individuals would progress into higher stages of change. Global functioning did not change and individuals reported consistently high levels of motivation throughout treatment. The findings regarding motivation are both similar and different to the findings of Cahill et al. (2003). These authors found both internal and external motivation to be high early in treatment, as did we, but also found that external motivation decreased in the population over time while internal motivation stayed consistent, findings we did not replicate. Regarding the failure of progression across stages of change, as indicated above, the majority of our participants started in the action stage and had no place to progress to.

Contrary to expectations, baseline measures were not able to effectively distinguish individuals who were returning to treatment from first-time residents. It was hypothesized that individuals returning to the shelter would retain previous treatment gains and present with higher expressed distress due to improved insight, greater levels of motivation, and a more progressed stage of change. Instead, all individuals coming into the program reported similar symptoms and motivation.

The current findings are somewhat surprising given that the constructs of stage of change, motivation and global functioning have shown robust predictive power in prior studies (Mueller et al., 1998; Rollnick et al., 1992; Ryan et al., 1995) and yet all were unrelated to outcome in this population. There are several possible explanations for these
results. First there may have been insufficient power to detect premature termination because only a small number (16%) of men had left prior to day 14; second, the sample may have been too homogenous; third, the measures selected may have had reduced validity in the current sample; fourth, the data collection methods may have altered the information obtained. Each of these possibilities will be discussed turn.

The proposition that there was insufficient power to detect effects due to the low number of premature terminations is possible but should be viewed with caution. The predictors were also unrelated to failure to complete Stage One, by which time 29% of the men had left treatment. However, lack of power is very possibly related to the failure to find changes in the constructs over time 1. At the third follow-up (90 day; Stage 3) point, only 12 participants provided questionnaire data. As such, the majority of the sample had been lost to construct data collection at that point.

The second explanation for the obtained results is that the men were highly homogenous and the sample had restriction of range. If this is the case, then the sample size – selected to detect a moderate effect size – was far too small. In support of this interpretation, at baseline the men in this sample reported primarily moderate degrees of distress, high levels of motivation, and that they were taking active steps toward change.

A third possibility is that the failure of the constructs to differentiate completers from early terminators was due to the way they were operationalized. It may be that the measures selected to assess the constructs were flawed and that alternative measures may have performed better. There is some evidence to support this idea. First, a disproportionate amount of individuals (53 of the 100) in this sample were classified at baseline as in the action stage. This was unexpected and could be a result of the participants being at a
residential treatment setting. Many participants were classified as “action” because they answered affirmatively to questions such as “I have just recently changed my drinking habits,” reflecting situational factors more than attitudes or beliefs regarding their substance use. The participants did not necessarily choose to stop substance use; rather, they were forced by the homeless shelter to stop in order to be provided with lodging and food. However, a feature of the measure used is that individuals who endorse equal numbers of items in more than one stage get classified as the more advanced stage. This classification issue gave rise to concerns that individual’s true attitudes regarding their substance use were not being reflected in their stage classification. To address these concerns, additional analyses were conducted to assess if endorsement of attitudes consistent with the pre-contemplation stage of change would predict which individuals would leave treatment early. However, these analyses also failed to show any significant relations with premature termination.

Similarly, the OQ-45 may not have performed as anticipated. This measure was meant to capture global functioning; however, while related to motivation it was not related to documented mental illness. The OQ-45 did not differentiate between individuals with or without a mental illness ($\beta = .01, p = .36, \text{Odds Ratio} = 1.01$). Thus, this instrument appears to be measuring a form of functioning that is different from the functioning associated with a mental illness. Global functioning as measured by the OQ-45 was not useful as a baseline predictor or as an indicator of progress throughout treatment. Therefore, homeless shelters using this measure should consider identifying a different instrument to measure global functioning. Given the ability of a documented mental illness to predict premature termination, a measure that is able to more effectively capture mental illness may be more
beneficial.

Finally, another possibility for the response patterns noted could be the presence of examiners. The baseline measures were read to participants at intake, soon after they arrived at the shelter. It is possible that the participants had limited trust of the examiner(s) and answered in a guarded manner. In particular, it is possible an individual may have been concerned they would be singled out as a problem or special case if they expressed their true feeling states; they may have feared either drawing too much attention to themselves or being discharged from the program. Therefore, it is possible that an incentive existed to report higher motivation and a more action-stage orientation in order to be seen in a positive light by the treatment staff.

