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Women's Compliance in Outpatient Substance Abuse Treatment: The Role of Children and Mental Health

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**WOMEN'S COMPLIANCE IN OUTPATIENT SUBSTANCE ABUSE
TREATMENT: THE ROLE OF CHILDREN AND MENTAL HEALTH**

by

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ABSTRACT

WOMEN'S COMPLIANCE IN OUTPATIENT SUBSTANCE ABUSE TREATMENT: THE ROLE OF CHILDREN AND MENTAL HEALTH

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Virginia Consortium Program in Clinical Psychology, 2010

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The purpose of this study was to examine the role of children and mental illness in women's compliance in a treatment program for substance abuse. Information was retrieved from medical records of female clients ($N = 221$) who took part in a community-based day treatment program for substance abuse in a large city in southeastern Virginia during a 32-month period. It was anticipated that, as compared to women who resided with minor children, women who did not reside with minor children would have greater treatment success defined as: 1) more days in the treatment program; 2) higher percentage of negative toxicology screens during the treatment program; and (3) greater likelihood of treatment compliance. It was also anticipated that, as compared to women who had mental illness, women with no mental illness would have also have greater treatment success as defined above. It was further hypothesized that women with both of these protective factors (e.g., no dependent children and no mental illness) would have greater treatment success than woman with either or none of these protective factors. Results demonstrated that neither dependent children nor mental illness, alone or in combination had a significant impact on the number of days women stayed in treatment or the percentage of negative toxicology screens; however, women with mental illness tended to have more days in treatment. Furthermore, women with mental illness were significantly more likely to be classified by the program staff as treatment compliant than women without mental illness.

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This dissertation is dedicated to my husband, Michael Alan Treger, and to the memory of Constance Elizabeth Lockhart, a tireless champion for women's substance abuse treatment, whose wisdom and hard work helped better the lives of women and children affected by substance abuse and dependence.

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INTRODUCTION

Substance abuse is a significant problem in the United States, with potentially devastating effects, not only for the abusers, but also for their families. A recent survey conducted by the Substance Abuse and Mental Health Services Administration (SAMHSA, 2007) estimated 22.6 million persons met criteria for substance abuse or dependence in the past year (9.2 percent of the population aged 12 or older). Of these, 3.2 million (14%) met criteria for abuse of or dependence on alcohol and illicit drugs, 3.8 million (17%) met criteria for abuse of or dependence on illicit drugs but not alcohol, and 15.6 million met criteria for abuse of or dependence on alcohol but not illicit drugs (69%).

Although the criteria for substance abuse and substance dependence differ, both cause problems in the user's life that may lead them to seek treatment and are referred to collectively as "Substance Use Disorder" in the Diagnostic and Statistical Manual, 4th Edition, of the American Psychiatric Association (DSM-IV). Substances whose use may lead to life problems include nicotine, alcohol, illegal drugs (e.g., marijuana, cocaine, heroin), and prescription drugs (e.g., oxycontin, vicodin, methadone, valium). While both alcohol and nicotine are considered drugs due to their effects on the user, researchers usually refer to "drugs" as those substances that are illegal or require a physician's prescription. For the purpose of this study, "substance use and abuse" refers to both alcohol and drugs, unless otherwise specified. In addition, the term "substance abuse" is used liberally to include both substance abuse and substance dependence.

Several studies have shown that women have different patterns of substance use and abuse compared to men (e.g., Greenfield, Manwani, & Nargiso, 2003). Although

some studies have indicated that women have unique substance abuse treatment needs compared to men (e.g., Jarvis, 1992; Vogeltanz & Wilsnack, 1997), because considerably more research has focused on men, less is known about factors affecting women's recovery. Only in relatively recent years, has there been a concerted effort to evaluate women with substance use disorders; consequently, most treatment modalities are still based on the earlier research that focused solely on men (e.g., Greenfield et al., 2007). Although many differences may affect treatment outcome, two important characteristics that may differentiate men and women's recovery from substance abuse are psychiatric comorbidity and the parenting role. The purpose of this study was to examine relationships between these factors on women's recovery from substance abuse.

Rates of Substance Use among Males and Females

Adolescents. Although drug and alcohol abuse are often conceptualized as problems of men (Valliant, 1995), the rates of substance abuse for men and women are increasingly similar. For instance, Greenfield et al. (2003) reported significant gender differences in the prevalence of substance use disorders in the United States, but noted a trend among boys and girls aged 12 to 17 years toward comparable rates of use and initiation for alcohol, cocaine, heroin, and tobacco. In addition, although the rate of substance abuse or dependence for females (6.3%) was approximately half as high as the rate for males (12.3%), the SAMHSA (2007) survey found that among youths aged 12 to 17 the rate of substance abuse or dependence for females (8.1%) was similar to the rate for males (8.0%). Similarly, Johnston et al. (2007) examined trends in alcohol use among female and male adolescents over time (1975-2006) and found a slight decrease in rates of use by males and a slight increase in rates of use by females.

Several factors may have contributed to the closing of the gender gap in adolescent substance abuse. These include stress, mood and anxiety disorders, and specific changes in alcohol use. For instance, female adolescents are more likely than males to use drinking to relieve stress (Simonov, Schoen & Klein, 2000). Related to this, mood and anxiety disorders are more common among female adolescents than male adolescents (Kuehner, 2003), which may lead to attempts at self-medication through illicit drugs and alcohol.

The fact that adolescent females engage in drug use at rates that are similar to adolescent males may indicate a future trend of increasingly similar rates of substance abuse among men and women. If this trend continues, over time there may be a narrowing of the male-to-female prevalence ratios of substance abuse in adults. The increase in substance use and addiction among adolescent girls indicates a need for further exploration both of the causes and treatment of substance abuse for females.

Adults. Although substance abuse and dependence appears to be a greater problem for males than females, several studies have indicated significant gender differences in the type of substances used and in the progression of abuse. When examining the use of opiates, stimulants and alcohol, surveys have shown that women account for 35 to 60% of the drug abusers or drug addicts in the U.S. (Kreek, 2000). Kandel (2000) reported rates are higher for adult males than females for alcohol and marijuana dependence, but essentially the same for cocaine dependence. Furthermore, recent studies have shown that females are more likely to use crack-cocaine than males (Lejeuz, Bornovalova, Reynolds, Daughters, & Curtin, 2007; Mangrum, Spence, & Steinley-Bumgarner, 2006).

Blume and Zilberman (2004) attribute the increase in alcohol and drug use among women to the increase of women in professions formerly dominated by men, the younger age of onset for female substance abusers, and the finding that women have a higher risk for developing dependence related to early use of substances. This possibility is particularly disturbing because women have a heightened vulnerability to medical, physical, mental, and social consequences of substance use. Women also carry additional unique risks during pregnancy because of the potential effects of alcohol and drugs on their unborn children. In addition, they have certain gender-specific cancer risks. Given this and the declining age of initiation of substance use in women, prevention and treatment efforts especially geared toward women (e.g., education of all medical and paramedical staff, screening in primary care clinics, detection of drug use early in pregnancy or before conception, brief interventions and treatment programs that integrate women's needs) are exceedingly important to stop and ultimately reverse this trend.

