Factors Related to the Outcomes of a Residential Substance Abuse Treatment Program for Women

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ABSTRACT

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This study investigated certain demographic and treatment variables. The sample used included 125 successful completers of a residential substance abuse program with an average length of stay of 60 days. The program is located in Athens County, OH and serves adult women and allows them the opportunity to participate in treatment with their children. The research question asked in this study was: Is there a relationship between or among residential substance abuse treatment outcomes and selected demographic and treatment variables (i.e., housing status, education level, income level, single substance abuse diagnosis versus dual diagnosis, parent/child/pregnant participation/residence in treatment and employment status at the time of residential substance abuse treatment admission)? The results of this study indicated that pretreatment employment status was the only significant variable of those included in this study that is significant to treatment outcomes.

Approved: ______________________________

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CHAPTER ONE

Introduction

Women and Substance Abuse

In the past, most research related to outcomes for substance abuse treatment programs involved male participants (Peluso & Peluso, 1988). Many researchers have documented the lack of data related to substance abuse treatment for females (Finkelstein, 1993; Howell, Heiser, & Harrington, 1999). Further, in the extant studies of substance abuse treatment for women it has been noted that a lack of control groups or use of small sample sizes were limitations (McCrady & Raytek, 1993). Prior to the 1970’s, few studies focused on women’s treatment needs. However, new studies emerged when the National Institute on Drug Abuse (NIDA) began sponsoring substance abuse research for women in the 1970s. Finklestein (1993) documented several studies conducted in the 1980s that focused on the shortage of treatment services available to women. The 1980s crack epidemic resulted in high cost medical issues including birthing complications. However, the epidemic caused a peak in treatment services available to women, and generated new studies (Howell, Heiser, & Harrington, 1999). Despite the recent increase in empirical investigations, the literature focusing on substance abuse treatment for women is lacking. Therefore, the present study seeks to examine the relationship of demographic and treatment variables to the successful outcome of a residential substance abuse treatment program for women.

The 2003 National Survey on Drug Use and Health (NSDUH) found that approximately 6.5 million (5.9%) women aged 18 or older met criteria for abuse of or
dependence on alcohol or an illicit drug (SAMSHA, 2005). This pressing problem is on the increase and Ohio appears to be following the national trend. Prevalence data from the Ohio Department of Alcohol and Drug Addiction Services (ODADAS) showed that 425,321 adult women experienced alcohol or other drug abuse and addiction in 2003. However, in 2003 Ohio’s publicly funded programs served only 26,327 adult women, leaving a treatment gap of 398,994. Although some women with private insurance may have received treatment services, Ohio did not serve 41,495 women who lived below the federally defined poverty level and needed substance abuse counseling treatment services (Ohio Department of Alcohol and Drug Addiction Services, 2004). This information was based on 2000 Census data, 2002 National Survey on Drug Use and Health Ohio-specific prevalence data and Multi-Agency Community Services Information System (MACSIS) claims payment data.

Gender differences have been reported in regard to physical, social, and economic factors related to substance abuse and dependence (Gregoire & Snively, 2001; Kingree, 1995). Physical factors include differences in progression of symptoms and reduced time to develop addictive symptoms from first use. Thus, the type and progression of addictive symptoms for women appear to be different than those for men (Blume, 1986; Schuckit, Bucholz, Hesselbrock, & Tipp, 1995). Women’s symptoms tend to advance more quickly than they do for men. This includes a reduction in the amount of time from the onset of heavy use and experiencing significant problems (Randall, Roberts, Del Boca, Connors, & Mattson, 1999). Although women typically begin using drugs and
alcohol at a later age than men, the average time from problem onset until initial treatment initiation is shorter for women than for men (Schuckit et al., 1995). This is a phenomenon known as “telescoping” (Randal, Roberts, Del Boca, Connors, & Mattson, 1999). Women also report physiological withdrawal symptoms earlier in treatment than do men. Women are more likely than men to use illegal drugs, rather than alcohol (Nelson-Zlupko, Kauffman & Dore, 1995) and are more often involved with multiple substances (Celanto & McQueen, 1984).

According to a study conducted by the National Institute of Drug Abuse (NIDA), there are important differences between men and women who seek treatment for drug abuse. These differences appear in income level, psychological wellbeing, and drugs of abuse. Men were significantly more likely to have a higher income and women were significantly more likely to have another Axis 1 disorder (Brady, Grice, Dustan, & Randall, 1993). NIDA also collected data that focused on gender differences in drug abuse risks and treatment needs (NIDA, 2000). Some psychosocial factors, including abuse histories or a positive history of domestic abuse, may contribute to the differences between women in their addictions (Green, Polen, Dickinson, Lynch, & Bennett, 2002). Studies also suggest an association between substance abuse problems and previous sexual abuse in women (Rohsenow, Corbett & Devine, 1988; Weiner, Wallen, & Zankowski, 1990).

Women are more likely to live with a substance-abusing spouse than are men (Marsh & Miller, 1985). However, women are more likely than men to use drugs in isolation (Marsh & Miller, 1985) and experience less family and parenting support than
men (Kingree, 1995). Women who enter treatment are more likely than men to have health problems, to have sought previous treatment, to have attempted suicide, and to have suffered sexual or other physical abuse (NIDA, 2000). In short, it appears that women have different needs in treatment than men and a successful program depends on meeting those different needs.

According to Wechsberg, Craddock, and Hubbard (1998), economic needs add additional challenges for women with substance abuse problems. Women who enter treatment programs are less likely than men to have graduated from high school and be employed. Women typically have higher rates of unemployment than males with similar substance abuse problems (Beckman, 1993). Chemically dependent women tend to be less educated, have fewer marketable skills, fewer work experiences, and less financial resources than chemically dependent males (Ohio Department of Alcohol and Drug Abuse Services, 2006). Lower income women with substance abuse problems confront barriers to self-sufficiency in life (Mathis et al., 1994). Women on public assistance typically present with problems related to being raised in addicted households characterized by deficits in child-rearing skills, abusive relationships and poor self-images (Weiner et al., 1990). Even though relapse is not directly caused by poverty and social disorganization, these problems are important contextual factors to consider in the treatment process (Weiner et al., 1990).

Substance-abusing women who are mothers have parenting responsibilities and experience stressors that hinder their opportunity to participate in residential treatment programs. In the 1990s, substance abuse programs were developed for pregnant women
to help improve birth outcomes, reduce maternal drug dependency, and promote healthy lifestyle changes (Daley, McCarty, & Shepard, 2001). Some evidence indicates that residential substance abuse treatment programs for pregnant women or women with children have been effective in reducing alcohol and drug use after treatment (Hodgins, El-Guebaly, & Addington, 1997). Improved relationships with children and the percentage of women receiving physical custody of their children increased from 54% to 75% 6 months after discharge from residential treatment (SAMSHA, 2002).

Women who carry a diagnosis of a substance abuse problem are also more likely to engage in child maltreatment (Black et al., 1994; Kelly, 1992; Williams-Peterson et al., 1994). Substance-abusing mothers have been described as using more negative reinforcement in their parenting behavior than non-substance-abusing mothers (Bauman & Dougherty, 1983). Killeen and Brady (2000) reviewed studies on parental stress and child behavioral outcomes following substance abuse residential treatment. Their review found that women who completed treatment with their children had better scores on addiction severity and parental stress scales than women who completed treatment without their children. In addition, their children had improved behavioral and emotional functioning after discharge compared to children who did not participate in treatment with their mothers. These results suggested that residential treatment has benefits for mothers and their children including the provision of support and structure during the critical time when a mother has the opportunity to rehabilitate or possibly face custody issues. Women and children in treatment may have the opportunity to avoid using the
foster care system. Thus, providing cohesive bonds that could optimize child care outcomes and facilitate treatment success for mothers (Wobie et al., 1997).

Statement of the Problem

Although the substance abuse treatment literature has focused on treatment needs and outcomes, the majority of this research over the past twenty years has been based primarily on men. Until recently, little attention was given to the treatment needs of women. Recent studies have identified differences in substance abuse treatment needs between men and women (Grella & Joshi, 1999; Walter et al., 2003; Wechsberg, Craddock, & Hubbard, 1998; Weiss, Kung, & Pearson, 2003). Undoubtedly, additional research on the effectiveness of substance abuse treatment for women is needed. This purpose of this study is to examine the relationship of demographic and treatment variables to the outcomes of a women’s residential treatment program at the Rural Women’s Recovery Program (RWRP). This study explores the relationship of treatment outcome to the following variables: marital status, housing status, work status, educational level, income level, substance abuse diagnosis, mental health diagnosis, and parenting/child participation/residence in treatment. Information gained from this study may assist professionals in identifying treatment barriers for substance abusing women and extend the literature focusing on residential substance abuse treatment needs of women.

The Treatment Program

The data used in this study was collected from RWRP, a residential substance abuse program for women, located in Athens, Ohio. This program is a part of Health
Recovery Services, a community mental health center serving Athens, Hocking, Meigs, and Vinton counties in Ohio. RWRP has a capacity to house and treat 15 women for an average length of stay ranging from 60-90 days. The women are provided with on-site counseling and medical services by licensed therapists and licensed health care professionals including a psychiatrist and nurses. The program provides twenty-four hour staff supervision by residential support staff.

RWRP is fully licensed by the Ohio Departments of Alcohol and Drug Addiction Services (ODADAS) and Mental Health. The program is based on ODADAS and Mental Health’s standards of care and the specific eligibility criteria. RWRP accepts any funding source including private insurance and Medicaid. Based on state requirements, eligibility criteria for admittance into the program include: identification as the female gender, being at least 18 years of age, having a substance abuse or dependence disorder diagnosis as described in the *Diagnostic and Statistical Manual, Fourth Edition, Text Revision (DSM-IV-TR)*; and being deemed as appropriate for residential level of care determined by scores on the Southern Consortium For Rural Care Initial Level of Care Determination Form.

Appropriateness for residential care is determined by having withdrawal symptoms, not having a medical condition requiring immediate medical attention, having interruptions in life functioning, and having a relapse potential that necessitates residential treatment or placement in a setting conducive to treatment. Children under the age of 5 may also participate in the residential treatment program with their mothers. The child(ren) must not be currently enrolled or eligible for public school programs and the
mother must have custody rights. Pregnant women are admitted as long as they have medically detoxified and have medical clearance from the staff physician.

**Research Question**

The following research question was addressed in this study:

1. Is there a relationship between or among residential substance abuse treatment outcomes and selected demographic and treatment variables (i.e., housing status, educational level, income level, single substance abuse diagnosis versus dual diagnosis, parent/child/pregnant participation/residence in treatment and employment status at the time of residential treatment admission)?

**Research Hypothesis**

This is an exploratory study, that used a Logistic Regression model of analysis, in an attempt to find out if demographic or treatment variables were significant in predicting sobriety following residential substance abuse treatment. The existing literature suggested that housing status, employment status, education level, income level, dual diagnosis, and participation with children or while pregnant were significant predictors.

**Significance of the Study**

Findings from this study may be used to identify factors that are related to successful treatment outcomes for women with substance abuse problems. The significance of this study is that it may help identify needs that can be addressed in treatment and have a positive impact on recovery. This study seeks to expand the knowledge about which variables are related to successful outcomes. If these factors can be identified, programming may be modified to improve the rate of successful outcomes.
Treatment dollars can be invested in services that will best meet the clients’ needs and maximize the likelihood of a successful outcome. Treatment programs may use this information to evaluate the importance of investing energy into providing services geared toward improving a woman’s educational level, income level, employment status, housing status, parenting skills, and more effectively treat complicated dual diagnoses.

**Limitations and Delimitations**

Because the study was based on existing data, only certain types of information was available and the researcher could not modify this information for purposes of clarification or completion. The study included participants who completed the program in 2005, 2006, and 2007. Follow-up information and access to client records was only readily accessible for client records post 2004. Also, the follow-up data are based on self-reports and may be subject to distortion.

The generalization of findings may also be limited in this study as most of the subjects identified themselves as Caucasians from rural S. E. Ohio counties, women with other racial identities from suburban or urban areas may differ from women in rural areas. The sample was made up of 93.6% of the women identifying as Caucasian, 3.2% identifying as Bi-Racial, 1.6% identifying as Native American, and 1 woman identifying as African American. A more diverse sample may have identified inner city problems that may not have affected this sample.

The data did not include follow-up information regarding post-treatment employment status. Many after-care reports did not included the employment status or
income level following treatment. This information was limited by poor recording of employment and income information at the time of follow-up.

**Delimitation**

The scope of this study was limited to participants of the RWRP in Athens, OH. The majority of the women who participated in the RWRP are from rural counties in Ohio and therefore the results of this study may not be generalized to programs in other states or regions. The focus of this study is on substance abuse and dependence problems, and other potentially relevant variables, such as a history of domestic violence, are not addressed.

**Definitions of Terms**

**Age**

Age is defined as years since birth.

**Dual Diagnosis**

The combined diagnosis of a co-occurring mental health and substance use disorder (i.e. alcohol dependence and depression, cocaine dependence and Bipolar I disorder, or opioid dependence and anxiety disorder).

