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ABSTRACT

This study evaluated an hypothesized model of biopsychosocial factors that mediate the relationship between childhood abuse and substance abuse. A questionnaire packet consisting of self-report measures was administered to 160 drug dependent participants with and without co-occurring psychological disorders in residential, partial, and outpatient treatment at the Diagnostic Rehabilitation Center in Philadelphia, Pennsylvania. Self-report measures assessed biopsychosocial factors consisting of familial alcoholism and mental illness, childhood abuse, self-esteem, family and social support, belief systems, mood states, coping methods, risk behaviors, and substance use. A path analysis was conducted to assess the theoretical model, and to explore the direct and indirect relationships among childhood abuse, biopsychosocial factors, and substance use. The results partially support the hypothesis that child abuse is indirectly related to substance use through mediating factors of negative family and social support, low esteem, avoidance coping, avoidance and affective beliefs, and health and risk behaviors. In addition, exploratory path analyses demonstrated sexual abuse and emotional neglect are directly related to alcohol and other drug use among women in residential treatment. These findings support the hypothesized paradigm in understanding the nature of substance use as an avoidance coping method for biopsychosocial factors promoted by childhood abuse. Appendixes include items such as demographics; childhood trauma questionnaire; mood scale; substance beliefs; substance use survey; and gender and treatment survey results. (Contains 157 references.) (Author/JDM)

AN EVALUATION OF AN HYPOTHESIZED PARADIGM: THE RELATIONSHIP BETWEEN CHILDHOOD ABUSE AND SUBSTANCE USE MEDIATED BY BIOPSYCHOSOCIAL FACTORS AMONG PRIORITY POPULATIONS

A Dissertation
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in Partial Fulfillment
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by
Loretta N. Simons
May, 2001

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Loretta N. Simons
Doctor of Philosophy
Temple University, May 2001
Joseph DuCette, Ph.D.

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DEDICATION

I would like to dedicate this work to my godmother who taught me about famial customs and was unable to witness the completion of this project.

I would also like to dedicate this work to my clients with whom I have worked with over the past several years and who taught me about dual diagnosis. Through their individual healing journeys, I have come to understand their treatment needs and without them, this model would not have been proposed.

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CHAPTER 1
INTRODUCTION

An Overview of Substance Abuse

Drug abuse, dependence, and addiction are of great public concern but remain the least understood problem in the United States (Fletcher, Tims, & Brown, 1997). Alcohol and other drugs (AOD) have been implicated as a factor in many of this country's most serious and expensive problems such as domestic violence, child abuse, HIV, and homelessness (Margolis & Zweben, 1998). In fact, nationwide growth in the population of those who use alcohol and other drugs justifies "Bennett's Declaration" that drugs and in particular crack-cocaine are the country's biggest and most immediate problem (Wallace, 1991). Drug use seems to underpin a host of social and public health problems, however, there is still little understanding of what can reasonably be expected from effective drug prevention and treatment.

Statistics

The ineffectiveness of prevention and treatment programs for drug abuse may be demonstrated in the growing incidence and prevalence rates among the general population. Studies on alcohol dependence have estimated that nearly 43 million people drink at least once a month (National Institute on Drug Abuse, 1991), while another 32 million people drink daily or almost daily (Substance Abuse & Mental Health Services Administration, 1998). In fact, more than 12,000 deaths are directly related to excessive alcohol consumption per year (Margolis & Zweben, 1998). Addiction treatment research has also estimated that approximately 26 million people use marijuana or cocaine monthly, while another 24 million people use either crack-cocaine or heroin regularly (NIDA, 1991; SAMHSA, 1998). Of these people, 1.2 million are addicted to crack-cocaine, cocaine, heroin, or some other type of drug (The

Governor's Drug Policy Council cited in Office of Drug and Alcohol Programs, 1991).

SAMHSA (1997) has also reported that males (8.1%) have higher rates of illicit substance use than females (4.2%). Although males are more likely to abuse drugs compared to females, females who are pregnant, young, and single appear to be at greater risk for developing a drug problem compared to females who are pregnant, older, and married. Rates of substance abuse were higher among pregnant women aged 15 to 25 than those aged 26 to 40 (Center for Substance Abuse Treatment, 1997). In contrast to findings from other investigations, epidemiology studies have further supported that the rates of heroin and crack-cocaine use have increased among both men and women equally (Leshner, 1998). Out of the 21 catchmen areas studied, 17 of them showed a substantial increase in heroin and cocaine use in both men and women between 1995 and 1996 (SAMHSA, 1997). This increase in drug use not only poses a problem for these individuals, but also the communities in which they live, since these drug trends have correlated positively with the rising rates of crime, unemployment, welfare, and poverty (NIDA, 1998a).

The Problem

The traditional view that psychiatric disorders are unrelated to alcohol and other drug disorders has hampered treatment for male and female clients who exhibit both types of disorders (Woody, 1996). Dual diagnosed clients are poorly understood, frequently misdiagnosed, and inappropriately treated by both mental health and addiction professionals. Dual diagnosed clients who receive mental health services usually do not receive counseling for their substance abuse disorder. On the other hand, those clients who receive substance abuse treatment often do not receive services for their mental health disorder. Dual diagnosed clients are likely to be rejected from either treatment altogether because of their co-occurring disorders

(Miller, Leukefeld, & Jefferson, 1994). As a result, these clients are likely to "fall through the cracks" of the healthcare system (Woody, 1996).

There is some evidence to suggest that dual diagnosed women face numerous obstacles when attempting to access treatment for either or both disorders more so than men (Grella, 1996). Substance abuse treatment programs were originally designed for men but were expanded to serve women despite ethnic, culture, and gender differences (Metsch et al., 1995; Tanney & Lowenstein, 1997). Women tend to have lower rates of treatment entry and retention compared to men (Wallace, 1991). One of the reasons for this under-utilization is that few substance abuse treatment programs are tailored to meet the specific needs of women. In addition, treatments for dual diagnosed women are generalized from the philosophy and practices of these traditional substance abuse programs. This approach, of course, has fundamental flaws since dual diagnosed women are inherently different from dual diagnosed men. All of these treatment problems intensify when dual diagnosed women are either pregnant and/or parents of dependent children.

Treatment systems for co-occurring disorders are usually organized separately and often use opposing approaches to rehabilitation (Evans & Sullivan, 1994; Minkoff, 1994). Few of these programs are designed specifically for dual diagnosed pregnant and/or parenting women, and evaluations on these programs are even rarer (Grella, 1996). These "traditional" programs tend to be self-perpetuating since they exclude gender specific and culture sensitive perspectives, which in turn contribute to the difficulty in attracting, retaining, and treating dual diagnosed pregnant and/or parenting women.

Clients who are addicted to drugs and who have co-occurring mental health disorders are difficult to treat because of their high risk for HIV infection and other

medical problems, homelessness, and multitude of needs (Stahler, Kirby, & Shipley, 1999). Homeless individuals tend to have poor economic and employment possibilities, and often lack personal support from family and friends (Stahler et al., 1997). Of these individuals, a portion of them is likely to have concurrent mental health disorders (Culhane & colleagues' study cited in Stahler et al., 1999). Also, many of them have problems in establishing relationships with treatment providers and are not viewed as "desirable" patients (Koegel, 1995). Treatment programs that provide service to the homeless need to address these multiple issues. When a homeless person is a woman with children, additional issues must be addressed (Blankertz, Cnaan, White, Fox, & Messinger, 1990; Miller et al., 1994). Homeless women with co-occurring disorders from the inner city are particularly difficult to treat, not only for the reasons described above, but also because they are more severely dependent and socially isolated (Stahler et al., 1999). They are also at risk for HIV infection, tuberculosis, and a variety of sexually transmitted diseases. Designing treatment programs for these women poses particular challenges because of their multiple needs. Some of their needs include lack of residential stability, potential to return to dysfunctional abusive relationships, poor job, social, and coping skills, and lack of adequate social support (Bassuk, Weinreb, Buckner, Browne, Solomon, & Bassuk, 1996).

Unfortunately, even in a comprehensive program that addresses all these issues, additional challenges remain. For those who enter treatment addicted to crack-cocaine, relapse rates during and after treatment tend to be high (Wallace, 1990; Wallace, 1991). The chronicity associated with drug addiction has long been recognized (Blane & Leonard, 1987; O'Brien & Jaffe, 1992; Searles, 1990b). However, it has only been

in recent years that research has suggested a biopsychosocial model be developed to deter relapse. The proposed model attempts to comply with this request.

Purpose and Rationale

In an effort to address the need for gender specific and culture sensitive treatment for women, the present study will investigate the appropriateness of a biopsychosocial model to explain this under-studied and difficult-to-treat population. The purpose of this study is to identify determinants of substance use and program retention among substance abusers with and without co-occurring conditions in residential, partial, and outpatient treatment. Specifically, the focus of the present study is to examine the direct and indirect relationships among childhood abuse, biopsychosocial factors, and substance use. The rationale for this study is to address inconclusive and limited research on drug dependent women with and without co-occurring psychological conditions. It is the hope of the researcher to use the hypothesized biopsychosocial model as a guide for developing gender-specific addiction prevention and treatment programs. Such program modifications may improve the quality of both prevention and treatment programs in addition to deterring and reducing recidivism rates that continue the cycle of substance abuse.

Although this study is not about treatment, addiction treatment research is reviewed since specific factors related to the causes of substance abuse and addiction relapse appear to be unaddressed in these current practices. The focus of this study is to identify and differentiate between contributing factors of substance abuse and program retention between male and female substance abusers. The specific direct and indirect causal relationships among these factors are demonstrated in a model of substance abuse and program retention. Implications drawn from these models may

lead to improvements in the quality of services for women provided by addiction treatment facilities.

Definitions

The term *biopsychosocial* in this paper refers biological, psychological, and social factors that combine and interact to produce addictive disorders. The term *addiction* has been defined as a maladaptive pattern of substance abuse which leads to clinical impairment or psychological distress (Diagnostic and Statistical Manual of Mental Disorders IV, 1994). *Substance dependence* refers to a maladaptive pattern of substance use that involves an increase in tolerance, an inability to reduce use, and impairment in psychological, social, and/or occupational functioning (DSM-IV, 1994). *Substance Abuse* refers to a maladaptive pattern of substance use leading to clinical significant impairment and psychological distress within a 6 to 12 month period following initial or heavy drug use. The term *substance use* in this paper refers to alcohol and any unprescribed chemical that is self-administered to change one's mental state. Substance use, substance abuse, substance dependence, and addiction will be used synonymously with each other in this paper.

Relapse refers to the process of returning to drug or alcohol use after a period of abstinence (Daley, 1989; Gorski & Miller, 1986; Washton, 1988). The term *dual diagnosed* (mentally ill substance abuser; psychiatric comorbidity) refers to individuals who have a primary diagnosis of any type of a mental illness and a secondary diagnosis of any type of substance dependence (Attia, 1989; Carroll, 1990). *Priority Populations* are defined as groups currently under served in treatment programs or groups requiring special interventions because of their unique treatment needs (McCaul & Furst, 1994). *Childhood abuse* has been defined as any form of

child maltreatment including sexual abuse, physical abuse, verbal abuse, neglect, parental alcoholism or addiction (Briere, 1992; Finkelhor, 1979).

Treatment Perspectives

Substance Abuse Treatment

The difficulty in understanding alcohol and substance use is complicated in and of itself, but especially because it goes beyond the physical and psychological dependence of the drug. For instance, medical and psychological complications, as well as acts of violence and rape, have been frequently observed among addicts and those associated with the drug trade (Wallace, 1991). Because of this, comprehending alcohol and substance abuse disorders is even more perplexing and confusing (Margolis & Zweben, 1998). It is difficult to conceive of the complexity and paradoxical nature of the addict, in addition to grasping how he/she compulsively consumes alcohol and uses drugs, despite the increasingly negative consequences.

There is general agreement that alcohol use like other types of drug use is a serious problem, and for many drinkers an intractable and damaging disorder. Treatment conjures an image of abstinence predicated on the ability to "just say no." This appears to be a simplistic perception, since substance abuse seems to be a multifaceted disorder resulting from an interaction among biopsychosocial mechanisms. While the development of physical dependence clearly promotes continuing use, research suggests that substance abuse is also determined by the interaction of multiple psychosocial factors. Some psychosocial determinants may include negative mood states and poor coping methods. For example, alcohol is often used as a means to cope with negative effects of sexual abuse (Young, 1990), negative social support (Tucker, 1982), low self-esteem (Bergstrom, 1988), negative belief systems (Ellis, 1988), negative mood states (Marlatt, 1987), and poor coping methods

(Lazarus & Folkman, 1984). As a result, high recidivism rates in alcohol abuse and other types of substance abuse may be due to a failure to identify and treat these underlying mechanisms (Root, 1991; Young, 1990).

Treatment for Co-occurring Disorders

The puzzle of addiction treatment has confounded clinicians and researchers for decades. Addiction treatment has expanded regimes to serve dual diagnosed individuals. The effectiveness of these treatments is unknown since there are relatively few program evaluation and clinical research studies on addiction programs servicing dual diagnosed individuals. At the present time, these treatments appear to be ineffective since many dual diagnosed individuals revert to drug use and/or noncomply with medication usage following program completion. Outcome studies have shown that alcoholics with coexisting psychiatric disorders do not maintain goals of abstinence or improvements in psychological functioning (Bukstein, 1994). It appears as if dual diagnosed individuals may be more likely to relapse due to inappropriate therapeutic regimes and poorer functioning, and thus for many of them substance dependence remains a chronic condition (Childress, Hole, & DePhillipis, 1990).

The historical view that psychiatric disorders are unrelated to drug or alcohol use has restricted treatment for clients who exhibit both types of disorders (Woody, 1996). Dual diagnosed clients are likely to receive inappropriate services by both mental health and addiction professionals, because of differences in rehabilitation philosophies. In fact, many clients with co-occurring disorders are likely to be rejected from either treatment altogether because of their co-occurring conditions. For example, dual diagnosed clients are usually rejected from addiction programs since their medication regimes contradict the "drug-free philosophy" (Miller, 1994). As a

result, dual diagnosed clients are likely to be misdiagnosed and mistreated if they are fortunate enough to obtain treatment services at all.

Treatment difficulties for dual diagnosed clients seem to stem from the lag between research advances and therapeutic practices of health care providers. Dual diagnosed clients have more difficulties in forming therapeutic alliances and engaging in traditional counseling modalities than alcoholics or addicts (Miller & Bennett, 1996). These limitations may be associated with symptoms or characteristics of their psychiatric disorders. Psychiatric characteristics of dual diagnosed disorders prevent clients with these conditions from obtaining the full benefits of addiction treatment.

Dual diagnosed clients are further likely to have histories of childhood abuse (Blankerez et al., 1990; Muenzehnmaier, Meyer, Struening, & Ferber, 1993). Dual diagnosed female clients have higher rates of abuse and experience more types of abuse than male dual diagnosed clients, alcoholics/addicts, and the general population (Blankerez, Cnaan, & Freedman, 1993; Blankerez & White, 1990). These multiple types of traumas are severe, rarely detected, and usually unaddressed in addiction treatment. Traumas associated with childhood abuse among dual diagnosed clients may further interfere with their abilities to obtain effective treatment. It appears as if addiction treatments for dual diagnosed clients need to incorporate an integrated approach to effectively address their multiple conditions.

Women with Children

Dual diagnosed clients may be identified as a priority population, due to the nature of their conditions and the complexity in treating them. Women with drug and alcohol addictions face similar difficulties when obtaining rehabilitation services. The link between incest and alcoholism among women has been well-documented (Chiauzzi & Lilgen, 1993). Many women feel stigmatized and branded by their incest

experiences. Because of these feelings, they may utilize a variety of defensive maneuvers. For example, drug and alcohol use may be perceived as a self-protection method. The defensive structure of an addicted incest survivor needs to be respectfully addressed rather than eliminated or ignored in recovery.

Unfortunately and much too often, abuse aftereffects are perceived by addiction professionals as character defects or defense mechanisms that need to be dismantled in recovery. Therefore, incest is misperceived and remains unaddressed, which in turn contributes to inappropriate treatment. Counselors often confront addicted incest female survivors to modify their defensive attitudes in order to overcome their denial and change their addictive behaviors. This traditional treatment philosophy based upon "the disease model" contradicts the feelings and behaviors exhibited by addicted incest female survivors. Consequently, this type of therapeutic regime may place addictive female survivors in vulnerable positions for premature program discharges and addiction relapses.

Although massive evidence has been accumulated on the long-term impact of childhood risks, the specific impact on co-occurrence of several risks on later life behaviors has yet to be looked at carefully (Blankerez et al., 1993). The specific impact of these behaviors has not been incorporated into addiction treatments, which may further add to the difficulty in treating substance-abusing women. Additional issues that should be considered when treating female substance abusers are services that address parenting skills and the context of the family in general (Stahler et al., 1997).

The proportion of women in treatment has increased from 25% in 1980 to 32% in 1996 (SAMHSA, 1998). Many women who abuse drugs are either pregnant or already have children. For these women, traditional treatments will not meet their

needs. Addicted pregnant women who enter treatment need prenatal care for their unborn children. At the same time, these women must also deal with a variety of psychological, social, and legal issues. Addicted women with children often have impaired parenting skills. Some of these women have legal and/or DHS (Domestic Human Service) involvement because they have inflicted neglect, maltreatment, and abuse onto their child/children while they were using drugs. Health and social issues need to be considered when servicing these women. Determining treatment effectiveness for women is a complex process. Evaluating this process becomes even more difficult when implementing services that address psychiatric, psychological, social, health, and parenting.

Therapeutic regimes used with male alcoholics and addicts have been applied in treatment for female alcoholics and addicts. These therapeutic modalities and techniques may be inappropriate since they are often perceived as insensitive to feminine issues. Women seem to face discrimination in addiction treatment and more so in regards to those who are pregnant or parenting (Ettore, 1992). This discrimination seems to influence their decision to seek treatment. For instance, approximately 200,000 to 500,000 children are born to drug addicted women annually (Seracini, Nunes, Tross, & Spano, 1996), but less than 35% of pregnant women seek treatment per year (SAMHSA, 1998). It appears as if their feelings of inadequacy and guilt associated with being a drug-addicted mother is magnified by the societal images bestowed upon them. These images not only influence their decision to seek treatment, but are also reinforced by the inadequate regimes offered once they obtain services.

This stigma associated with being a drug addicted mother is generalized from addiction treatment into the "rooms" of Narcotics Anonymous (NA) and Alcoholic Anonymous (AA). Recovery is known as a process beyond remaining drug-free,

because it is a life-style change through self-discovery. Through this process, women become reconnected and obtain a sense of purpose. However, the philosophy and practices of NA and AA are paradoxical in nature (Covington, 1994), since they inadvertently suggest women become disconnected as part of their recovery. For example, the principles behind NA and AA suggest that one heal by identifying with their addictions. When applied to women, identifying with their addiction disconnects them, since reconnecting their addiction is linked with their damaged self. This is continually reinforced every time they participate in a meeting stating, "Hello, my name...and I am an addict." Therefore, this healing practice presents a conflict for many women.

Gender-specific and gender-sensitive modalities and techniques need to be implemented in addiction treatment. However, they are rarely mentioned, incorporated, or evaluated according to the literature on addiction. Men and women differ significantly in terms of biopsychosocial variables. Women are more likely to have experienced a greater severity and frequency of sexual and emotional abuse than men. Therefore, clinicians may need to use alternative methods than traditional confrontation skills when counseling female substance abusers, since traditional techniques may trigger rage and agitation linked when being abused. Because of this, precipitating factors and therapeutic issues addressed in addiction treatment are different for men and women. Compared to men, women are also at greater risk for depression and low self-esteem (McCaul & Furst, 1994). Women are more likely to have physical, psychological, and social problems, and their treatment requires these issues be addressed along with their drug addictions.

Treatment Matching

Addiction treatment is a billion dollar industry servicing approximately 600,000 drug dependent individuals per year (United States Department of Health and Human Services, 1993). Of these individuals, 55% to 64% have coexisting psychiatric disorders (Miller, 1994). Treatments for mentally ill substance abusers are generalized from the philosophy and practices of alcoholics anonymous (AA). While no single form of treatment is effective for every drug dependent individual, treatment matching may be a more suitable regime for mentally ill substance abusers. *Treatment matching* refers to matching individuals with specific types of interventions (Mattson, 1994). This modality may be under utilized in treatment for mentally ill substance abusers, since many of these individuals fail to receive treatment for both disorders (Carol, 1990; Miller, 1994).

Treatment matching may also be utilized with addicted women along with mentally ill substance abusers. Practical applications based on this strategy may allow women to address issues that have been previously ignored during treatment. For instance, women may more readily disclose issues of physical, sexual, and emotional abuse (Kinsley, 1998; Wallace, 1991). Other barriers associated with lack of participation in addiction treatment among women may also be addressed. Pre-natal care and childcare components could be incorporated so treatment would be more readily accessible for pregnant women and women with children. By incorporating regimes designed specifically for women, women may be more likely to stay drug-free and perhaps reduce the likelihood of inappropriate parenting, maternal and neonatal consequences.