Gender Differences Related to Alcohol Use and Abuse

Several psychosocial and demographic variables associated with problem drinking in women appear to be distinct from the correlates of men's alcohol problems. Drunkenness in men has typically been accepted by society and even encouraged at times, whereas drunkenness in women has never been accepted. Consequently, there is greater stigma associated with women's drinking. When women drink to excess it has typically been considered unfeminine and has been associated with promiscuity and immorality (Cohen, 2000). When female and male alcoholics are compared, women report more positive family history of alcohol misuse, a later onset of drinking and

related problems, more marital disruption, and more psychiatric comorbidity (Gomberg, 1999).

Although men drink more heavily than women, this difference may in part be due to men's greater tolerance for alcohol due to their increased body mass. For instance, binge drinking is typically defined as five consecutive drinks for men and four consecutive drinks for women. Physiological differences between the sexes, including hormonal, metabolic, endocrinological, and neuropsychological processes influence how alcohol is processed and are at least partly responsible for the more rapid progression of alcohol dependency and related disease processes (Brady & Randall, 1999; Greenfield & O'Leary, 2002; Lieber, 2003; Tavares, Zilberman, Hodgins, & el-Guebaly, 2005).

Gender Differences in Reasons for Entering Substance Abuse Treatment

Reasons for entering substance abuse treatment differ for men versus women. Mangrum et al. (2006) examined gender differences at pretreatment on the Addiction Severity Index composite score. The Addiction Severity Index assesses lifetime and recent (past 30 days) severity of problems in seven areas of functioning: alcohol, drug, employment, family-social, legal, medical, and psychiatric. Results indicated that women reported a greater number of problem days related to medical, employment, family, social, and psychological problems, whereas men reported more problem days related to drug or alcohol use. Similarly, in a study of clients in inpatient treatment for substance abuse, DiNitto, Webb, and Rubin (2002) found that women reported greater concern related to family problems and indicated a greater need for family counseling than did men. Women also reported having closer relationships to and spending more time with their children and family than did men.

Gender Differences in Treatment for Substance Abuse and Dependence

Historically, addiction has been considered a disease of men, and differences between male and female substance abusers were not appreciated by researchers or by clinicians. Although the number of female clients in alcohol treatment programs increased from 22% in 1982 to 28% in 1990, women were still substantially underrepresented in many treatment programs (Vogeltanz & Wilsnack, 1997). Prior to the mid-1990's little research had been conducted on women and their problems associated with substance abuse (U.S. Department of Health and Human Services, 1994). More specifically, in a review of English journal articles cited in the Medline and PsychInfo databases from 1975 to 2005, Greenfield et al. (2007) identified 280 articles on treatment outcomes in women with substance use disorders. Ninety percent of those articles were published since 1990 and over 40% of those had been published since 2000.

As such, drug and alcohol treatment programs were initially designed by and for men with women admitted as an afterthought. Little attention was given to the specific needs of female patients (Mondanaro, 1989). But, in fact, men and women not only differ in the type of substances used and the progressions of substance abuse and dependence, their treatment needs are also different.

A meta-analysis of gender differences in treatment outcome studies conducted by Jarvis (1992) found that men had better results from inpatient programs that included milieu therapy, psychotherapy and Alcoholics Anonymous with or without drug therapy; conversely, most of the programs that reported better results for women used behavioral therapies. Jarvis argued that treatment programs that take into consideration the different needs of women are likely to experience greater success than those with a "one size fits

all” approach. Childcare, assessment and treatment of mood and anxiety disorders, skills training for increasing social, parental, and relationship functioning are important issues for women, as well as assistance with practical issues such as employment, housing, and health care (Vogeltanz & Wilsnack, 1997). According to Vogeltanz and Wilsnack, about 53% of public and private alcohol and drug abuse treatment facilities offered some type of women’s services; however, only 6% of the total treatment programs were for women only, an increase from 3% in 1982. In a review of the Alcohol and Drug Services Study (ADSS) conducted by the U.S. Department of Health and Human Services, Brady and Ashley (2005) found that women-only treatment availability ranged from about 2 percent of outpatient nonmethadone facilities to 21 percent of nonhospital residential facilities

According to Kaufman (1994), many of the issues of female substance abusers are significantly different from those of male substance abusers. Although the number of female clients in alcohol treatment programs increased from 22% in 1982 to 28% in 1990, women were still substantially underrepresented in many treatment programs (Vogeltanz & Wilsnack, 1997). The need for gender-specific treatment has been supported by several studies that have identified differences in interaction styles and the traditional societal dominance of men as factors that might have a negative impact on women in mixed-gender treatment programs (e.g., Hodgins, el-Guebaly, & Addington, 1997; LaFave & Echols, 1999; Nelson-Zlupko, Kaufman, & Dore, 1995; Schliebner, 1994; Welle, Falkin & Jainchill, 1998). Whereas traditional treatment programs use a confrontational style, better suited to men (Kauffman, Dore, & Nelson-Zlupko, 1995), women may benefit from a less structured and rigid style of treatment (Hodgins et al., 1997). According to a NIDA funded study conducted by Christine E. Grella of the

University of California at Los Angeles (UCLA), women in women-only treatment programs were more than twice as likely to complete treatment compared to women in mixed gender programs (NIDA Notes, March, 2000). Based on this analysis of 4,117 women participating in publicly funded substance abuse treatment programs in Los Angeles from 1987 to 1994, Grella concluded that women have different treatment needs than men and are more likely to be successful in gender-tailored treatment.

Women also have different risk factors, natural history, presenting problems, motivations for treatment, and reasons for relapse compared to men (Davis, 1994; Hodgins et al., 1997; Hughes et al., 1995; Pelissier, Camp, Gaes, Saylor, & Rhodes, 2003; Saunders, Baily, Phillips, & Allsop, 1993; NIDA Notes, September, 2000). Women often turn to drinking due to a specific life situation and most often follow a pattern of drinking alone. Furthermore, they may prove more harmful in their drinking to themselves and others, and may show poorer results in treatment than men (Corrigan, 1980). Because heavy drinking is less acceptable for women than for men, alcohol-abusing women may perceive more stigma and shame than alcoholic men (Corrigan, 1980).

Typical problems presented by women entering treatment include few vocational skills, few social supports, low self-esteem, negative images of other addicted women, ambivalence about associating with non substance users, complex domestic entanglements, commitment and loyalty to a man, pessimism about the possibility of positive change, mistrust of the treatment setting, and multiple other problems in living (Wildwind & Samson, 1981). Women entering treatment are also more likely than men to have the major caretaking and financial responsibility for their children; however, they

are also more likely to have fewer financial resources (Mondanaro, 1989). Furthermore, women often have a substance-abusing partner and get less support for treatment from their family members and partners than do men (Blum, Nielsen, & Riggs, 1998).