**Education Level**

Levels of education used in this study include elementary education, high school education, completion of two years of college, completion of four years of college and completion of graduate school. For the purpose of this study the data was recorded as high school or less or post high school.
Employment Status

The data are divided into fulltime employment, part-time employment or unemployment. For the purpose of this study, pretreatment employment status was used in the analysis of this variable.

Housing Status

Respondents indicated if they have housing or if they consider themselves homeless.

Income Level

Nine levels of income were used in this study, including: $0 to $50,000 in $10,000 increments. For the purpose of this study the data were recorded as $0-$10,000 per year and above $10,000 per year.

Marital Status

Marital status at time of admission. The categories for marital status include single, married, divorced, separated, and widowed.

Outpatient Treatment

This is defined as scheduled, non-residential treatment with sessions meeting a minimum of one session a week.

Participation of Children in Treatment

This is defined as the residence of a child under the age of five who participates in treatment with his/her mother.

Race
Clients are asked to identify themselves as a member of the following groups: White, Black, Asian, East Indian, American Indian, Hispanic, or Mixed Race.

**Short-Term Residential Inpatient**

An in-patient program with an average length of participation ranging from 28 to 60 days.

**Substance Abuse or Dependence Diagnosis**

The primary substance of abuse is reported (i.e. alcohol dependence, cannabis dependence, cocaine dependence, opioid dependence, or sedative, hypnotic, or anxiolytic dependence). The primary substance of abuse is defined as the substance that has the highest degree of dependency for the client and results in the greatest degree of impairment. Categories of substances include: alcohol, marijuana, cocaine, hallucinogens, or other.

**Successful Program Completion**

A successful program completion indicates that the client finished the treatment program and achieved all treatment goals.

**Successful Outcome**

A successful program outcome indicated no reported use of drugs or alcohol at the time of follow-up after 60 days of program completion.

**Summary**

This chapter provided the outline for the study, establishing its intent, and guidelines. Chapter Two provides a detailed background for the study with literature reviews related to the independent variables. The independent variables include: marital
status, housing status, work status, education level, income level, substance abuse diagnosis, mental health diagnosis, and parenting/child participation/residence in treatment. Chapter Two concludes with a summary of the findings from the literature and a brief summary of the research needs in the area of treatment programming needs for women in residential substance abuse treatment. Chapter Three details the research problem, questions, and methods that were used to address the hypotheses. Chapter Four reviews the results of the statistical analysis; and Chapter Five provides a discussion of the results, conclusions from the analyses, and recommendations for further research.
CHAPTER TWO

Review of the Literature and Related Research

This chapter includes a review of the literature and empirical research related to
the research questions. It also includes additional related information that increases the
depth and understanding of the topic. The primary headings include: child(ren) residing
with their mothers in treatment; employment status including pre/post treatment
correlations; income level; education level; housing status; and co-morbidity. This
review includes a brief history of the development of gender-specific treatment programs
for women. In addition, it reviews certain characteristics that have been associated with
increased treatment retention rates and program completion, which are related to
decreased risks for relapse. This chapter concludes with a description of a gender-specific
treatment program, the Rural Women’s Recovery Program (RWRP), the source of data
for this study. This program is described in detail by highlighting its unique
characteristics.

Gender Differences in Substance Abuse Treatment

Physiological Differences

Important gender differences exist among individuals with substance use
disorders that may have treatment programming implications. Nationally, female clients
constitute about 33% of the substance abuse treatment population (Brady & Ashley,
2005). Damonti (1996) reports that only 14% of women needing treatment actually
receive services. Women may be more vulnerable to some physiological effects of
substance use and their use is often rooted in psychological problems or traumatic life
events (Gregoire & Snively, 2001). Women enter treatment with specific barriers including: having childcare responsibilities, stigmatization issues, and financial situations that make access to treatment difficult. Women entering treatment are more likely to have children and earn less income than men (Suffet, 1999). Women who do enter treatment exhibit poor retention, with dropout rates commonly exceeding 50% (Copeland & Hall, 1992). This chapter discusses these barriers and describes programs attempting to meet the needs of women with a substance use disorder.

The biological consequences of substance abuse differ for men and women. A woman’s susceptibility to the physiological consequences of alcohol and other drug use is higher than that of a man’s (Deal & Galaver, 1994). Women’s bodies respond differently to alcohol, partly due to the fact that alcohol is more soluble in water than in fat (Deal & Galaver, 1994). Women have less water per pound than men and will attain a higher blood alcohol level from the same dose of ethanol per unit of body weight (Deal & Galaver, 1994). Women have also been shown to produce less alcohol dehydrogenase, which is an enzyme that assists in the metabolism of alcohol (Deal & Galaver, 1994). These differences may allow the alcohol and drugs to remain in the body longer causing greater damage.

*Psychosocial Factors*

Gerstein and Johnson (2000) analyzed data from the National Treatment Improvement Evaluation Study (NTEIS), the largest naturalistic study of substance abuse treatment outcomes to date that focused on characteristics, services, and outcomes of treatment for women with a substance use disorder. The study’s multi-site sample
compared 1,374 women to 3,037 men. Within their sample, fewer women than men had
graduated from high school (50% of women had graduated vs. 57% of men) or were
employed at the time of admission (11% vs. 26%). Women were more likely than men to
report currently raising their children (40% vs. 21%); to express concerns about gaining
or losing custody of children (36% vs. 15%); and to report that counseling regarding
child care was important (43% vs. 23%). Women reported that cocaine (in powder or
-crack form) was the primary drug leading to treatment (54% of responses), whereas only
40% of men reported cocaine as their primary drug. Women were addicted to alcohol or
marijuana, alone or in combination, about half as often as men (14% vs. 29%).
Interestingly, no gender differences existed in the number of prior treatment episodes for
substance use problems. The NTIES results indicated that women in substance abuse
treatment differ from men in their histories of substance abuse, including reasons for use
and treatment needs (Gerstein, Johnson, Larison, Harwood, & Fountain, 1997). The
sample was representative of the national treatment population in that it is collected from
multi-site sources. The majority of the sample’s women participants were black, in their
twenties or thirties, unemployed, and single and were primarily in treatment for cocaine
(in the form of powder or crack). These demographics indicated that women enter
treatment at a younger age, have lower incomes, and have less formal education than men
in treatment.

Women substance abusers demonstrate unique psychosocial characteristics. In a
large multi-site prospective clinical epidemiological study, Wechsberg, Craddock, and
Hubbard (1998) found that women entering substance abuse treatment programs had
lower education levels and employment levels, more mental health problems, greater exposure to physical and sexual abuse, and greater concerns about issues related to children compared with men. A review of the research indicates that these are the characteristics that are barriers for women in treatment (Gerstein et al., 1997; Suffet, 1999). Furthermore, research has shown that women who abuse substances are more likely than men to have psychological problems (Fiorentine, Anglin, Gil-Rivas, & Taylor, 1997); be unemployed (Suffet, 1999); have higher rates of sexual abuse histories (Wallen, 1992); be responsible for the care of children and have more children in the home than men (Brady, Grice, Dustan, & Randall, 1993); and be younger and less educated than men entering treatment (Hser, Huang, Teruya, & Anglin, 2003).

Specific Case Management Services for Women

A positive association has been found between length of treatment episode and successful outcome (Hughes et al., 1995; McCrady & Raytek, 1993). Consequently substance abuse treatment programs have been encouraged to include interventions designed to keep clients from dropping-out (Ito & Donovan, 1990). Case management is an intervention used to encourage treatment adherence and promote goals such as drug abstinence and improved employment functioning (Martin & Inciardi, 1993; Siegal et al., 1996). Case management helps clients to maintain and secure resources to help with finances, housing, and employment and focus on drug abstinence and employment goals.

In a study by Laken and Ager (1996), two-hundred and twenty-five pregnant women in drug treatment programs were given case management services in an attempt to retain them in treatment. The services included: home visits, telephone counseling,
transportation, and referrals. All 225 women contacted a substance abuse treatment center and 56% stayed in treatment during pregnancy (Laken & Ager, 1996). Programs with case management services that include parenting skills and an opportunity to participate in treatment with children have been effective in retaining women in treatment (Hughes et al., 1995; Szuster, Rich, Chung, & Bisconer, 1996).

**Participation of Children in Treatment**

A review of more than 130 treatment and prevention programs for women suggested that substance abuse prevention for pregnant and postpartum women strengthened the capacity of the treatment system to provide appropriate services through women-oriented programs throughout the country (Macro International Inc., 1993). An estimated 60-70% of women entering treatment have dependent children (Davis, 1994). Participation, retention, abstinence, and better birth outcomes have been cited as benefits of gender-specific services allowing women to participate in treatment with their children (El-Guebaly, 1995 & Chang, Carroll, Behr, & Kosten, 1992). Research indicates that women will stay in residential treatment settings longer if they are permitted to have their children with them (Coletti, Hughes, Neri, Urmann, Stahl, Sicilian, Anthony, 1995; & Szuster, Rich, Chung, Bisconer, 1996).

Hughes et al. (1995) conducted a study to determine if women who lived with their children while in treatment remained in treatment longer than women whose children were placed with caretakers. Fifty-three women with a substance use disorder were randomly assigned placement in one of two conditions: living in treatment with their child; or the child being placed with the best available caretaker. Results indicated
that women cohabitating with their children remained in treatment significantly longer (average stay of 300 days) than women whose children were placed elsewhere (average stay of 102 days).

Szuster et al. (1996) studied retention results for a long-term residential program in Hawaii with a history of admitting women to treatment both with their children and without their children. The subjects were 130 women who participated in treatment between 1988 and 1993. Women who participated in treatment with their children had better retention than did women whose children were not in their care. The retention rates were clearly better for women who participated in treatment with their children.

Many women seek treatment in a response to their feelings of maternal responsibility (Kearney et al., 1994). Participating in treatment is hindered by the lack of affordable and reliable child-care services. Beckman and Kocel (1982) noted in their survey of 53 agencies that those who offered aftercare services and treatment for children served a significantly higher number of women than those that did not offer such services. El-Guebaly (1995) found that offering services that addressed maternal-specific needs increased participation and improved retention rates for women seeking substance abuse services.

Chang, Carroll, Behr, and Kosten (1992) found improved birth outcomes and increased abstinence through incorporation of relapse prevention and therapeutic childcare. Chang et al. (1992) compared outcomes for six pregnant methadone-maintained, opiate-dependent subjects in enhanced treatment to six women receiving conventional methadone maintenance. “Enhanced treatment” consisted of weekly
prenatal care, relapse prevention groups, three weekly urine toxicology screens, and therapeutic child care during treatment visits in addition to treatment “as usual.”

Treatment “as usual” included daily methadone, group counseling, and random urine toxicology screening. Participants who received enhanced treatment had fewer urine drug screens positive for illicit substances (59% vs. 76%), attended three times as many prenatal visits (8.8 vs. 2.7), and delivered heavier infants (median birth weight, 2959 vs. 2344 grams). These results suggested that drug treatment involving relapse prevention groups and therapeutic childcare can improve pregnancy outcome and reduce low birth weight for this population.

Studies of residential treatment suggested improved retention rates and improved outcomes as results of tailored programs meeting specific needs of women. Markoff and Cawley (1996) reported that the differential treatment experience for women is a function of treatment variables, such as the modality and the range of support services, including maternal education and support services, rather than the personal characteristics of the participants. Wald, Harvey, and Hubbard (1995) described support services as attempts to relieve women from responsibilities of parenting so they may focus on addiction issues. Zanowski (1987) reported that a result of the women not receiving supportive services was that the overall treatment experience was ineffective. Finkelstein (1993) reported that the average woman in need of treatment does not have the resources (e.g., family, financial) to secure adequate childcare options for her children while she receives services due to the lack of family support and income levels.
Employment and Success in Treatment

Pre-Treatment Employment Status

Employment has been identified as an indicator of success in treatment including pre-treatment employment status being associated with improvement and retention rates (Platt, 1995). Studies by Capone et al. (1986) and Ruiz, Langrod, Lowinson and Marcus (1977) reported that pre-employment status was a significant predictor of treatment participation. Capone et al. (1986) investigated retention and outcome in a narcotic antagonist program. The study followed 50 patients and found that the patients who remained in treatment longer had entered treatment with stable employment records and appeared more successful at termination than patients without stable employment at admission. Ruiz et al. (1977) found higher degrees of treatment compliance among working patients than those who were unemployed.

Braunstein, Powell, McGowan, and Thoreson (1983) found that employed alcoholics showed more positive reactions to treatment in that those who were employed showed greater improvement on scales measuring mood, consumption, and neurological functioning, as compared to those who were unemployed. Hammer et al.’s (1985) findings from an experimental study of a vocational training program for young drug and alcohol abusers supported this conclusion. Sample results indicated a high correlation between work activity and reduction in substance use. Hammer et al. (1985) concluded that vocational training programs reduce substance use levels for those engaged in work activity. Some studies also suggested that employment stability is associated with reduced substance use, severity of relapse, improved community functioning, and
community reintegration (Comerford, 1999; Vaillant, 1988; Zanis, Metzger, & McLellan, 1995). Vaillant (1988) concluded that “work provides structure to the addict’s life and structure interferes with addiction” (pp. 1154). Unemployment has been found to be a stronger predictor of relapse than the severity of a client’s addiction (Vaillant, 1988).