Childhood Abuse and Substance Use

It is almost impossible to treat mentally ill substance abusing women without addressing the issue of childhood sexual abuse. Individuals who experience this dyad of disablements are likely to have been abused as children (Evans & Sullivan, 1994). Questions concerning childhood abuse frequently go unasked during routine assessments (Chiauzzi & Lilgen, 1993), and, as a result, treatment seems to be insufficient since abuse issues remain untreated. Unfortunately, many individuals revert to drug use following program completion (Wallace, 1990; Washton, 1988), which may continue because of failure to identify and treat underlying abuse issues.

The relationship between childhood abuse and substance use is neither simple nor direct (Brown & Finkelhor, 1986). Psychosocial factors such as low self-esteem, poor family and social support, negative mood states, negative belief systems, and avoidance coping skills may mediate the relationship between childhood abuse and substance use. These psychosocial factors have been identified as childhood abuse aftereffects (Bagley, 1991; Briere, 1992; Evans & Sullivan, 1994) and precipitating mechanisms for substance use (Annis, 1990; Blane & Leonard, 1987; Marlatt, 1987). Many studies have attempted to identify determinants of substance use but research remains inconclusive, since these investigations have not yet addressed the interaction among biological, psychological, and social factors in explaining substance use.

Research suggests a strong relationship between childhood abuse in both the initiation and maintenance of substance abuse (Bagley, 1991; Blume, 1990; Browne & Finkelhor, 1986). Investigations of childhood abuse and in particular sexual abuse suggest that victims possess a predisposition for alcohol and drug use (Young, 1990). In fact, the majority of substance abusers have a history of sexual abuse (Bollerud, 1990; Rohsenow, Corbet, & Devine, 1988). Hagan (1988) also found that 67% of

addicted women had been sexually assaulted, in comparison to 15% of non-addicted women. It seems as if women who have a history of sexual abuse or any other type of childhood abuse are at greater risk for abusing drugs or alcohol.

Many studies indicate that low self-esteem plays a mediating role in the relationship between childhood abuse and substance use (Bass & Davis, 1988; Blume, 1990; Engle, 1989). Studies have shown repeatedly that victims of sexual abuse are at risk for developing low self-esteem (Apolinsky & Wilcoxon, 1991; Bagley, 1991; Brown & Finkelhor, 1986; Root, 1991). Unfortunately, victims may blame themselves for the abuse, which leads to their unhealthy sense of self and an inability to accept themselves. Nevertheless, many theorists agree that a healthy sense of self-esteem is necessary for coping with daily life challenges (Bandura, 1977).

Research has identified a strong link between low self-esteem and substance abuse, although the direction of causality is often unclear. Addicts tend to have significantly lower self-esteem than non-addicts (Bergstrom, 1988; Preston & Viney, 1984) do, and often demonstrate a high need for social approval due to low self-esteem (Alexander & Dibb, 1977; Branden, 1991; Rohrer, Handley, Riordon, Stock, & Thomas, 1987). Further, recovering addicts who have low self-esteem often attribute their abstinence to external events, such as a counselor or treatment program, suggesting a refusal to attribute success to personal qualities. Drug use seems to further undercut a person's self-esteem, exacerbating the cycle of substance abuse (Peele, 1986). As a result, self-esteem may be a primary factor in initiating as well as maintaining substance use.

While research suggests that low self-esteem is linked with substance abuse, the process by which low esteem promotes substance abuse is unclear. One possible explanation is that low self-esteem induced by childhood abuse may lead to ongoing

negative affect such as depression and anxiety (Lanktree, Briere, & Zaidar, 1991). Community studies indicate a higher incidence of anxiety and depression among victims compared to nonvictims of childhood abuse (Bagley, 1991; Brown & Finkelhor, 1986). Further, charts in an emergency psychiatric unit have documented histories of childhood abuse in the majority of patients, and indicate that sexual abuse victims are more likely to be hospitalized for depressive episodes and suicidal ideation (Lanktree et al., 1991). Negative mood states may be results from not only abuse but also from low self-esteem. Depressed patients are more likely to report negative self-images than non-depressed patients. Low self-esteem has been identified as one of the major determinants of both depression and anxiety (Beck, Steer, Kovacs, & Garrison, 1985). Childhood abuse, low self-esteem, and negative mood states appear to be interrelated factors. Therefore, the relationship between childhood abuse and negative mood states may be mediated by low self-esteem.

Since low self-esteem appears to promote negative affect, negative mood states in turn have been identified as a direct precursor to substance use. Depression and anxiety elicit drug-related responses and increased craving among opiate addicts (Childress et al., 1990). Annis (1990) and Marlatt (1987), found that heavier drinking was associated with negative mood states, while lighter drinking was associated with positive mood states. In addition, relapse studies indicate that negative mood states precipitate relapse in smoking cessation and alcohol treatment programs (Brownell, Marlatt, Lichtenstein, & Wilson, 1986; McAuliffe, Albert, Cordill-London, & McGarragh, 1990; Wallace, 1990). Addiction treatment research has also shown that abstaining substance abusers revert to drug use when negative feelings associated with childhood abuse emerge (Bollerud, 1990; Young, 1990). Failure to address this relationship and obtain effective coping techniques during addiction treatment may

place individuals at high risk for relapse. Consequently, childhood abuse may lead to low self-esteem and negative mood states, which in turn trigger drug craving and to ameliorate this negative feeling lead to an increase in substance use.

While substance use may serve as a method for relieving pervasive negative mood states resulting from low self-esteem, it may also be a preferred means for coping with daily stressors among low esteem individuals. In general, people cope with daily life challenges differently and their chosen coping styles are often associated with one's mood states and sense of self. According to Lazarus and Folkman (1984), coping has been defined as a process of managing demands that are appraised as taxing or exceeding the resources of the person. Research indicates that people with low self-esteem employ avoidance coping methods, and people with high self-esteem use constructive coping methods (Dunkel-Shetter, Feinstein, Taylor, & Falke, 1992; Scheier & Carver, 1992). Drinking, eating, and substance using behaviors have been construed as forms of avoidance coping (Folkman & Lazarus, 1988). Substance use narcotizes painful feelings, which in turn alleviate internal and external states. Extensive research supports that alcohol dependence is associated with negative internal states (DiGuiseppe & McIrney, 1990; Ellis, 1988). Alcohol use appears to be an avoidance coping method, which allows one to escape negative internal and external states which may have been exacerbated by low self-esteem and lack of support produced by childhood abuse. Therefore, substance use serves to avoid stressful situations and create pleasurable feelings.

Childhood abuse may promote substance abuse not only through the mediating factor of low self-esteem, but also because it reduces the quality of social support. Social support is a phenomenon that is in continual flux over the course of one's life, and the role of supportive relationships has therapeutic implications for substance

abuse (Pearlin, 1985; Tucker, 1982). A common effect of sexual abuse is feeling different, thereby leading to social isolation and lack of social support (Bagley, 1991; DiGuiseppe & McInerney, 1990). While sexually abused individuals may have a reasonable network of relationships with family and friends, these relationships may be unsupportive and even negative in nature in that family members may be critical, demanding and abusive. Therefore, sexual abuse may lead to lack of positive social support, and in turn social isolation may promote negative moods that trigger substance use.

Supportive relationships have been associated with recovery, whereas lack of these relationships has been related to relapse (Kosten, Behnaz, Hogan, & Kleber, 1983). Relapse studies indicate that people revert back to drug use because of lack of social support (Miller et al., 1993; Miller et al., 1994). In fact, positive social support appears to be a vital component for recovery among substance abusers. Social support may be perceived as a necessary component to sobriety, and it is an integral component of many self-help groups such as AA and NA. Many addicts have admitted that they relapsed shortly after they discontinued AA meetings, thus suggesting support may be a critical component to sobriety. AA is one of the most widely used treatments, perhaps because it is based on a supportive network. The program implements a "buddy system" between a veteran and a newcomer. This relationship is based on mutual exchange of trust and intimacy. Further, a sponsor is perceived as a mentor who guides an addict through the recovery process. Many treatment facilities incorporate the AA philosophy, and treatment goals may include AA attendance and identifying a sponsor. Addiction relapse studies have also reported that long-term success in weight reduction, smoking cessation, and addiction treatment programs have been associated with support (Brownwell et al., 1986).

While supportive relationships may have beneficial effects for substance abusers, negative support may be detrimental and may exacerbate substance use. Negative social support may also be a critical component for understanding the relationship between childhood abuse and substance abuse. Many sexually abused individuals have negative relationships with family members. In fact, family members often deny the abuse actually occurred even when the perpetrator was not a family member (Bass & Davis, 1988). Sexually abused individuals may employ avoidance coping techniques to not only cope with the abusive experience, but also to escape the negative reactions from loved ones. Avoidance coping methods are used more often when individuals lack quality relationships, and as a result, lack of support is expected to be associated with substance use since drug using behavior is a form of avoidance coping.

Substance abuse may be a form of avoidance coping promoted by the interaction of negative beliefs, poor social and family support, negative mood states, low self-esteem, and childhood sexual abuse. It appears as if substance use may be a method to deal with any one or all of these negative cognitive, affective, and social factors. The chronic pattern of substance abuse may be liked with one or all of the negative affective, cognitive and social factors. The chronicity associated with substance abuse has long been recognized (Blane & Leonard, 1987; O'Brien & Jaffe, 1992; Searles, 1990b). However, it has only been in recent years that research has suggested a biopsychosocial model be developed to explain substance use. The proposed model attempts to comply with this request. Taken together, previous research is consistent with this proposed model on biopsychosocial factors mediating the relationship between childhood abuse and substance use. This postulated model has been developed out of clinical and research experience (Simons & Cameron,

1996), while it also addresses several limiting factors associated with the previous investigation.

Summary

Over the past several years, there has been an increase in the severity and pervasiveness of substance abuse problems in this country. The abuse of drugs dramatically contributes to the rising costs in society in terms of lost productivity, crime, social discord, and health care expenses. In response to this threat and to general welfare, there has been a renewed interest in the development and expansion of addiction treatment (McLellan, 1992). This increasing recognition of the need to define and classify the "active ingredients" in drug abuse treatment is necessary (Platt, Husband, & Yaube, 1991); in order to develop cost-effective treatments, which has been prompted by managed health care corporations (Alexander & Landmark, 1997).

The seemingly simple question whether substance abuse treatment is effective, is actually one of the most complex health, social, and financial issues facing the nation. Of course, there is not a simple answer. In attempting to answer this question, one must remember that no single treatment modality will be optimal for all addicts; therefore, researchers need to identify essential ingredients that are most effective in treatment. Some researchers suggest that alcohol and other drug disorders may be best understood from a biopsychosocial perspective, since it addresses a variety of factors from genetic vulnerabilities to traumatic life events to family and social dynamics (Margolis & Zweben, 1998). Others simply propose that a comprehensive treatment model be developed to address drug use through a number of interventions, while

recognizing when treatment works, and acknowledging the phase of treatment when specific interventions should be administered (Wallace, 1991). Trotter-Steele (1998) further proposes that a multimodel treatment be developed that collaborates with other disciplines and integrates techniques from various perspectives to address child abuse and mental illness in addiction treatment.

The hypothesized biopsychosocial model has incorporated these suggestions with the hope of attempting to identify the active ingredients that need to be addressed to promote cost-effective addiction treatment. The purpose of this model is to develop a comprehensive theoretical paradigm that addresses previously unaddressed factors. By identifying these factors and implementing regiments to address them effectively, the quality of treatment may improve, which in turn may also increase program retention and thus prevent relapse. This study is distinctive is several ways: (a) it proposes an innovative, theoretical and experiential biopsychosocial paradigm for women with co-occurring disorders. (b) It evaluates the biopsychosocial relationships associated with substance use for women; (c) it assesses differences in biopsychosocial factors among women and men. (d) It identifies predictor factors associated with program retention for women with co-occurring disorders: a markedly understudied, marginalized, and difficult-to-treat population. (e) It integrates theories and applications from Clinical Health Psychology, Community Psychology, Family Systems, and Addiction Perspectives into an hypothesized model. (f). It distinguishes biopsychosocial factors of substance use and relapse between male and female substance abusers with and without co-occurring psychological conditions in

residential, partial, and outpatient treatment. (g) The proposed model allows for further program development and evaluation.

CHAPTER 2
ADDICTION THEORIES

A variety of theoretical models have been derived to explain the complexity and paradoxical nature of addictive behaviors. These models fall within either a biological, psychological, or social paradigm. The purpose of the hypothesized model is to integrate contributions from each of these paradigms. The focus of this chapter is to synthesize the literature on each paradigm, in order to demonstrate and conceptualize addiction as a biopsychosocial disorder.

Many studies have shown that an inherited or biological component contributes to addictive disorders, but this component alone does not explain the complexity of these disorders. Psychological, social, culture, and spiritual factors also play a significant role in the course, cause, and outcome of addictive disorders. The biological contribution to addiction has been demonstrated in studies on twins, adoptions, and families (Chassin, Hussong, & Colder, 1997; Goodwin as cited in Newlin & Thomson, 1997) and will be reviewed in this section.

Biological Models of Addiction

Disease Theory

The disease model of addiction has been the dominant treatment perspective since the 1970's (Margolis & Zweben, 1998). This model is based upon the principles and practices of alcoholics anonymous (AA). AA was derived in 1935 as a self-help, support group facilitated by other alcoholics. Alcoholics were taught that they must abstain from mood altering chemicals including alcohol by developing a connection to a power greater than one self. Alcoholics who participate in AA believe being alcohol free is their first step to recovery. Although this perspective provides alcoholics with a method to stay sober, it does not address environmental, psychological, or social

issues that may also contribute to alcoholism. Alcoholism can be viewed as an inherited disease in which the genetic component is necessary for the onset of the disease and is triggered by environmental or psychosocial stressors.

Genetic Theories

Epidemiological trends and implications for understanding the nature of alcohol and drug addiction as a disease have been based on family, twin, and adoption studies. Family studies have consistently revealed a two-fold to four-fold increased risk for severe alcohol-related life problems in close relatives of alcoholics (Valliant, 1991). In other words, alcohol-related life problems are greater for those with a family history of alcoholism compared to those without a family history of alcoholism. The more relatives with alcohol-related problems further the likelihood of developing alcoholism. A high concordance rate has been identified in those who share a 100% of genetic make up compared to those who share a 50% of genetic makeup. Sons and daughters of alcoholic impaired men and women appear to be at greater risk for developing alcoholism.

Alcoholism tends to run in families (Newlin & Thomson, 1997). Twin and adoption studies have demonstrated that a proportion of the variance in alcoholism is accounted for by genetic or inherited characteristics (Valliant, 1991). For instance, alcoholism is more common in adopted sons of alcoholics than in sons of nonalcoholics. Goodwin (as cited in Newlin & Thomson, 1997) found alcoholism rates were significantly higher in adopted sons of alcoholics compared to sons of nonalcoholics. The rate of alcoholism was three to five times greater in sons of alcoholics compared to sons of nonalcoholics. It seems as if sons of alcoholics are at greater risk for developing alcoholism than sons of nonalcoholics, and their "risk" may be accounted for by an inherited or genetic predisposition.

Researchers have used two different strategies for determining the proportional contributions of genes and shared family environments to the development of alcoholism, among adopted and twin siblings (Heath & Phil, 1995). Adoption studies have compared alcohol rates in adopted relatives of alcoholics, while twin studies have compared alcohol rates in identical and fraternal pairs of twins. The first adoption study demonstrated evidence for an inherited genetic contribution to alcoholism (Goodwin as cited in Newlin & Thomson, 1997). According to these findings, 8.9% of the fathers and 1.6% of the mothers who gave their offspring up for adoption had been hospitalized for alcoholism. These studies further support a higher genetic risk among adoptees compared to non-adoptees. This was a recurrent finding among the majority of adoption studies (Copenhagen, Denmark, Goodwin, and Colleagues as cited in Harden & Pihl, 1997). Overall, these studies support that alcoholism is genetically influenced and adoptees as a group are at higher risk than the general population for having elevated rates of alcoholism.

Goodwin, Shulsinger, Knop, Mednick, & Guze (as cited in Heath & Phil, 1995) reported an estimated risk ratio of 3.6 for adopted-away sons of alcoholics and 3.4 for non-adopted sons of alcoholics. Likewise, 4% of adopted-away daughters were diagnosed with histories of alcoholism compared to 2% of non-adopted daughters. According to these findings, rates of alcoholism were significantly elevated in both adopted and non-adopted children of alcoholics, which was consistent with findings from other studies (Bohman, Sigvardsson, & Cloninger as cited in Harden & Pihl, 1997; Cloninger, Bohman, & Sigvardsson as cited in Heath & Phil, 1995). Family history reported by adoptees suggests that, if anything, alcohol problems occur more often among this subgroup than the general population. Cadoret (as cited in Heath & Phil, 1995) supported an elevated risk in adopted-away sons of alcoholic parents

compared to controlled adoptees who were sons of non-alcoholic parents. Implications from this study support that male adoptees raised in an alcoholic environment experience more alcohol problems compared to those raised in non-alcoholic environments. Males who had maternal or paternal parents and who were raised in adoptive alcoholic environments where at further risk for developing alcohol-related problems earlier in life and experienced profound problems later in life, compared to those raised in adoptive non-alcoholic environments. Twin studies have shown similar results to those demonstrated in family studies. Twin studies examined the risk of developing alcoholism in monozygotic twins (MZ or identical) and dizygotic twins (DZ or fraternal) of alcoholics. The first twin study of alcoholism was conducted in Sweden in the 1950's by Kaij (Cadoret as cited in Heath & Phil, 1995). This study used birth records and registration data to identify alcoholic male twins from Skane, Sweden. Approximately 61% of all MZ twins and 39% of all DZ twins had developed alcohol problems. Of all MZ and DZ twins, 77% reported lifetime problems with alcohol, of these twins, 9.1% were MZ twins, and 6.2% were DZ twins. There appears to be a greater prevalence rate of alcoholism among identical male twins of alcoholics.

Subsequent studies using samples ascertained from birth records have confirmed without exception a higher risk of alcoholism among MZ twins compared to DZ twins of alcoholics (Koskenvuo, Langinvanio, Kaprio, Lonnqvist, & Tienari as cited in Health & Phil, 1995; Romanov, Kaprio, & Rose as cited in Heath & Phil, 1995; Kessler et al., as cited in Heath & Phil, 1995). These studies also demonstrated the difference in lifetime prevalence rates of alcoholism between MZ twins and DZ twins. Rates of alcoholism were significantly higher in both MZ and DZ twins, and the

evidence showed an elevated risk in MZ twins than in DZ twins. Again, these findings are consistent with the genetic theory of alcoholism.

The reanalysis of adoption and twin studies confirmed the consistency of the evidence for a genetic influence on alcoholism risk from both twin and adoption studies. In fact, the genetic influence on alcoholism in women appears to be as strong as in men. Many studies also followed children of alcoholics prospectively to identify precursors to alcoholism, and thus supported a strong genetic influence in male and female children of alcoholics. Together, these endeavors from adoption, twin, and prospective studies have continued to shed light on the genetic contribution to alcoholism (Anthenelli & Tabakoff, 1995; Schuckit, 1995).

Genetic/Biological research supports that at least one form of alcoholism has a substantial genetic basis (Searles, 1988). This form of alcoholism has been described as having an early onset, severe symptomatology, and requiring extensive treatment (Schukit, 1992). Indications from these studies suggest that if alcoholism is influenced by genetic factors, identical twins should have a greater concordance than fraternal twins. Fraternal twins should have a greater concordance than siblings and siblings should be more concordant than first cousins.

Recent research studied half-siblings to identify the role of genetics in contributing to alcoholism. Half-siblings of alcoholics share one parent which allow for some interesting comparisons between half-siblings with an alcoholic parent and those who do not share an alcoholic parent. To date, the only study that has studied half-siblings has shown those siblings with an alcoholic parent have a higher incidence rate of alcoholism (Schuckit, Goodwin, & Winokuv as cited in Shuckit, 1995). Parental alcoholism appears to be directly linked to their children's development of alcoholism.

Parental substance abuse studies demonstrate findings that are similar to parental alcoholism. Parental substance abuse is also associated with their offspring development of substance use. Individuals who have at least one parent who abused drugs (PH+) were more likely to use cocaine, heroin, or some other type of an illicit drug than those without a (PH-) parental history of substance abuse (Caudill, Hoffman, Hubbard, Flynn, & Luckey, 1994). Those who have a history of parental substance abuse are more likely to experiment with drugs and use drugs regularly at an earlier age, compared to those without a history of parental substance use. It appears as if parental substance abuse not only influences their children's use of drugs, but it also contributes to the age of onset of both substance use and abuse.