A more recent study by Hser, Evans and Huang (2005) confirmed the gender differences from previous findings. They found that women began treatment with more severe psychosocial problems, including depression, than their male counterparts, whereas men reported more crime and involvement with the criminal justice system. In addition, the National Institute on Drug Abuse (May, 2002) concluded that, based on a review of NIDA research, the effectiveness of treatment may be enhanced by tailoring services to the gender of the recipient. This conclusion was based on the findings that success in treatment is directly related to the length of time in treatment, and women tend to leave treatment earlier than men. Furthermore, men tend to relapse due to anxiety and positive feelings, while women tend to relapse due to depression and negative feelings.

Role of Parenting and Psychiatric Comorbidity in Women's Recovery Attempts

Although the needs of women entering treatment for substance abuse are different than their male counterparts, two of the most distinguishing characteristics that differentiate men from women with substance use disorders are the role of children in their lives and psychiatric comorbidity. As such, the following sections focus on these critical issues in women's recovery from substance abuse.

Role of Parenting in Women's Recovery Attempts. Nearly 5 million substance-abusing adults are believed to be living with at least one minor child (SAMHSA, 2004a). Another SAMHSA report (2004b) found that for women living with children, 5.5% were

substance abusers, whereas for women not living with children, 13% were substance abusers.

It has been argued that having dependent children is a women's issue that must be addressed in treatment (Jansson et al., 1996; Knight, Hood, Logan & Chatham, 1999; Nelson-Zlupko et al., 1995; SAMSHA, 1993; Volpicelli, Markman, Monterosso, Filing, & O'Brien, 2000). Compared to their male counterparts, women who abuse substances are more likely to have children (Mangrum et al., 2006), are more likely to be living with their minor children (Pilowsky et al., 2001), and are more likely to be the primary caregiver for their children (Stewart, Gossop, & Trakada, 2007). Moreover, Kearney, Murphy, and Rosenbaum (1994) found that even when substance-abusing mothers resided with other adults, they were still likely to be their children's primary caregiver.

It is not clear what role dependent children may play in women's recovery. Children may serve as either a barrier to or a motivation for treatment. For women with substance abuse problems, children are frequently considered invisible members of their social networks (Kroll, 2004) and may serve as a source of support and encouragement. On the other hand, parenting may be a competing demand that may be associated with women's decision to drop out treatment (Daley et al, 2000). Women might also drop out of treatment due to feeling overwhelmed by guilt and shame due to the impact their substance use has had on their children (Cox, 2000). In addition, fear of involvement with the child welfare system may prevent many women from seeking help for their substance abuse problems (Kissman & Torres, 2004).

In a study of female crack or cocaine users, Kearney et al., (1994) found that women who lived with their minor children and had parenting responsibilities reported

less drug use. For some of these women, losing custody of their children was associated with increased drug use. For women who had lost custody of their children, increased drug use was hypothesized as an attempt to cope with the pain of the loss of their children. For other women, the loss of custody of their children motivated them to decrease their drug use in order to regain custody of their children.

Some studies of drug-using women with dependent children have found that children may influence their decision to reduce substance use. Woodhouse (1992) found that parenting was a theme that surfaced for many of the women in a qualitative study of 26 mothers in inpatient treatment for substance abuse. Women reported concern about the effect their substance abuse was having on their children and worried about their children modeling their substance abuse behavior. The mothers also reported a sense of responsibility for taking care of their children; however, many women did not know how to create a better home environment for their children and therefore managed to continue drug use and maintain responsibility for their children by leaving their children in the care of friends or family members when they used drugs.

Kearney et al. (1994) revealed similar findings in a study of cocaine-using mothers. Although many of these women had unplanned pregnancies, they reported a sense of responsibility for and pride in their children when they were born. Many mothers also reported they spent the majority of their time with their children and would only do drugs when the children were not present. Some mothers also reported a willingness to admit their drug habits to authorities for the well being of their children. In addition, some mothers reported they would give up custody of their children, even though it

would cause them great pain to do so, if their drug use interfered with their ability to provide proper childcare.

Some substance-abusing women have reported having greater control over their drug use when they were caring for their children compared to when they did not have child care responsibility (Roberts, 1999). In Robert's study of inner city African American women, the mothers described their children as being very important in their lives. Furthermore, women who had experienced failed relationships and who did not have children living with them reported greater substance use problems than women who had similar relationship problems but did have children living with them. In addition, losing custody of children resulted in women increasing their drug use. Most of these women reported their primary motivation for entering treatment was an attempt to get their children back.

Feeling inadequate, as a mother, has been associated with increased drug use. In studies conducted by Hardesty and Black (1999) and Woodhouse (1992) motherhood was an important part of the lives of women addicted to drugs. Many women reported that repairing their relationship with their children was a motivation for their recovery from drug addiction. However, for many women, their drug use made it difficult to repair relationships with children, which led them to feel guilty.

Collectively, these qualitative studies demonstrate the importance of children in the lives of substance-abusing mothers and suggest that many women who misuse substances are concerned about the effects of their drug use on their children. In addition, many women reported concerns about how their drug use was associated with their ability to effectively parent their children. Furthermore, for many women, their children

served as a motivation to enter treatment. For some women, the loss of custody was associated with increased reports of drug use; however, the loss of custody of children served to motivate some women to discontinue drug use and increase parenting skills in an attempt to regain custody of their children.

Substance Abuse Treatment for Women with Children. Considerable research has been conducted on mothers in residential treatment settings for substance abuse. Conners, Grant, Crone, and Whiteside-Mansell (2006) found that length of stay in residential treatment was positively associated with positive treatment outcomes, including abstinence from alcohol and other drug use, decreased cigarette use, decreased depression, and more positive parenting attitudes. In a study that examined various forms of treatment for substance abuse, including residential treatment, Stewart et al. (2007) found that women with children had unique difficulties that may prevent them from seeking and benefiting from treatment. Specifically, Stewart and colleagues examined drug dependent parents' involvement in treatment services, their childcare arrangements before and during treatment, and their treatment outcomes one year later. As compared to women who did not have childcare responsibilities, women who had childcare responsibilities reported little improvement in psychiatric symptoms. Also, mothers who took care of their children were less likely to enter residential treatment than women who were not caring for their children.

Although a substantial body of literature has examined women's recovery attempts, much less research has examined how minor children in the home may serve as a barrier or benefit to women's outpatient treatment for substance abuse. Studies that have examined women who enter non-residential community-based treatment, suggest

that having children may be a barrier to receiving treatment services. For instance, McMahon, Winkel, Suchman, and Luthar (2002) examined the number of children women had and treatment history for methadone maintenance treatment. They found a significant negative correlation between number of children and number of previous treatments. That is, the more children opioid-addicted women had, the less likely they were to attempt drug abuse treatment. In a community-based substance abuse treatment program study, Wilke, Kamata, and Cash (2005) found a negative relationship between having children and treatment motivation, suggesting that having children may be an obstacle to entering treatment. It is possible that these women were afraid to enter substance abuse treatment for fear of losing their children to Child Protective Services and/or concern that they would be unable to care for children while in treatment.