**Employment as Treatment and Outcome**

Some studies have viewed employment as an outcome rather than a predictor of treatment success (Harlow and Anglin, 1984; McLellan et al., 1986). However, there is a body of treatment evaluation research that views employment as both a desired outcome and an element of treatment (Platt, 1995). This is reflected in the use of employment as an outcome by a number of researchers in the field of drug abuse treatment evaluation (Deleon, 1984; Hall, 1984; Hubbard, Rachal, Craddock, & Cavanaugh, 1984; Simpson, 1984). McLellan (1983) reviewed 31 studies and found that 26 of those studies that included employment status as an outcome variable found significant and positive correlations between employment status and retention in treatment. Hubbard et al. (1989) cited work as a factor in successful substance abuse treatment outcomes, and they reported increased employment rates to be a byproduct of successful treatment. However, in a (TOPS) Treatment Outcome Protocol Study of methadone maintenance patients, Hubbard and colleagues (1989) found small changes in employment rates following treatment compared with pretreatment rates. The employment rate for the group prior to admission was 24% of the patients reporting full-time employment. The
rates improved to 29% by year two, and fell below pre-treatment rates by three to five years post-treatment.

**Productivity**

Substance abuse has a direct impact on workplace productivity in terms of absenteeism, poor work performance, and work-site accidents (Rice, Kelman, Miller, & Dunmeyer, 1990). Other costs include employee turnover, poor morale, and time spent on disciplinary problems. Seigal and colleagues (1996) examined the effectiveness of case management on employee functioning. They conducted a study of 632 veterans and found a positive correlation between employment functioning and functioning in other areas, suggesting that interventions oriented to improving employment status may serve to support drug and alcohol abstinence. If this study can be generalized to the general population, case management may increase employment and recovery benefits.

**Employment Barriers**

A study by Suffet (1999) focused on some sex-neutral and sex-specific factors related to employment among substance abuse clients. Participants (1274 men and 804 women) were evaluated related to their employment status at time of intake to substance abuse treatment. Suffet found that men were more likely to be employed than women, and that employment was positively related to education and stable housing. However, employment was negatively related to their number of children and being pregnant. In this study, Suffet also constructed a “work barriers scale” and found that employment was negatively related to the number of work barriers. Consequently, women faced more barriers than men, accounting for their lower employment rate. In review, maternal
responsibility has been a barrier to treatment for women in multiple studies (Anglin et al., 1988; Mathis et al., 1994; Platt, 1995; Suffet, 1999).

A study by Silverman, Chutuape, Svikis, Bigelow, and Stitzer (1995) identified some of the specific employment barriers that women face. The study investigated incongruity between occupational interests and academic skills in drug abusing pregnant women ($N = 50$). Participants were assessed for their occupational interest and academic skills. The Wide Range Achievement Test was administered and most women scored at or below the 7th-grade level in reading, spelling, and arithmetic, and one quarter of the women scored at or below the fourth-grade level in these areas. The women also rated their occupational interests. Office jobs requiring well-established skills in reading, spelling, and arithmetic were rated of highest interest by the women. The researchers found incongruity between the vocational interests and work skills. Silverman et al. (1995) suggested that the results indicated a need for extensive basic academic training prior to specific vocational training.

**Childcare as an Employment Barrier**

The National Treatment Evaluation Study, the largest naturalistic study of substance abuse treatment outcomes yet undertaken (Johnson & Gerstein, 2000), provided a large sample to compare demographic characteristics of women versus men. The NTES is important because of the limited range of treatment outcome studies focusing on women, despite the large numbers of participants enrolled in such studies (Gerstein, et al., 1997; Hubbard, Hubbard, & Anglin, 1999; Johnson & Gerstein, 2000). This study examined a number of pretreatment characteristics including family status,
primary drug, and employment. The sample found the woman are about three times as likely as men to be residing with their children, to express concerns about currently raising children, and to be concerned with child care needs. This is important because being the primary caretaker reduces the chances of working. Anglin et al. (1988) found that a woman’s likelihood of working was reduced when she was pregnant or had a number of children. Suffet (1999) also found employment rates to be negatively related to the number of children that a woman cares for or her being pregnant.

**Income**

Income has also been examined in relation to treatment success and relapse. McLellan et al. (1981) found substantial treatment improvement among clients who had received their pretreatment income from jobs and illegal activities in contrast to clients who had received their income from public assistance. Up to 40% of welfare recipients have a substance use problem (Metsch, McCoy, Miller, McAnany, & Pereyra, 2000). Studies by McCellan et al. (1986) and Oggins et al. (2001) found that participation in treatment was associated with increases in income. Anglin and Fisher (1987) found the loss of a job to be associated with relapse. Both of these issues were relevant to the special needs of women in obtaining and maintaining employment. Women usually have more demands placed on them for child-care than do men (Platt, 1995). Mathis et al. (1994) noted that child care services are needed that would provide female substance abusers with the time needed to acquire employment-related skills and to seek, gain, and maintain employment. Mathis et al. discussed other factors possibly affecting women entering the workforce. The women in their sample reported less desire to be employed
then did men. This study also found that many women enter into drug use through their male partner and develop a dependent relationship during their addiction that tends to last through their treatment and post-treatment, hindering them from seeking vocational assistance.

**Economic Self-Sufficiency**

Gregoire and Snively (2001) explored outcomes of 59 women who attended long-term substance abuse treatment in a women’s facility that emphasized employment and economic self-sufficiency. Reductions in substance use were associated with an increase in economic autonomy. Thus, women living in drug-free social environments had higher rates of abstinence and better overall functioning than those living in drug-infested areas. Economic autonomy and safe housing were positively correlated with treatment retention in that study.

**Education Level**

Knight, Logan, and Simpson (2001) found that women who had graduated from high school or obtained a GED were 3.2 times more likely to complete treatment substance abuse treatment than those who had not completed high school. Schmitz and colleagues (2000) found similar results from their study of cocaine addicted patients in that treatment dropouts were more likely to be women and have fewer years of education. Education and employment are demographic characteristics that are not only related to one another, but also are related to retention rates for substance abusing women. A low education level and/or being unemployed have consistently predicted relapse and treatment dropout (Lang & Belenki, 2000; Sayre et al., 2002; Sechrest, 2001; Suffet,
1999; Sung, Belenko, & Feng, 2001). Sayre et al. (2002) found that clients with lower education levels had more difficulty expressing their needs and completing treatment assessments, felt inferior to participants with more education, and were more apt to drop out of treatment than individuals with higher educational attainment. Individuals who cannot find stable employment because of limited education are less likely to resist the temptation to re-enter the drug world after treatment (Sayre et al., 2002). However, he didn’t investigate reasons why the individuals have lower education levels.

**Housing Status**

*Impact of Housing Status on Recovery and Retention in Treatment*

Research reviews and clinical studies have concluded that gender differences exist in the routes that lead to homelessness, a factor that is important to consider in treatment, as it likely affects outcome (Bassuk et al., 1996; Nyamathi, Leake, & Gelberg, 2000; Opler et al., 2001). The Center for Substance Abuse Treatment (CSAT) identified homelessness as often contributing directly to relapse (CSAT, 2000). Although homelessness is associated with relapse and non-compliance, other factors also affect these outcomes and explain variance (Finkelestein, 1993). However, researchers have identified that the needs for secure rest, sleep, food, and shelter from weather are primary over the need for treatment of a substance abuse problem (Milby et al., 2000).

A project supported by the National Institute on Drug Abuse was conducted in 1999 to evaluate the MOM’s Project, a substance abuse treatment program designed to meet the needs of substance abusing pregnant women. Women recruited into the MOM’s Project (157 pregnant women) were evaluated and 25% were homeless and another 20%
were housed with friends or relatives in environments that they perceived as unstable; in other words, 45% of the women lacked stable housing. About half of the women in this sample had been previously treated for substance abuse/dependence disorders.

Mental health problems also appear to be related to homelessness and non-compliance to treatment and relapse (Dickey et al., 1996). A study of 14 substance abuse programs for homeless individuals evaluated their completion and retention rates (Orwin, Garrison-Morgen, Jacobs, & Sonnefeld, 1999). Each of the programs lost two-thirds or more of their clients to early termination and the majority lost more than 80% before treatment completion, leading to the conclusion that homeless clients are more severe than the general population of substance use disorder afflicted individuals (Orwin et al., 1999).

**Cohabitation Issues**

Researchers have found some evidence that with whom (i.e. using significant other or sober supportive others) a woman lives and her marital status have an impact on treatment retention (Mertens & Weisner, 2000; Shelly et al., 2000; Sidall & Conway, 1998; Westreich, Heitner, Cooper, Galanter & Guedj, 1997). A study by the Substance Abuse and Mental Health Services Administration (SAMHSA) Center for Substance Abuse Treatment found that 60% of the participants remained completely abstinent six months after leaving treatment (SAMHSA, 2001). However, there was also a decrease from 45% to 12% in the percentage of participants living with an alcohol-or drug-involved spouse or partner. Twenty-one percent of the participants also received educational or vocational training and learned about the impact of family use on
recovery. The participants who were successful reported decreased family use. Women who are married or living with a partner and those with family or social support are more likely to complete program requirements (Sidall & Conway, 1998).

Mertens and Weisner (2000) studied predictors of substance abuse treatment retention among men and women in an Health Maintenance Organization (HMO) and found that retention was partially predicted by patients’ marital status. They compared 317 women and 599 men who were being treated in a health maintenance organization’s outpatient drug and alcohol program based on independent predictors of length of stay and retention. The patients were followed for a period of two years. The researchers found that most predictors were sex-specific. In this study, retention was predicted by a variety of characteristics, including being married as an asset to treatment retention.

**Family Support**

A study by Westreich, Heitner, Cooper, Galanter, and Guedj (1997) yielded contrasting results to the SAMSHA (2001) study. Westreich et al. measured perceived social support among patients and their families as a predictor of retention in an inpatient addiction rehabilitation program. Sixty-six inpatients were asked to provide diagnostic and demographic information and complete scales of perceived social support from their families. Homeless status and initial weak-perceived social support correlated with completion of the program. Patients with stronger connections to shelter and family support were less likely to complete an inpatient addiction rehabilitation program. One possible explanation for these results may have been that the homeless patients in this study were provided with shelter while participating in treatment, possibly increasing
participation, while patients with housing may have opted to return home and attend outpatient counseling services.

Shelly and colleagues (2000) attempted to identify pretreatment predictors of attrition in an outpatient substance abuse program in Houston. One hundred and sixty-five individuals were included in the sample. The sample was produced from men and women seeking treatment for cocaine dependence. They completed a pretreatment assessment battery and were assigned to 12 weeks of outpatient substance abuse treatment. Regression analyses were performed and results indicated that treatment dropouts were more likely to be separated from their spouses, more likely to have poorer family/social functioning, and more likely to be female.

**Treatment Compliance and Stable Housing**

Women with substance use disorders may also have difficulty maintaining their eligibility for entitlement programs and may lose housing or housing opportunities. Women with drug-related charges may become homeless as a result of Section Eight of the United States Department of Housing and Urban Development guidelines prohibiting those with drug charges from maintaining or receiving housing assistance, thus creating additional barriers to maintaining abstinence (Hammett, Gaiter, & Crawford, 1998).

Dickey et al. (1996) examined patterns of mental health service-use among formerly homeless mentally ill adults to determine whether clients in a staff-monitored group living situation would need fewer services than those living independently in single apartments. Clients were randomly assigned to two housing types: individual apartments or a group living situation. The types and frequency of service use for clients were
documented and compared for an 18-month period. The conclusions were made that when homeless individuals are provided with permanent housing they are likely to avoid unstable housing patterns, which are associated with higher use of inpatient services including detoxification and substance abuse treatment. Researchers generally agree that sober and supportive housing leads to better adherence of referrals, improved retention in programs, and to better treatment outcomes (Dickey et al., 1996; Dobscha, Delucci, & Young, 1999).

Co-morbidity

Prevalence of Co-morbidity for Females in Treatment

Women with a substance use disorder are more likely to also have a co-morbid psychiatric diagnosis, as compared to the general population (Alvarez, Olson, Jason, Davis, & Ferrari, 2004; Beckwith & Espinaosa, 1994; Brady et al., 1998; Chander & McCaul, 2003; Gentillo et al., 2000; Mann, Hintz, & Jung, 2004; Phillips, Carpenter, & Nunes, 2004; Randall et al., 1999). Psychological diagnoses that were the most likely to be associated with substance abuse or dependence by females included depression, anxiety, and posttraumatic stress disorder (PTSD) (Brady, Dansky, Sonne, & Saladin, 1998; Merikangas & Stevens, 1998; Sax & Wolfe, 1999). This is important, as stress and distress seem to be prevalent factors in the development of a woman’s substance abuse history (Gomberg, 1994). Also, studies indicate that women who feel powerless over their circumstances may use substances as a coping mechanism (Beckman, 1994).