Aside from parental substance abuse, family substance abuse (FH+) is strongly associated with substance use among their relatives. This type of relationship demonstrates the concordance of substance abuse and further supports the genetic predisposition perspective to understanding substance use. Perkins and Berkowitz (1991) found that college students with alcoholic grandparents were more likely to be problem drinkers than those without a history of alcoholism among their grandparents. Miller, Cormoni, and Leukefeld (1993) similarly found that rates of alcohol and substance use were higher among individuals with a familial history of substance use than those without a familial history of substance abuse. The overall rate of familial addiction among first and second-degree relatives was directly linked to age of onset of developing an alcohol or addiction disorder. In other words, familial addiction contributes to the age of experimental use, recreational use, and developing drug dependence (Wallace, 1991). As a result, it appears as if familial history is equally as strong as parental history in identifying whom is at risk for becoming an alcoholic and/or addict.

Behavior genetics associated with alcoholism and substance abuse has been well-documented in adoption, twin, half-sibling, parental, and family studies. Taken together, these studies suggest a strong heredity component to not only developing, but also understanding alcohol and drug addictions. Two other perspectives that also support a genetic contribution in developing alcoholism and other drug addictions are biochemical (neurological and brain chemistry) and temperament theories. The biochemical perspective identifies biological markers that place individuals at risk for developing alcoholism, while temperament theory suggests that certain genetic characteristics are associated with alcoholism/addiction.

Biochemical Theories

Biochemical factors play a significant role in the initiation and maintenance of alcohol and other drugs for many addicted individuals (Margolis & Zweben, 1998). Genetic impairment in the neurotransmitter system seems to create a hypersensitivity or predisposition to the effects of alcohol. The neurotransmitter system has both excitatory (stimulation) and inhibiting (calming) components. Because this system has both of these components, it may explain why individuals choose certain drugs over others, as well as why some individuals continue to use and develop a dependency compared to those who do not continue to use.

Brain stimulation reward (BSR) is the direct result from neuronal activity produced by drug use. The BSR is responsible for the drug effects on both the limbic and motor systems. Interactions among the neurotransmitters, the limbic system, and the motor system produce drug craving and other drug reactions. These interactions known as neuronal activity are also responsible for drug effects and drug withdrawals (Miller and Gold as cited in Margolis & Zweben, 1998). Drug withdrawal results from a reduction in neuronal activity when an individual stops drinking or using drugs,

while drug tolerance reflects neuronal adaptation after a period of long-term or heavy use (Valliant, 1991).

It has been generally thought that the identification of a biological abnormality in alcoholics would permit specific pharmacological interventions to be used to remedy the condition. According to Kranzler and Anton (1997), serotonin acts as a neurochemical modulation of impulse control, which is one of the central signs in alcoholism and other addictive disorders. Abnormalities seem to exist in 5-HT neurotransmitter in alcoholics. This abnormality may explain why individuals consume alcohol, since alcohol may serve to normalize the low brain levels of 5-HT in alcoholics.

Dopamine has also been implicated in the behavior reinforced and produced by several other types of drugs along with alcohol. In fact, interactions between dopaminergic and serotinergic systems have been shown to exist and act as reinforcements for drugs. Whether an individual has had low dopamine or serotonin levels prior to or from drug use, he/she may self-medicate symptoms produced by either one of these low levels with drugs (Newcomb, Shier, & Bentler, 1997). Cocaine block dopamine and serotonin reuptake and chronic use produces changes in these systems as measured by reductions in the neurotransmitter metabolites (O'Brien, Childress, McLellan, & Ehrman, 1991). Cocaine attaches to the same transmitter binding to the sites where dopamine also connects (Swan, 1998). When cocaine is used, dopamine can not bind to the dopamine transmitter and is stranded in the synapses. As a result of this increase in dopamine in the synapses, a greater sense of pleasure or euphoria is produced. This euphoric feeling leads to continual use, and perhaps because it is not produced automatically due to low dopamine levels.

Therefore, the level of MAO (Dopamine or Serotonin) activity may be associated with a predisposition to cocaine abuse in some individuals (Anthenelli & Tabakoff, 1995).

Temperament Theory

The term temperament has been employed from nearly the very beginning of psychological science. Because of this, numerous definitions can be found in the literature. The term "temperament" in this paper will be defined as a type of phenotype based upon a developmental-genetic perspective. From the developmental-behavior-genetic perspective, the cardinal task for understanding the etiology of alcoholism is to classify how phenotypes differ in temperament and personality. Differences in temperament and personality traits are the basis for understanding alcoholism at this level of theory, since these differences explain why some individuals develop and others do not develop alcoholism (Tarter & Vanyukov, 1997). Particular phenotypes appear to be associated with a high risk for alcoholism and include hyperactivity and low soothability traits. These temperament traits have been associated with an earlier age of onset for alcoholism, whereas a later age of onset for alcoholism has been associated with a more normative temperament.

Family and twin studies suggest there is a genetic predisposition for alcoholism. Conceptualizing vulnerability within temperament theory affords the opportunity to link a genetic predisposition to overt dispositional behavior. In addition, temperament factors may mediate the effects of parental alcoholism on offspring substance abuse. Children of alcoholics are more likely to have traits consisting of hyperactivity, low to soothe, and emotionally labile (Chassin et al., 1997). Children of alcoholics are also more likely to use drugs compared to children of nonalcoholics. It appears as if temperament helps to account for the genetic vulnerability for developing alcoholism.

It also seems as if children of alcoholics' temperament, and biochemical markers further support the genetic vulnerability to understanding alcoholism.

There is no doubt that physiological dependence is associated with alcohol and drug dependency; however, these disorders may also be influenced by other factors from psychological and social paradigms. For this reason, alcohol and other drug disorders may best be understood from a biopsychosocial perspective. There are a variety of factors from genetic vulnerabilities to traumatic life events to family and social dynamics that can help propel the individual into a drug using lifestyle (Margolis & Zweben, 1998). Although no one model encompasses the complexity of these disorders, psychological and social models may contribute to important insights into the nature of addiction. Psychological and social models that will be reviewed in the next section will include the following perspectives: Psychoanalytic, learning (behavioral), and cognitive.

Psychoanalytic Perspectives of Addiction

Self-Medication Hypothesis

Psychoanalytic perspectives of addiction postulate that drug use is a symptom of either some underlying issue or unresolved childhood conflict. While the self-medication hypothesis suggests that drug use is a method for relieving anxiety and distress associated with unresolved childhood conflicts, psychodynamic approaches to addiction perceive drug use as a response to deficits in self-regulation of the addictive individual fostered by poor parental interactions during childhood. The self-medication hypothesis of addiction was originally developed as an attempt to reconcile clinical observations of opiate and cocaine addicts with psychoanalytic considerations regarding the patients' unconscious motivations for compulsive use of addictive substances (Castaneda, 1994). In other words, addicts attempt to self-

medicate themselves with drugs and alcohol to reduce psychological symptoms or painful emotional states. Drug use seems to be used as a method of coping for negative internal affective states as well as negative external events that appear to be unmanageable or overwhelming.

Self-medication of internal and external states usually begins as a maladaptive form of coping, and subsequently over time leads to continual use (Margolis & Zweben, 1998). Therefore, substance use is perceived as a symptom of a psychological disorder or social problem. According to this perspective, substance use is a response to some conflict with internal or external states (Rotgers, Keller, & Morgenstern, 1996). Negative mood states in abstaining opiate and cocaine addicts have been linked to relapse and drug use, by prompting self-medication of these uncomfortable moods (Childress et al., 1991). Self-medicating negative mood states with either cocaine or heroin further support this perspective.

Along with negative mood states, childhood abuse issues also support the self-medication theory. Many sexually abused individuals turn to drugs to cope with memories and feelings associated with sexual abuse. Trotter-Steele (1998) has shown those addictive clients with a history of sexual abuse as well as those with repressed issues turn to drugs and alcohol to deal with the abuse. Findings from this study further supports the self-medicating hypothesis in that addictive clients with repressed and unrepressed sexual abuse issues use drugs to cope with symptoms of abuse.

Trauma-related memories can create powerful triggers leading to relapse and for individuals with these memories, they revert to using the same substances that mitigated their symptoms initially. Abused individuals lack the skill to deal with negative affect, images, and cognitions that accompany unresolved sexual trauma. Substance use is then used to self-medicate these emotional and painful cognitions.

Unfortunately alcohol and drug use are paradoxical, since both types of substances have biphasic psychological effects that initially improve mood, reduce stress, and alleviate emotional discomfort (Newcomb, Scheier, and Bentler, 1997). These acute positive effects are then followed by emotional cognitive distress, which is exacerbated with continued and chronic consumption.

Psychodynamic Theory

Early psychodynamic theories focused on addiction as a regressive attempt to return to an infantile, pleasurable state (Margolis & Zweben, 1998). Contemporary theories focus on ego and object relations. These theories view addiction as a progressive response to deficits in self-regulation. Drug and alcohol use are adaptive mechanisms by which individuals attempt to cope with self-regulatory deficits, due to early infantile deprivation or maladaptive parent-child interactions. Children reared in a dysfunctional family may be more likely to use drugs later on in life to cope with either lack of parent-child stimulation or negative parental interaction.

Early childhood conflicts or disturbed object relationships may impair ego identity; and, as a result, individuals who experience these conflicts may be more likely to develop an addiction, due to unresolved conflicts and poor ego strength (Kernberg's study as cited in Wallace, 1991). Other theorists similarly argue that childhood conflicts caused by either poor mother-child bonding or other types of separation trauma lead to drug and alcohol addictions mediated by low self-esteem (Kohut as cited in Wallace, 1991; Meyersburg & Post's as cited in Wallace, 1991). Addiction seems to develop throughout the lifespan beginning with poor object relations in childhood and poor self-regulation in adolescence and adulthood (Wallace, 1991; Wallace, 1992). Poor object relations' leads to poor self-regulation, which in turn contributes to low self-esteem and depression. Drugs are used to enhance low self-

esteem and reduce negative states produced by dysfunctions in the self-regulatory system.

There is general agreement that adult children of alcoholics (ACOA) themselves are likely to enter a pattern of alcohol abuse and dependence (Wallace, 1991). Previous investigations have attempted to explain this pattern by emphasizing a genetic predisposition for the development of alcoholism in children of alcoholics and in particular sons of alcoholics (Searles, 1988). However, the role of environmental factors remains equally important in understanding this pattern. A child of an alcoholic is at extremely high risk for alcoholism, although this is not necessarily and certainly not exclusive to a genetic basis.

Psychodynamic and self-medication theories perceive drug use as a symptom of some underlying issue or unresolved conflict from childhood. These theories also view continual drug use as a form of avoidance coping for distress associated with unresolved childhood conflicts. In contrast to these perspectives, Behavioral theories perceive addiction as learned phenomena. The behavioral (learning) theories that will be reviewed in this next section will include Classical Conditioning, Operant Conditioning, and Social Learning.

Behavioral Paradigms of Addiction

Classical Conditioning

Classically conditioned learned responses can help explain the process by which environmental cues elicit urges and cravings involved in the initiation and maintenance of alcohol and drug abuse. Addicts develop a conditioned response to the setting associated with their drug use (Margolis & Zweben, 1998). For instance, recovering heroin addicts who run into a "drug buddy" experience physiological symptoms of opiate withdrawal such as yawning and nausea. Environmental cues such

as seeing a drug buddy or even talking about drug use may elicit a conditioned withdrawal response through the process of classical conditioning.

When a neutral stimulus is repeatedly paired with a stimulus that elicits a reflex or another response after repeated pairings, the presentation of a neutral stimulus alone may elicit what now emerges as a conditioned or learned response (Pavlov's study as cited in Hill, 1990; Wallace, 1991). For instance, drug paraphernalia such as a crack pipe or needle are considered neutral stimuli. These paraphernalia become paired with the stimulus crack and its pharmaceutical actions when a chronic user smokes crack. Following repeated pairings of these neutral stimuli with crack and its pharmaceutical actions, the mere sight of one of these neutral but now conditioned stimuli results in evoking in what is called a conditioned response. The conditioned response elicited by the conditioned stimuli may be thought of as a state of anticipation to experience the euphoria and stimulant effects of crack (Wallace, 1991).

Another example is the craving phenomena associated with crack. The unconditioned stimulus is the pharmaceutical action of crack and the unconditioned response is euphoria. The neutral stimulus is the drug paraphernalia, the crack pipe. After repeated pairings of the neural stimulus (ns), unconditioned stimulus (ucs), with the unconditioned response (ur), the neutral stimulus becomes the conditioned stimulus (cs). Then every time the addict sees a crack pipe, he/she automatically experiences euphoria and craving associated with crack use. This classical conditioning paradigm adequately explains how addiction develops over time. This model further suggests there may be multiple properties (stimuli) that trigger withdrawal-like symptoms and eventual drug use. Because multiple properties may be associated with drug use, it is even more difficult to remain drug free, and for many addicts, addiction remains a chronic and compulsive condition.

Treatment of addiction usually requires a period of detoxification followed by rehabilitative measures, usually involving group counseling or psychotherapy. After leaving the hospital or rehabilitation center, the recovering addict may report occasional episodes of sudden compulsion to obtain the drug. It would appear that there are many involuntary aspects to relapse, due to long-term changes produced by daily compulsive drug use (O'Brien, et al., 1991). These changes mean that the reactions of a person are different from the way they were prior to beginning drug use. It is not surprising that the reasons for relapse after treatment may be totally different from the reasons that caused the addict to begin using drugs. Both psychosocial and biological factors may contribute to the process of relapse. A critical part of treatment is analyzing those factors which increases the likelihood of relapse after a period of abstinence.

One of the first people to study relapse was Abraham Wilker. Wilker (1965) noted the similarity of certain relapse phenomena to Pavlovian conditioned responses. Wilker observed withdrawal-like signs in opiate addicts when they started talking about their drug use in therapy. Wilker further observed yawning and tearing of the eyes, signs of opiate abstinence. He then postulated that conditioning had occurred in his patients and labeled this phenomenon conditioned withdrawal, speculating that environmental stimuli had acquired the ability through classical conditioning to elicit many signs and symptoms of pharmaceutical withdrawal (Childress, Ehrman, McLellan, MacRae, Natale, & O'Brien, 1991).

Wilker (1965) also hypothesized that cues formerly associated with drug effects or drug withdrawal symptoms may play an important role in triggering relapse in abstinent opiate abusers. Other research has further demonstrated that conditioned responses can be drug-like or drug-opposite depending on a variety of circumstances

(O'Brien et al., 1991). Drug like pairing distinct stimuli with drug administration (Childress et al., 1990) can produce conditioned responses. After repeated pairings, the stimuli themselves can produce drug like effects. In addition, amphetamine and opiate substances are more likely to produce drug-opposite responses (O'Brien et al., 1991). Drug-opposite responses are those effects that are opposite of the initial drug effect, such as depression instead of euphoria as with heroin and crashing sensations instead of high sensations as with methamphetamine. A possible explanation for drug-opposite effects is those drugs with physiological tolerance, physical and psychological dependence, and physical withdrawal produce drug opposite effects. Another possible explanation is drugs associated with drug like effects have psychological dependence and withdrawal without physiological components. Individuals who were formerly physically dependent on opiates, but are currently using drugs without physical dependence intermittently may be more likely to experience drug like effects.

An addict who uses opiates such as heroin by injection will experience rebound activity. If this addict sees a needle, he/she will likely experience drug-opposite effects such as conditioned withdrawal involving sweat, diarrhea, and vomiting. Continued drug use occurs to avoid conditioned withdrawal (Childress et al., 1990). Aside from external triggers, negative mood states may also act as cues to produce both drug like and drop opposite effects. Anger and depression may act as drug related cues proceeding either withdrawal like responses or euphoric states depending upon the type of drug use consistently and chronically. Internal and external cues evoke reactions associated with opiate related stimuli among opiate addicts. These reactions may be classified as drug like or drug opposite among opiate addicts, but this process is less clear among cocaine addicts (Childress et al., 1990).

A general addiction treatment philosophy is to avoid people, places, and things associated with drug use. In reality, complete avoidance is very difficult. Addicts need additional resources for coping with cravings. This is especially true for drug craving elicited by internal negative states, because one can not avoid experiencing affective states. One treatment strategy is extinction, which consists of systematically exposing addicts to stimuli that they are likely to see or feel when they leave treatment (O'Brien & Jaffe, 1992). This strategy is based on the theory that cocaine reminders are classically conditioned stimuli, which acquire their reminders through repeated pairings with cocaine's pharmacological effects over the natural course of the patients drug use. By repeatedly exposing the patient to cocaine reminders without administering cocaine, it should become possible to reduce or extinguish the power of such cues that trigger conditioned responses and leads to relapse.

The power of external conditioning cues seems to vary as a function of a patients internal mood state. Studies have reported the ability of internal stimuli such as mood states act as conditioned cues capable of eliciting conditioned high-like, craving, and withdrawal symptoms (Childress et al., 1991; O'Brien et al., 1991). It appears that negative mood states, particularly depression can act as triggers or a conditioned stimulus for conditioned craving and withdrawal in opiate abuse patients. These internal states do not require the presence of external drug related stimuli to illicit their effects. Internal mood states are unavoidable and may trigger craving and arousal. Therefore, coping or managing mood states may go well beyond simple avoidance. Mood-related extinction involving repeated exposure to the "trigger" for negative moods without drug administration might serve to weaken the link between negative moods and drug effects. Of course, how long these reductions will last and

how well these reductions will generalize to other drug related stimuli in patients post discharge remains a crucial question.

While no pharmacological or therapeutic treatments have demonstrated definitive efficacy in treating cocaine addiction, a number of behavior treatments have shown promise over the past few years. Extinction has shown promise as an effective treatment strategy. Patients who had extinction treatments had greater abstinence rates at 6-month follow-ups than those who only had psychotherapy (McLellan, Childress, Ehrman, & O'Brien, 1986). This study also demonstrated lower physiological responses associated with conditioned withdrawal among those in the extinction group compared to those in the control group. Initial data suggest that subjects did show reductions in their physiological responses to drug related stimuli presented in the lab, while other subjects demonstrated reduced cravings and withdrawal responses over the course of the extinction sessions. Investigations on smoking have demonstrated that smokers had lower relapse rates after extinction treatments compared to those in other types of treatments (Abrams & Niaura, 1987). It seems as if extinction maybe an effective method for eliminating both craving and withdrawal symptoms among all types of addicts.

Operant Conditioning

Operant conditioning theorists believe that behavior patterns are determined by positive and negative reinforcements that occur after the behavior. For instance, alcohol and other drug using behaviors are positively reinforced because of drug effects such as euphoria and relaxation (Margolis & Zweben, 1998). Operant conditioning assumes that voluntary behaviors are more likely to be repeated depending on the type of reinforcement. Reinforcement properties that are close in time to the actual behavior exert greater influence than reinforcements that occur later.

Operant conditioning treatment techniques involve rearranging the contingencies or responses to drinking so that rewards are less apparent and delayed in time. In addition, contingency management grounded in behavior theory has been suggested as a promising treatment for prenatal women. Women exposed to contingency management interventions had higher rates of abstinence and longer periods of continuos abstinence during treatment than those who received other types of intervention (Seracini et al., 1996).

Drug abuse and by association drug related stimuli have reinforcement, discriminative, and eliciting properties (Childress, McLellan, & O'Brien, 1989). By definition, the primary properties of the drug are considered the primary reinforcement. Drug seeking behavior is considered the discriminative property, and physiological arousal and craving is considered the eliciting property. For example, the drug dealer (primary reinforcement) signals drug seeking behaviors (discriminative property) and in turn contribute to craving (eliciting property). According to this paradigm, drug-using behavior is likely to be reinforced because of the positive association among reinforcement, discriminative, and eliciting properties.

Operant conditioning explains how patterns of compulsive crack-cocaine smoking are both developed and maintained as an enduring intractable behavior (Skinner as cited in Hill, 1990; Wallace, 1991). This extension of Skinner's operant conditioning paradigm to crack-cocaine smoking situation permits an analysis of how conditioning takes place. According to operant conditioning, cocaine's pharmacological actions allow its euphoria to serve as a positive reinforcer. A positive reinforcer serves as a stimulus that increases the probability that the operant or response will occur again. The crack euphoria acts to strengthen the response or behavior that preceded its delivery. Since euphoria serves as a reward that follows the

behavior or response of the self-administration of crack, the crack euphoria strengthens the behavior of self-administration of crack.

The self-administration of crack becomes a strongly established response as a result of its direct action on the brain's reward center (Wallace, 1991). Crack smoking persists despite such punishments as gunshot wounds, incarceration, seizures, heart attacks, psychosis, and personal deterioration. These negative consequences of crack smoking or involvement with the crack culture are too far removed in time for punishment to be effective. In contrast to punishment, crack euphoria is immediate which in turn permits the development of a strong operant response to smoking crack. Crack's direct action on the brain's reward center further permits the experience of an immediate reward. Overall, the operant conditioning paradigm classifies the way in which a compulsive self-administrative pattern easily follows the experience of smoking crack and readily produces dependence.