Psychiatric Comorbidity among Female Substance Users. The occurrence of depression and anxiety among female alcohol and drug users is well established. Women with substance use disorders present higher rates of psychiatric comorbidity, particularly mood and anxiety disorders, than do men. Moreover, the comorbid diagnosis, particularly of depression, is more often primary in women. In contrast, for men comorbidity is more often secondary to the substance abuse diagnosis. In addition, there is evidence that psychiatric comorbidity is associated with distinct, sex-specific outcomes for substance use treatment (Zilberman, Tavares, Blume, el-Guebaly, 2003). The most common comorbid disorders in women with alcohol use disorders are depression and anxiety disorders, whereas the most common comorbid disorders in alcoholic men are antisocial personality disorder and other substance use disorders (Helzer & Pryzbeck, 1988). Men are more likely to identify alcohol as the cause of their problems in daily living, whereas

women are more likely to identify anxiety, depression, and difficulties in daily living as the problems that cause their alcohol use. Affective disorders appear equally prevalent in men and women (Kreek, 2000). Women who seek treatment for substance abuse are at greater risk than men of suffering from non-bipolar mood disorders and are more likely to seek treatment for their disorder. Major depression is often complicated by the co-occurrence of alcohol and drug abuse or dependence. Nearly one-third of patients with major depressive disorder also have substance use disorders, with a higher risk of suicide and greater social and personal impairment in addition to other psychiatric problems.

In a review of the literature, Chander and McCaul, (2003) found a clinically important comorbidity between psychiatric and substance use disorders, particularly in women. Women with affective and anxiety disorders were more likely to present with alcohol or drug abuse/dependence and, in turn, substance-abusing women were more likely to experience clinically significant depression and anxiety. Emerging evidence points to an etiological role for anxiety disorders in the development of substance abuse/dependence; however, etiologic evidence is not as clear-cut for major depressive disorder. In addition, Post-Traumatic Stress Disorder (PTSD) appears to be a particularly important factor for alcohol and drug dependence in women who have experienced childhood or adult sexual and or physical abuse (Chander & McCaul, 2003).

Psychiatric Comorbidity and Substance Abuse Treatment. One of the most significant predictive factors of treatment outcome, psychiatric comorbidity, is found more frequently in women than men with substance abuse (Alonso et al., 2004; Castel, Rush, Urbanolki & Toneatto, 2006; Chander & McCaul, 2003; Lewis & Petry, 2005; Peles, Schreiber, Naumovsky, & Adelson, 2007). Studies have shown that at the time of

entry into methadone maintenance treatment for heroin addiction, women have a different profile of psychiatric comorbidity. Specifically, anxiety disorders are more prevalent in women than men, and antisocial personality disorders are more prevalent in men than women.

The Chander and McCaul (2003) review found limited evidence that women-specific services can improve treatment retention, substance use outcomes, and possibly psychosocial functioning compared with traditional mixed-gender programs. However, it was clear women with co-occurring psychiatric and substance use problems are challenging to engage and retain in care. Particular attention should be focused on screening and assessment of alcohol and drug use and problem severity among women who have identified psychiatric disorders or who are receiving antidepressant or anxiolytic medications. Recognition and referral for both psychiatric and substance use disorders are critical for long-term health and psychosocial improvement. Although the treatment of comorbid major depressive disorder and substance use disorders with medication is likely effective, the differential treatment effects based on substance use disorder comorbidity have been understudied.

Conner, Pinquart, and Duberstein (2008) conducted a meta-analysis of reports on intravenous drug users published in English in peer-reviewed journals since 1986 that contained data on depression and substance use outcome. They examined the association of depression with substance-related behaviors including concurrent drug use and impairment, future drug use and impairment, alcohol use and impairment, needle sharing and substance use treatment participation, and identified moderators of these associations. Positive associations between depression and the substance-related variables were

reported, with the exception of the predicted association of depression and future drug use and impairment. Moderating effects of gender were identified, including greater associations of depression with substance use treatment participation and needle sharing among women, and a greater association of depression with future drug use and impairment among men.

Role of Dependent Children and Mental Illness in Outpatient Substance Abuse Treatment

Motherhood appears to be an important factor in women's substance abuse recovery attempts. Unfortunately, few studies have examined whether having minor children may be related to women's attendance in a community-based outpatient treatment program and whether having young children may be associated with successful treatment compliance. Although the majority of previous research reviewed has examined whether children may be related to women's treatment compliance, length of time in treatment has also been related to treatment success. For example, Connors et al. (2006) found that a longer stay in residential treatment was associated with greater abstinence from alcohol and other substances.

Data from the 2002 and 2003 National Survey on Drug Use and Health were evaluated by Simmons and colleagues (2009) who found that of the 19,300 women surveyed who reported having children younger than 18 years in the home, 1.9% reported past year abuse or dependence on cocaine, heroin, marijuana, stimulants, hallucinogens or nonmedical use of prescription medication. These mothers were more likely to be unmarried, report stress, have poorer health status, and meet the criteria for serious mental illness (SMI). In addition, Graff et al. (2009) examined retention and engagement for 102 women in gender-specific treatment. They found that women were more engaged

in treatment (i.e., completed more assigned homework) if they had fewer children at home.

Summary

Two important variables related to successful substance abuse treatment for women are psychiatric comorbidity and having minor children; however, few studies have addressed both of these major issues and how both may be related to treatment compliance. Although it is known that mental illness is a risk factor for successful substance abuse treatment, it is less clear what role children play. Some research suggests that the presence of children in the home may be a protective factor for women seeking treatment, serving as a motivation for seeking recovery and staying sober. Other research suggests that the presence of children in the home may keep women from seeking the treatment they need, especially inpatient treatment. It is not known what role dependent children play in the lives of women with serious mental illness who seek treatment for substance abuse. However, based on this review of the limited research conducted in this area, the studies that support the hypothesis that children can be a protective factor in women's recovery are largely qualitative and based on small sample sizes, while the studies that support the hypothesis that children may be a risk factor in women's recovery are largely quantitative and have much larger sample sizes. Therefore, for the purpose of this study it was decided to treat the presence of dependent children as a risk factor for women who are seeking treatment for substance abuse.

Study Hypotheses

The purpose of the present investigation was to examine the role of children and mental illness in women's compliance in a community-based day treatment program for

substance abuse. Although there is no consensus in the research literature on whether children are a protective or risk factor for women's substance abuse treatment, it was hypothesized that, as compared to women who have minor children, women who do not have minor children would have greater treatment success as defined by: (1) more days in the treatment program; (2) greater likelihood of treatment compliance (i.e., successful compliance in the program); and (3) a higher percentage of negative toxicology screens during the treatment program. Additionally, it was hypothesized that, as compared to women with mental illness, women not classified with mental illness would also have greater treatment success, as defined by: (1) more days in the treatment program; (2) greater likelihood of treatment compliance (i.e., successful compliance in the program); and, (3) a higher percentage of negative toxicology screens during the treatment program. It was further hypothesized that women with both of these protective factors (e.g., no dependent children and no mental illness) would have greater treatment success than woman with either or none of these protective factors.