Beckwith, Espinosa, and Howard (1994) conducted a review to compile a psychological profile of pregnant women who abuse cocaine, alcohol, and other drugs.
They examined psychological characteristics of 145 pregnant women who were receiving outpatient substance abuse services and had been referred to substance abuse treatment by child protective services. All women evidenced significant psychopathological symptoms including: paranoid ideation, thought disorder, depression, and anxiety. The researchers also identified a positive correlation between years of drug use and severity of psychiatric problems. Moreover, 78% of participants reported histories of physical and/or sexual abuse and 78% reported being beaten or raped. Poly-substance abuse was characteristic of the sample. Consistent with Beckwith et al. (1994), Wallen’s (1992) study of substance abusing men and women found women to be more likely to report sexual abuse. Thirty-three percent of the women in Wallen’s (1992) study reported sexual abuse during childhood and 27% reported experiencing sexual abuse as an adult. Wallen’s (1992) results indicated that a reported history of sexual abuse was positively related to treatment completion, suggesting that negative feelings about abuse experiences may be related to engagement in treatment.

Brady, Grice, Dustan, and Randall (1993) explored the differences in the demographic variables of psychiatric co-morbidity and personality disorders in individuals with substance use disorders. A total of 100 (50/50 male and female) treatment-seeking substance users admitted to a university-based and a university-affiliated private chemical dependency hospital were compared with regard to demographic variables and co-morbid psychiatric and personality diagnosis according to the Structured Clinical Interview for DSM-III-R after 14-21 days in treatment. The women in this study were significantly more likely to have another Axis I disorder,
particularly anxiety disorders, in addition to a substance use disorder, than the men in this study. Seventy percent of the women were diagnosed with an affective or anxiety disorder compared to 48% of the males. Forty percent of females experienced a major depressive episode compared to 36% of males. Forty-six percent of females versus 24% of the males met criteria for Post Traumatic Stress Disorder (PTSD).

**Abuse Histories**

Substance abuse by females is linked to traumatic events or stressors, including sexual abuse, physical abuse, physical illness, accidents, or disruptions in family life (Grella, 1997; Martin, Beaumont & Kupper, 2003). Daley and Argeriou (1997) researched characteristics and treatment needs of 447 Medicaid eligible pregnant chemically-dependent women in publicly funded detoxification centers; 41% reported sexual abuse in their lifetime. Sexually abused women reported use of substances at an earlier age in life than women who had not been sexually abused.

Some researchers have suggested that people may use substances as a method of self-medicating in response to the experience of trauma or sexual abuse. Females often use alcohol or other drugs to self-medicate to help them cope with painful feelings related to traumatic events and stressors (Miranda, Meyerson, Long, Marx, & Simpson, 2002; Teusch, 2001; Young, Boyd, & Hubbell, 2002). One theory is that victims of sexual abuse use substances in an attempt to emotionally numb themselves from unpleasant memories and painful feelings (Root, 1989). Kilpatrick, Acierno, Resnick, Saunders, and Best (1997) conducted a 2-year longitudinal analysis of the relationship between violent assault and substance use in women. The study followed 3,006 women for 2 years.
Results indicated a cyclical pattern in which the use of drugs increased the odds of a new assault and after the new assaults the odds of alcohol and drug use increased. The cycle of substance use putting women at risk for trauma exposure was evidenced in this large study.

Women who experience physical or sexual abuse have higher incidences of mental health disturbances including depression, PTSD, panic disorder, and substance abuse issues (Beckwith, Espinosa, & Howard, 1994; Gil-Rivas, Fiorentine, & Anglin, 1996). Stress and distress seem to be prevalent factors in the development of a woman’s alcohol dependence (Gomberg, 1994). Studies indicate that women who feel powerless over their circumstances may drink as a coping mechanism (Beckman, 1994). Sexually abused women are more likely to model their “coping” behavior on that of other family members or friends who use alcohol and drugs (Miller, Downs, & Testa, 1993).

Findings from a longitudinal 330 subjects found sexual abuse among women to be associated with higher levels of depression, anxiety, suicidal ideation, suicidal attempts, and PTSD. However, those who experienced only physical abuse, as compared to sexual abuse, tended to have fewer psychological problems (Gill-Rivas et al., 1997). The findings did not support a significant association between a history of sexual or physical abuse and lower levels of treatment participation or drug use at the time of follow-up. The women in this study had more psychological risk factors than men, but the women were more likely than the men to engage in the treatment process. These findings indicate that there is a complex connection between abuse psychopathology, treatment participation, and relapse (Gill-Rivas et al., 1997).
Women who had a history of sexual abuse reported significantly more difficulty socializing with others and higher levels of hopelessness (Wallen, 1992). Wallen’s (1992) study described the complex relationship between reported sexual abuse being positively correlated with treatment completion. The results suggested that negative feelings about childhood experiences were related to increased involvement in the treatment process.

**PTSD**

Brown, Recupero, and Stout (1995) investigated the prevalence of Post Traumatic Stress Disorder among a sample of treatment-seeking substance abusers. Eighty-four patients (48 male and 36 female) admitted from a detoxification unit to a private hospital were administered self-report measures of lifetime stressor events, PTSD symptomology, and prior treatment history. Women were more likely than men to have experienced physical and sexual abuse. More women than men were classified as having possible PTSD. Those with PTSD reported a greater number of hospitalizations than their non-PTSD counterparts. These results were interpreted by the authors as suggesting that patients with both PTSD and alcohol problems have higher rates of recidivism than those diagnosed with alcoholism only.

**Other Psychiatric Disorders**

Patients with substance abuse disorders frequently present with other psychiatric disorders (Ross, Glaser, & Germanson, 1988). Dr. Alan Leshner, the previous National Institute on Drug Abuse (NIDA) director, reported that recent epidemiological studies have shown that between 30% and 60% of drug abusers have concurrent mental health
diagnoses including personality disorders, major depression, schizophrenia, and bipolar disorder (Leshner, 1999). The NIDA results suggest that the most common are personality disorders including Antisocial Personality Disorder and Borderline Personality Disorder, anxiety disorders (e.g., PTSD), and depression. Women are more likely to experience higher rates of co-occurring disorders than men. It is estimated that 1 in 12 women over the age of 18 may be diagnosed with serious mental illness in any given year, compared to 1 in 20 men (Helzer & Pryzbeck, 1988). Moreover, women diagnosed with two disorders are also more likely to be survivors of physical or sexual abuse (First, Spitzer, Williams, & Gibbon, 1997; Melchior, Huba, Brown, & Slaughter 1997).

**Treatment Outcomes with Dual Diagnosis**

Comorbidity is a common problem among women who abuse substances. A study of 50 female cocaine and alcohol abusers found that 70% had been diagnosed with an affective or anxiety disorder, 46% with PTSD, and 40% with major depressive disorder (Brady et al.,1993). Research suggests that individuals with a pre-existing diagnosis of depression have an exceptionally hard time resisting environmental cues or urges to relapse (Leshner, 1999).

The contribution of psychiatric comorbidity to poor treatment outcomes has been well documented by McLellan Luborsky, Woody, O’Brien and Druley (1993). Dual diagnosis has been associated with higher rates of re-hospitalization ( Lyons & McGovern, 1989). Lyons and McGovern conducted a study focused on the use of mental health services for dually diagnosed patients. They found that dually-diagnosed patients,
particularly those who abused alcohol, were more likely to be re-hospitalized after initial short stays and spend more days in a state facility during a 90-day follow-up period than psychiatric patients who did not abuse substances.

Co-morbidity or a history of trauma or abuse increases barriers to treatment for females, decreases their access to treatment, and lowers completion rates (Mertens & Weisner, 2000). Females with co-occurring substance abuse and psychiatric disorders face unique barriers to substance abuse treatment, such as difficulty in obtaining a dual disorder assessment and accurate diagnosis, social stigma attached to both conditions, and insufficient knowledge and training among providers of mental health or substance abuse treatment services in the management of coexisting disorders (Grella, 1997).

Fiocchi and Kingery (2001) examined 135 crack cocaine abusers enrolled in a substance abuse treatment program for pregnant women. They looked at 10 separate participant characteristics and retention. Results indicated that prior psychiatric hospitalization was the only participant characteristic that was significantly associated with treatment retention. The results indicated that women who had been previously hospitalized for a psychiatric problem were more apt to depart the residential treatment program before delivery of their babies when compared to women who had not been hospitalized for a psychiatric problem. This study was limited in that the participants were all pregnant crack users; the ability to generalize these results has not been shown. However, a prior history of hospitalization for a psychiatric problem was associated with poor retention, and is consistent with other studies that have shown that clients with more
psychological problems have difficulty completing substance abuse treatment programs (e.g., Stark, 1992).

**Treatment Retention**

A prior history of hospitalization for a psychiatric problem was associated with poor retention in Stark’s 1992 study. Stark found those results to be consistent with other studies that have shown that clients with more psychiatric problems have difficulty completing substance abuse treatment programs.

Mertens and Weisner (2000) conducted clinical research to examine predictors of treatment retention among men and women in an outpatient substance abuse program. The results indicated that retention was predicted by having lower levels of psychiatric severity for women, whereas retention for men was predicted by being of an older age and having abstinence goals.

**Previous Substance Abuse Treatment Admissions**

An analysis of pre/post-test changes among women found that women with no prior treatment episodes appeared to have somewhat greater rates of improvement on outcomes than women with one or more prior treatment episodes. According to Gerstein and Johnson (2000), this pattern may result from a filtering process where women who can be treated more satisfactorily using available treatment methods are less likely to relapse and return to treatment. Conversely, women who were unsuccessful in treatment may be those with more severe problems and more likely to need additional treatment.
Drug of Choice

The primary drug of choice and the reason for entering treatment was cocaine for 54% of women in a 1,374 participant sample in a study by Gerstein and Johnson (2000). The National Survey on Drug Use and Health (NSDUH) Report for 2005 discussed results from previous years. The report indicated that in 2003, 70.1 million women (63.4%) used alcohol during the past year, an estimated 12.5 million (11.3%) used an illicit drug during the past year, and estimated 5.9 percent of women aged 18 or older met criteria for abuse of or dependence on alcohol or an illicit drug in the previous year.

Gil-Rivas et al. (1997) conducted a study in an attempt to explain the gender paradox in relapse rates. The researchers followed 182 women and 148 men who had completed 6 months of treatment in 26 public outpatient drug abuse treatment programs in Los Angeles County. The researchers found that women in their sample relapsed at a rate of 22 percent whereas men relapsed at a rate of 32 percent. The primary drugs of choice were crack cocaine, marijuana, and powder cocaine for the women in the study.

Weiss, Martinez-Raga, Griffin, Greenfield and Hufford (1997) conducted a study of gender differences in 74 patients hospitalized for cocaine dependence. The patients were interviewed 6 months after hospitalization. The results indicated that of the 74 patients, 51% of the women had remained abstinent compared to 25% of the men. Average relapse rates for patients ranged between 40-60% within 6 months of leaving any type of substance abuse treatment (McLellan et. al., 2000). Due to the differing degrees of substance abuse severity, the type and strength of the substance, and the length
of treatment provided, there is a lack of consensus on relapse rates for specific drugs (McLellan et al., 2000).

A national study of 1,605 patients treated for cocaine dependence in 55 programs (19 long-term programs, 24 outpatient programs, and 12 short-term treatment programs) showed that 24% reported relapses to weekly cocaine use and another 18% continued to have problems in the year after discharge from substance abuse treatment (Simpson et al., 1995).

Moore and Budney (2003) reported findings of relapse in outpatient treatment for marijuana dependence. The study provided an examination of 82 individuals who achieved at least 2 weeks of abstinence during outpatient treatment for marijuana dependence. However, there was a seventy-one percent relapse within 6 months of initial abstinence.

Relapse rates are difficult to obtain. The National Institute on Alcohol Abuse and Alcoholism (NIAAA) cites evidence that 90% of alcohol dependent patients experience at least one relapse within 4 years after treatment (NIAAA, 1989).

**Treatment Modalities**

Substance abuse treatment services are delivered in many modalities (e.g., inpatient, outpatient, residential, methadone, non-methadone, hospital settings). Services range from short-term to long-term durations. The National Treatment Evaluation Study found that 31% of women in treatment are in long-term residential treatment (NTIES).

The National Treatment Improvement Evaluation Study (NTIES) analyzed women’s treatment experiences and the outcomes of various types of substance abuse
treatment. The multi-site sample included 1,374 women. Completion rates were compared for different levels of care. Gerstein and Johnson (2000) reported that women in short-term residential treatment completed treatment at the highest rate of 67% versus the 34% completion rate for all levels of care including methadone facilities, non-methadone outpatient facilities, short-term residential, long-term residential, and correctional facilities.

**Short-term Residential**

Short-term residential was described by Gerstein and Johnson (2000) as treatment with typical plans of less than two months in duration and long-term as treatment with plans covering two months or longer. They also found that women in non-methadone outpatient completed treatment at the lowest rate (13%). Gerstein and Johnson (2000) reported that the type of treatment program had inconsistent effects on treatment effectiveness whereas length of treatment showed slight significance. They reported that those who stayed longer in treatment showed only modestly greater improvements on four measures: crack use, drug expenditures, arrest, and employment. The NTIES found that higher treatment intensity seems to improve treatment effectiveness, though only to a limited degree. Higher treatment intensity was defined as the use of one session per week. Gerstein and Johnson (2000) recognized that the NTIES sample reflects the diversity of treatment services offered by various programs in the United States and appreciated the higher than usual response rates than in other comparable evaluations.
**Twelve-Step Programs**

Many treatment centers integrate Twelve-Step principals into their programs (Morgenstern, Kahler, Frey, & Labouvie, 1996; Muhleman, 1987) and recommend simultaneous involvement in treatment and Twelve-Step programs as an integral component of treatment and long-term recovery (Freimuth, 1996). Twelve-Step participation is also viewed by some as an aftercare activity that is essential for long-term abstinence (Khantzian & Mack, 1994; Troyer, Acampora, O’Connor, & Berry, 1995). Twelve-Step effectiveness has been the focus of several studies. Clients who attend Twelve-Step programs on a weekly basis after treatment report higher levels of abstinence from drugs and alcohol than do those who attended less frequently or not at all (McKay, Alterman, McLellam, & Snider, 1994; Montgomery, Miller, & Tonigan, 1995). Participation in treatment and Twelve-Step involvement combined is associated with higher levels of abstinence than in participation in either without the other (Fiorentine & Hillhouse, 2000; Ouimette, Moos, & Finney, 1998).