While the hypothesized constructs failed to accurately identify who is at risk for treatment failure, the current results indicate that finding such predictors is of key importance. Most men in the current sample failed to complete the full treatment program. While 71% of the men stayed in the program long enough to successfully complete Stage 1, only 19% completed the full program. Post-hoc analyses investigating the relation between various demographic variables and treatment success found that history of documented mental illness was related to outcome. Consistent with the findings of Nuttbrock et al. (1997) and Lang and Belenko (2000), individuals with documented mental illnesses were most likely to leave treatment prematurely. This suggests that individuals with mental illness may not be served by the shelter services as they are designed and, by extension, shelters with substance abuse programs may not be meeting the needs of residents with mental illness. This finding leads to two distinct options. One is that shelters design programming to more clearly meet the needs of the mentally ill. A second option is that
shelters develop more detailed screening of mental health issues to help identify those individuals most prone to leaving the program early; this option was recommended by Lang and Belenko (2000). None of the other recorded demographic variables, such as age of use onset, age, race, arrests, number of children, or marital status were able to predict premature termination. One way to conceptualize this is that normative differences (such as marital status, age, and race) are tolerated by the group, whereas a distinct difference like mental illness is not tolerated and leads to alienation of an individual from the group, and thus prompts an individual to leave the shelter. An alternate conceptualization is that mental illness interferes with a resident's capacity to make use of or fully engage in a treatment program.

This study has some significant limitations. The biggest limitation is limited data collection as treatment progressed. Shelter residents did not consistently attend the follow-up sessions as planned. As the study went on, residents felt less compelled to attend testing sessions as they increased their activities outside of the shelter (such as accessing their improved relationships, working at jobs, looking for housing, etc.). Future studies conducted at homeless shelters are advised to make follow-up sessions occur directly after a previously scheduled resident group meeting. In doing so, there is less chance of participants forgetting to come and an overall greater chance of individuals complying with the study procedures.

A second area of concern is that there were some inconsistencies in the discharge proceedings at the shelter. There were a few instances where individuals left the shelter and were not noted as gone until much later. There also were some instances where individuals were marked as discharged, only to later be found still to be at the shelter. While the
treatment staff was always knowledgeable as to the whereabouts of residents, this was not always reflected in the paperwork. This was mildly problematic for this study as the primary outcome variables (days in treatment and Stage) were obtained from treatment records and not participant interview. It may be useful for homeless shelters to develop and maintain consistent and reliable methods for recording discharges, which would be beneficial both for future studies and in maintaining their own records.

Finally, there were possible differences across the individuals who administered the measures. Two different Mt. Airy staff members conducted the intakes, and a separate researcher not affiliated with the shelter administered the measures after 30, 60, and 90 days. The benefit in having a consistent team or person administering all measures would take out possible differences in administration, as well as increase the participants’ trust bringing about more honest responses.

Despite these limitations, this study was beneficial in that it demonstrated that men coming to homeless shelters as a result of chronic substance use are a group that is homogenous and different from other substance abusers. One way to conceptualize these men is to think of them as “the worst of the worst.” These men have low global functioning, little (if any) social support, and may have other health concerns due to their chronic substance use. Therefore, the constructs usually used to assess premature termination and treatment progression are not useful with this population.

There are further opportunities for continued research with homeless substance abusers. First of all, there is an opportunity to conduct further analysis on the individuals who come to treatment with a documented mental illness. These individuals are least likely to complete treatment and thus drain the most resources. Developing a program targeting
individuals with comorbid mental illness and substance abuse problems may contribute a great deal to the lives of these individuals and increase the utilization of limited resources.

Another area for future research would be to find a measure that effectively determines which individuals are at risk for leaving treatment prematurely. The OQ-45 did not function as hoped and is not offering meaningful data about this population. As an alternative, homeless shelters may wish to explore using a brief personality measure and/or with an affective distress measure to determine the prevalence of anti-social personality and depressive symptoms.
References


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Footnotes

1 Stage data and days in treatment data was available for the entire original sample from chart review.
Table 1

*Descriptive Information for Population*

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<th>Demographic Variable</th>
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<th>Range</th>
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<td>Age of First Use</td>
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<td>Number of Arrests</td>
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<td>Number of Children</td>
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<td>Days Stayed at the Shelter</td>
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Table 2