Positive reinforcement suggests that a stimulus causes a response and that response is rewarded. This positive reinforcement (reward) then leads to the likelihood of the behavior (responses) being repeated. For example, crack smoking is the stimulus, which leads to the euphoric response. Since euphoria is pleasurable, it is perceived as a reward, which further contributes to the increased frequency in crack. On the other hand, negative reinforcement states that a stimulus causes a response. The response is either negatively reinforced or removed altogether. The lack of reinforcement also strengthens the probability that a response will occur again (Hill, 1990). For instance, the cocaine crash consisting of dysphoria and cravings (stimuli) leads to smoking more crack (response). The removal of the euphoric reinforcement further strengthens the likelihood of smoking crack.

Positive reinforcement in the operant conditioning paradigm provides a partial explanation of the development and maintenance of crack-cocaine dependence. The role of negative reinforcement within the operant conditioning paradigm furnishes an additional explanation of the development and maintenance of crack-cocaine addiction. Within the operant conditioning paradigm, removal of an aversive stimuli following a response increases the probability that the response will occur again. It seems that drug addicts may be more likely to continue to use drugs to avoid experiencing an aversive condition such as drug-withdrawal. Therefore, negative reinforcement may explain continual drug use more so than positive reinforcement from the operant conditioning perspective.

Social Learning Theory

Social learning theory may be considered an interaction theory since it posits that personal factors, environment, and behavior are interlocking determinants of each other (Abrams & Niaura, 1987). Causality is therefore perceived as multidirectional among these factors. Social learning theory postulates that conditioning not only affects behaviors but also leads to the development of thoughts and emotions that shape behavior (Margolis & Zweben, 1998). Social learning theory is also reciprocal in that people both influence and are influenced by their environment. Thus, changes can be initiated by both changing the environment and self-processes that shape the individual's response to the environment.

This model of reciprocal causality function is termed reciprocal determinism (Abrams & Niaura, 1987). Behavior can be studied and explained by observing simultaneous variations among personal dispositions, environments, and behaviors over time. This underlying principle of behavior assumes an adaptive orientation rather than a passive orientation. Behavior is then seen as multidetermined, and a

result of an interaction among biological, environmental, and other individual variables.

Situational determinants of drinking behavior are also modulated by interactions among biological, environmental, and individual factors. A central importance to social learning theory of drinking and in general is the concept of self-efficacy. Self-efficacy refers to an individuals' perception or judgment about one's capability to execute a particular course of action required to deal effectively with an impeding situation (Bandura, 1977). Therefore, efficacy expectations reflect an estimation of an individual's mastery of the skills required for coping with a specific situation. Bandura (1969) stated that "alcoholics are people who have acquired through differential reinforcement and modeling experiences that alcohol consumption is a widely generalized responses to aversive stimulation." Social learning theory further suggests that drinking is a social behavior that is acquired and maintained by modeling, social reinforcement, and anticipation of effects from alcohol consumption based upon direct experiences with drinking as either rewarding or punishing (Abrams & Niaura, 1987). Drinking patterns have been known to vary along a continuum beginning with experimentation in adolescence and progressing to social or episodic drinking throughout the adult life cycle (Prochaska, DiClemente, & Norcross, 1992). Alcohol use becomes a learned coping method for the demands of everyday life.

Social learning theory also proposes that certain individual factors interact with situational or environmental demands. These demands may overwhelm an individual's ability to effectively cope and in turn lead to a reduced sense of self-efficacy (Abrams & Niaura, 1987). If the individual has learned that alcohol can help cope with the immediate situation then the probability of alcohol consumption is increased.

Individual beliefs about alcohol and one's ability to cope with the demands of every day life are crucial determinants of developing a dependency to alcohol.

Classical conditioning, operant conditioning, and social learning theories perceive addictive behavior as a learned process rather than motivated by unresolved conflicts or determined by genetic factors. These models view addictive behaviors as a continuum ranging from respondent and social to compulsive and addictive. Behavior/learning theories contradict psychoanalytic perspectives and are relatively independent from the disease models, because they ignore unconscious motives and minimize the role of genetic factors. Overall, these theories focus on the environment and contextual determinants of addictive disorders that emphasize the presence or absence of learning processes.

Cognitive-behavioral theory is derived from learning/behavior principles. This perspective expands upon learning theory by addressing cognitive and affective processes. It perceives learned behaviors as mediated of factors such as expectation and attribution, which are also subject to change through behavioral and reconstruction processes. A variety of cognitive models have been developed and evaluated since Bandura's classical presentations of social learning theory. Marlatt and Gordon (1985) describe four cognitive processes related to addiction, while Ellis (1988) focuses on irrational thoughts associated with addiction. The major theories that will be reviewed in this next section are the following: Cognitive theory, dysfunctional beliefs, rational-emotive theory, motivation and expectancy, and relapse prevention.

Cognitive Perspectives on Addiction

Cognitive Theory

Marlatt and Gordon (1985) postulate that there are four cognitive processes that determine drug use and these processes include self-efficacy, outcome expectations, attributions of causality, and decision-making processes. Self-efficacy refers to one's own judgment about one's ability to deal effectively with high-risk situations. Outcome expectancies refer to an individual's anticipation about the effects of an addictive substance. Attributions of causality refer to an individual's belief that drug use is attributed to internal and external factors. For instance, an external attribution is "anyone who lives in my neighborhood could be a drug dealer," whereas an internal attribution is "my body cannot survive without nicotine because I am addicted to it." The decision making process is one's judgment to use or not to use based upon the interactions of self-efficacy, outcome expectancy, and attribution factors.

According to this perspective, substance use is a cognitive decision making process. Substance use is a result of multiple decisions, which may or may not lead to using drugs. For instance, a college student goes to a fraternity party (high-risk situation) and feels uncomfortable (low self-esteem) because everyone is drinking (external attribution) and he/she is not. Then he/she is more likely to drink since her level of self-efficacy is low. He/she may be more likely to feel and think he/she will be more comfortable if he/she takes a drink (outcome expectancy). This person is more likely to drink and continue drinking (decision making process) because of the interaction among the four cognitive processes. It appears as if an individual who has a low level of self-efficacy, positive outcome expectancy, and either an internal or external attribution is more likely to cognitively appraise a situation and make a

decision to drink. A final note is that one's level of self-efficacy appears to be the key component in this process.

Dysfunctional Beliefs

Dysfunctional beliefs are major obstacles to eliminating drug or alcohol use (Beck, Wright, Newman, & Liese, 1993). Individuals often try to stop drinking on their own. When they experience craving, they feel disappointed if they restrain themselves from using or drinking. They perceive their feelings of disappointment as intolerable and the thought of "I can't stand this feeling" upsets them even more. Then they feel driven to yield to their craving, in order to, dispel their sense of loss and obtain relief from distress. Another set of beliefs focuses on an addict's sense of helplessness. Individuals often feel they do not have the power to stop or even if they do, they will only start up again. Since some individuals believe they are incapable of controlling their urges, they are less likely to try to control them, and thus confirm their beliefs in their helplessness in overcoming their addiction.

Many individuals enter treatment for a variety of reasons. Some of them enter addiction programs to break their habits, but only to relapse following program completion. Addictive behavior is a conflict between self-control and psychological urges. This conflict centers on addictive beliefs. Addictive beliefs may be considered a cluster of ideas centering on pleasure seeking, escape and avoidance behaviors. Addictive beliefs may also be considered dysfunctional ideas and are used to justify drug use. For example, "I am feeling bad today so it is okay to use, it will help me feel less depressed." In addition, some characteristics may predispose individuals to drug use such as being overly sensitive to unpleasant feelings, impulsivity, excitement seeking, and low frustration tolerance. These characteristics have been known to positively correlate with dysfunctional beliefs and substance use.

The sequence of addiction follows a vicious cycle proceeding from anxiety to self-medication by using or drinking. This behavior in turn produces or exacerbates financial, social, and/or medical problems, which leads to further anxiety and distress. Individuals often ascribe drug and alcohol cravings as uncontrollable. Certain beliefs tend to fuel these cravings. Individuals tend to ignore, minimize, or deny the problems resulting from their drug use or attribute them to something other than drug or alcohol use.

Cognitive therapy is a system of psychotherapy that attempts to reduce self-defeating behavior by modifying erroneous thinking and maladaptive beliefs. When applied in addiction treatment, drug abusers learn to view their drug and alcohol problem, as a technical problem for which there is a technical solution. There are several levels of beliefs underlying addictive behavior that need to be addressed in treatment. These addictive beliefs seem to stem from either one or more dysfunctional core beliefs. The first set of dysfunctional core beliefs has to do with personal survival, achievement, freedom, and autonomy. Depending on the precise nature of the addicts' vulnerability, the core belief has a content of helplessness. For example, "I am alone" represents a core belief and "I am sad" represents a negative emotion. "Drugs make me less sad" represents an addictive belief and "going to get drugs" represents addictive behaviors. Therefore, a dysfunctional core belief leads to a negative emotion, which in turn elicits an addictive belief that leads to addictive behavior.

Rational Emotive Theory

Rationale emotive theory postulates that humans are biological in nature and psychopathology is rooted in our genetic makeup (Ellis, 1988). Some people are more prone than others to think irrationally or pessimistically. These people also have a lower threshold for anxiety, depression, and impulse control.

Addictive thinking refers to the addicts' set of beliefs, self-statements, and/or attributions about his/her problem with drugs and/or alcohol. Addictive thinking like other forms of irrational thinking are often automatic, nonconscious, over learned, and continually practiced. Addicts are often unaware of the connection among their thoughts, feelings, and actions. Actions represent situations or events that trigger beliefs, and in turn beliefs lead to consequences that represent behaviors. Beliefs are considered rational or irrational. For example, Jane was fired from her job (action) and thinks she is a looser (irrational belief). Jane drinks (consequence) to narcotize this thought. Jane's irrational beliefs lead to behaviors that further reinforce her irrational thought process.

Individuals who have these self-defeating thoughts are more likely to use avoidance coping styles and are at greater risk to drink (Rioux & Van Meter, 1990). Addicts in treatment who learn reconstruction techniques are more likely to have higher self-efficacy ratings than those who do not learn these techniques (Annis & Davis, 1990). It appears as if addicts who learn how to reconstruct their beliefs not only raise their level of self-efficacy, but may also maintain abstinence following program completion.

Motivation & Expectancy

Motivation is another factor associated with addiction and relapse, as well as it is a necessary factor for promoting recovery (Prochaska et al., 1992). Along with motivation, self-efficacy, expectancies, and attitudes are also key components that contribute to addiction and abstinence. Addiction research has supported the finding that positive attitudes toward drinking were positively correlated with drinking behaviors (Lind, 1988). Findings from this study also support that attitudes and beliefs significantly correlate with alcohol use. Other studies have shown that motivation and

beliefs were associated with preventing relapse (Miller et al., 1993). It appears as if an interaction among psychosocial factors consisting of motivation, beliefs, attitude, and self-efficacy may not only predict substance use but also abstinence.

Positive alcohol beliefs have been associated with alcohol consumption and consequently aligned with motivation to drink. Since the early 1980's, it has appeared as though negative expectancy might contribute to social drinking behaviors. It is, perhaps, unsurprising that only positive expectancies were sought in explaining drinking behaviors. However, by the late 1980's there was increasing speculation that negative expectancy may also contribute to explanations of consumption. Positive alcohol expectancies tend to correlate with both motivation and abstinence, whereas negative expectancies regarding abstinence seem to correlate with drinking (Jones & McMahon, 1994). Expectancies held by clients on entering and leaving treatment may change, and in turn play an important role in predicting treatment outcome.

The probability of the volitional response is a function of expectancies and will lead to some type of reinforcement (Kirsh, 1985). The value of the expected reinforcement has been termed R-S expectancies. Studies have shown that alcoholics almost uniformly scored higher on their endorsements of alcohol's positive effects than either problem drinkers or nondrinkers (Connors, O'Farrell, Cutter, & Thompson, 1986). It is probable that these drinking related outcomes are to be expected and interpreted in terms of beliefs about the effects of the use of alcohol. The stronger a drinker expects alcohol will engender a desired outcome in a particular situation, the more he/she is likely to drink. It appears as if outcome expectancies regarding alcohol effects are key influences in the decision to drink and to continue drinking.

The association between alcohol expectancies and drinking behavior was replicated among college students (Brown & Munson, 1987). Lighter drinkers expect

general positive effects, whereas heavier drinkers expect both pleasurable and negative effects (Leigh, 1987). Heavier drinkers tend to expect increased sexual enhancement, arousal, and aggression. The results from this study demonstrate that certain beliefs about the behavioral effects of drinking are dependent upon the degree of previous drinking behavior.

Expectancies about the general effects of alcohol appear to be a function of culture and social norms. These general expectancies about the general effects of alcohol are a foundation for personal expectancies, which are modified by personal experiences and differences in modeling. Differences in general and personal expectancies may also be influenced by ego-defense biases, resulting in a tendency to view negative alcohol-related outcomes as happening to others, while claiming positive outcomes for oneself. In other words, beliefs about alcohol effects for oneself may be very different from beliefs about its effects on others.

Drinking is a function of expectancies about the probability of experiencing effects and an evaluation of the desirability of those effects. In fact, influences on drinking behaviors are not only from expectancies about positive consequences, but are also from the belief that negative effects are not particularly bad for oneself than it is for others. Other investigations have found similar results. Marlatt (1987) found that prior mood states contribute to drinking behaviors, which in turn leads to the severity of alcohol ingestion. Depressed individuals may expect alcohol to relieve negative mood states, which in turn contributes the likelihood of drinking heavily. On the other hand, individuals with a normal state expect alcohol to produce pleasurable effects, and in turn are more likely to engage in lighter drinking. It seems that expectancies are influenced by individual factors such as previous drinking experiences and mood states, which in turn influences the severity and frequency of alcohol consumption.

Therefore, drinking expectancies play a key role in drinking behavior and may be a critical component in promoting abstinence and preventing relapse.

Relapse Prevention

Addiction is a chronic relapsing disorder similar in many respects to diabetes or heart disease. Relapses are not all the same and the reasons may vary across individuals and episodes. Some determinants of relapse include negative emotional states, social pressure and personal conflict (Wallace, 1990). Underlying factors associated with relapse include craving, euphoria recall, environmental triggers, addictive thinking, and recurrent painful states (Wallace, 1989). Most individuals encounter at least one of the factors within the first six months after completing treatment. Recurrences of symptoms are inherent in the nature of a chronic disorder where a "cure" is not a realistic goal (O'Brien et al., 1991). Of course, to reduce the likelihood of relapse after treatment requires understanding the nature of the disorder.

Wallace (1991) identified that 94.3% of all addicts relapse within the first six months following program completion. A psychosocial perspective implies that a particular psychological or social vulnerability or unresolved issue are conditioned stimuli associated with prior cocaine usage (Wallace, 1989). The interaction of psychological vulnerabilities and environmental states may place recovering addicts at even greater risk for relapse. In addition to this psychosocial perspective, a cognitive perspective on relapse similarly states addicts become vulnerable for either a lapse or relapse because of their association with high-risk stimuli (Beck et al., 1993). A lapse refers to a slip or initial use of a substance after an individual has made a commitment to abstain from drugs or alcohol, whereas relapse refers to a full return to the maladaptive behavior originally associated with use of the substance (Marlatt, 1987).

Most people who quit using drugs have a lapse within 90 days of the initiation of abstinence (Beck et al., 1993). There is no compelling reason to explain why lapses or relapses occur. Both lapses and relapses seem to be associated with the fact that addicts have not become "inoculated" to the external or internal conditions that can trigger craving and drug use. Addicts may still be prone to react to these conditions because their basic beliefs regarding drug use have not changed substantially. Although some addicts may have acquired a number of strategies for controlling their drug taking behaviors, they have not modified their attitudes toward craving and drug use. Cravings tend to be automatic and associated with drug beliefs and expectations, and as a result, these cognitive processes may place addicts at risk for relapse even when they have effectively implemented behavioral strategies for controlling their drug use.

Drug beliefs like cravings are automatic and associated with urges that are considered internal high-risk stimuli. When cravings and urges occur, beliefs and thoughts may automatically emerge. These beliefs and thoughts may be facilitative and give permission to addicts to relapse. Aside from these processes, interpersonal stimuli such as loneliness and depression commonly occur during periods of abstinence. Interpersonal conflict may also trigger cravings, beliefs, and thoughts. Because interpersonal conflict triggers other cognitive processes while also triggering drug use directly, individuals may experience cravings more intensely and thus become even more vulnerable for relapse.

This cognitive model of relapse emphasizes the role of beliefs as well as high-risk situations in the relapse process (Beck et al., 1993). Relapse prevention is a self-management strategy designed to enhance the maintenance stage of the habit change process. The goal of relapse prevention is to teach individuals who are trying

to change their behaviors how to anticipate and cope with triggers of relapse (Marlatt & Gordon, 1985). Based on the principles of social learning theory, relapse prevention is a self-control program that combines behavioral skills training, cognitive intervention, and life style changes. It seems that understanding relapse precipitants such as events that trigger relapse is not enough to prevent it from occurring. Therefore, relapse prevention needs to go beyond understanding external triggers and teach addicts how internal triggers are equally important in maintaining abstinence. A necessary ingredient in relapse prevention is teaching addicts how to deal with a failure to keep a behavioral commitment to abstinence (Rotgers et al., 1996). Cognitive-affective reactions to an initial slip may increase the probability that the lapse will be followed by continued substance use. Marlatt and Gordon (1985), propose that relapse is a result of a cognitive appraisal of the interactions among high-risk situations, coping responses, self-efficacy, lapses, and abstinence violation effect. Abstinence violation effect (AVE) refers to dissonance conflict and self-attribution that occurs after a lapse or initial use. In other words, AVE is the way in which an individual evaluates and copes with a lapse or slip. According to this model of relapse, an individual is more likely to relapse if he/she encounters a high-risk situation and does not utilize coping skills. Lack of coping leads to low self-efficacy which in turn leads to a lapse. Then initial use leads to AVE, which in turn increases the likelihood of continual use.

AVE is the major component in this relapse model. AVE is an individual's tendency to believe that he/she is unable to control substance use after an initial lapse. Under such circumstances, an individual is likely to continue using which leads to a full-blown relapse. In essence, AVE determines in part whether an individual attributes the cause of the slip to either internal or external factors. The probability is

based on the addict having a high level of efficacy for coping abilities and coping effectively with high-risk situations. For example, a high-risk situation is encountered and a coping response is performed. Then the individual's judgment of efficacy for coping is strengthened and more so when similar situations occur. Repeated experiences enhance levels of self-efficacy and in turn reduce the risk that occasional failures or slips will precipitate relapse.

During the past decade, there has been an increased acceptance that reinforcing effects of substance abuse are related to some type of underlying psychopathology. Dysfunctional family and child abuse aftereffects have been identified as triggers for substance abuse and relapse (Wallace, 1990). In fact, relapse may be indicative of the overwhelming pain experienced by an individual coming to terms with the trauma and not an indication of an unwillingness to abstain from mood altering substances (Slater & Minton, 1998). As memories of the trauma emerge, feelings associated with the original trauma also resurface. These memories and feelings may serve to trigger relapse (Young, 1990). Relapse serves as a maladaptive coping method for negative feelings and low esteem associated with the trauma as well as the trauma itself (Rohsenow et al., 1988). It appears as if addiction relapse is maladaptive coping methods for the indirect and direct effects associated with childhood trauma.

A Biopsychosocial Perspective on Addiction

Biopsychosocial Paradigm

A variety of theoretical models have been derived to explain the complexity and paradoxical nature of alcohol and other drug addictions. These models fall within either a biological, psychological, or social perspective. The model postulated here accounts for the interaction among biological, psychological, and social paradigms. Specifically, this model may elucidate factors from the psychoanalytic, behavioral,

cognitive, affective, and social paradigms by demonstrating how these factors interact to promote substance use. The formula is Biological x Psychological x Social = Substance Use. This formula is derived from a Health Psychology perspective on risk factors and chronic illness. When applied to drug and alcohol, the formula means that a biological predisposition is present but the onset of a drug or alcohol disorder does not develop unless there a psychological and/or social risk. Psychological risks may include but are not limited to a history of childhood abuse, low self-esteem, negative affective states, dysfunctional cognitive processes, and avoidance coping methods. Social risks are not limited to but may include poor family support, limited social support, and lack of spiritual support. If a person has a biological predisposition for drug and/or alcohol dependence and at least one psychological and social risk then they are more likely to develop a dependency than those who lack risks from each of the paradigms. The interaction between factors from each paradigm not only precipitate drug use, but also relapse especially among women with co-occurring disorders and dependent children.

Some biopsychosocial determinants of substance use and relapse may include childhood abuse, support systems, and cognitive-affective processes. Specifically, parental alcoholism/addiction, sexual, physical, and psychological abuse may be directly and indirectly linked to drug use. The relationship between childhood abuse factors and substance use may also be indirectly linked to substance abuse through mediating factors of poor family and social supports. Poor family and social supports may be linked to substance use through cognitive mediating factors of low self-esteem and negative belief systems. Both low self-esteem and negative belief systems may lead to negative mood states. Negative mood states in turn may lead to avoidance coping methods, which in turn directly precipitates substance use.