METHOD

Participants

Archival data were examined from women ($N = 221$) ranging in age from 19 to 59 years old ($M = 36.40$, $SD = 8.85$) who took part in a community-based day substance abuse treatment program in a large city in southeastern Virginia between December 2003 and August 2006 (inclusive). Participants had been screened by program staff prior to admission and found to meet current alcohol or drug abuse or dependence criteria according to the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; DSM-IV; American Psychiatric Association, 1994). Demographic information for the sample is listed in Table 1. Prior to data collection IRB approval was obtained from the participating university. The community services board (CSB) sponsoring the program also approved the study.

Procedure

In an attempt to form an alliance with the local CSB, university researchers met with CSB staff to discuss their mutual interest in outpatient substance abuse treatment programs for women. Both the researchers and the CSB were interested in treatment retention and improving services for clients who sought treatment for their addiction to drugs or alcohol. Although the CSB had been collecting extensive data on their clients, they had no frame of reference or resources for analyzing their data. A thorough review of the client variables that had been entered in their medical records, revealed a wealth of information that might provide insight into protective and risk factors for treatment retention, completion, and success. The data for this study is a subset of that larger data collection.

Table 1

Sociodemographic Characteristics of Clients (N = 221)

Characteristic		<i>M</i>	<i>SD</i>	<i>N</i> (%)
Annual income (in U.S. dollars) ^a		2,300	3,527	
Age		36.40	8.85	
Education	Grades 1 to 11			94 (42.5)
	High School Graduate/GED			85 (38.5)
	1, 2, or 3 years of college			20 (09.0)
	College Graduate/Graduate Degree			7 (03.2)
	Unknown			15 (06.8)
Racial/ethnic Composition	Caucasian			50 (22.6)
	African American			162 (73.3)
	'Other'			7 (03.2)
	Unknown			2 (00.9)
Living Arrangements	Alone			41 (18.6)
	With relatives			134 (59.7)
	With non-relatives			39 (17.6)
	With relatives and non-relatives			4 (01.8)
	Unknown			5 (02.3)
Primary Drug	Alcohol			56 (25.3)
	Crack/Cocaine			109 (49.3)
	Heroin			8 (03.6)
	Marijuana/Hashish			30 (13.6)
	Methamphetamines			1 (00.5)
	Other Opiates or Synthetics			3 (01.4)
	Other Stimulants			1 (00.5)
	Unknown			13 (05.9)
Legal Status	None/Voluntary Admission			138 (62.4)
	Involuntary			72 (32.8)
	Unknown			11 (05.0)

Note. Demographic variables reflect admission data.

^aMode for income was zero. Ninety-seven percent of clients were below 2004 poverty level of \$9,310 established by the U.S. Department of Health and Human Services.

The CSB provided a Day Treatment Program for women with substance abuse and/or dependency. The structured program was designed to offer a minimum of 20 onsite treatment hours per week for a three-to-twelve month period with the actual length of stay being determined by the severity of the client's problems. In order to be admitted to the program, women had to meet the following criteria: 1) DSM-IV diagnosis of substance (drugs or alcohol) abuse and/or dependence; 2) not be in need of inpatient treatment; 3) not be likely to respond successfully to more traditional, less intensive treatment; and/or 4) be at risk for serious biopsychosocial problems if drug/alcohol use was continued. Exclusion criteria included: 1) oppositional characteristics that limited openness to behavioral interventions; 2) unstable medical conditions; 3) history of violent behavior that contraindicated participation in group activities; 4) active suicidal or homicidal intent; and/or 5) any other acute problems that would prohibit benefit from group interventions. Services were provided on an outpatient basis and included group therapy, educational sessions (e.g., Self-Esteem, Barriers to Recovery, Chemical Aspects of Addiction, Healthy Decision Making, Family Roles), presentations from community partners (e.g., HIV/AIDS Prevention), employment preparation activities and random weekly urine drug screening. Structured 12 week modules of treatment were scheduled daily from 9:30 a.m. to 1:30 p.m. Monday through Friday.

Non-identifying participant information was collected from medical records. For women who had more than one substance abuse treatment attempt during the study time frame, the information collected from their medical records reflected their most recent substance abuse treatment. All information was extracted from medical records by a research assistant and verified by a second research assistant. Every attempt was made to

verify that missing data were not simply misplaced or located elsewhere in the client's medical chart.

Dependent Children. At intake, clients were interviewed by CSB staff regarding their current living arrangements, number and ages of any children, and so forth. Information was also extracted from medical records on the number of live births and their children's ages. Of the 221 women who attended treatment, 105 (47.5%) women resided with a minor child at the time of intake; 116 (52.5%) did not reside with a minor child at the time of intake. If participants reported having one or more dependent children at intake, they were coded as '1' ($n = 105$); if they did not report having minor children (between the ages of 0 and 17) at intake, they were coded as '2' ($n = 116$).

Mental Illness. A clinical interview was conducted at intake by CSB staff to determine whether or not clients had any comorbid psychiatric conditions. Intake staff used the DSM-IV multiaxial assessment to evaluate participants on clinical disorders (Axis I), personality disorders and mental retardation (Axis II), general medical conditions (Axis III), psychosocial and environmental problems (Axis IV) and global assessment of functioning (Axis V). All participants had at least one Axis I diagnosis of a substance-related disorder. Thirty-five percent had a comorbid disorder on Axis I, 60% had only a substance-related disorder, and data were missing for six percent. If participants were diagnosed with any clinical disorders on Axis I other than substance-related disorders, they were coded as '1' ($n = 77$); if they were not diagnosed with any clinical disorders on Axis I other than substance-related disorders, they were coded as '2' ($n = 131$). Mental illness data were missing for 13 clients. See Table 2 for a list of diagnoses for those classified with mental illness. No participants were diagnosed with

Table 2

Axis I (DSM-IV) Diagnoses of Clients Classified with Mental Illness (N=77)

Diagnosis	Number of Clients
Schizophrenia	4
Schizoaffective Disorder	9
Psychosis, NOS	3
Major Depressive Disorder	21
Dysthymic Disorder	2
Depressive Disorder, NOS	19
Mood Disorder, NOS	2
Bipolar Disorder	18
Panic Disorder	1
Posttraumatic Stress Disorder	5
Generalized Anxiety Disorder	2
Anxiety Disorder, NOS	4
Adjustment Disorder	2
Attention-Deficit Hyperactivity Disorder	2

Note. NOS=Not otherwise specified. Some clients had more than one diagnosis on Axis

1. No clients had Attention-Deficit Hyperactivity Disorder as a sole Axis I diagnosis.

mental retardation on Axis II and less than 10% were diagnosed with a personality disorder on Axis II. See Table 3 for a list of Axis II diagnoses.

Treatment Outcome Based on Days in Treatment. Number of days in treatment was extracted from the medical records by calculating number of days from program

Table 3

Axis II (DSM-IV) Diagnoses of Clients at Program Intake (N=221)

Diagnosis	N (%)
Antisocial Personality Disorder	6 (2.7)
Borderline Personality Disorder	3 (1.4)
Dependent Personality Disorder	1 (0.5)
Personality Disorder, Not Otherwise Specified	8 (3.6)
None	123 (55.7)
Diagnosis Deferred ^a	20 (9.0)
Missing ^b	60 (27.1)
Total	221 (100.0)

^aAxis II diagnosis could not be confirmed or ruled out at time of intake.