Hillhouse and Fiorentine (2001) conducted a study to investigate the effectiveness of Twelve-Step programs for women. The study identified 356 participants, however, 262 participants were followed-up 24 months later. The findings indicated that 80% of those who reported weekly participation in Twelve-Step Programs reported alcohol and drug abstinence at 24 months. In contrast, of those who never attended 12-Step programs, only 39% maintained alcohol abstinence and 46% maintained drug abstinence. This study attempted to determine if Twelve-Step participation is beneficial to those in recovery and the results indicated effectiveness. Beckman (1994) took it one step further
and reinforced the importance of attendance at support groups made up entirely of women. Beckman indicated that attendance and female supports were an important elements in maintaining recovery from substance dependence.

**Gender-Specific Treatment**

Recent studies point to the effectiveness of gender-specific treatment for women substance abusers. Most of the literature suggests that gender-specific treatment is more effective than mixed-gender treatment (Dahlgren & Willander, 1989; Hodgins et al., 1997; Walitzer & Connors, 1997). A study by Dahlgren and Willander (1989) compared mixed gender treatment groups and women only groups. All the aspects of the treatment were the same except for a special focus on women’s problems (e.g., case management, childcare needs). The women in the special treatment group stayed in treatment longer, had higher completion rates, and improved bio-psychosocial functioning rates compared with women who were in mixed-programs. Walitzer and Connors (1997) discussed the failure of traditional male modeled programs to meet the needs of women in treatment. Hodgins et al. (1997) reported their belief that men’s issues tended to dominate discussions in mixed group treatment. As previously discussed many women enter substance abuse treatment with sexual abuse histories. Copeland and Hall (1992) suggested that women only programs may be more able to attract and retain women in treatment than mixed gender programs because women with a history of trauma and other groups of women (e.g., lesbian women and those who have worked as prostitutes) are especially vulnerable to humiliation in mixed-sex treatment services.
In general, gender-specific treatment refers to treatment programs that reduce barriers to treatment and address substance abuse treatment needs that are unique to women (Ashley, Marsden, & Brady, 2003; Laken & Ager, 1996). After a review of thirty-eight studies of the effect on treatment outcomes of substance abuse programming, Ashley et al. (2003) concluded that substance abuse treatment programs designed specifically for women have been proposed as a way to meet the needs of women and reduce their barriers to treatment. Ashley (2003) posited that there are seven components of gender-specific programming for women: child care, prenatal care, women-only programs, services addressing women-focused topics, relapse prevention, mental health counseling, and medical care. The reviewers found these six components to be positively correlated with treatment completion, length of stay, decreased use of substances, decreased mental health symptoms, improved birth outcomes, and higher rates of employment (Ashley et al., 2003).

A review of literature identified that the primary interventions for gender-specific treatment included prenatal care, child care, women-only admissions, mental health programming, transportation, sessions on women’s issues, and combinations of these components (ADSS; 2005). Treatment modalities include prevention, intervention, detoxification, inpatient, outpatient, or half-way housing (Ohio Department of Alcohol and Drug Addiction Services, 2007).

Results from the Alcohol and Drug Services Study (ADSS; 2005) provided a description of gender-specific services offered to women. Brady and Ashley (2005) summarized the results: an estimated 13% of substance abuse treatment facilities offered
child care services and 12% offered prenatal services. Of all substance abuse treatment facilities, 6% served women only, 37% offered special programs for women, and 19% offered special programs for pregnant women. The availability of substance abuse treatment programs for women varied by type of facility. A larger proportion of non-hospital residential facilities served “women only” than did other types of facilities, and outpatient methadone facilities were less likely than other types of facilities to offer child care services. Special programs for women overall were more likely to be offered in non-hospital residential or outpatient methadone facilities than in other types of treatment facilities. Special programs for pregnant women were more likely to be offered in outpatient methadone facilities than in other types of facilities.

Compared with mixed-gender facilities, women-only facilities served higher proportions of blacks and clients whose primary source of payment was a public program other than Medicaid and Medicare. Women-only facilities also were more likely to offer child care services, prenatal care services, transportation services, and special programs for women than were mixed-gender facilities. Compared with facilities that did not offer child care services, a larger proportion of female clients were served by facilities that offered child care services. Facilities offering child care services also were more likely to offer prenatal care services, transportation services, and special programs for women than were facilities without child care.

A 1994 survey of 161 drug treatment programs for adults found that 19% were women-only programs (Grella, Polinsky, Hser, & Perry, 1999). According to the survey, the women-only programs were more likely than mixed-gender programs to report
priority admission for pregnant women, no fees, and longer planned treatment duration. They were more likely to offer pediatric care, children’s activities, and assistance finding housing. They were less likely to offer group or family/couples therapy and educational information. Data from this survey may not be generalizable as it was obtained from treatment programs in Los Angeles County, California. However, a 2003 National Survey of Substance Abuse Treatment Services found that 14% of substance abuse treatment facilities offered programs for pregnant or postpartum women (SAMHSA, 2004).

Wechsberg and colleagues (2001) found that 83% of gender-specific treatment centers provided priority admission for pregnant women, 58% offered counseling to families, and 9% reported matching female clients with female counselors. These findings are consistent regarding admission priority to pregnant women but at odds with the Los Angeles County study that reported minimal access to family counseling. This study also introduced the matching of female clients to female counselors.

In summary, gender-specific treatment programs for women typically offer such services as: child care services, prenatal care services, and women-only treatment. The specific needs of women including domestic violence and other issues specific to women are addressed in some programs as well. Programs in Ohio offer case-management services to include: housing assistance, childcare assistance, transportation, and case management (Ohio Department of Alcohol and Drug Addiction Services, 2007).
The Rural Women’s Recovery Program

The complex needs of women have been identified by the Ohio Department of Alcohol and Drug Addiction Services (ODADAS) and the Alcohol and Drug Addiction and Alcohol, Drug Addiction and Mental Health Services (ADAS/ADAMHS). The Rural Women’s Recovery Program is a model program in Ohio following gender-specific treatment guidelines suggested by ODADAS. The guidelines are intended to assist programs in responding to the existing and emerging needs of alcohol and other drug addicted pregnant women and women with dependent children (i.e. child care, prenatal care, and case management). ODADAS policy implications set forth responsibilities for public and private sector facilities. The policy attempted to make drug and alcohol treatment services available to women who cannot afford private health insurance and who do not qualify for Medicaid. The policy also encouraged designing of treatment programming that addressed the specific needs of women. Cultural inclusiveness, integration with community mental health centers, and women’s shelters are outreach goals of the policy. Accessibility of services to women with child care responsibilities is also a goal. The guidelines were produced by the Ohio Department of Health’s Office of Women’s Health Initiatives for Ohio Policy Makers.

ODADAS extends services to those in need of care in the state. The continuum of care expands from prevention to residential services. ODADAS receives funding from the federal government. Federal law directs ODADAS to spend 20% of the Substance Abuse Prevention and Treatment Block Grant for treatment services to target pregnant women with dependent children. In 2006, over 14 million dollars was allocated to 82
programs in Ohio to provide gender specific services to women, especially pregnant
women and women with dependent children (ODADAS, 2007). Ohio Service Boards
have recognized the need to expand services to serve women across the life-span to have
adequate services for all women.

RWRP is unique in that it was established as a response to the critical needs of
adult women residing in an economically depressed area who lack the necessary
resources to pay for inpatient treatment programming. The facility is located on twenty
acres in scenic Athens County, Ohio. RWRP is a residential program of Health Recovery
Services, a community mental health agency that focuses on designing a clinically
appropriate continuum of care for the rural communities it serves. Case management
assists the clients in finding services and housing in the area.

Target Population

The initial target area of the RWRP consisted of Athens, Hocking, Vinton, and
Meigs counties. The program eventually expanded to offer services to women from all
the counties in the state of Ohio, including urban counties. However, the majority of the
clients are residents of the initial rural target counties.

In 1994, the program initiated services for women and their infants through pre-
school age. The free-standing residential program operates with financial support from
local alcohol, drug addiction, and mental health boards. The program is a Level IIA
residential substance treatment facility located in Athens, Ohio. As a residential type of
program, the average length of stay ranges from 60-90 days. However, the length of stay
is adjusted to meet the individual’s needs as determined by her progress in completing
program requirements and in making suitable aftercare arrangements in coordination with referral sources. The program includes assessment: group, individual, and family counseling; case management; and onsite medical monitoring by a physician.

**Acceptance**

Acceptance into the program is determined by meeting initial requirements. The process begins with a woman contacting the program’s Intake Case Manager via a toll free 800 number and scheduling a telephone intake interview. The potential participant is required to send a copy of her birth certificate, driver’s license or state identification, and a clear tuberculosis screen. The Intake Case Manager then passes the intake screening on to the Clinical Coordinator who determines if the woman is appropriate for an initial intake assessment. Women may be placed on a waiting list and asked to check in each week. Priority is given to pregnant women and then women who are using drugs intravenously, per mandates from the state of Ohio. Admission intakes are scheduled and the applicant is assessed for level of care placement needs, mental status stability, and lethality risks. Clients are required to find their own transportation to RWRP.

Upon admittance, clients begin the orientation process and are given a program guide explaining program requirements. An individual clinician and case manager are assigned to each woman. The clinician completes the initial assessments and works with the woman and her case manager to develop a treatment plan incorporating individual needs as well as program requirements.
Services Provided

The program provides each woman with approximately two hours of individual counseling and two additional hours of case management per week. Paraprofessionals are also available for support on a 24-hour basis. The program is therapy intensive with groups scheduled from 8:30 a.m. until 7:30 p.m. The groups are facilitated by case managers and clinicians with a minimum of a Certified Alcohol and Drug Counselor credential. Most groups are led by Masters’ level clinicians. The group schedule includes psycho-educational groups including: life skills, personal health presentations, recreation, parenting, art therapy, communication skills, conflict resolution, support group orientation, and gender-specific presentations. The foci of the groups is helping the individual understand addiction and mental health issues, build healthy relationships, and improve life skills, interpersonal skills, and parenting skills. A weekend group allows family members to participate in a family education program and monitored visitation. Case management is based on a model of meeting medically necessary needs of the women. Case management services offered at RWRP include helping women meet their treatment plan goals including education, parenting skills, and working with other social service agencies.

RWRP utilizes gender-specific treatment and addresses many of the issues facing Appalachian clients. This is implemented in a residential setting employing predominately female staff members. The program also requires the clients to participate in a Twelve-Step Program and increase their interactions with females in those support group meetings. This begins with the client making weekly phone calls to women who
attend the support group meetings. The clients are required to complete a two-hour pass with a female from the support group meetings. During the pass the women are encouraged to practice healthy recovery skills in the community with the support of a sober female with at least one year of sobriety.

RWRP provides women with the opportunity to bring their children under the age of five into the program with them if they have custody or approval from the children services agency. Women with older children are encouraged to have them visit on the weekends. All women with children under the age of 18 are required to attend parenting groups each week.

**Evaluation**

Treatment progress is evaluated after the first 30 days, and a review is scheduled that may involve representatives from the referral source or other interested parties including significant others and family members. At this review, the treatment plan and a client feedback sheet are discussed. Client progress and clinical recommendations for aftercare, determined by the assigned counselor and case manager, are also shared during this review. The referral source or other interested parties share their concerns and formal recommendations are made.

The treatment team consists of all clinicians, case managers, the clinical coordinator, and clinical director. This team evaluates each woman and determines level criteria completion and program completion on a weekly basis. The program has levels and each level has requirements for completion. The requirements include specifics about presenting steps one, two, and three of the Twelve-Steps, making support phone
calls each week, taking successful passes off of campus with sober supports from Twelve-step meetings and family members, and gathering information about their treatment options available after discharge. Upon completion of the treatment plan goals and all level requirements, the client is transported to her first after care appointment.