*Discontinuation and Treatment Progression Information*

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<th>Range</th>
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</thead>
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<td>1-30</td>
</tr>
<tr>
<td>Completed Stage 1</td>
<td>71</td>
<td>17.6</td>
<td>9-29</td>
</tr>
<tr>
<td>Completed Stage 2</td>
<td>48</td>
<td>43.5</td>
<td>29-64</td>
</tr>
<tr>
<td>Completed Stage 3</td>
<td>19</td>
<td>79.4</td>
<td>58-91</td>
</tr>
</tbody>
</table>
Table 3

*Reasons for Discharge from Treatment*

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failure to Return</td>
<td>28</td>
</tr>
<tr>
<td>Found Housing</td>
<td>28</td>
</tr>
<tr>
<td>Finished Level III</td>
<td>19</td>
</tr>
<tr>
<td>Violated Rules /Non-Compliance/Using</td>
<td>15</td>
</tr>
<tr>
<td>Positive Discharge</td>
<td>4</td>
</tr>
<tr>
<td>Other program/Left on own</td>
<td>6</td>
</tr>
</tbody>
</table>
Table 4

*Bivariate Correlations Indicating Relationships Between Measures*

<table>
<thead>
<tr>
<th>Global Functioning</th>
<th>Internal</th>
<th>External</th>
<th>Help Seeking</th>
<th>Confidence</th>
<th>Stage of Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Functioning</td>
<td>-----</td>
<td>-.22*</td>
<td>-.22*</td>
<td>-.09</td>
<td>.12</td>
</tr>
<tr>
<td>Internal</td>
<td>-----</td>
<td>.38**</td>
<td>.23*</td>
<td>-.02</td>
<td>-.15</td>
</tr>
<tr>
<td>External</td>
<td>-----</td>
<td>.68**</td>
<td>.44**</td>
<td>.01</td>
<td></td>
</tr>
<tr>
<td>Help Seeking</td>
<td>-----</td>
<td>.39**</td>
<td>.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confidence</td>
<td>-----</td>
<td>.01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage of Change</td>
<td>-----</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Significant at .05 level
** Significant at .01 level
Table 5

*Univariate Odds Ratios for Predicting Premature Termination at 14 Days*

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Odds Ratio</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Symptomatic Distress</td>
<td>0.99</td>
<td>0.42</td>
</tr>
<tr>
<td>Subjective Distress</td>
<td>0.98</td>
<td>0.31</td>
</tr>
<tr>
<td>Interpersonal Relations</td>
<td>1.01</td>
<td>0.93</td>
</tr>
<tr>
<td>Social Role</td>
<td>0.95</td>
<td>0.34</td>
</tr>
<tr>
<td>Internal Motivation</td>
<td>0.99</td>
<td>0.84</td>
</tr>
<tr>
<td>External Motivation</td>
<td>0.99</td>
<td>0.67</td>
</tr>
<tr>
<td>Help Seeking</td>
<td>0.96</td>
<td>0.13</td>
</tr>
<tr>
<td>Confidence in Treatment</td>
<td>0.96</td>
<td>0.26</td>
</tr>
<tr>
<td>Sum of Motivation Scores</td>
<td>0.99</td>
<td>0.30</td>
</tr>
<tr>
<td>Stage of Change</td>
<td>0.90</td>
<td>0.75</td>
</tr>
<tr>
<td>Pre-contemplation Total</td>
<td>0.93</td>
<td>0.29</td>
</tr>
<tr>
<td>Raw Score</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 6

*Full Model Odds Ratios for Predicting Premature Termination at 14 Days*

<table>
<thead>
<tr>
<th>Model Components</th>
<th>Odds Ratio</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>OQ-45 Total Score</td>
<td>.99</td>
<td>.57</td>
</tr>
<tr>
<td>Motivation Total Score</td>
<td>.79</td>
<td>.35</td>
</tr>
<tr>
<td>Stage of Change</td>
<td>.89</td>
<td>.72</td>
</tr>
</tbody>
</table>
Table 7

*Univariate Odds Ratios for Predicting Failure to Complete Stage 1*

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Odds Ratio</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Symptomatic Distress</td>
<td>.99</td>
<td>.40</td>
</tr>
<tr>
<td>Subjective Distress</td>
<td>.99</td>
<td>.55</td>
</tr>
<tr>
<td>Interpersonal Relations</td>
<td>.98</td>
<td>.52</td>
</tr>
<tr>
<td>Social Role</td>
<td>.94</td>
<td>.16</td>
</tr>
<tr>
<td>Internal Motivation</td>
<td>1.15</td>
<td>.54</td>
</tr>
<tr>
<td>External Motivation</td>
<td>.86</td>
<td>.49</td>
</tr>
<tr>
<td>Help Seeking</td>
<td>.68</td>
<td>.07</td>
</tr>
<tr>
<td>Confidence in Treatment</td>
<td>.76</td>
<td>.22</td>
</tr>
<tr>
<td>Stage of Change Pre-contemplation Total Raw Score</td>
<td>.93</td>
<td>.79</td>
</tr>
</tbody>
</table>