^bNo information was recorded on Axis II.

admission to program discharge. Number of days in treatment ranged from 1 to 450 ($M = 116.56$ days, $SD = 98.80$).

Treatment Outcome Based on Percentage of Negative Toxicology Screens.

Participants were randomly administered toxicology screens during the course of treatment. The number of toxicology screenings ranged from 0 to 46 ($M = 6.31$, $SD = 7.69$). The toxicology screens tested for the following substances: propoxyphene, amphetamines, barbiturates, benzodiazepines, cannabinoids, cocaine, ethanol, methadone, and opiates. If a client tested positive for any of these substances, the screen was considered positive. In order for a toxicology screen to be considered negative, the client must have tested negative for all substances on the screen. The number of negative toxicology screens was divided by the total number of toxicology screens to determine

the percentage of negative toxicology screens. For purposes of data analysis, participants with less than 80% negative toxicology screens were coded '1' ($n=108$); participants with 80% or higher negative toxicology screens were coded '2' ($n=71$). Toxicology screen data were missing for 42 participants (19%).

Treatment Outcome Based on Treatment Compliance. At discharge, each client's treatment was classified as either compliant, partially compliant, or non-compliant based on concurrence by at least two program staff, one of which was the client's primary counselor. Although the following behavioral criteria were listed in the treatment program manual, staff were encouraged to consider each individual client's abilities and level of understanding when making a treatment compliance classification. Therefore, a client need not have met every behavioral criteria listed in order to be considered compliant. Treatment compliance was based on the following criteria: 1) achieved majority of goals/objectives of their treatment plan; 2) abstained from alcohol and other drugs while in the program; 3) maintained a good attendance record; 4) developed a recovery program; and 5) achieved maximum treatment potential. A client could be considered partially compliant if she had successfully completed part of her treatment plan but had to terminate treatment early due to special circumstances such as moving out of the geographical treatment catchment. Clients could be considered non-compliant if they: 1) achieved few goals/objectives of their treatment plan; 2) abstained from alcohol and other drugs only periodically; 3) had a poor attendance record; 4) were unwilling to develop recovery tools; and/or 5) achieved minimum treatment potential. Clients could also be considered non-compliant if they: 1) were unable to participate fully due to health problems; 2) were asked to leave the program due to non-compliance; 3) jeopardized or

disrupted the safety or treatment of others; 4) had repeated attendance problems (i.e., ten unexcused absences in one month); 5) refused services; 6) were incarcerated; and/or 7) dropped out of the program. Women who were treatment compliant and women who were partially compliant were combined and coded as '1' ($n = 50$) for data analytic purposes. Women who were not treatment compliant were coded as '2' ($n = 136$). Treatment compliance data were missing for 35 clients.

RESULTS

The data were screened for duplicate records, outliers, and missing information. Scores were screened for outliers based on the recommendation from Tabachnick and Fidell (2007), that is, scores with an absolute z value of 3.3 or higher were considered outliers. In the sub-sample of women who did not have minor children, one outlier was found for the variable, days in treatment (i.e., 510 days in treatment). As suggested by Tabachnick and Fidell, this score was replaced with 450 days in treatment (1 day greater than the next highest value for days in treatment, 449). No other outliers were identified. Normality for days in treatment and the percentage of negative toxicology screens were examined with histograms and skewness and kurtosis statistics. Days in treatment was positively skewed; percentage of toxicology screens had a bimodal distribution. Consequently, a log transformation was performed on the variable days in treatment prior to statistical evaluation; percentage of negative toxicology screens was recoded into a binomial variable with a cutoff of 80%. Post-hoc analyses indicated that more days in treatment was significantly positively correlated with negative toxicology screens, $r(175) = .31, p < .01$. Because it cannot be assumed that missing data reflect true randomness, missing data were not replaced. Rather, cases were deleted only for the analysis in which data were missing.

Prior to hypothesis testing, the data also were examined for possible group differences in sociodemographics. Specifically, women with and without dependent children, and women with mental illness and without mental illness, were compared on age, race/ethnicity, education, and primary drug of abuse using t tests and chi-square analyses as appropriate. With the exception of age, there were no significant

sociodemographic differences found between women with and without dependent children. Women with dependent children were significantly younger ($M=34.08$ years, $SD=7.80$) than women without dependent children ($M=38.50$ years, $SD=9.25$). Specifically, women with dependent children were approximately four years younger than women without dependent children. To control for this difference, age was included as a covariate in the analyses that compared women with children to women without children.

Comparisons between Dependent Children and Mental Illness on Days in Program

A two-way factorial ANOVA was performed to examine for main effects and interaction effects of children and mental illness on days in treatment program. Participant age was entered as a covariate. Assumptions of ANOVA were met including normality of distribution and homogeneity of variance. No significant differences were found between women with dependent children and women without dependent children on days in treatment. In addition, no significant differences were found between women with mental illness and women without mental illness on days in treatment. Furthermore, the interaction effect between dependent children and mental illness was not significant. However, one analysis approached significance $F(1,198)=3.31$, $p=.07$, in that women with mental illness had more days in treatment ($M=126.87$) than women without mental illness ($M=106.18$). See Table 4.

Comparisons between Dependent Children and Mental Illness on Toxicology Screens

A binary standard logistic regression was performed to test the prediction that women without dependent children would have a significantly greater percentage of negative toxicology screens than women with dependent children and that women

Table 4

Summary of Two-Way Analysis of Variance for Dependent Children and Mental Illness on Days in Treatment (N=203)

Source	df	SS	MS	F	Partial η^2	Observed Power
Age	1	2.13	2.13	2.56	.013	.357
Dependent Children	1	1.43	1.43	1.72	.009	.257
Mental Illness	1	2.76	2.76	3.31	.016	.441
Dependent Children x Mental Illness	1	1.48	1.48	1.78	.009	.264
Within cells	198	164.78	0.83			
Total	203	3997.54				

Note. Due to significant differences within the IV Dependent Children, age was entered as a covariate. SS and MS were the same for all variables. No results were significant at $p < .05$.

without mental illness would have a significantly greater percentage of negative toxicology screens than women with mental illness. For the purpose of data analysis the following variables were recoded: percentage negative toxicology screens ('0' = <80; '1' = ≥ 80); dependent children ('0' = none; '1' = one or more); mental illness ('0' = no; '1' = yes). The variables dependent children and mental illness were entered simultaneously into the model, as was their interaction. Because women with dependent children were significantly younger than women without dependent children, age was entered as a covariate. Results of the logistic regression were not significant, that is, the model did not predict odds of a percentage of negative toxicology screens. See Table 5.