This biopsychosocial relationship is exacerbated by stress associated with childhood abuse and elucidates the behavioral and cognitive paradigms. For example, childhood abuse directly and indirectly leads to substance use and may serve as a conditioned stimulus for substance use. Memories, beliefs, and feelings associated with abuse may also become conditioned stimuli when paired with substance using behaviors. These cognitions may be triggered by high-risk drug situations. Therefore, these cognitive-affective processes further promote substance abuse.

These cognitive and affective processes may also serve as core beliefs, which activate addictive beliefs and thoughts. In fact, this cognitive process is enhanced by low esteem produced by lack of family and social support. Self-esteem and self-efficacy has been identified as key components in substance use and relapse. Lack of support systems not only contributes to low self-esteem but also to addictive beliefs. High-risk situations and appraisal of all of the cognitive mechanisms associated with these interrelationships may automatically trigger the relationship among childhood abuse, psychosocial factors, and substance use.

The relationship between childhood abuse and substance use has been well-documented (Chassin et al., 1992; Leshner, 1998; Swan, 1998; Wallace, 1991). Specifically, parental alcoholism/addiction has been associated with alcoholism/addiction in their offspring's (Goodwin as cited in Harden & Pihl, 1997; Larkby & Day, 1997). Along with parental alcoholism, sexual abuse has also been directly associated with substance use and relapse (Leitenberger, Greenwald, & Cado, 1992; Beitchman, Zucker, Hood, DaCosta, Akman, & Cassavia, 1992). Similar to sexual abuse and parental alcoholism, physical and psychological abuse has been linked with substance abuse (Fox & Gilbert, 1994; Famularo, Kinscherff, & Fenton, 1992). Characteristics of crack smokers suggest the possibility that those who smoke

experimentally or recreationally have these risk factors which may predispose them to the development of substance abuse. Data on a large sample of crack cocaine smokers in treatment seem to support the hypothesis that underlying childhood abuse factors including parental alcoholism, sexual abuse, physical and psychological abuse serve as risk factors for crack cocaine and other types of drug abuse (Wallace, 1990).

Childhood factors may directly and indirectly predict substance use through mediating psychosocial factors. Some psychosocial factors include poor social support (Havassy, Hall, & Wasserman, 1991; Testa, Miller, Downs, & Panek, 1992; Tucker, 1982) and family support (Kosten et al., 1983; Menicucci & Wermuth, 1989). Poor social and family support seem to be a result from childhood abuse, as well as poor support appears to be linked with substance use through mediating factors low self-esteem and negative belief systems.

While low self-esteem may be a direct result from poor support systems and an indirect result from childhood abuse, low self-esteem appears to predict substance use through negative belief systems and negative mood states. Negative belief systems and negative mood states appear to be produced by low self-esteem, and in turn mediate the relationship between childhood abuse and substance use through avoidance coping methods. Avoidance coping methods are a direct result from negative belief systems and negative mood states, and in turn directly predict substance use which is mediated by low self-esteem and poor family and social support systems.

The hypothesized model may demonstrate the relationship between childhood abuse and substance abuse through mediating factors consisting of avoidance coping, negative mood states, negative belief systems, low self-esteem, poor social support, and poor family support. This model will attempt to demonstrate the interaction among biological, psychological, and social paradigms. This model will further detect

differences in these relationships and paradigms among drug addicted males, mentally ill substance abusing males and females, and drug addicted women with children. It is the hope of the researcher to enhance the quality of treatment and improve program retention rates by identifying biopsychosocial factors that should be addressed in treatment.

Biopsychosocial Intervention

The concept "biopsychosocial" is based upon a health psychology perspective of chronic illness and health behaviors (Belar & Deardoff, 1995; Taylor, 1991), while the proposed model refers to the interaction among the biological, psychological, and social mechanisms in order to explain substance use. The biopsychosocial assessment and treatment intervention is demonstrated in Table 2-1. This proposed biopsychosocial intervention model may improve the conditions and emotional status of women with co-occurring disorders, which in turn should mediate and ameliorate the level of family stress and serve as a protective factors for their dependent children. The proposed model may enhance treatment programs by implementing health and clinical services to meet the needs of this population. Women and children would be evaluated and then matched to specific interventions based upon their individual biopsychosocial needs.

Table 2-1. Biopsychosocial Assessment and Treatment Intervention

Domain	Subdomain	Content of Intervention
Biological	Medical	Past medical & physical illness
		Family medical & past illness
		Current medical and physical problems
		Current medications & compliance
		Pre/post-natal care
		Health prevention for children
		Health risk behaviors

Table 2-1. (continued)

Domain	Subdomain	Content of Intervention
		HIV prevention & health education
		Physical & gynecological exam
		Mental status exam
Psychological	Mental Health	History of diagnosis & treatment
		Family history of mental illness
		Diagnostic evaluation
		Psychiatric evaluation
		Psychosocial functioning
		Medication compliance
		Current mental status
	Cognitive	Self-esteem
		Belief systems
		Attitudes
		Parental Stress
	Affective	Depression
		Anger, anxiety
	Behavioral	Current substance use
		Drug history & treatment history
		Family history of substance use
		Prevention relapse for high-risk situations
		Ways of coping
	Childhood Trauma	Sexual Abuse
		Physical neglect & abuse
		Emotional neglect & abuse
		Parental addiction &/or mental illness
		Domestic violence, adult abuse, rape
Sociocultural Environment	Social	Social network
		Community support
	Family	Family support
		Parenting skills
		Parent-child relationships
		Relationships-significant others
	Family Environment	Reunification &/or preservation
		Financial/economic
		Housing
		Educational &/or vocational
		Employment history & setting
		Legal &/or custody issues
		Sentiments of culture regarding client/family and treatment

Biopsychosocial Model

Taken together, previous research is consistent with the proposed model of biopsychosocial factors mediating the relationship between childhood abuse and substance use. This postulated model has been developed out of focus groups with women with co-occurring disorders and previous research investigations (Simons & Cameron, 1996). The term "substance use" refers to the frequency and severity of alcohol and nicotine use among drug dependent subjects to avoid obtaining a skewed distribution and since these subjects tend to minimize their drinking and smoking behaviors, because of their primary drug dependence for which they are receiving treatment. Substance use will also refer to the frequency and severity of prescribed and over-the-counter medication to explore the similarities and differences between illicit and non-illicit drug use patterns among male and female participants.

The purpose of the present study is to evaluate an hypothesized paradigm of biopsychosocial factors that mediate the relationship between childhood abuse and substance use as illustrated in Figure 1. It is postulated that childhood abuse negatively leads to family and social support, and that these factors contribute to alcohol and nicotine use through their influence on self-esteem and mood states. Specifically, both negative family and social support lead to low self-esteem, and in turn low self-esteem and negative social support contribute to negative mood states. Negative mood states and low self-esteem contribute to drinking beliefs, and drinking beliefs and negative mood states precipitate avoidance coping. Drinking beliefs and avoidance coping both simultaneously and independently contribute to substance use. Substance use serves an

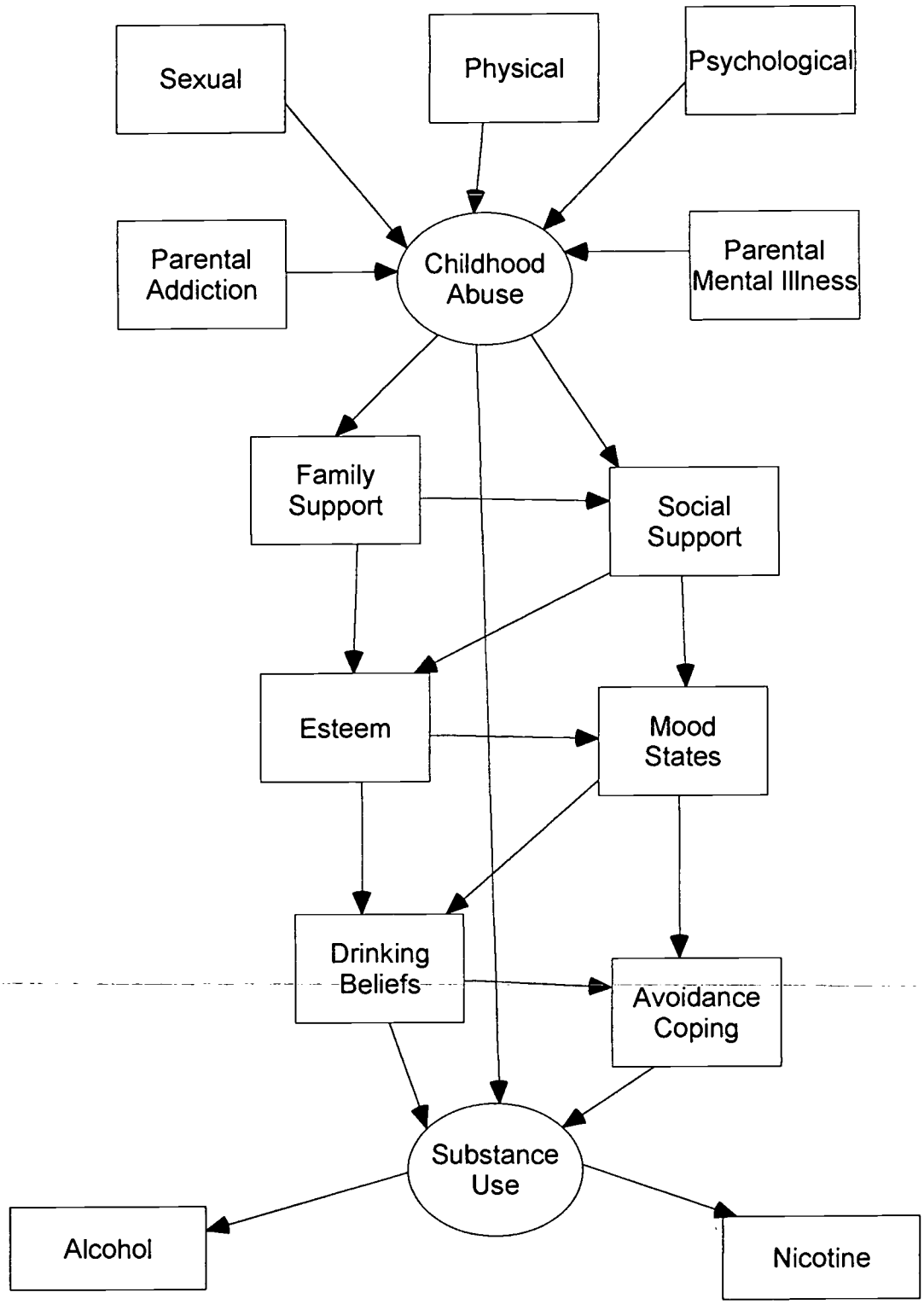


Figure 2-1: Child Abuse, Psychosocial Factors, & Substance Use

avoidance coping method for stress, which is exacerbated by low self-esteem and poor support systems (Cameron, Schafer, Leventhal, & Leventhal, 1988). Such an understanding of this relationship is necessary for the development of a comprehensive theoretical model that will promote improvements in the quality of addiction treatment.

A second focus of the current study is to evaluate another hypothesized model of biopsychosocial factors that mediate the relationship between childhood abuse and program retention as illustrated in Figure 2. This study will also include some exploratory analyses within the postulated model consisting of the different types of childhood abuse, biopsychosocial factors, substance use, and program retention. These analyses will assess the direct and indirect links among physical and psychological abuse, and parental alcoholism/addiction in relation to psychosocial factors, substance use, and program retention.

A final exploratory analysis is to evaluate health and behavior risks in relation to childhood abuse, biopsychosocial factors, and substance use as illustrated in Figure 3. It is postulated that participants with a history of childhood abuse will engage in health and behavior risks which in turn will precipitate substance use. Health and behavior risks were factors associated with drug use that were identified by women receiving residential treatment through a series of focus groups. Health risks are factors linked with physiological reasons for returning to drug use, such as using to avoid nausea and/or pain. Behavior risk are factors linked with returning to drug use such as withdrawing from meetings, not contacting sponsor, stopped going to church. Childhood abuse, psychosocial factors, and health and behavior risks will also be explored in relation to

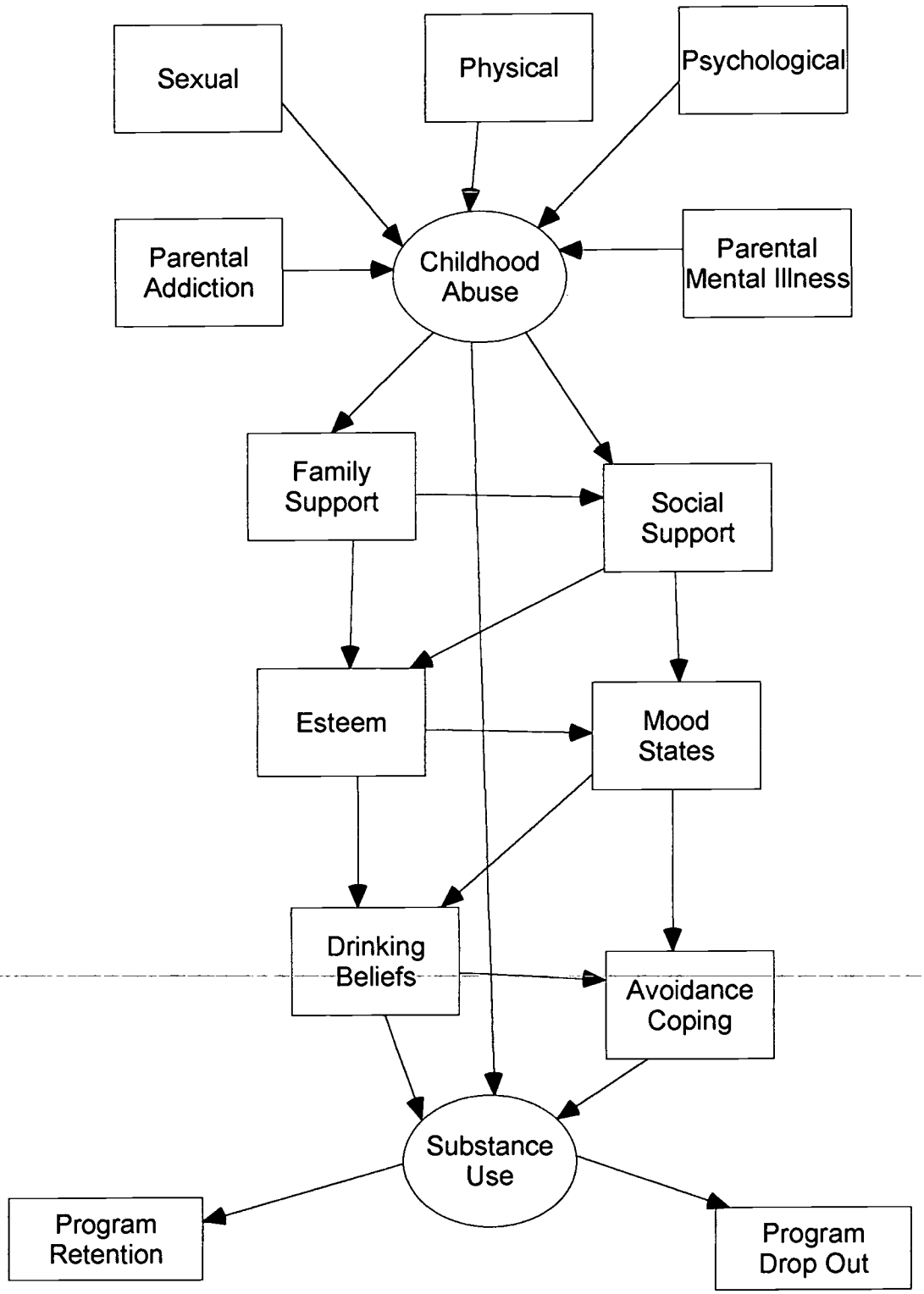


Figure 2-2: Model of Child Abuse & Program Retention

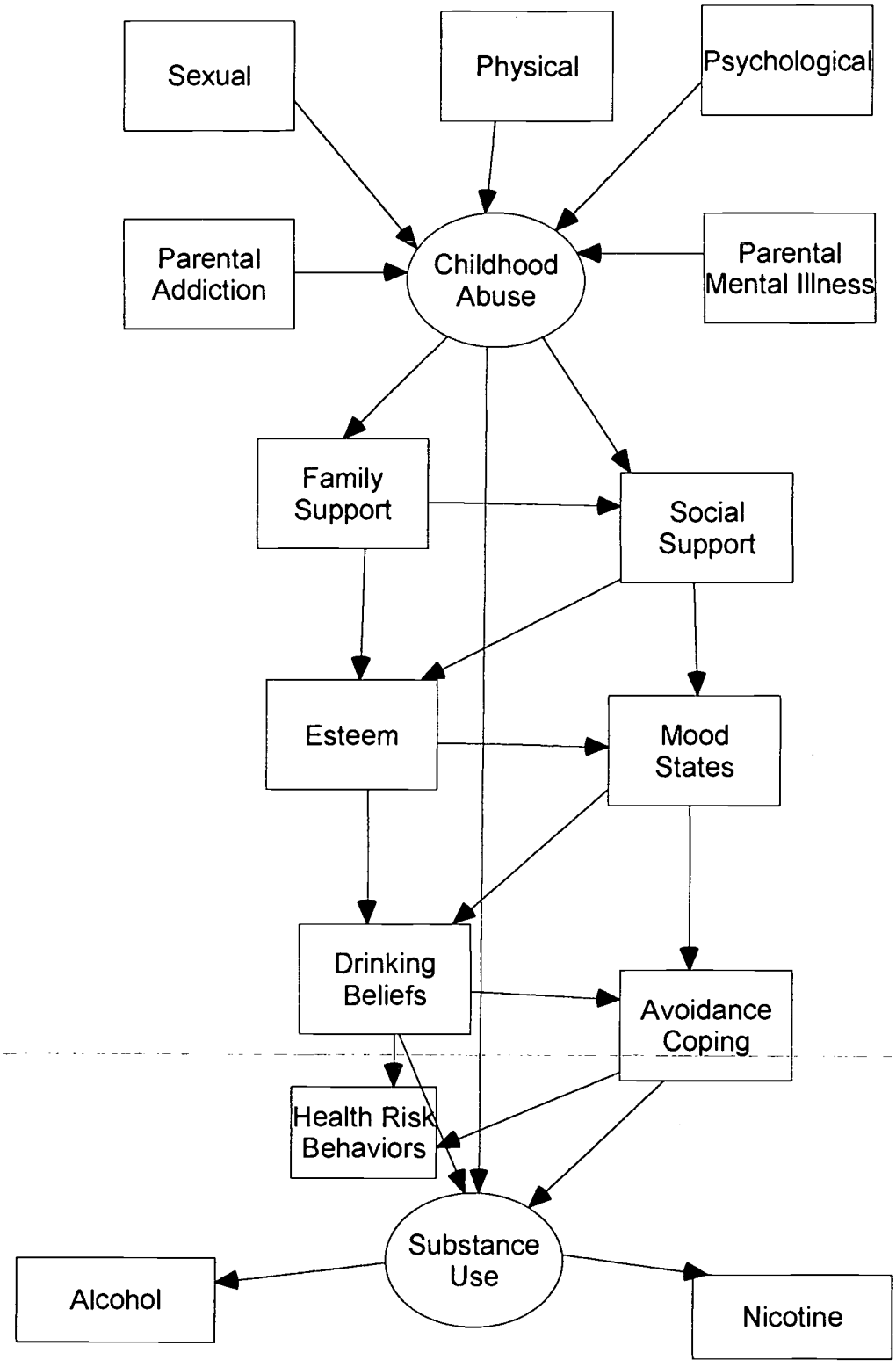


Figure 2-3: Model of Child Abuse, Risk Behaviors, & Substance Use

medication adherence and program retention. Such an understanding of this relationship is necessary for the promotion of gender specific and culture sensitive treatment for women with co-occurring disorders. This theoretical model may further the development of a comprehensive treatment program which will enhance program retention and reduce addiction relapse among pregnant and parenting women with and without co-occurring disorders.

The hypothesized theoretical paradigm consists of the interactions between factors from the biological, psychological, and social perspectives. Substance abuse seems to be a multifaceted disorder resulting from an interaction among these biopsychosocial mechanisms. Specific definitions of childhood abuse and biopsychosocial factors of the hypothesized model are shown in Table 2-2. The present study will focus on substance use but the current hypotheses are derived from addiction research. Hypotheses about childhood abuse are based upon previous findings from physical and sexual abuse investigations.