**Aftercare**

The woman is required to sign a release of information for the aftercare provider and also signs an agreement to participate in follow-up telephone calls. The woman is invited to call in and speak with the intake case manager at any time and also invited to attend a monthly alumnae meeting at RWRP. The intake case manager is the one responsible for conducting contacts calls every 30 days up to 2 years after treatment completion. During the telephone calls the woman is asked if she is clean and some other questions about life functioning.
CHAPTER THREE

Methodology

Research Design

The present study is designed to determine if there is a relationship between residential substance abuse treatment outcomes and selected demographic and treatment variables (i.e., housing status, educational level, income level, single substance abuse diagnosis versus dual diagnosis, parent/child participation/residence in treatment, and employment status at time of residential treatment admission). The goal is to predict membership into one of the two groups (relapse or sobriety). This chapter explains the methods used to conduct the study and the methodological assumptions. The sample selection and the participants in the study are described to provide information about the way the initial intake data was selected and collected. The data collection procedure and design are explained and a detailed presentation of the research problems will be provided. A description of the TOP (Treatment Outcome Package) Follow-Up Psychological Assessment used in the study also will be provided including reliability and validity information.

This researcher received permission from the Ohio University Institutional Review Board to conduct this survey (See Appendix), and Health Recovery Services to use the information collected from the TOP forms and client follow-up data (See Appendix).
Sample

This study reviewed intake data and follow-up reports from a population of clients served at the Rural Women’s Recovery Program who completed the program ($N = 150$). As the purpose of the present investigation is to examine predictors of treatment success following residential substance abuse treatment, only those clients who completed the program were included in the analyses.

The demographic information collected at intake included each client’s assigned confidential number and initial intake data including: housing status, income level, education level, employment status, primary substance abuse diagnosis, and primary mental health diagnosis. Other data includes information about the number of clients who participated in treatment while pregnant or with a child(ren) residing with them in the residential program.

The sample includes the 150 participants who most recently successfully completed the program. The researcher was able to control the sample size because all clients were required by the program to complete the intake demographic collection assessments and each client had the same follow-up procedures executed.

Sample size for this study included a review of 150 records belonging to clients who most recently successfully completed the program between 2005 and 2007. Obtaining this sample size was not an obstacle as subjects transitioned through RWRP at the approximate rate of 12 new participants every 2 months, or approximately 72 a year. The entire sample of 150 client records was reviewed. The records reviewed were those of successful completers of the program. Follow-up was achieved for 125 client records;
the remaining 25 client records indicated that there was an inability to contact the client at the 60-day follow-up point. This is a 83% follow-up rate for the follow-up at 60 days after patient discharge. Response rates for this sample dropped to 64% for the 90-day follow-up attempt.

**Variables**

**Independent Variables**

The independent variables include: housing status, income level, education level, employment status, primary substance abuse diagnosis, and primary mental health diagnosis. For the purpose of this study housing status was recorded as homeless or stable housing, income level was recorded as income greater than $10,000 yearly or less than $10,000 yearly, education was recorded as college or high school or less, employment status was recorded as unemployed or employed, and the initial substance abuse diagnosis was recorded as presence of an additional mental health diagnosis or not.

**Dependent Variables**

The dependent variables were recorded as relapse or sobriety at the time of follow-up, up to 60 days following completion of residential substance abuse treatment.

**Data Collection Procedures**

Prior to collecting data for this study, the Ohio University Institutional Review Board (IRB) was contacted and a project outline form was submitted. An exempt review was granted based on the premise that chart reviews would be conducted and no subject contact would take place. Exempt status was declared and permission to begin the study was granted.
Following IRB approval, approval to conduct this study was granted by a research committee at Health Recovery Services. This researcher worked cooperatively with the Research Administrator to gather information from the 150 most recent successful participants of the RWRP. Variables of interest were obtained through client charts. The demographic information was collected at the time of assessment by a qualified bachelor’s level case manager or case manager assistant. The information was obtained from a structured pre-admission interview and case record information recorded by treatment professionals.

**Data Analysis Procedure**

The basic purpose of logistic regression is to classify individuals into groups. Logistic regression in this study was used to identify a combination of independent variables that best predicted membership in a particular group, as measured by a categorical dependent variable. This was an attempt to predict which combination of selected characteristics best predicted a successful treatment outcome. The dependent variable was categorical with two values: treatment success and treatment failure. Treatment success is sobriety at the 60 day follow-up and unsuccessful is relapse at the 60 day follow-up. Logistic Regression analysis showed the variance or odds of an individual being successful if they have certain predictors.

**Model Variable Entry Procedures**

A hierarchical logistic regression analysis was conducted to examine variables predictive of relapse following residential substance abuse treatment. The first block of variables entered into the model consisted of two demographic or treatment variables,
participation with a child or while pregnant and education level. The second block included the demographic and treatment variables for diagnosis, housing status, income, and employment status.

Assumptions of Logistic Regression

Logistic regression has an advantage over discriminant analysis in that it requires that no assumptions about the distributions of independent variables be made by the researcher (Tabachnick & Fidell, 1996). This is beneficial because the predictors do not have to be normally distributed, linearly related, or have equal variances within each group.

Violations of the assumptions of logistic regression analyses were not an issue in this study. The assumptions are as follows (Tabachnick & Fidell, 1996): Ratio of Cases To Variables - an adequate number of cases relative to the number of predictor variables exist in the data and Goodness of Fit - all pairs of discrete variables were evaluated to ensure that all cells have expected frequencies greater than 1 and that no more than 20% have frequencies less than 5. Violations of these assumptions were not an issue for this study. As advised by Tabachnick and Fidell (1996) correlations between independent variables were not tested to find redundant variables resulting in multi-collinear relationships. Also, Mertler and Vannatta (2002) recommended that extreme values be carefully examined in order to detect outliers. This was not an issue in predicting the categorical groups used in this study.
Summary

The research methods used in this study were designed to determine if there was a relationship between residential substance abuse treatment outcomes and selected demographic and treatment categorical variables and one classification variable. The goal was to predict membership into one of the two groups (success or relapse). This chapter described the population, sampling procedures, data collection techniques, treatment, and statistical procedures used to analyze the data.
CHAPTER FOUR

Results

The purpose of this study was to determine if certain demographic and/or treatment variables are related to successful outcomes following residential substance abuse treatment. This study examined the demographic and/or treatment variables related to continued sobriety at follow-up 60 days after completion of residential treatment.

This chapter presents in detail an analysis of the research procedures described in Chapter Three. A description of the research participants is presented. Next, reliability analysis and descriptive data are presented. Statistical analyses used to test the research hypothesis are reported. Finally, results of the supplemental analysis are presented.

Records reviewed in this study belonged to adult female completers of the Rural Women’s Recovery Program (RWRP) in Athens, OH. The records were collected and reviewed for 150 women who completed the program in 2007, 2006, and late 2005. The information was gathered by reviewing client records, TOP (Treatment Outcome Package) intake forms (4.2 CR), and bio-psychosocial reports. The follow-up information was obtained from follow-up report sheets submitted by RWRP staff. All of the information was provided by the women in treatment and the information was recorded by case managers and counselors.

Description of the Sample

The most recent sample of 150 charts of successful completers of the program was collected and reviewed. The sample included the charts of 150 female residents of Ohio who completed RWRP between January 2005 and January 2007. Sample collection
began with January 2007 completers and worked back to 2005 until 150 successful completers were included. Case managers had attempted to contact all the women 60 days following discharge via telephone interviews.

**Response Rate**

One hundred and twenty-five (83%) women responded to after-care support calls inquiring about their use of alcohol or drugs up to sixty days following completion of treatment at RWRP. Twenty-five women were unavailable at the time of follow-up. The majority (18) of those women unavailable for follow-up were 2005 completers. The reasons for no contact with those women included: institutionalization, disconnected telephone numbers, change of residence without forwarding information, and the women’s failure to respond to messages. Of the twenty-five women who were unavailable to respond, one woman was in residential treatment, two women were in correctional institutions, six telephone numbers were disconnected, six women had moved without leaving forwarding information, and messages were not returned by ten women.

**Sample Demographics**

All participants in the study identified as female. The sample was from a residential treatment center serving only female substance abusers. The women included in this study represented 26 counties in Ohio including: Adams, Athens, Auglaize, Belmont, Brown, Delaware, Fairfield, Franklin, Gallia, Greene, Highland, Hocking, Jackson, Lawrence, Lorain, Marion, Meigs, Miami, Perry, Pickaway, Pike, Ross, Scioto, Summit, Vinton, and Warren.
The women’s ages ranged from 18 years old up to 51 years old. The average age of the women was 30 years old, the median age was 27 years old, and the most frequently occurring age was 21 years old. The sample was comprised of 93.6% Caucasians, 3.2% Bi-Racial, 1.6% Native American, 1 woman identifying as Hispanic, and 1 woman identifying as African American.

The demographic and treatment variable information collected consists of questions regarding Axis I diagnoses (example: Alcohol Dependence or Cannabis Dependence and Bipolar I), housing status, education levels, income levels, employment status, and status of participating with or without children. Information gathered on these variables is summarized in Table 1.
Table 1

*Demographic and Treatment Information of Participants*

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diagnosis</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Diagnosis</td>
<td>29</td>
<td>23.2</td>
</tr>
<tr>
<td>Dual Diagnosis</td>
<td>96</td>
<td>76.8</td>
</tr>
<tr>
<td><strong>Housing Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homeless</td>
<td>24</td>
<td>19.2</td>
</tr>
<tr>
<td>Stable Housing</td>
<td>101</td>
<td>80.8</td>
</tr>
<tr>
<td><strong>Education Level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School or Less</td>
<td>103</td>
<td>82.4</td>
</tr>
<tr>
<td>College</td>
<td>22</td>
<td>17.6</td>
</tr>
<tr>
<td><strong>Income Level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No income up to $10,000</td>
<td>95</td>
<td>76</td>
</tr>
<tr>
<td>$10,000 and up</td>
<td>30</td>
<td>24</td>
</tr>
<tr>
<td><strong>Employment Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>98</td>
<td>78.4</td>
</tr>
<tr>
<td>Employed</td>
<td>27</td>
<td>21.6</td>
</tr>
<tr>
<td><strong>Participation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Childless Participation</td>
<td>79</td>
<td>63.2</td>
</tr>
<tr>
<td>Children or pregnant</td>
<td>46</td>
<td>36.8</td>
</tr>
<tr>
<td><strong>Outcome</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relapse</td>
<td>45</td>
<td>36.0</td>
</tr>
<tr>
<td>Sober</td>
<td>80</td>
<td>64.0</td>
</tr>
</tbody>
</table>
**Diagnosis**

All the participants met criteria for a DSM-IVTR substance abuse diagnosis. All 125 (100%) participants were diagnosed with a Substance Dependence Diagnosis. Twenty-nine (23.2%) women were assessed to have a single diagnosis and ninety-six (76.8%) were diagnosed with a dual diagnosis (substance abuse with co-occurring mental health diagnosis) and 96 (76.8%) participants were diagnosed with a co-occurring Axis I Dual Diagnosis. Fifty-three (42.4%) women were diagnosed with Opioid Dependence and four women were diagnosed with Opioid Abuse. Thirty-three (26.4%) women were diagnosed with Alcohol Dependence. Eleven (8.8%) women were diagnosed with Cannabis Dependence and two women were diagnosed with Amphetamine Dependence. Thirty-three (22%) women reported using intravenous needles at least once during their use of illegal substances.

Ninety-six women met criteria for an Axis I mental health diagnosis. Mood disorders (ex. Biploar I or II, Major Depression) accounted for 58.3% of the diagnoses, anxiety disorders (ex. Anxiety NOS, PTSD, Panic Disorder) accounted for 29% of the diagnoses, six women were diagnosed with Attention Deficit Disorders, three women were diagnosed with Somatoform Disorder, and three women were diagnosed with Adjustment Disorder.

**Housing Status**

All women were asked to identify their housing status immediately prior to admission. The question regarding housing status was completed by 125 participants at the time of admission. Stable housing included independent housing, living with a
partner, living with a relative, or living with friends. The responses were made dichotomous and recorded as homeless or having stable housing available. Of these respondents, 24 (19.2%) were homeless and the other 101 (80.8%) were with stable housing.

**Education**

All women were asked to identify the highest level of education that they have attained at the time of admission to the program. All 125 women responded to the question. Women indicated if they completed high school, 2 years of college, or four years of college. The responses to this question were made dichotomous and recorded as college or not. On the question of highest education level completed, the majority of the participants ($n = 103, 82.4\%$) reported either not completing high school or no education above the high school level at the time of admission. Twenty-two participants ($17.6\%$) indicated having completed at least two years of college at the time of admission.

**Income**

All women were asked to identify their recent yearly income. All 125 women responded to the question. The income totals ranged from $0 yearly up to $50,000-$75,000 yearly. The responses were made dichotomous and recorded as income under $10,000 yearly or over. On the question of income level at the time of admission, the majority of the participants ($n = 95, 76\%$) reported to having no income or income less than $10,000 at the time of admission. Thirty (24%) participants reported a yearly income of over $10,000. The income levels in this category ranged from $10,000 – $75,000 yearly. Income included money received from employment, child support,
disability income, social security income, and assistance from partners.

*Employment*

All women were asked to identify their employment status at the time of admission. Women indicated if they were unemployed, employed part-time, or employed full-time. The responses were made dichotomous and recorded as unemployed or employed. The majority of the women (\( n = 98, 78.4\% \)) were unemployed. Twenty-seven (21.6\%) women were employed either part or full-time.