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### Table 8

**Baseline Predictors of Progression Across Stages**

<table>
<thead>
<tr>
<th>Stage 2</th>
<th>β-Value</th>
<th>Wald $\chi^2$</th>
<th>$p$-Value</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>OQ-45 Total Score</td>
<td>.01</td>
<td>1.06</td>
<td>.30</td>
<td>1.10</td>
</tr>
<tr>
<td>Motivation Total Score</td>
<td>.09</td>
<td>.11</td>
<td>.74</td>
<td>1.01</td>
</tr>
<tr>
<td>Stage of Change</td>
<td>.03</td>
<td>.01</td>
<td>.94</td>
<td>1.03</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stage 3</th>
<th>β-Value</th>
<th>Wald $\chi^2$</th>
<th>$p$-Value</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>OQ-45 Total Score</td>
<td>.00</td>
<td>.00</td>
<td>.97</td>
<td>1.00</td>
</tr>
<tr>
<td>Motivation Total Score</td>
<td>.19</td>
<td>.50</td>
<td>.48</td>
<td>1.21</td>
</tr>
<tr>
<td>Stage of Change</td>
<td>-.03</td>
<td>.01</td>
<td>.93</td>
<td>.97</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stage 4</th>
<th>β-Value</th>
<th>Wald $\chi^2$</th>
<th>$p$-Value</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>OQ-45 Total Score</td>
<td>.00</td>
<td>.13</td>
<td>.72</td>
<td>1.01</td>
</tr>
<tr>
<td>Motivation Total Score</td>
<td>.44</td>
<td>1.81</td>
<td>.18</td>
<td>1.56</td>
</tr>
<tr>
<td>Stage of Change</td>
<td>.37</td>
<td>.89</td>
<td>.35</td>
<td>1.45</td>
</tr>
</tbody>
</table>

* Stage 1 is the reference category
Table 9

*Means and Ranges from the Outcome Questionnaire-45 at Different Points in Time*

<table>
<thead>
<tr>
<th></th>
<th>OQ- Baseline (n = 100)</th>
<th>OQ-30 (n = 42)</th>
<th>OQ-60 (n = 18)</th>
<th>OQ-90 (n = 12)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>80.5</td>
<td>68.9</td>
<td>71.0</td>
<td>62.4</td>
</tr>
<tr>
<td>Range</td>
<td>26-144</td>
<td>18-148</td>
<td>41-110</td>
<td>39-80</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>24.1</td>
<td>27.6</td>
<td>18.8</td>
<td>14.9</td>
</tr>
</tbody>
</table>
Table 10

Means and Ranges of the Total Motivation Score at Different Points in Time

<table>
<thead>
<tr>
<th></th>
<th>TMQ- Baseline (n = 99)</th>
<th>TMQ-30 (n = 43)</th>
<th>TMQ-60 (n = 19)</th>
<th>TMQ-90 (n = 12)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>138.2</td>
<td>133.0</td>
<td>135.1</td>
<td>135.7</td>
</tr>
<tr>
<td>Range</td>
<td>34-177</td>
<td>38-176</td>
<td>59-167</td>
<td>44-161</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>25.7</td>
<td>32.9</td>
<td>27.8</td>
<td>33.0</td>
</tr>
</tbody>
</table>
Figure Caption

*Figure 1.* Participant’s personal treatment goals.
Goal for Program

Percentage

- Stay Clean/Sober
- Get Housing
- Follow Program
- Other Non Substance Use
- Slow Down Use
- Self-Exploration
- Restore Lifestyle
Figure Caption

Figure 2. Perceived reasons for being at the shelter.
Perception of Reason for Referral
Figure Caption

Figure 3. Participants' marital status.
Figure Caption

Figure 4. Primary substance of abuse.
Drug of Choice
Figure Caption

Figure 5. Self-identified ethnicity.
Race

- Caucasian
- African American
- Hispanic
- Mixed

Percentage

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Figure Caption

*Figure 6.* Educational attainment.
Highest Grade Completed
Figure Caption

*Figure 7.* Recency of last substance use.