General Evaluations

The current study will evaluate the model among priority populations including dual diagnosed clients and drug addicted females with and without children. It is hypothesized that the degree of childhood abuse will be greater among dual diagnosed and drug addicted females than dual diagnosed and drug addicted males. The *degree of childhood abuse* is defined as the type of childhood abuse and the reported occurrence(s) of abuse. It is also hypothesized that measures for biopsychosocial factors

Table 2-2. Definitions of Child Abuse and Psychosocial Factors

Variables	Definitions
Child Abuse	Any form of sexual, physical, psychological, and parental alcoholism/mental illness.
Physical Abuse	Any form of violence or maltreatment between an adult and a child (<18 years) including kicking, biting, beating, and hitting (Briere, 1992; Gil, 1983).
Sexual Abuse	Covert or overt sexual behaviors between an adult family member or non-family member and a minor (<18 years) including fondling, oral sex, and intercourse (Bass & Davis, 1988; Gil, 1983).
Psychological Abuse	Any form of emotional or verbal abuse including threatening or criticizing a child, not providing food or clothing for a child, and leaving a child home alone (Briere, 1992; Gil, 1983).
Parental Alcoholism/Addiction	Parent or caretakers who were active in their alcohol or drug addiction while being the primary caretaker (Briere, 1992).
Self-esteem	One's innate sense of self-worth which is conveyed through his/her actions (Branden, 1991).
Beliefs	Expectations about alcohol consumption or drug use.
Mood States	Negative affective states including anger, depression, and anxiety.
Coping	The process of managing demands that are appraised as taxing or exceeding the resources of a person (Lazarus & Folkman, 1984). Avoidance Coping specifically refers to behavioral efforts to escape or avoid a problem such as eating, smoking, and drinking.
Family and Social Support	Lack of supportive and/or close relationships with family members, friends, and other significant individuals.

will be higher for dual diagnosed females than for drug addicted females. A final hypothesis is that program retention rates will be lower among dual diagnosed females than for dual diagnosed males and drug addicted females.

Treatment and gender differences will be investigated between male and female dual diagnosed and substance dependent individuals in residential, partial, and outpatient treatment. The rate of program retention will be evaluated between those with a history of childhood abuse compared to those without a history of abuse in residential, partial, and outpatient treatment. The levels of biopsychosocial factors and rates of program retention will be compared among dual diagnosed and substance dependent individuals in the different treatment programs. A final analysis will evaluate gender differences in relation to childhood abuse, biopsychosocial factors, substance use, and program retention.

Research Hypotheses

1. What biopsychosocial factors predict substance use?

1a. Is the relationship between child abuse and substance use specifically mediated by psychosocial factors consisting of: Poor family support, negative social support, low self-esteem, negative mood states, negative belief systems, and avoidance coping?

1b. What types of child abuse directly predict substance use and what types of child abuse indirectly contribute to substance use?

2. What biopsychosocial factors contribute to program retention?

2a. Does a history of child abuse influence program retention?

2b. Is the relationship between a history of child abuse and program retention mediated by psychosocial factors consisting of: Poor family support, negative social support, low self-esteem, negative mood states, negative belief systems, and avoidance coping?

Exploratory Questions

The current study will also explore the relationships among childhood abuse, psychosocial factors and substance use among priority populations. Specifically, psychological conditions and medication usage will be evaluated among males and females with and without co-occurring psychological disorders. Questions guiding these exploratory analyses include:

1. Are the rates of substance use higher among individuals with a history of childhood abuse compared to those without a history of abuse?

1a. Are the rates of prescription medication higher among individuals with a history of childhood abuse compared to those without a history of abuse?

2. Is there positive relationship between parental alcoholism/addiction and physical abuse, psychological abuse, and sexual abuse?

2a. Does parental alcoholism/addiction directly predict substance use?

2b. Are the rates of substance abuse higher among addicts with a history of parental alcoholism/addiction?

3. What is the relationship between childhood abuse, substance use, and health risk behaviors? What specific factors mediate this relationship?

3a. What is the relationship between childhood abuse, high-risk behaviors, and substance use? What factors mediate this relationship?

4. What are the differences in terms of program retention rates between individuals with and without a history of abuse?

4a. What are the differences among individuals in partial, outpatient, and residential treatment?

Purpose and Rationale

The focus of the present study is to examine the direct and indirect relationships among childhood abuse, biopsychosocial factors, and substance use. The rationale for this study is to address inconclusive and limited research on substance use. It is the hope of the researcher to use these hypothesized models as guides for revising prevention and treatment programs for drug dependent females with and without co-occurring disorders. It is the goal of the researcher to design prevention and treatment programs based upon the model and match individuals to specific modalities based upon their biopsychosocial issues. Such program modifications would improve the quality of both prevention and treatment programs, in addition to, deterring and reducing recidivism rates for continuing the cycle of substance abuse. Overall, these hypothesized models may provide a theoretical framework that elucidates the social, cognitive, and behavior mechanisms mediating the relationships between childhood abuse and substance use, as well as childhood abuse and program retention.

CHAPTER 3
METHODOLOGY

A total of 160 drug dependent participants, 111 females and 49 males volunteered for the study. Participants were recruited from one of the treatment programs at the Diagnostic Rehabilitation Center in Philadelphia, Pennsylvania. Of these participants, 51% were receiving residential treatment in the Hutchinson Place program, 29% were receiving dual diagnosis treatment in the Partial Hospital program, and 19% were receiving addiction treatment in the Outpatient Program and living in one of the adjunct recovery houses located in South Philadelphia.

All of the subjects were at least 18 years old and completed detox treatment. Subjects also had medical and psychiatric evaluations and were not exhibiting any psychiatric behaviors or medical problems at the time of administration of the questionnaires. The Diagnostic Rehabilitation Center provides comprehensive detox, inpatient, outpatient, partial, and residential services for substance dependent individuals. These programs recognize the special needs of these individuals and provide them with medical, psychiatric, social, and any other type of services. Subjects were on one of the following types of assistance: medical assistance, social security supplemental income, social security disability, or an HMO associated with Community Behavioral Health. All treatment was funded through either Community Behavioral Health (CBH) or Behavioral Health Special Initiatives (BHSI). CBH is the managed care corporation that funds mental health and drug and alcohol treatment for Philadelphia residents who are also welfare and/or social security recipients. BHSI is the funding source for drug and alcohol treatment for uninsured Philadelphia residents.

Subjects

Residential Treatment Sample. A total of 83 drug dependent women with their children receiving residential treatment in the Hutchinson Place program participated in the study.

The majority of women were African American (n= 75), Baptist (n= 49) and the average age was 32 years. Of these participants, 97% had children with them in treatment and 87% also had additional children not in their custody placed outside of treatment. Slightly half (56%) of these participants self-reported being diagnosed with a co-occurring psychological disorder, and 59% reported adhering to medication for their condition. The rate of drug use was high: 88% of participants reported crack-cocaine as their primary drug and 28% reported using crack almost daily within a two-week period.

Partial Treatment Sample. A total of 46 mentally ill substance abusers, 12 females, and 34 males receiving treatment in the Partial Hospital program participated in the study. The majority of subjects were African American (n = 32), Baptist (n = 16), and the average age was 41 years. Of these participants, 85% reported having children but only 2% reported living with their children. Almost all (91.3%) of these participants self-reported being diagnosed with a co-occurring psychological disorder, and 84.8% reported complying with medication for their condition. Of these participants, 39.2% reported using crack-cocaine, but 39.1% of them identified alcohol as their primary drug of choice. The rate of drug use was minimal: 13% of participants reported using crack-cocaine almost daily within a two-week period.

Outpatient Treatment Sample. A total of 31 drug dependent individuals, 17 females and 14 males receiving outpatient treatment and living in an adjunct recovery house participated in the study. The majority of participants were African American (n = 19), Catholic (n = 10), and the average age was 37 years. Of these participants, 87% reported having children but only 12.9% of them reported living with their children. Almost 20%

of these participants were diagnosed with a co-occurring disorder, and 16% complied with medication for their psychological condition. Of these participants, 22.6% reported alcohol as their primary drug of choice and 22.6% also reported cocaine as their primary drug of choice. The rate of drug use was minimal: 42% of participants reported using crack-cocaine and 8.3% reported using crack-cocaine once in a two-week period.

Setting

A questionnaire packet consisting of self-report surveys of childhood abuse, self-esteem, social and family support, mood states, belief systems, coping methods, health and behavioral risks, and substance use was administered either with the subject's counselor or alone depending upon his/her comprehension level while attending either residential, partial, or outpatient. Once subjects completed this packet, they placed it in an envelope and returned it to the researcher. Data on retention was provided to the research by the program directors. Retention data consisted of days in treatment and status of discharge on each subject who participated in the study.

Procedure

The directors of the partial, inpatient, and residential programs at the Diagnostic Rehabilitation Center were explained the purpose and rationale of the study by the researcher. The clinical team and clients of each program were then introduced to the study and encouraged to participate at a community meeting. The director of each unit administered the consent form along with other consent forms for treatment on the first day of treatment (Appendix J). The director/counselor explained the study to subjects as previously provided to them by the researcher. Subjects were told that it was a study

about biopsychosocial factors associated with relapse, and that the purpose of the study was to identify them, so they could be incorporated into treatment in hope of improving the quality of services and preventing relapse. Subjects were told that after the fourteenth day of treatment they would be given a self-addressed manila envelope that contains a questionnaire packet. If they signed this consent and still chose to complete this measure, they could do so. Then they were asked to place the questionnaire packet back into the envelope, seal the envelope, and place it in the mail. If they signed the consent form and decided not to complete this measure then they were asked to send it back incomplete without facing any type of penalty or discrimination.

The fourteenth day was selected as the administration time, because all medical and psychiatric evaluations had already been conducted. This is also the time frame when other evaluations and measurements are administered to the clients as a part of their treatment at DRC. These other forms are the psychosocial history and psychosocial evaluation that are used by clinicians and counselors to identify problem areas that need to be addressed in treatment. Their primary counselor administers these forms.

Subjects who participated in the study received a self-addressed envelope with the questionnaire packet by their counselor. Subjects also received a letter, along with the questionnaire packet that reiterated what they were told by the program director when they signed the consent form on their first day of treatment. This letter contained a phone number so subjects could contact the researcher if they had questions or concerns.

Subjects completed the questionnaire packet consisting of self-report measures on childhood abuse, self-esteem, social and family support, mood states, coping methods,

substance beliefs, health and high risk behaviors, and substance use at their own pace. Subjects who had comprehension difficulties were able to utilize their individual counselor for assistance. Once subjects completed the questionnaire packet they placed it back into the envelope and sent it to the researcher directly through inter-office mail.

After 160 completed questionnaire packets were obtained by the researcher, a series of analyses were conducted to evaluate the hypothesized model. Then the researcher contacted each program director for the weekly census that provides information on client discharge, reason for discharge, and days in treatment. Because each director conducts the census differently, obtaining information on client status and discharge was difficult and results on retention may be inconclusive for some programs.

The researcher debriefed all subjects through letters and postings after completing all data analyses. A letter was also sent to the director of each program about the purpose, rationale, results, and an explanation of results once analyses were completed. This information was also reiterated through postings on information boards located throughout the center. Postings included the purpose, rationale, results, and an explanation of results. The researcher also conveyed implications drawn from the research findings.

Instruments

Demographic Information Questionnaire. A self-report survey measure was used to collect descriptive information on gender, race, age, religion, drug use and treatment (Appendix A).

Child Trauma Questionnaire (CTQ). Developed by David Berstein (1995), this questionnaire identified the different types of childhood abuse including physical, psychological, and sexual. Items on the CTQ begin with a phrase, "When I was growing up...," and are rated on a 5-point Likert-type scale according to the frequency with which experiences occurred. Response options ranged from "Never True" to "Very Often True." The CTQ required 10 to 15 minutes to administer and is intended for use with adults.

The CTQ can be given in either a group or individual testing sessions. Instructions for the CTQ appear at the beginning of the questionnaire and are self-explanatory; they can be read silently by subjects or aloud by an examiner. The former technique has shown good results while the later technique has been given verbally, but, at this time, there is insufficient data to determine whether this style of administration procedure influences results. The CTQ is best given as part of a battery of self-report measures or other psychological tests, and after the subjects have already "warmed up" by answering other questionnaires.

The CTQ provides scores on five empirically derived factors including physical abuse, emotional abuse, emotional neglect, physical neglect, and sexual abuse, as well as a CTQ total score. CTQ factor scores can be computed by two procedures. The method that was used in this study consisted of unweighted factor scores which involves reverse coding appropriate items, and then simply taking the arithmetic sum of the unweighted items loading highly (>.40) on each factor. The CTQ total score is then produced by giving each factor score equal weight (by dividing each factor by the number of respective items), then summing the four weighted factor scores. The advantage of the

unweighted factor score method is that it easy to carry out. The disadvantage of this method is that it produces factors that are interrelated. In the initial validation sample, intercorrelations among factor scores produced by this method ranged from .22 to .73, with a mean intercorrelation of .52. In the original validation study, both methods produced factor scores that were highly intercorrelated with each other (Physical and Emotional Abuse, $\underline{r}$ = .87, Emotional Neglect, $\underline{r}$ = .86, Physical Neglect, $\underline{r}$ = .85, Sexual Abuse, $\underline{r}$ = .95).

An abbreviated 30-item version of the CTQ was given to 200 college undergraduates enrolled in an introductory psychology course. Principal component analysis replicated the factor structure from the initial validation study, with the exception that items for physical and emotional abuse loaded on separate factors. This version of the scale has been found to be of high reliability consisting of alpha coefficients ranging between .50 and .91, and for this reason, this version of the scale was used in the current study (Appendix B).

The Self-esteem Scale. Developed by Rosenberg (1965), this questionnaire measured levels of self-acceptance associated with self-esteem. The Rosenberg Self-esteem scale is one of the most widely used measures of self-esteem. This scale measures the self-acceptance aspect of self-esteem. The Rosenberg Self-esteem scale was originally developed for use with high school students. A total of 5,024 high school juniors and seniors from 10 randomly selected New York schools made up the sample used for test validation of this measurement. This scale has been used with a variety of samples since

its original validation. This form is self-administered and takes approximately 5 minutes (Rosenberg, 1965).

The Rosenberg Self-esteem scale has five positively worded items and five reverse worded items. This scale consists of all ten items answered on a four point scale from strongly agree (1) to strongly disagree (4), although they are scored only as agreement or disagreement. Since all the items revolve around liking and/or approving of the self, the scale probably measures the self-acceptance aspect of self-esteem more than it does other factors.

Although originally constructed as a Guttman scale, it is most often used as a simple additive scale (Goldsmith, 1986). This scale has been found to be of high reliability with an alpha coefficient of .92. The Rosenberg Self-esteem scale has also been found a valid measure of self-esteem. Convergent validity was demonstrated with other esteem measures of Coopersmith Self-esteem Inventory .59 (N = 44) and CPI self-acceptance scale .27 (N = 643). Discriminant validity was demonstrated with measures of self-stability .21 to .53.

Rosenberg (1965) presented considerable data about the construct validity of both this measure and self-esteem in general. This scale has shown to be predictive of shyness, depression, and assertiveness. The scale is brief and thorough in measuring the self-acceptance factor of self-esteem. It has high reliability for a short scale and can be used without grouping items necessary for the Guttman format (Appendix C).

Perceived Social Support From Friends and Family Scales. Developed by Mary Procidano (1983) and then revised by Richard Rice (1996), this scale assessed perceived

social support given by family and friends. This 40 item self-report instrument, Perceived Social Support (PSS) was originally developed by Procidano and Heller (1983) as a general social support measure that assesses perceived social support given by family and friends. This instrument is composed of two scales: A 20 item friends scale and a 20 item family scale. The scales require responses to declarative statements with a simple yes-no-don't know response set. Some items are reverse scored so that all items could be interpreted in the same direction. Simple counts of the number of endorsed items indicate the level of support from family and friends (Procidano & Heller, 1983).

A principal component analysis on the 40 items of the PSS measure was performed by using data from 222 clients seeking treatment for alcohol abuse who completed the instrument at the time of the initial assessment. This approach allowed identification of the 14 and 7 items sets. Using Cronbach Alpha correlations assessed the internal consistency of the resulting scales and between-scale scores (Rice & Longabaugh, 1996).

Using a criterion of selecting only items of loading at .50 or above, the 7-item versions of the family and friends measures were identified. The mean score on the Family scale was 4.2 (SD = 2.3), and the mean score for the Friends scale was 4.2 (SD = 2.1). The internal consistency reliability measures for this 7-item versions were α = .84 for the family measure and α = .76 for the friends measure. The magnitude of correlations with the 20-item and 14-item versions of these measures indicated that the

7-item version maintained a strong correspondence to the parent scales. Internal consistency was adequate especially for such brief scales, and although decreasing the number of items reduced internal consistency.

The test-retest reliability of the social support measures were assessed by Pearson Product Moment Correlation. The correlation between Time 1 and Time 2 administration of the 7-item family measure was $\underline{r} = .95$ and $\underline{r} = .88$ for the 7-item friends measure. The 7-item version for family and friends appears to be a reliable and consistent measure of support given by family and friends.

The construct validity, internal consistency, and test-retest reliability of these short versions compared favorably with the longer 40-item version of the PSS. While retaining the robust association with the parent instruments, these 7-item measures offer the ability to identify perceptions of support from family and friends in a rapid, reliable fashion. Such brevity is required to assess comprehensively support systems for alcoholic patients presenting for treatment, and, for this reason, this 7-item version was used in the current study (Appendix D).

The Activation-Deactivation Adjective CheckList (AD ACL). Developed by Robert Thayer (1967, 1978a, 1986) measured positive and negative mood and/or arousal states. The AD ACL is a multidimensional test of various transitory arousal states, including energetic and tense arousals. It has been widely used in many psychophysiological and psychological contexts.

This self-rating response format used in this test originally followed a format employed by Nowlis in 1965 with the Mood Adjective Checklist. The four point

self-rating system is slightly unconventional in comparison with more usual three point, five point, and seven point formats used in a number of other adjective checklists. Scoring is based on four possible points for each adjective. A common procedure in many studies has been to score only A1 and B1, since they are the best indicators of energetic and tense arousal, respectively. A1 and B1 refers to the energetic and tension subscales, while A2 and B2 refer to the tired and clam subscales. A2 and B2 are particularly best useful if the primary purpose of the study is to focus on the low arousal states of each dimension.

The AD ACL is scored by assigning 4, 3, 2, and 1 respectively to the "VV, V, ?, and "no" scale points, and summing or averaging the five scores for each subscale. In order of appearance, the subscale adjectives are as follows: Energetic (active, energetic, vigorous, lively, full-of-pep); Tired (sleepy, tired, drowsy, wide-awake, and wakeful); Tension (jittery, intense, fearful, clutched-up, and tense); Calmness (placid, calm, at-rest, still, and quiet). Scoring for wakeful and wide-awake must be reversed for the Tiredness subscale. If full bipolar dimensions of energetic and tense arousal are of interest then only scores for Tiredness and Calmness must be scored in reverse before summing all ten scores (Thayer, 1989).

In the current study, responses were assigned numerical values ranging from all the time (4) to none of the time (1) on all 19 items. Summing the items within each subscale gave a subscale total for Energetic, Tired, Tense, and Calm. Summing all of these subscales gave a full-scale score ranging from 19 to 76. A low score indicates

negative arousal states while a high score indicates positive arousal states. The total scale score was used in this study (Appendix E).

Substance Belief Inventory. A 17 item survey measured two types of expectations from alcohol consumption and/or beliefs about effects from drinking alcohol. These two types of expectations are Affective Beliefs and Avoidance Beliefs. Expectancy statements about how mood states are altered from alcohol consumption measure affective beliefs. Expectancy statements regarding how alcohol is used to cope with stress or relinquish pain measure avoidance beliefs.

Reliability and validity information was not available on this scale, since it was written anonymously. A principal component factor analysis was conducted with 237 undergraduate subjects and the results are as follows: Affective Belief Subscale, a 6 item survey that assessed expectations of alcohol consumption, e.g. "I drink more when I am depressed." Subjects endorsed items that reflect their drinking beliefs on a 5 point likert-type scale, ranging from never (1) to always (5). Scores are summed together for a total score ranging from 6 to 30. The factor analysis of the affective belief subscale revealed that all six items loaded onto a single factor with factor loadings ranging from .64 to .80 (Appendix F).

Avoidance Belief Subscale, an 11 item survey that assessed expectations of alcohol consumption, e.g. "I drink to escape family pressures." Subjects endorsed items that reflect their drinking beliefs and/or expectancies on a 5 point likert-type scale, ranging from never (1) to always (5). Scores are summed together for a total score

ranging from 11 to 55. A factor analysis of the avoidance belief scale revealed that all 11 items loaded onto a single item with loadings ranging from .55 to .80 (Appendix F).

Avoidance Coping Measure. Developed by Folkman and Lazarus (1988), this is an 8-item subscale from the Ways of Coping Questionnaire. The ways of coping questionnaire has been used primarily as a research instrument in studies on coping processes. This measure is used to assess the thoughts and actions that individuals use to cope with when faced with stressful encounters of everyday living. It is derived from a cognitive-phenomenological theory of stress and coping. The ways of coping questionnaire is based on the definition of coping as the cognitive and behavioral efforts to manage specific external and internal demands appraised as taxing or exceeding the resources of the individual (Folkman & Lazarus, 1988).

The avoidance coping subscale measured 8 items that assessed negative coping styles, e.g. "I tried to make myself feel better by eating, drinking, smoking, using drugs or medication, etc." This subscale is self-administered and takes approximately 3 to 5 minutes. Individuals respond to each of the 8 items on a 4-point Likert type scale, indicating the frequency with which each strategy is used. Responses include does not apply or not used (0), used somewhat (1), used quite a bit (2), and used all the time (3).