*Participation with or without Children*

Seventy-nine participants (63.2\%) were recorded as not having their children in residence with them during this residential stay. Forty-six women (36.8\%) completed residential treatment with their child(ren) or while they were pregnant. The women completing with children were pregnant at the time of admission or had their child(ren) in residence with them at least 51\% of their stay. The children not residing in treatment with their mothers were with their other parent, relatives, a friend of the family, or in foster care. Only children under the age of five and those not enrolled in preschool at the time of admission were allowed to reside with their mothers in the program.

*Treatment Outcomes*

All 125 participants were contacted by telephone 60 days after completion of the RWRP. Eighty women (64\%) responded to remaining sober and forty-five women (30\%) responded to relapsing or using alcohol or drugs within 60 days following discharge from RWRP. This sample had little variance among some of the demographic variables. The sample was 93.6\% Caucasian, 82.4\% with an education of high school or
less, 80.8% had stable housing, 78.4% were unemployed, 76.8% had a dual diagnosis, 76% earned less than $10,000 yearly, 64% remained sober, and 63.2% participated without being pregnant and having children in treatment.

Statistical Analyses to test the Hypothesis

Statistical analyses were conducted using the Statistical Package for Social Sciences (SPSS) for Windows, version 15.0. Descriptive statistics were computed to test for assumptions, regression analysis, and supplemental analyses.

Goodness of Fit

The Omnibus test of model coefficients was used to report significance. The Omnibus tests of model coefficients reports significance levels by the traditional chi-square method. It tests if the model with the predictors is significantly different from the model only with the intercept. The omnibus test may be interpreted as a test of the capability of all predictors in the model to jointly predict the dependent variable. A finding of significance, as illustrated in Table 2, corresponds to the research conclusion that there is adequate fit of the data to the model, meaning that at least one of the predictors is significantly related to relapse. In Table 3, the Stepwise method was employed, so there is difference in significance for step, block, or model.
Table 2

Omnibus Tests of Model Coefficients

**Block 1: Method = Enter**

<table>
<thead>
<tr>
<th>Omnibus Tests of Model Coefficients</th>
<th>Chi-square</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1: Step</td>
<td>6.581</td>
<td>2</td>
<td>.037</td>
</tr>
<tr>
<td>Block</td>
<td>6.581</td>
<td>2</td>
<td>.037</td>
</tr>
<tr>
<td>Model</td>
<td>6.581</td>
<td>2</td>
<td>.037</td>
</tr>
</tbody>
</table>

**Block 2: Method = Enter**

<table>
<thead>
<tr>
<th>Omnibus Tests of Model Coefficients</th>
<th>Chi-square</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1: Step</td>
<td>14.230</td>
<td>4</td>
<td>.007</td>
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<tr>
<td>Block</td>
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<td>4</td>
<td>.007</td>
</tr>
<tr>
<td>Model</td>
<td>20.812</td>
<td>6</td>
<td>.002</td>
</tr>
</tbody>
</table>
Hierarchical Logistic Regression Analysis

A hierarchical logistic regression analysis was conducted to evaluate how well the demographic and treatment variables selected predicted the successful treatment outcomes. Hierarchical logistic regression analysis allows the researcher to decide how many predictors to enter in the equation and in which order they will be entered. The order of predictor entry is based on logical or theoretical considerations.

A hierarchical logistic regression analysis was conducted to examine variables predictive of success following residential substance abuse treatment. Respondents were classified into two categories depending on whether or not they had relapsed (used drugs or alcohol) within 60 days of completing residential treatment. A stepwise analysis was conducted. The first block of variables entered into the model consisted of two demographic variables, child participation or pregnancy and education. The second block observed all the other variables (diagnosis, housing, income, and employment

Child participation and education were selected for block one. Together the two predictors were not significant at .055, \( \text{Nagelkerke's } R^2 = .070 \). While controlling for child participation/pregnancy, the odds of relapse increases as education levels decreased. The remaining predictors, dual diagnosis, housing status, income, and employment were entered as the second block of variables. Jointly they were not significant at .713. Of the six predictors, only employment was statistically significant, Wald = 3.952 with a significance of .047.
Table 3

*Summary of Hierarchical Logistic Regression Analysis for Predicting Relapse Following Residential Substance Abuse Treatment*

(N = 125)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE</th>
<th>Wald</th>
<th>Sig.</th>
<th>OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child/Pregnancy</td>
<td>-.001</td>
<td>.420</td>
<td>.000</td>
<td>.998</td>
<td>.999</td>
</tr>
<tr>
<td>Education</td>
<td>.724</td>
<td>.716</td>
<td>1.022</td>
<td>.312</td>
<td>2.062</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>-.457</td>
<td>.485</td>
<td>.891</td>
<td>.345</td>
<td>.633</td>
</tr>
<tr>
<td>Employment</td>
<td>1.645</td>
<td>.828</td>
<td>3.925</td>
<td>.047</td>
<td>5.182</td>
</tr>
<tr>
<td>Education</td>
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<td>.716</td>
<td>1.022</td>
<td>.312</td>
<td>2.062</td>
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<tr>
<td>Income</td>
<td>1.122</td>
<td>.731</td>
<td>2.354</td>
<td>.125</td>
<td>3.070</td>
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</table>
Crosstabs were run for the predictors. The goal was to see the patterns and proportion of overlap in correlations among the predictors. Cross-tabulation was conducted for education and work, income and work, diagnosis and success, housing and success, education and success, income and success, work and success, and education and success. The cross-tabulation for education and work indicated that one hundred and ten of the women were unemployed and had less than a high school education, of the twenty-eight women who were employed, seventeen had a high school or less education. The cross-tabulation for income and work indicated that one hundred and nine women were unemployed with an income less than $10,000 yearly. Twenty (60.6%) of the employed women with education earned over $10,000 yearly. Sixty-three (65.6%) of the women who remained sober had a dual diagnosis, sixty-seven (66.3%) of the women with stable housing remained sober, 86.4% of the women with a college education maintained sobriety, and 90% of the women making over $10,000 yearly remained sober, and 92.6% of the employed women remained sober, and 65.2% of the women participating while pregnant or with their child(ren) remained sober. Table 4 illustrates the cross-tabulations
Table 4

Cross-Tabulations

### educat * work Crosstabulation

<table>
<thead>
<tr>
<th>educat</th>
<th>work</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
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<td></td>
<td>.00 employed</td>
<td>1.00 unemployed</td>
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<tr>
<td>.00 college</td>
<td>Count</td>
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<td>12</td>
<td>23</td>
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<td>% within educat</td>
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<tr>
<td>1.00 hsgless</td>
<td>Count</td>
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<td>127</td>
</tr>
<tr>
<td>% within educat</td>
<td></td>
<td>13.4%</td>
<td>86.6%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total</td>
<td>Count</td>
<td>28</td>
<td>122</td>
<td>150</td>
</tr>
<tr>
<td>% within educat</td>
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<td>18.7%</td>
<td>81.3%</td>
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</table>

### incom * work Crosstabulation

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<th>work</th>
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<th></th>
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<td></td>
<td></td>
<td>.00 employed</td>
<td>1.00 unemployed</td>
<td>Total</td>
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<tr>
<td>.00 over 10000</td>
<td>Count</td>
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<td>13</td>
<td>33</td>
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<tr>
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<td>39.4%</td>
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<td>109</td>
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<tr>
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<td></td>
<td>18.7%</td>
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</table>

### diagno * success Crosstabulation

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<td></td>
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<td>.00 sober</td>
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<td>Total</td>
</tr>
<tr>
<td>.00 single</td>
<td>Count</td>
<td>17</td>
<td>12</td>
<td>29</td>
</tr>
<tr>
<td>% within diagno</td>
<td></td>
<td>58.6%</td>
<td>41.4%</td>
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</tr>
<tr>
<td>1.00 dual</td>
<td>Count</td>
<td>63</td>
<td>33</td>
<td>96</td>
</tr>
<tr>
<td>% within diagno</td>
<td></td>
<td>65.6%</td>
<td>34.4%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total</td>
<td>Count</td>
<td>80</td>
<td>45</td>
<td>125</td>
</tr>
<tr>
<td>% within diagno</td>
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Table 4: continued

**house * success Crosstabulation**

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<tr>
<td>house</td>
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<td>.00 stable</td>
<td>Count</td>
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<td>% within house</td>
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<td>100.0%</td>
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<td>100.0%</td>
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**educat * success Crosstabulation**

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<td>Count</td>
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<td>% within educat</td>
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**incom * success Crosstabulation**

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<tbody>
<tr>
<td></td>
<td>.00 sober</td>
<td>1.00 relapse</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>incom</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>.00 over 10000</td>
<td>Count</td>
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**child * success Crosstabulation**

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<tr>
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<td>1.00 relapse</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>child</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>.00 pregkid</td>
<td>Count</td>
<td>30</td>
<td>16</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>% within child</td>
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<td>34.8%</td>
<td>100.0%</td>
</tr>
<tr>
<td>1.00 nokid</td>
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</tr>
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<td></td>
<td>% within child</td>
<td>64.0%</td>
<td>36.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
Summary

This chapter presented results of the study. Results indicated that work is significant in predicting relapse following residential substance abuse treatment. Employment was assigned a value of zero and unemployment was assigned a value of one. As the level moved from zero to one (unemployment), the odds of relapsing increased 5.12 times. The odds of being unemployed and relapsing was 5.182 times greater than for an employed woman’s chances of relapsing. The odds of having no income and relapsing was 3.070 times greater than for a woman with an income over $10,000. The odds of having no college education and relapsing was 2.062 times greater than having a college education.

Correlations

A Pearson R was conducted to test for correlations. Work and income were correlated .572 and education and income were correlated .399. This information may be useful in determining at a later point why work took power away from education and income when added in the model. The correlations are illustrated in Table 5.
Table 5

Correlations

<table>
<thead>
<tr>
<th></th>
<th>diagno</th>
<th>house</th>
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<td>-.029</td>
<td>-.005</td>
<td>.043</td>
<td>.006</td>
<td>-.062</td>
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<tr>
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<td></td>
<td>.109</td>
<td>.726</td>
<td>.949</td>
<td>.598</td>
<td>.945</td>
<td>.495</td>
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<td>125</td>
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<td>.074</td>
<td>.266</td>
<td>.240</td>
<td>-.021</td>
<td>.100</td>
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<td>Sig. (2-tailed)</td>
<td>.109</td>
<td>.368</td>
<td>.001</td>
<td>.003</td>
<td>.799</td>
<td>.268</td>
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<tr>
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<td>.074</td>
<td>1</td>
<td>.399</td>
<td>.318</td>
<td>.040</td>
<td>.215**</td>
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<tr>
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<td>.000</td>
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<td>.399</td>
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<td>.572</td>
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<td>.304**</td>
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<td>.000</td>
<td>.000</td>
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<td>.001</td>
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<td>.572</td>
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<td>.830</td>
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</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).
CHAPTER FIVE

Discussion

The purpose of this study was to investigate the relationship of Axis I diagnoses, housing status, education level, income level, employment status, and participation while pregnant or with children in treatment to successful outcomes following residential substance abuse treatment. In this chapter, the results of the statistical analyses presented in Chapter Four are discussed. Results of the hypothesis and descriptive analyses are discussed, as well as implications of these findings. Finally, limitations of this study and further directions for future research are presented.

Sample Characteristics

Response Rate

The response rate of 83.3% of the women being available at the time of follow-up was adequate for this study. Only 25 women were not available at the time of follow-up which provided a good sample size for this study. Possible reasons for less than perfect response rates include institutionalization, continued time in treatment, and unstable housing patterns. Also all contact calls were attempted during the day, possibly missing those with alternative schedules.

Participants in this study were female residents of Ohio with a primary substance abuse diagnosis, 42.4% diagnosed with Opioid Dependence, and 76.8% having a dual diagnosis. The average age of the participants was 30 years old and Caucasians accounted for 93.6% of the sample. Twenty-two percent of the women had used
Intravenous needled during their use history. These findings are not consistent with the national treatment population in that they represent a largely rural Caucasian population.

**Discussion of Logistic Regression Analyses**

The frequencies show that the majority of women included in this sample report had stable housing (80%), had a limited education (no college training) (82%), earned under $10,000 a year (76%), were unemployed (78%), did not have children participating with them in treatment (37%), and had a dual diagnosis (96%). The majority of these findings are not consistent with results from the (NTEIS) National Treatment Improvement Evaluation Studies, that focused on characteristics of 1,374 women from a multi-site sample (Gerstein & Johnson, 2000). In comparison 12% of this sample was employed compared to 11% of the national population. In this sample 37% did not have their children participating with them in treatment and 40% of the national population were raising their children. The results of the current study regarding mental health, low education levels, unemployment, and childcare concerns were consistent with the results found by Wechsberg, Craddock, and Hubbard (1998) in their large multi-site study of female substance abusers. Weschsberg, Craddock, and Hubbard (1998) also found that women substance abusers entering treatment typically have low education and employment levels, mental health issues, and concerns about raising their children.

The results of this study did not find a combination of demographic or treatment variables that is related to successful treatment outcomes. The results did not indicate a relationship between child participation, education level, housing status, income levels, or
diagnosis and successful treatment outcomes. However, the results did indicate a
relationship between being employed full or part-time and having successful treatment
outcomes. The employed women were 5 times more likely to be successful in sobriety if
they were employed.