Table 5

Binary Standard Logistic Regression Predicting Percentage of Negative Toxicology Screens – First Model (N=168)

Variable	B	SE	Wald statistic	Odds ratio (95%CI)
Dependent Children	-0.56	0.43	1.71	0.57 (0.25-1.32)
Mental Illness	0.63	0.43	0.02	1.06 (0.46-2.48)
Dependent Children x Mental Illness	0.62	0.66	0.89	1.86 (0.51-6.73)
Age	0.01	0.02	0.08	1.01 (0.97-1.04)

Note. $R^2 = .02$ for first regression model. CI=Confidence Interval. No significant predictors at $p < .05$.

As suggested by Tabachnick and Fidell (2001), because age was not a significant predictor in the first model, the model was again run without this covariate. This modified model was also not significant. See Table 6. The model was modified once again by removing the interaction between the predictor variables and again, the model was not significant. See Table 7.

Comparisons between Dependent Children and Mental Illness on Treatment Compliance

A binary standard logistic regression was performed to test the prediction that women without dependent children would be more treatment compliant than women with dependent children and that women without mental illness would be more treatment compliant than women with mental illness. For the purpose of data analysis the following variables were recoded: treatment compliance ('0'=noncompliance; '1'=compliance); dependent children ('0'=none; '1'=one or more); mental illness ('0'=no; '1'=yes). The variables dependent children and mental illness were entered

Table 6

*Binary Standard Logistic Regression Predicting Percentage of Negative Toxicology**Screens – Second Model (N=168)*

Variable	B	SE	Wald statistic	Odds ratio (95%CI)
Dependent Children	-0.58	0.42	1.91	0.56 (0.25-1.27)
Mental Illness	0.65	0.43	0.02	1.07 (0.46-2.49)
Dependent Children x Mental Illness	0.62	0.66	0.88	1.85 (0.51-6.69)

Note. $R^2 = .02$ for second regression model with covariate age removed.

CI=Confidence Interval. No significant predictors at $p < .05$.

Table 7

*Binary Standard Logistic Regression Predicting Percentage of Negative Toxicology**Screens – Third Model (N=168)*

Variable	B	SE	Wald statistic	Odds ratio (95%CI)
Dependent Children	-0.33	0.32	1.06	0.72 (0.38-1.35)
Mental Illness	0.33	0.32	1.04	1.39 (0.74- 2.64)

Note. $R^2 = .01$ for third regression model with covariates age and interaction removed.

SE the same for both independent variables. CI=Confidence Interval. No significant predictors at $p < .05$.

simultaneously into the model, as was their interaction. Because women with dependent children were significantly younger than women without dependent children, age was entered as a covariate. The model did not predict treatment compliance. See Table 8. Because age was not a significant predictor, the model was again run without this

Table 8

*Binary Standard Logistic Regression Predicting Treatment Compliance – First Model**(N=183)*

Variable	B	SE	Wald statistic	Odds ratio (95%CI)
Dependent Children	0.79	0.46	0.03	1.08 (0.44-2.67)
Mental Illness	0.55	0.83	1.35	1.73 (0.68-4.45)
Dependent Children x Mental Illness	0.37	0.69	0.28	1.44 (0.37-5.60)
Age	-0.02	0.02	0.69	0.98 (0.95-1.02)

Note. $R^2 = .03$ for first regression model. CI=Confidence Interval. No significant predictors at $p < .05$.

covariate. The modified model was not significant. See Table 9. The model was modified again by removing the interaction between the predictor variables. Although this model did not meet traditional levels of statistical significance, $\chi^2(2) = 5.00, p = .08$, $R^2 = .03$, it did approach significance. More specifically, while dependent children was not a significant predictor of treatment compliance in the final model, women with serious mental illness were significantly more likely to be rated as treatment compliant $\chi^2(1) = 4.69, p < .05$, odds ratio=1.37. See Table 10.

Table 9

*Binary Standard Logistic Regression Predicting Treatment Compliance – Second Model**(N=183)*

Variable	B	SE	Wald statistic	Odds ratio (95%CI)
Dependent Children	0.15	0.45	0.12	1.17 (0.49- 2.82)
Mental Illness	0.57	0.48	1.44	1.77 (0.70-4.51)
Dependent Children x Mental Illness	0.37	0.69	0.29	1.45 (0.37-5.60)

Note. $R^2 = .03$ for second regression model with covariate age removed. CI=Confidence Interval. No significant predictors at $p < .05$.

Table 10

*Binary Standard Logistic Regression Predicting Treatment Compliance – Third Model**(N=183)*

Variable	B	SE	Wald statistic	Odds ratio (95%CI)
Dependent Children	0.31	0.34	0.84	1.37 (0.70-2.68)
Mental Illness	0.75	0.35	4.69*	2.12 (1.07-4.17)

Note. $R^2 = .03$ for third regression model with covariates age and interaction removed.

CI = Confidence Interval

* $p < .05$

DISCUSSION

The purpose of this study was to examine the influence of having dependent children and/or mental illness on women's outpatient substance abuse treatment. It was hypothesized that both having dependent children in the home and mental illness would negatively impact treatment outcome, resulting in significantly fewer days in treatment, significantly lower percentage of negative toxicology screens, and significantly less likelihood of treatment compliance. However, results demonstrated that neither of these factors, either alone or in combination had a significant impact on the number of days that women stayed in treatment. This is in contrast to the review by Chander and McCaul (2003) who found that women with substance abuse and psychiatric comorbidity were more difficult to retain in treatment and the research by Graff et al. (2009) that found women were more engaged in treatment if they had fewer children at home.

In contrast to the hypothesis that women with mental illness would spend significantly fewer days in treatment, it was noted that women with mental illness tended to have more days in treatment than women without mental illness, a finding that approached significance. This finding is supported by the research of Conner, Piquart, and Duberstein (2008) who found a positive association between women's scores on measurements of depression and treatment participation defined by frequency and duration of treatment hours, number of days in treatment, and completing at least 90 days of treatment. Joe, Simpson, and Broome (1999) also found that greater treatment readiness predicted greater treatment involvement. Specifically, the greater degree to which subjects reported they were ready and willing to make changes in their current lives, particularly related to their substance use, the more involved they were in treatment

based on attendance and participation. It may be that, while in treatment, women with a diagnosed mental illness are receiving appropriate pharmacological treatment for their mental illness that they are not able to obtain or maintain while not in treatment. This may influence them to stay in treatment longer than women without a diagnosed mental illness who may, nonetheless, suffer from an undiagnosed and, consequently, untreated mental illness. It may also be that women diagnosed with mental illness, due to their additional challenge of having a documented mental illness in addition to a substance-related illness, are treated more generously by program staff and given more allowance for treatment failures and absences than women without mental illness. Furthermore, it should be noted that the variable days in treatment counted the number of days between admission and discharge rather than the number of days of attendance. There was no available measure of how many days or activities the women attended while in treatment.

In addition, contrary to the hypothesis that women with dependent children and/or mental illness would have fewer negative toxicology screens than women without dependent children and/or no mental illness, there was no significant difference between these groups on the percentage of negative toxicology screens found during treatment. For this population, it may be that percentage of negative toxicology screens is not a pertinent indicator of treatment success. For instance, some women may have been successful in abstaining from their preferred drug of choice, but used other substances during treatment; therefore, although they would have a positive toxicology panel screen, they may not have used their drug of addiction. A qualitative review of the data revealed that, while some women who identified alcohol or cocaine as their primary drug of addiction would not test positive for these substances during treatment, they would test

positive for cannabis. It may be that their occasional use of a drug they found not to be problematic, actually assisted in their ability to remain abstinent from their primary problem drug. Furthermore, it was noted that even though some women had a high percentage of positive toxicology screens, they were still classified as treatment compliant or partially compliant by staff.