Scores are the sum of the subjects' responses to the items that comprise a given scale. A total score for the avoidance-coping subscale ranges from 0 to 24, 0 indicating "no avoidance coping is used" and 24 "indicating avoidance coping is used a great deal". These raw scores describe coping efforts toward the degree of avoidance coping.

The reliability was evaluated with test-retest methods and internal consistency of coping measures with Cronbach's coefficient alpha. Internal consistency estimates of this coping measure fell at the low end of traditional acceptable ranges which is consistent with estimates of coping measures in general. Evidence of construct validity was found in the fact that the results were consistent with theoretical predictions. These theories included coping are a problem-focused and/or emotion-focused strategy and coping is a process. That is, how people cope varies in relation to the demands or constraints of the context and in relation to changes in those demands or constraints as an encounter unfolds. Problem-focused types of coping are more often used in encounters, in which the outcome is appraised as changeable, while emotion-focused types of coping are more often used in encounters in which the outcome is appraised as needing to be accepted.

As suggested by the authors of the scale, the escape-avoidance subscale was evaluated with 237 undergraduate subjects. A factor analysis of the escape-avoidance scale revealed that all 8 items loaded onto a single factor loadings ranging from .10 to .23. The scale has been found to be of high reliability, $\alpha = 72$ (Appendix G).

Substance Use Measure. This survey measured the amount, type, and frequency of substance use. Items were abstracted and incorporated into a self-report format from the drug and alcohol section of the Addiction Severity Index, 5th Edition developed by McLellan, Urshel, and Blair (1997), and the Correlates of Drinking Behavior Screening Questionnaire developed by John Searles (1990). *Alcohol use* was defined by the amount

of alcohol consumed per time and the number of days alcohol is consumed at one sitting within a particular time.

The Addiction Severity Index (ASI) is the most widely used instrument in addiction treatment. The ASI is a structured, 30-40 minute clinical research interview designed to assess problem severity in seven areas commonly affected among substance using individuals. These include alcohol and drug use, medical, legal, employment, family/social problems, and psychiatric problems. In each of the areas, verifiable questions are asked, measuring the number, frequency, intensity, and duration of problem symptoms in the patient's lifetime and during the past 30 days (McLellan et. al, 1997).

The Correlates of Drinking Behavior Screening Questionnaire is a screening assessment that was previously used in a Post-Doctorate Study at the Addiction Treatment Research Center of the University of Pennsylvania (Searles, 1990a). This self-report survey measured the severity and frequency of alcohol use among undergraduate subjects. This survey also identified family histories of alcoholism and family problems associated with drinking as part of the study on Children of Alcoholics.

Items from both the ASI and the screening questionnaire were abstracted and responses were converted to a 5-point Likert type scale. Additional items associated with prescription and non-prescription substance use were also incorporated and scored on a 5-point Likert type scale. Scores are summed together to give total ratings for severity and frequency of substance use. Raw scores were used in this calculation, as well as they were used for additional items that provide both descriptive and categorical data (Appendix H).

Risk Behavior Inventory. A 70 item survey measured three types of risks associated with drug use. These three types of risks are health, behavioral and social. Risks are measured by statements about how specific actions and reactions are associated with drug use.

Reliability and validity information was not available on this scale since it was developed for this study. A principal component factor analysis was conducted with 160 drug dependent subjects and results are as follows: Health Risk Subscale, is a 6 item survey that assessed physiological arousal and health behaviors associated with drug use, e.g. "How often do you have hot flashes before you use drugs." Subjects endorsed items on a 3 point likert-type scale, ranging from none of the time (0) to all of the time (2). Scores were summed for a total score ranging from 0 to 12. A factor analysis of the health risk subscale revealed that all six items loaded onto a single factor with factor loadings ranging from .53 to .65. Using a criterion of selecting only items loading at .50 or above, the 7 item version of the health risk subscale mean was 27.3 (SD = 14.3). The internal consistency reliability measure for this 7 item version was α = .84. This 7 item version correlated with other measures used in this study and are as follows: Affective Beliefs r = .36, p <. 01 (n=131), Avoidance Beliefs r = .21, p<. 05 (n=122), and Length of Time Since Last Drink r = -. 20, p<. 05 (n=126) (Appendix I).

Behavior Risk Subscale, is an 18 item survey that assessed physiological reactions and risky behaviors associated with drug use, e.g."How often did you experience cravings when you stopped using or were around drugs/alcohol." Subjects endorsed items on a 3 point likert-type scale, ranging from none of the time (0) to all of the time (2). Scores

were summed for a total score ranging from 0 to 36. A factor analysis of the behavior risk subscale revealed that all 18 items loaded onto a single factor with factor loadings ranging from .50 to .82. Using a criterion of selecting only items loading at .50 or above, the 18 item version of the behavior risk subscale mean was 27.3 (SD = 14.3). The internal consistency reliability measure for this 18 item version was α = .94, (n = 98). This 18 item version correlated with other measures used in this study as follows: Affective Beliefs r = .43, p<. 01 (n=94), Avoidance Beliefs r = .44, p<. 01 (n=95), Avoidance Coping r = .41, p<. 01 (n=89), Self-esteem r = 1.39, p<. 01 (n=93), Alcohol Severity 14 Days r = .24, p<. 05, (n= 97), Alcohol Severity 30 Days r = -. 22, p<. 05 (n=99), Alcohol Frequency 30 Days r = -. 22, p<. 05 (n=97), Length of Time Since Last Drink r = -. 32, p<. 01 (n=97), and Secondary Drug of Choice r = -. 29, p<. 01 (n=89) (Appendix I).

Social Risk Subscale, is a 5 item survey that measured social behaviors associated with drug use, e.g. "How often did you attend church." Subjects who endorsed a zero score to this item would indicate a lack of spiritual support. Subjects endorsed items on a 3 point likert-type scale, ranging from none of the time (0) to all of the time (2). Scores were summed for a total score ranging from 0 to 10. A factor analysis of the social risk subscale revealed that all 6 items loaded onto a single factor with factor loadings ranging from .54 to .68. Using a criterion of selecting only items loading at .50 or above, the 6 item version of the social risk subscale mean was 27.3 (SD = 14.3). The internal consistency reliability measure for this 6 item version was α = .74, (n = 138). This 6 item version correlated with support r = .19, p<. 05 (n=136), and therefore this subscale was not included in this study.

Design

A 3-group survey research design was used to evaluate the theoretical model and to explore the direct and indirect relationships between childhood abuse and substance use among drug dependent subjects in residential, partial, and outpatient treatment.

Data Analyses

A series of path analyses assessed the theoretical model over time, and explored the direct and indirect relationships among childhood abuse, biopsychosocial factors, and substance use. A path analysis is an extension of a multiple regression. In a path analysis, there is more than one dependent variable and the concern is the predictive ordering of variables as in a hierarchical regression analysis. A path analysis allows a researcher to test a theory of causal ordering among a set of variables whereas "X causes Y and Y causes Z" (Grimm & Yarnold, 1995). There are two kinds of variables in a path model, endogenous and exogenous. The values of the endogenous variables are explained by one or more of the other variables in the model. The values of the exogenous are taken as given and the model does not attempt to explain them. Endogenous variables are similar to dependent or criterion variables and exogenous variables are similar to independent or predicting variables. Mediating variables are those that link endogenous to exogenous variables. The path analysis was selected as the major analysis because it is a statistical technique that allows one to evaluate hypothesized and exploratory models.

The path analysis was chosen over the Structural Equation Modeling (SEM) technique because in the SEM technique data must either be observed or unobserved. In the SEM technique, the hypothesized model is measured to the computer-version model

that determines the goodness of fit. Principles and assumptions associated with multivariate analysis correspond to the SEM, where as those associated with multilinear analysis are correspond to the path analysis (Kazdin, 1992; Kerlinger, 1986). In other words, a path analysis evaluates the relationships among the variables in the model, whereas a SEM evaluates the variance and covariance of the variables in the model.

Another series of path analyses assessed the theoretical model over time, and explored the direct and indirect relationships among childhood abuse, biopsychosocial factors, and program retention. Discriminant analyses were conducted to predict drug use and program retention among male and female subjects with and without co-occurring disorders. An analysis of variance were conducted to differentiate between clients in residential, partial, and outpatient treatment. Gender differences and other demographic differences were evaluated by a series of analyses of variance.

CHAPTER 4
RESULTS

The purpose of the study was to evaluate an hypothesized theoretical model of biopsychosocial factors that mediate the relationship between childhood abuse and substance use. This study assessed the adequacy of the model in predicting substance use among drug dependent clients in three treatment programs: Drug dependent clients with and without co-occurring disorders in residential, partial, and outpatient. The use of the three treatment groups allowed for an assessment of the generalizability of results and of the model, which in turn provided an opportunity to differentiate between substance use patterns of drug dependent individuals with and without co-occurring psychological disorders in different treatment programs.

A total of 160 drug dependent clients receiving residential, partial and outpatient treatment participated in the study. The study specifically assessed the relationship among child abuse, biopsychosocial factors, and substance use. The use of subscales of the Child Trauma Questionnaire provided an opportunity to differentiate between the five types of childhood abuse: emotional neglect, emotional abuse, sexual abuse, physical abuse, and physical neglect among drug dependent participants with and without co-occurring disorders.

The majority of participants were African American (90%), single (69%), female (70%), and the average age was 36 years. Over half of all participants (60%) reported having a co-occurring psychological disorder, and 58% reported complying with medication regiments for their condition. Demographic data is shown in Table 4-1.

Table 4-1. Percentages of Demographic Information for Substance Dependent Subjects in Different Treatment Programs

Variables	Residential n = 83 %	Partial n = 45 %	Outpatient n = 26 %
Race			
Black	90.0	69.6	61.3
White	3.6	17.7	9.7
Hispanic	4.8	8.7	22.6
Pacific Islander	1.2	0.0	0.0
Religion			
Baptist	59.0	34.8	19.4
Catholic	15.7	23.9	32.3
Jewish	1.2	0.0	0.0
Islamic	10.0	15.2	19.4
Protestant	0.0	23.9	19.4
Children			
Have Children	97.6	84.8	80.6
Children living with them	97.6	4.4	12.9
Children not living with them	2.4	95.7	87.1
Diagnosis			
Mental health disorder present	56.0	91.3	19.4
Medication adherence for disorder	59.0	84.8	16.1
Type of diagnosis			
Major Depression	27.7	50.0	3.2
Bipolar Depression	18.1	17.4	3.2
Thought	10.8	8.7	3.2
Anxiety	0.0	4.3	0.0
Obsessive-Compulsive	0.0	2.2	0.0
Other	2.1	6.5	0.0
Daily use of medication			
Prescription medication 14 days	50.0	87.0	38.7
Prescription medication 30 days	37.3	82.6	38.7
Over-the-counter medication 14 days	10.8	15.2	6.5
Over-the-counter medication 30 days	8.4	15.2	6.5

Of these participants, 65% reported crack-cocaine as their primary drug of choice and 38% reported alcohol as their secondary drug of choice as shown in Table 4-2. Participants reported minimal drug use: 30% of the participants reported using drugs at least weekly prior to treatment, and 60% reported having at least two prior treatments. The rate of relapse was high and consistent with previous investigations (Wallace, 1991). Of these participants, 90.6% reported having a history of at least two relapses prior to treatment.

Table 4-2. Percentages of Drug Use for Substance Dependent Subjects in Different Treatments

Variables	Residential n = 75 %	Partial n = 43 %	Outpatient n = 25 %
Primary Drug Use			
Alcohol	3.6	39.1	22.6
Cocaine	14.5	10.9	22.6
Crack	73.5	28.3	19.4
Heroin	4.8	13.0	12.9
Marijuana	2.4	4.3	9.7
Other	1.2	2.2	3.2
Secondary Drug Use			
Alcohol	48.2	32.6	22.6
Cocaine	6.0	21.7	22.6
Crack	3.6	15.2	3.2
Heroin	2.4	8.4	6.5
Marijuana	28.9	4.3	19.4
Other	3.6	6.5	3.2
Longest Period of Abstinence			
Less than 1 month	8.4	0.0	0.0
1 month	6.0	2.2	0.0
2-4 months	10.8	8.7	3.2
4-6 months	15.7	4.3	3.2
7-8 months	2.4	6.5	6.5
8-10 months	3.6	4.3	3.2
10-12 months	15.7	6.5	0.0

Table 4-2. (continued)

Variables	Residential %	Partial %	Outpatient %
12-18 months	8.4	4.3	9.7
More than 18 months	19.3	69.6	54.8
Previous Treatments			
1	39.8	28.3	61.3
2-4	34.9	45.7	22.6
5-10	15.7	17.4	6.5
11-15	4.8	2.2	3.2
More than 15	1.2	4.3	0.0
More than 20	2.4	0.0	0.0
Number of relapses			
1-2	48.2	43.5	19.4
3-5	24.1	19.6	16.1
5-10	12.0	13.0	3.2
More than 15	2.4	8.7	0.0
More than 20	3.6	0.0	0.0
Relapsed while attending AA			
Yes	47.0	56.5	35.5
No	49.0	32.6	45.2
No response	4.0	10.9	19.3
Alcohol Related Problems			
Laid off from work	14.5	50.0	6.5
School problems	16.9	17.4	0.0
Arrests for driving while under the influence	9.6	26.1	3.2
Arrests for public intoxication	12.0	39.1	9.7
Health problems	18.1	30.4	19.4
Unable to care for home	22.9	43.5	0.0
Attended AA due to problems	26.5	52.2	6.5
Serious problems	15.7	54.3	9.7

Participants reported moderate alcohol use: 19% reported drinking at least once in a two-week period, and of these 13% consumed more than three drinks per time. The percentages of alcohol use are shown in Table 4-3.

Table 4-3. Percentages of Alcohol Use among Substance Dependent Subjects in Different Treatment Programs

Alcohol Variables	Residential n = 79 %	Partial n = 44 %	Outpatient n = 25 %
Alcohol Frequency 14 Days			
Everyday	4.8	8.7	0.0
Nearly everyday	4.8	2.2	0.0
8-10 days	3.6	0.0	0.0
5-7 days	1.2	0.0	0.0
3-4 days	7.2	0.0	3.2
1-2 day(s)	4.8	0.0	0.0
Abstainers	73.6	89.1	96.8
Alcohol Severity 14 Days			
1-2 drinks	13.3	0.0	0.0
3-5 drinks	9.6	2.2	3.2
6-9 drinks	3.6	2.2	0.0
10-15 drinks	2.4	2.2	0.0
More than 15 drinks	1.5	4.3	0.0
Abstainers	69.6	89.1	96.8
Alcohol Frequency 30 Days			
Everyday	8.4	8.7	0.0
Nearly everyday	7.2	2.2	00
3-4 times per week	7.2	4.3	3.2
1-2 times per week	13.3	0.0	0.0
2-3 times per month	8.4	0.0	0.0
Once per month	4.8	4.3	3.2
Abstainers	50.7	80.5	93.6

Table 4-3. (continued)

Alcohol Variables	Residential %	Partial %	Outpatient %
Alcohol Severity 30 Days			
1 drink	19.3	0.0	3.2
2 drinks	4.8	0.0	0.0
3 drinks	1.2	2.2	00
4 drinks	7.2	0.0	3.2
5 drinks	0.0	4.3	0.0
6 drinks	0.0	0.0	3.2
7 drinks	9.6	2.2	0.0
8-11 drinks	8.4	2.2	3.1
12-17 drinks	0.0	2.2	0.0
More than 18 drinks	1.2	2.2	0.0
Abstainers	48.3	84.7	90.5
Alcohol Frequency – 12 Months			
Everyday	21.7	41.3	12.9
3-4 times per week	26.5	13.0	3.2
1-2 times per week	8.4	4.3	3.2
1-3 times per month	7.2	0.0	0.0
7-11 times per year	6.0	0.0	0.0
3-6 times per year	2.4	4.3	0.0
1-2 time(s) per year	3.6	2.2	3.2
Abstainers	24.2	34.9	77.5
Frequency of drinking 8 or more drinks per time over the past 12 months			
Everyday	15.7	21.7	9.7
3-4 days per week	18.1	19.6	3.2
1-2 time(s) per week	19.3	2.2	0.0
1-3 times per month	10.8	6.5	0.0
7-11 times per year	2.4	2.2	0.0
3-6 times per year	1.2	2.2	0.0
1-2 time(s) per year	4.8	6.5	3.2
Abstainers	27.7	39.1	83.9

Participants also reported heavy nicotine use: 68% of participants reported smoking cigarettes daily and 25% smoked half a pack of cigarettes daily. The percentages of nicotine use are shown in Table 4-4.

Table 4-4. Percentages of Nicotine Use among Substance Dependent Subjects in Different Treatment Programs

Nicotine Variables	Residential n = 78 %	Partial n = 47 %	Outpatient n = 26 %
Smoking Frequency 14 Days			
Everyday	68.7	67.4	45.2
Nearly Everyday	7.2	13.0	12.9
8-10 days	7.2	2.2	0.0
5-7 days	1.2	2.2	0.0
2-3 days	2.4	0.0	0.0
1 day	1.2	2.2	0.0
Abstainers	21.1	13.0	41.9
Smoking Severity 14 Days			
1-5 cigarettes	31.3	19.6	12.9
6-10 cigarettes	33.7	19.6	22.6
11-15 cigarettes	2.4	10.9	9.7
16-20 cigarettes	8.4	10.9	9.7
20-25 cigarettes	3.6	8.7	9.7
More than 25 cigarettes	4.8	6.5	3.2
More than 2 packs	6.0	13.0	0.0
Abstainers	9.8	10.8	32.2
Smoking Frequency 30 Days			
Everyday	73.5	71.7	51.6
Nearly everyday	9.6	8.7	6.5
3-4 times per week	3.6	2.2	0.0
2-3 times per week	1.2	2.2	0.0
2-3 times per month	1.2	2.2	0.0
Abstainers	10.9	13.0	41.8
Smoking Severity 30 Days			
1-5 cigarettes	25.3	10.9	16.1
6-10 cigarettes	28.9	23.9	16.1
11-15 cigarettes	8.4	13.0	12.9
16-20 cigarettes	10.8	19.6	9.7
20-25 cigarettes	6.0	6.5	0.0
25 cigarettes	1.2	6.5	0.0
More than 2 packs	10.8	10.9	6.5
Abstainers	8.9	8.7	38.7

Almost all of them (80%) had a history of childhood abuse. Of these participants, 93% reported a history of emotional neglect, 92% reported a history of emotional abuse, 91% reported experiencing a history of sexual abuse, 94% reported a history of physical neglect, and 95% reported a history of physical abuse. Data on child abuse and family characteristics is shown in Table 4-4.