**Employment**

Employment was the only significant predictor ($Exp(B) = 5.182$) of treatment
success indicated in this study. Employment was correlated with income (.319) and
education was also correlated with income (.429). Employment has some effect on
treatment success that can not be accounted for by income levels alone.

In this sample 21.6% of the women were employed in either full-time or part-time
work immediately prior to admission. Women who entered treatment without being
employed had odds of 5 times greater of relapsing than employed women in this study.

Pre-treatment employment status was associated with improvement and retention
rates (Platt, 1995). Previous research has reported finding pre-employment status as a
significant predictor of treatment participation (Capone et al., 1986; Ruiz, Langrod,
Lowinson, & Marcus, 1977; Braunstein, Powell, McGowen, & Thoreson, 1983;

Employment was a significant predictor of success in this study. The value of
employment was indicated by a study by McLellan et al. (1981). McLellan et al. (1981)
found substantial treatment improvement among clients who had received their
pretreatment income from jobs in contrast to clients who had received their income from
public assistance.
Income

Income at the time of admission was collected. A total of 76% of the women reported earned family incomes below $10,000, since only 21.6% were employed it is assumed some of the women received this income from welfare. Some other studies have found that 40% of welfare recipients have a substance abuse problem (Metsch, McCoy, Miller, McAnany, & Pereyra, 2000).

Income was not found to be a significant predictor of success following treatment in this study. This may be due to 76% of the women earned incomes below $10,000 and the other 24% earned possibly $10,001. Results may be indicating that there may be something important about the source of the income is obtained.

Education

In this sample 17.6% of the women had attended college. A low education level was found to be a predictor of relapse in some studies (Lang & Belenki, 2000; Sayre et al., 2002; Sechrest, 2001; Suffet, 1999; Sung, Belenko, & Feng, 2001). The majority of women in this sample have low education levels and a study by Sayre et al. (2002) found that clients with similar education levels had more difficulty in expressing their needs and completing treatment assessments and felt inferior to participants with more education.

RWRP has participants complete their assessments privately with the assistance of trained treatment staff to help patients identify their treatment needs, it is recognized that the majority of the women have lower education levels. General Education Diploma (GED) training classes are also required as part of the treatment program for women who have not completed high school or passed the GED. Some women complete their GED’s or are approved for college admission while enrolled in the program.
Child Participation

Child participation or pregnancy while in treatment was not a significant predictor to successful outcomes, $Exp(B) = .999$. In this sample only 36.8% of the women resided in treatment with their children. Information on the number of women who decided to participate in treatment without their children was not available. Most of the women who have children left them in the care of family members. According to information provided by the staff members at RWRP, the women who did participate in treatment with their children were involved in parenting classes and were provided with childcare while they attended treatment groups and support meetings.

The clinical community has embraced the idea that inclusion of children improves treatment outcomes for addicted mothers. These results used to support the idea of improved treatment outcomes for mothers participating with their children came from a few controlled studies, thus complicating generalization of findings. Only a few controlled studies have specifically tested this (e.g., Hughes et al., 1995), and those studies were carried out in Therapeutic Communities (TCs). Nevertheless, the clinical community has embraced this finding that women have greater treatment success if they participate in treatment with their children or while pregnant. It is important to administer caution in generalizing the results from a TC to a short term residential treatment population. The format and structure of a TC differs significantly from that provided at the short term residential program included in this study. A typical TC offers residential support and structure for an average period of 6 – 18 months (DeLeon, 1997), whereas this program studied only treats women in residence for an average of 60 days.
The fact that women who are in treatment for as long as a year and a half experience greater treatment success when permitted to participate with their children may not be relevant to a shorter program.

**Housing Status**

Housing status was not significant to success following residential treatment in this study. This may be due to the fact that homelessness was an intake variable and no longer accurate at discharge. Many of the women strengthened family relationships while enrolled in the program and returned to live with family. One of the discharge criteria is that the woman has a stable placement to return to with after-care treatment arranged. Women who are homeless at the time of discharge are released to transitional living treatment centers, no one is released without housing. The basic housing needs are met at the time of discharge.

**Diagnosis**

The majority (76.8%) of women in this study were dually diagnosed, with an Axis I mental health diagnosis and a substance abuse diagnosis. This information was consistent with finding from other studies reporting that women with substance abuse disorders are more likely to have a comorbid psychiatric diagnosis, as compared to the general population (Alvarez, Olson, Jason, Davis, & Ferrari, 2004; Beckwith & Espinosa, 1994; Brady et al., 1998; Chandler & McCaul, 2003; Gentillo et al., 2000; Mann, Hintz, & Jung, 2004; Phillips, Carpenter, & Nunes, 2004; & Randall et al., 1999).

Several theories attempt to explain the connection between the experience of mental health symptoms and the use of substances by women to self-medicate to cope with painful feelings and stressors (Miranda, Meyerson, Long, Marx, & Simpson, 2002;
A single diagnosis was not significant to success following residential substance abuse treatment in this study. Hopefully, the conflicting results are a testament to the intensive specialized psychological services offered at RWRP by highly trained Masters’ level clinicians with experience treating dual disorders and having a psychiatrist on staff.

Implications of Findings

The results of this study have several implications for substance abuse treatment professionals. The study validates the position that employment has a positive affect on substance abuse abstinence for women following residential substance abuse treatment. Previous research had found that employment was a predictor of treatment success and compliance (Capone et al., 1986; Ruiz, Langrod, Lowinson, and Marcus, 1977; Braunstein, Powell, McGowen, and Thoreson, 1983; Comerford, 1999; Valliant, 1988; and Zanis, Metzger, & McLellan, 1995). Findings from this study supports the importance of employment as a contributor to a successful treatment outcome. The other studies did not focus exclusively on women.

Treatment professionals and administrators should become aware of the importance of employment in reducing the chances a woman will relapse following treatment. Researchers need to continue identifying ways to reduce barriers to employment for substance abusing women and mothers. Integration of a variety of vocational rehabilitation services into traditional treatment programming may be helpful.

Results of this study could be shared with substance abuse treatment administrators and treatment programmers in order to increase the use of vocational
services for women. Programs could extend case management services to include job readiness skills classes, assist women in obtaining employment and in securing transportation and child care services that are sometimes available to women through local job and family service departments. Some women may be eligible for services from the public vocational rehabilitation program and their treatment could involve applying for these services.

**Limitations of the Study**

The implications and findings of this study have been considered with an awareness of the other inherent limitations. The sample was drawn from one gender specific treatment center in rural Ohio, hindering the ability of researchers to generalize these results to the entire female substance abuse treatment population in the United States. By conducting data analyses of participants of a treatment program serving only Ohio residents the sample was limited to adult female substance abusers who reside in Ohio and were transported to the program. This population was largely a Caucasian population from the rural counties in Ohio and did not adequately include urban or suburban living minority women in the sample and should not be generalized to the entire Ohio female treatment population.

A limitation of this study was that the data used was previously collected by individuals other than the investigator. This meant only certain information was available for analyses and only certain research questions could be analyzed using the pre-existing data. Problems were found with lack of specific details being provided in the intake and follow-up reports that would have been helpful to this researcher.
Each demographic or treatment variable had information not collected or missing that would have provided valuable information for this research. This was largely due to the self-reporting methods used to collect some information and the participants not correctly answering all questions. Due to having missing or incomplete information all variables were recoded as dichotomous variables by this researcher. Education level was one variable that was difficult to collect. Education level was initially collected from client reports. Many clients failed to report the highest grade completed but did always check the box for high school or less or college. This researcher lost specificity by recoding education as dichotomous (high school or less or college). This may have lost descriptive value in determining if completing high school or completing certain years of college was more beneficial to success than simply attending.

Income was another variable that presented challenges to accurate collection for the same reasons as education level. Women were asked their income on the TOPS form and the options were increments of 0-$10,000 yearly. Another place that income was reported was on the intake forms by the case managers who did not always have the information documented. The only way to accurately collect income was to use the $10,000 increment selections by the women. Income is a continuous variable and in this study income levels were not specific but rather dichotomous. The second issue with income is that the source of the income was not always provided. Information about the disability that a woman was receiving disability income for was not always reported. Information on children was limited. The data did clearly state if a child was
participating or if the woman was pregnant. Missing information included how many children the women birthed, how many she maintained custody of, and who has physical custody of the children not in treatment.

Employment information was poorly recorded by the women and the staff. The information had to be recorded as employed or not because specific information about employment type was not always provided. Also there was no information recorded about why some women were prevented from working.

Housing status provided an issue for concern in collecting data. The information was recorded by the women and they were asked about their housing status prior to admission. Some women reported living with friends as stable housing, they were not asked if those people they lived with used drugs or alcohol. The information was collected as a self report of stable housing without much information available to this researcher.

All these limitations related data that was collected upon admission. Follow-up data had limitations in reporting as well. Questions asked in the follow-up contact did not address income or education levels following discharge, custody status, or specifics about employment status. Information was not consistently reported. The only question always asked was regarding use of alcohol or drugs. Besides evaluating sobriety other life functioning issues were ignored or poorly reported that could have provided insight into living a sober lifestyle.

**Directions for Future Research**

Future research should attempt to address as many of the above limitation as
feasible. Future researchers should be careful to provide the treatment center where they are collecting the data from with recommendations on paying more attention to collecting pre and post treatment variables. Those recommendations include collecting more specific data on the actual grade the woman completed in school; recording the specific yearly income amount and the source of the income; recording the number of hours worked per week; recording the total number of the participant’s children and the number of children who participated in treatment; identifying custody status; and reporting information regarding whether or not the woman lives in a sober household.

More Information about women without high school educations should be recorded. Specifically if she had an Individual Service Plan or a learning disability. This information could have an implication on her ability to understand treatment materials and may explain why she struggles with employment. Additional information about employment may provide clues as to which types of work are beneficial on recovery and what types of job training women would benefit from the most, as some low functioning women would not benefit from GED classes but may benefit from vocational training.

Future studies should take efforts to gather specific data on the benefits of including children in short-term residential programs and information on the types and amount of childcare services offered by the program to assist the mothers in obtaining and maintaining employment. Future studies should study the mother’s employment success if continuing childcare services are made available following treatment.

The data available for this study did not provide much information about the number of underage children a woman has custody of what resources were available for
support. Future studies may want to study the impact of having parental supports prior to, during, and after treatment in reducing the impact of separation from the child and allowing focus on treatment. This study did not investigate the value of parenting supports on the mother’s perceived levels of parental stress.

Lastly, information about attending meetings and using transitional services should be studied to evaluate their impacts on treatment. Since work is a variable significant to successful recovery research should focus on understanding what prevents women from working and how those barriers could be minimized.

**Conclusion**

This study provided an addition to the literature by exploring the relationship of certain demographic and treatment variables to relapse following residential substance abuse treatment. It provided an opportunity to empirically examine the role of employment in increasing the chances of a woman staying sober following treatment. The findings demonstrated a statistically significant relationship between employment and success following residential substance abuse treatment. The study makes a significant contribution to the literature by supporting the importance of employment on successful outcomes following treatment and it urges researchers and readers to pay special attention when applying findings from long term or TCs to short term residential populations.
REFERENCES


Substance Abuse and Mental Health Services Administration *The NSDUH Report (National Survey on Drug Use and Health)*


A determination has been made that the following research study is exempt from IRB review because it involves:

Category 4: research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens if publicly available or recorded without identifiers

Project Title: Factors Related to the Outcomes of a Residential Substance Abuse Treatment Program for Women

Project Director: Wendy Blevins

Department: Counseling and Higher Education
Advisor: Jerry Olsheski

~ Robin Stack, C.I.P., Human Subjects Research Coordinator Date Office of Research Compliance

The approval remains in effect provided the study is conducted exactly as described in your application for review. Any deviations or modifications to the project must be approved by the RB (as an amendment) prior to implementation.
Health Recovery Services,  
Joe R. Gay, Ph.D., L.I.C.D.C. Executive Director  
100 Hospital Athens, Ohio 45701  

Attention: Wendy Blevins  

Health Recovery Services, Inc. grants Wendy Blevins, a doctoral student at Ohio University, permission to access client data from, Rural Women’s Recovery Program. It is understood that the previously collected information will be examined and used in her dissertation.  

Ms. Blevins has assured us that all confidential information will remain on our property. Ms. Blevins will have access to Rural Women’s Recovery Program’s client records in that facility. Initial Adult Aggregate Data gathered from the Treatment Outcome Package and anonymous aftercare data from the Intake Coordinator at RWRP will be available for collection and examination.  

Ms. Blevins will be following all steps required to protect client information. Confidentiality of subject records will be maintained; no identifiable information will be collected or used. Ms. Blevins will have no contact with the subjects.  

Thank you,  

Ellen C. Martin  
Director of Operations  
Voice: 740-5924720
APPENDIX C: DATA COLLECTION FORM USED FOR THIS STUDY

Data Collection Sheet

Record I.D. #__________________

Axis I DSM IV-TR Diagnosis: ____________________________________________

Dual Diagnosis Axis DSM IV-TR Diagnosis: ________________________________

Number of Children Residing in Treatment: ________________________________

Housing Status: _________________________________________________________

Work/Employment Status: ________________________________________________

Education Level: _________________________________________________________

Income Level: ___________________________________________________________

Success/Relapse/Unknown: ________________________________________________

Record Review Date: ________________________________