Based on the findings of Chander and McCaul (2003) and Graff et al. (2009), it was further hypothesized that women with dependent children and/or mental illness would have significantly less treatment compliance than women without children and/or mental illness. No significant differences were found between these groups with the exception of women with mental illness who, contrary to expectations, were significantly more likely to be classified by the program staff as treatment compliant than women without mental illness. Hser (1995) proposed that counselor characteristics have a more significant impact on treatment outcome, especially in socially oriented programs compared to medically oriented programs. Again, it is possible that the treatment compliance of women with mental illness is judged more leniently by program staff than women without mental illness. Although behavioral guidelines were provided for classifying treatment compliance, staff were not only allowed, but encouraged to take into consideration each client's unique abilities and challenges. Therefore, it is likely the determination of treatment compliance was subjective and influenced more by staff impressions rather than strict behavioral guidelines. It is interesting to note that Anglin and Hser (1990) found some evidence that flexible policies, goals and philosophies produce better results than inflexible programs.

Limitations and Future Research

Conducting research in a clinical setting is a challenging task. Using archival data collected by clinical staff adds an even more challenging aspect to this research. In controlled research populations, subjects can be carefully screened and classified then placed into specific predetermined categories and evaluators are trained to use objective criteria and avoid bias; however, these factors, important in conducting valid and reliable research, are not typically applied in clinical settings, especially community-based settings where resources are limited and the population being served are likely to be in particular need of assistance. Clearly, a particular challenge identified in this archival research was the nature of the original data collection. There was no systematic process for ensuring that the same criteria for admittance, diagnosis, evaluation, classification, and qualification of clients was used consistently for all clients. In fact, although the researchers were told that several well-established assessments had been completed on a large portion of the clients, including the Addiction Severity Index (ASI), the University of Rhode Island Change Assessment (URICA) and the Minnesota Family Investment Program Self-Screen (MFIP), very few of these completed forms were found in clients' charts. The amount of missing data is also a testament to the lack of rigor that was applied to information gathering and recording. In addition, a fair amount of missing data were due to data discrepancies found in the medical records. There were several iterations of intake forms in the charts, necessitating a formulation of an artificial "intake template" that was created in an effort to obtain the same information from the many different locations it could be found in different charts.

Another challenge presented in this research is that by the very nature of the admittance criteria for this program, this population of women had moderate to severe biopsychosocial problems. This is therefore a sample of the some of the most challenging clients to engage and maintain in treatment due to their overwhelming lack of resources, history of want, and number of obstacles to successful treatment. Just as Greenfield and colleagues (2007) noted in their review of the literature on substance abuse treatment entry, retention and outcome, these women had multiple problems compounding their substance abuse problem. For example, although their average annual income was \$2,300, well below the poverty level, the mode of their income was zero. Specifically, 119 women (54%) reported having no income. In fact, 97% of the sample reported incomes below the 2004 poverty level of \$9,310 established by the Department of Health and Human Services (2004). Furthermore, 14% were homeless at the time of their entry into treatment, forty-two percent had less than a high school degree, and seventy-five percent had been arrested at least once.

Brady and Ashley (2005) reported that 46% of women in outpatient nonmethadone programs completed treatment and average length of time in program was 154 days. In contrast, 27% of women in the present study were rated as treatment compliant and the average length of treatment was 111 days. These figures may indicate that the present sample had even more challenges and barriers to treatment than the average women seeking substance abuse treatment.

In addition, the criteria for compliance and non-compliance were qualitative and somewhat subjective. Although the CSB provided written guidelines for use in determining degree of program compliance at discharge, as noted earlier in this paper, the

criteria were, in actuality, used more as general guidelines rather than strictly adhered to criteria. Although this was done in an attempt to take into consideration each client's particular challenges and limitations, it does not lend itself to valid and reliable statistical evaluation as the individual staff making the decision becomes a primary variable in the outcome. In short, this was quite a subjective variable influenced by the staff that made the decision.

Furthermore, the level of education, experience, and training of the persons conducting intakes, classifying clients, and recording information varied greatly. In fact, a CSB program director recognized the need for staff to be better trained in making psychological diagnoses based on the DSM-IV. This lack of specialized training makes the diagnoses used in this study somewhat suspect. As noted by Chander and McCaul (2003) careful screening and assessment of alcohol use, drug use and psychiatric disorders is very important for planning appropriate treatment strategies for women.

There is a need for a better-organized and universal system of gathering data in community settings in order to make these data suitable for statistical analysis and generalization to larger populations. Persons who conduct intake interviews need specialized training in conducting clinical interviews, recording data, and making DSM-based diagnoses. Researchers hoping to use archival data collected from clinical settings need to be aware of the limitations imposed by the manner of original data collection and establish realistic goals, accordingly. In addition, future research that uses negative toxicology screens as an indicator of treatment success may need to look at abstinence from specific drug of choice rather than abstinence from any substance on the toxicology screen. Furthermore, it may be of benefit to use two standards for assessment treatment

success: one that is based on measurable objective guidelines and another that takes into consideration each individual's unique abilities and challenges.

It should be noted that the effect sizes and power for all analyses performed in this study were extremely low. Similar to the aforementioned observation that quantitative studies with larger samples sizes found the presence of dependent children to be detrimental to treatment, while smaller qualitative studies reported dependent children as a possible asset to treatment, the current study may have yielded significantly different results had the sample size been larger and some of the data more objective and quantifiable (e.g., compliance data). The effect sizes were likely too small to detect significant differences that may have been found with a larger sample size. It may be that in order to generalize findings from archival data in clinical settings, more programs must be included. Combining data from numerous sites would increase the power of the analyses and may yield more reliable results that can be used to improve services.

SUMMARY AND CONCLUSIONS

There are little data on the impact of mental illness and dependent children on women's substance abuse treatment outcomes. And among the few studies that have looked at this very important issue there is no consensus on the impact of mental illness and dependent children on treatment entry and outcome. Teasing out protective and risk factors is a difficult task, further complicated by the "real life" aspect of conducting research in clinical settings where decisions and resources are driven more by need and finances than principles of conducting research. It is still unclear what impact dependent children have on women's substance abuse treatment. It may be that the impact is highly affected by the unique characteristics of each individual mother who seeks treatment for her addiction and/or her mental illness. Due to the overwhelming number of variables that impact treatment engagement, retention, and success for substance-abusing women, it is difficult to tease out the degree and direction of impact of many variables on treatment success. However, this is difficult in many current clinical settings, where the focus is on helping women with the numerous challenges they face in addition to their substance abuse; and where treatment resources and practices are highly influenced by finances and policy-makers who may not have much experience with direct clinical services or be able to keep up with the latest research.

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VITA

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