Table 4-5. Percentages of Family History and Child Abuse for Substance Dependent Subjects in Different Treatments

Variables	Residential n = 76 %	Partial n = 45 %	Outpatient n = 29 %
Marital Status of Parents			
Married	10.8	34.8	16.1
Divorced	13.3	28.3	19.4
Separated	14.5	10.9	19.4
Widowed	13.3	13.0	22.6
Never married	37.3	10.9	6.5
Don't know	3.6	2.2	3.2
Family That Raised You			
Mother and father	27.7	47.8	45.2
Mother	30.1	23.9	12.9
Father	2.4	2.2	12.9
Mother and stepfather	15.7	8.7	3.2
Grandparents	9.6	10.9	9.7
Adoptive	2.4	2.2	0.0
Guardians	3.6	2.2	0.0
Fostercare	1.2	0.0	0.0
Familial History			
Familial alcoholism	88.0	95.7	71.0
Familial mental illness	85.5	82.6	83.9
Familial nicotine use	95.2	100.0	83.9
Parental History			
Parental alcoholism	88.0	95.7	71.0
Parental mental illness	85.5	82.6	83.9
Parental nicotine use	95.2	100.0	80.6

Table 4-5. (continued)

Variables	Residential %	Partial %	Outpatient %
Familial Alcohol Problems			
Self	44.6	63.0	16.1
Father	26.5	39.1	6.5
Brother	19.3	23.9	6.5
Uncle	15.7	15.2	12.9
Grandfather	13.3	13.0	3.2
Mother	25.3	23.9	3.2
Sister	21.7	23.9	3.2
Aunt	13.3	6.5	6.5
Grandmother	9.6	10.9	3.2
Types of Abuse			
Childhood Abuse	75.9	82.6	90.3
Physical Abuse	93.0	97.8	93.5
Physical Neglect	94.0	95.7	96.8
Emotional Abuse	92.0	97.8	96.8
Emotional Neglect	88.0	95.7	96.8
Sexual Abuse	90.0	93.8	93.5
Client Acknowledgement of Abuse Incidence			
Physical Abuse			
Yes	60.0	41.3	71.0
No	40.0	58.7	29.0
Emotional Abuse			
Yes	33.0	26.1	58.1
No	67.0	73.9	41.9
Sexual Abuse			
Yes	55.0	60.9	71.0
No	45.0	39.1	29.0

Correlation analysis were examined before conducting the hierarchical regression analyses to detect first-order relationships among child abuse, psychosocial factors, and substance use variables as shown in Table 4-6. Some of the variables were

Table 4-6. Intercorrelations of Child Abuse, Psychosocial Factors, and Substance Use

Measures	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Affect Beliefs	1.0																
2. Avoid Beliefs	.82***	1.0															
3. BRisks	.43***	4.3***	1.0														
4. CAbuse	.24**	1.9*	.15	1.0													
5. ACoping	.26**	2.7**	.39**	.36**	1.0												
6. Primary Drug	-.16*	-.19*	.14	.07	.05	1.0											
7. Second Drug	-.40**	-.30**	-.31**	-.00	-.21*	.00	1.0										
8. EAbuse	.36**	.34**	.28**	.84**	.35**	-.02	-.00	1.0									
9. ENeglect	-.22**	-.28**	-.13	-.26**	-.18*	.12	.00	-.50**	1.0								
10. Esteem	-.14	-.17*	-.37**	-.16	-.32**	-.02	-.04	-.22**	.27**	1.0							
11. FSupport	-.16	-.11	-.23*	-.27**	-.21*	.02	.08	-.39**	.44**	.19*	1.0						
12. HRisks	.36**	.23*	.38**	.20*	.12	-.13	-.12	.28**	-.22	-.08	-.16	1.0					
13. Mood States	.24**	.24**	.12	.18	.19*	-.11	-.05	.15	-.08	-.21*	.01	.16	1.0				
14. PAbuse	.31**	.29**	.17	.85**	.32**	-.08	-.05	.78**	-.43**	-.21*	-.27**	.21*	.26**	1.0			
15. PNeglect	.13	.13	.00	.71**	.24**	.14	-.01	.54**	-.45**	-.02	-.33**	.15	.15	.56**	1.0		
16. SAbuse	.14	.13	.03	.69**	.25**	.07	-.06	.57**	-.40**	-.13	-.25**	.21*	.06	.43**	.33**	1.0	
17. SSupport	-.18*	-.07	-.25*	-.17	-.16	-.07	.10	-.23**	.22**	.27**	.47**	-.15	-.00	-.17*	-.15	-.24**	1.0

Note: *p<.05, **p<.01, ***p<.001.

predicted and evaluated accordingly. As predicted, child abuse was negatively related to family support ($r = .27$, $p < .01$). The correlations ranged from high to low and the strongest relationship was between child abuse and emotional abuse ($r = .84$, $p < .01$). The means and standard deviations are presented in Table 4-7.

Table 4-7. Means and Standard Deviations of Child abuse, Psychosocial Factors and Substance use

Measures	M	SD
Affective Beliefs	15.33	8.06
Avoidance Beliefs	22.97	11.14
Behavior Risk	25.09	13.22
Child Abuse	12.31	3.31
Avoidance Coping	13.67	6.16
Primary Drug	2.72	1.12
Secondary Drug	2.63	1.78
Emotional Abuse	12.26	6.34
Emotional Neglect	36.64	11.23
Esteem	30.01	4.70
Family Support	16.10	2.98
Health Risk	2.27	2.80
Mood States	21.05	2.16
Physical Abuse	11.39	6.47
Physical Neglect	15.41	7.99
Sexual Abuse	13.12	7.81
Social Support	15.72	2.80

A path analysis consisting of a series of hierarchical relationships tested the hypothesized model among child abuse, psychosocial factors, and substance use among drug dependent participants in residential, partial, and outpatient treatment. Substance use refers to the frequency and severity of alcohol and nicotine use over the past 14 and 30 days. Contrary to the prediction, childhood abuse did not directly

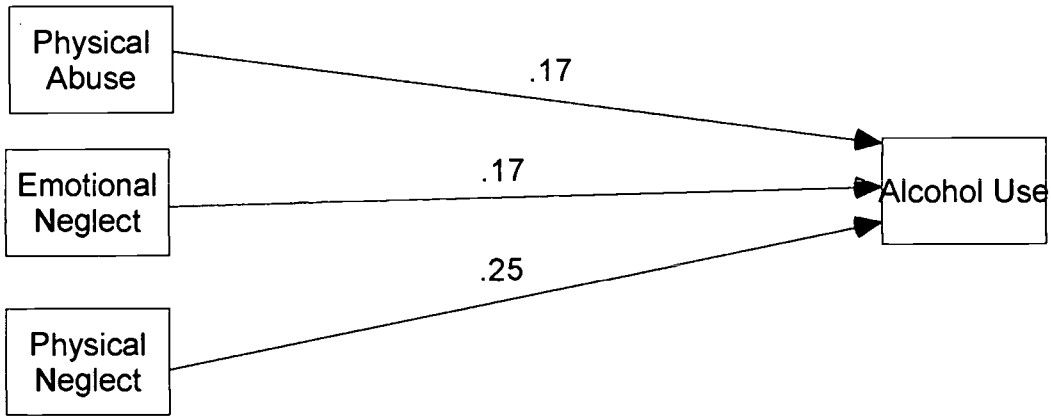
predict substance use. Childhood abuse was not significantly associated with social support and social support was not significantly linked with mood states. However, a number of significant relationships were found among the variables that partially supported some of the hypothesized predictions.

Given that the hypothesized model was partially supported, exploratory path analyses were conducted among the different types of child abuse and the various types of substance use. The variable substance use refers to alcohol and nicotine use. Alcohol refers to the frequency and severity of alcohol consumption during the past 14 days, 30 days, and 12 months, whereas nicotine use refers to the frequency and severity of cigarette smoking during the past 14 and 30 days. Figure 4-1 presents the results of the path model, showing only significant paths. Arrows indicate the standardized regression coefficients of the series of hierarchical regression analysis equations, and thus demonstrate the direct and indirect relationships among child abuse, psychosocial factors, and substance use.

Substance Use Model

The model (Figure 4-1) indicates the direct effects between the different types of childhood abuse and substance use, while the indirect effects between childhood abuse and substance use are shown in the model (Figure 4-2). As depicted in Figure 4-1, physical abuse, physical neglect, and emotional neglect directly predict alcohol use. Physical abuse ($\beta = .17$, $t\ [139] = 2.12$, $p < .035$) is directly and negatively linked to alcohol use, while physical neglect ($\beta = .25$, $t\ [141] = 3.13$, $p < .002$) and emotional neglect ($\beta = .17$, $t\ [138] = 2.03$, $p < .044$) are also directly but positively linked to alcohol

Direct Effects From Child Abuse to Alcohol Use



Direct Effects of the Different Types of Child Abuse

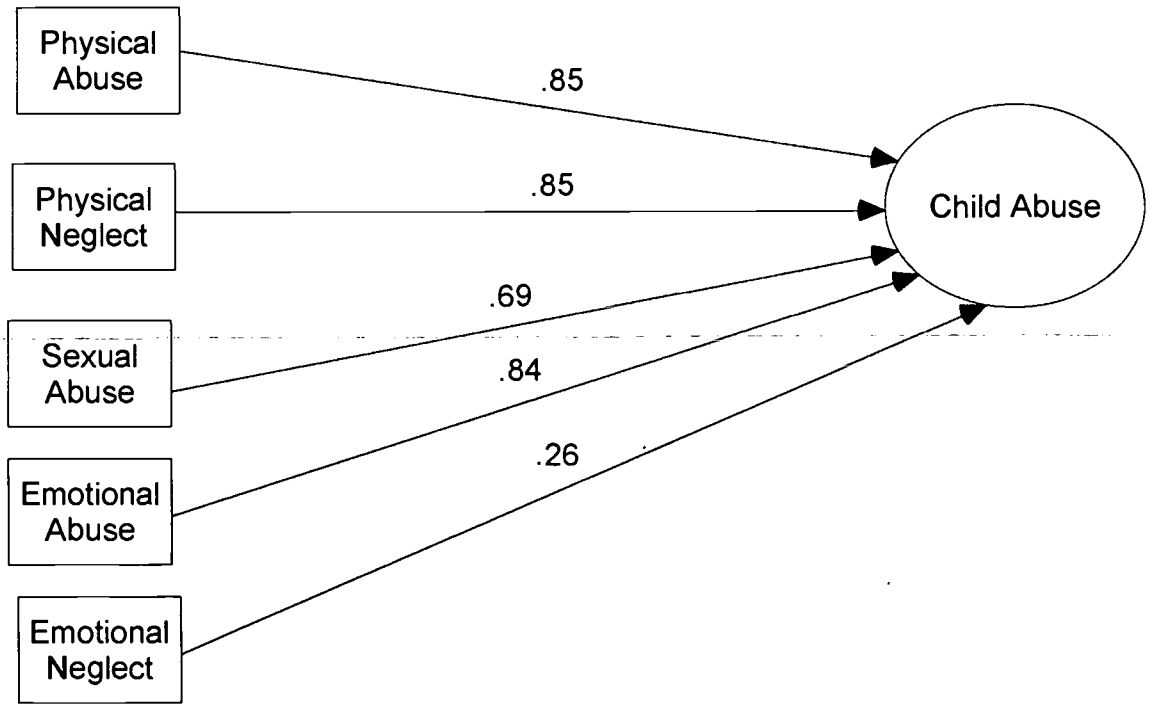


Figure 4-1: Child Abuse

use. Individuals with either a history of physical abuse, physical neglect, or emotional neglect are likely to consume alcohol more often and drink more heavily than those without a history of abuse. Emotional abuse (β = .84, t [130] = 17.9, p <.000), emotional neglect (β = .26, t [130] = 3.09, p <.002), sexual abuse (β = .69, t [130] = 10.8, p <.000), physical abuse (β = .85, t [130] = 18.8, p <.000), and physical neglect (β = 71, t [130] = 11.6, p <.000) are also directly and positively associated with child abuse. Individuals who experienced any incident of emotional, physical, or sexual abuse are also likely to have extensive histories of other types of childhood abuse, which in turn seems to place them at further risk for developing an alcohol disorder.

Figure 4-2 presents the indirect relationships of the path model, showing only significant paths. The model (Figure 4-2) demonstrates the indirect effects between childhood abuse and substance use. As depicted in Figure 4-2, childhood abuse is indirectly related to substance use of alcohol and nicotine through mediating factors of family support, avoidance coping, social support, esteem, mood states, and avoidance beliefs. Child abuse is directly and negatively related to family support (β = .27, t [129] = 3.26, p <.001), and positively related to avoidance coping (β = .19, t [121] = 2.16, p <.03). Individuals with a history of childhood abuse are more likely to have negative family support and utilize avoidance coping methods.

Family support is directly and positively related to social support (β = .47. t [150] = 6.60, p <.000) and self-esteem (β = .27, t [139] = 3.34, p <.001), and negatively linked

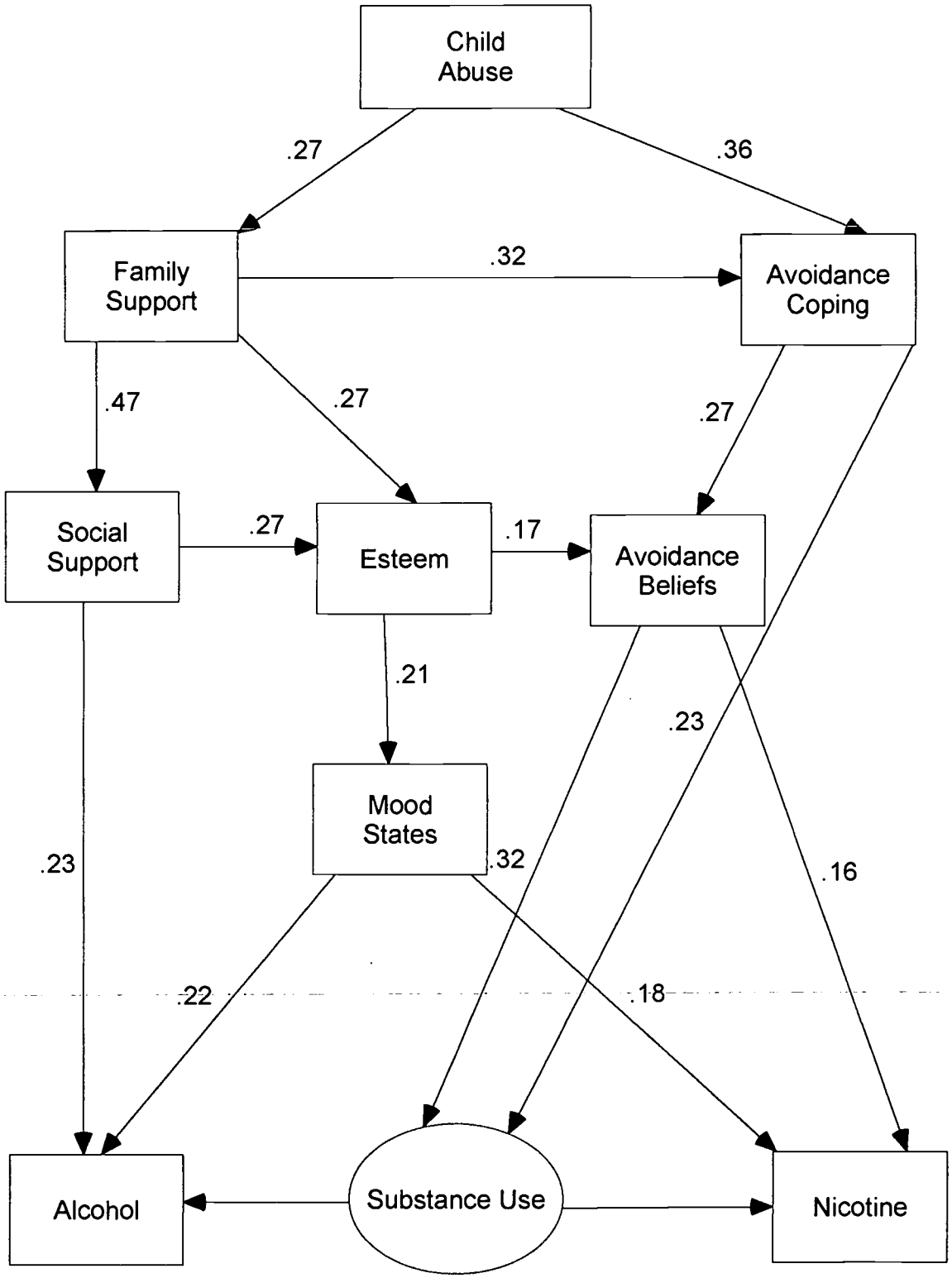


Figure 4-2: Model of Substance Use

with avoidance coping (β = .32, t [130] = 3.89, p <.000). Individuals with a history of childhood abuse who also have negative family support are more likely to have limited social support and low self-esteem levels.

Social support was directly and indirectly linked to substance use. Social support directly and negatively predicted alcohol frequency (β = .23, t [141] = 2.85, p <.005). Social support was also indirectly related to substance use through low esteem and negative mood states. Level of support seems to influence one's decision to drink alcohol and smoke cigarettes and to continually engage in these substance using behaviors, in addition to influencing one's cognitive and affective appraisal of oneself. Individuals with limited social support are more likely to evaluate oneself negatively and in turn have lower esteem levels and experience negative mood states. Social support is directly and positively associated with self-esteem (β = .27, t [139] = 3.34, p <.001), and self-esteem was negatively related to mood states (β = .21. t [127] = 2.46, p <.015). Individuals with limited support and low self-esteem are more likely to experience negative moods such as depression and anxiety. Negative mood states directly and indirectly precipitate alcohol and nicotine use. Mood states are directly and positively linked with alcohol severity (β = .18, t [130] = 2.17, p<.013), alcohol frequency (β = .22, t [131] = 2.63, p <.009), and nicotine severity (β = .18, t [129] = 2.15, p <.033). Individuals who experience depression and anxiety are more likely to drink alcohol and smoke cigarettes to self-medicate one's negative moods that were promoted by low esteem and poor support.

Low esteem induced by limited social support not only contributes to negative affective states but also avoidance beliefs. Self-esteem and avoidance coping were also

indirectly related to substance use through avoidance beliefs. Self-esteem is directly and negatively related to avoidance beliefs (β = .17, t [135] = 2.03, p <.044), whereas avoidance coping is directly and positively linked with avoidance beliefs (β = .27, t [130] = 3.18, p<.002). Individuals with low esteem who practice avoidance coping styles are also likely to exhibit avoidance beliefs. These individuals tend to have positive expectancies about alcohol consumption in that they believe alcohol may help calm them down when feeling anxious.

Avoidance beliefs are more likely to occur after engaging in avoidance coping behaviors. Avoidance beliefs were negatively associated with alcohol severity (β = .28, t [142] = 3.49, p <.001), alcohol frequency (β = .32, t [135] = 3.98, p <.000), and nicotine frequency (β = .16, t [136] = 1.94, p <.05). When individuals engage in avoidance coping methods following avoidance beliefs, the association between avoidance cognitions and avoidance behaviors is strengthened. These individuals are more likely to continue to drink and smoke as a way to cope with negative cognitions and affective states. Avoidance coping was directly and negatively linked with alcohol frequency (β = .23, t [130] = 2.70, p <.008) and severity (β = .22, t [127] = 2.52, p <.013). Individuals who believe that alcohol and nicotine reduces one's negative moods after engaging in avoidance coping methods are likely to continue to drink and smoke.

Additional exploratory analyses based upon these relationships support that childhood abuse is also indirectly related to crack-cocaine use through mediating psychosocial factors including health and behavioral risks. Child abuse seems to be indirectly related to crack-cocaine use, although the pattern of relationships is less

complex than for alcohol and nicotine use. Findings from these results are demonstrated in Appendix K. Health and behavioral risks also mediate the relationship between childhood abuse and alcohol use, and results on risks are presented in Appendix K. Overall, these findings further support the indirect relationship between childhood abuse and substance use.

Psychosocial Factors and Primary Drug Use

A discriminant analysis tested the hypothesized relationship between psychosocial factors and primary drug use among drug dependent participants with and without co-occurring psychological disorders in residential, partial, and outpatient treatment. The results did not completely support the hypothesis that particular psychosocial factors predict alcohol, crack-cocaine, cocaine, heroin, and marijuana use. Out of the five drug categories, the crack and heroin categories were dropped due to the small number of cases in each category. Therefore differences in beliefs and coping factors were evaluated among the alcohol, cocaine, and marijuana categories. Contrary to the prediction, there were no differences in belief systems between alcoholics and cocaine addicts. However, a number of significant differences were found in belief systems and three types of drug use that partially supported some of the hypothesized predictions. The means and standard deviations of psychosocial factors are presented in Table 4-8.

The discriminant function analysis assessed the predictability of drug use in five categories from a combination of nine psychosocial variables. The nine psychosocial variables are shown in Table 4-9.

Table 4-8. Means and Standard Deviations of Predictor Variables

	Alcohol		Crack		Cocaine		Heroin		Marijuana	
Variables	M	SD	M	SD	M	SD	M	SD	M	SD
Affective Beliefs	18.0	8.1	18.5	5.1	16.5	8.4	15.3	8.1	10.2	4.9
Avoidance Beliefs	25.0	11.3	29.1	9.2	24.6	10.9	24.6	10.5	15.0	5.1
Behavior Risks	31.5	13.1	21.8	13.1	23.6	13.5	17.3	19.8	20.4	12.7
Cope	17.2	4.9	12.0	7.1	19.0	3.8	14.0	9.1	10.2	6.9
Esteem	29.2	4.5	30.0	5.6	29.8	4.7	36.3	1.1	28.6	4.2
Family Support	15.5	2.9	16.6	3.3	17.3	2.8	16.6	4.0	16.8	3.0
Social Support	15.5	2.9	15.1	3.1	17.6	2.9	17.6	1.5	16.0	3.6
Mood States	21.5	1.9	20.7	2.9	21.3	2.1	20.6	2.8	21.3	2.1

Note. Means differ significantly at $p < .01$.

Table 4-9. Discriminant Function of Drug Use

Variables	Function 1	Function 2	Function 3	Function 4
Avoidance Beliefs	.56*	-.29	-.26	-.38
Affective Beliefs	.51*	-.05	-.38	-.43
Avoidance Coping	.48*	.46	.20	-.47
Mood States	-.04	.33*	-.00	-.07
Social Support	.01	.16	.71*	.31
Behavior Risks	.22	.31	-.55*	-.49
Family Support	-.11	-.24	.53*	.01
Esteem	.23	-.08	.21	.90*

Note. * Asterisks indicate significance.

One discriminant function was statistically significant and accounted for 41% of the between-group variability as shown in Table 4-10. The discriminant function separated alcoholics from cocaine and marijuana addicts based upon their affective and

avoidance beliefs and avoidance coping methods. Marijuana addicts had lower affective and avoidance belief scores than cocaine addicts and alcoholics. Marijuana addicts also had lower avoidance coping scores than alcoholics and cocaine addicts. Canonical discriminant functions evaluated group centroids as shown in Table 4-10.

Table 4-10. Canonical Discriminant Functions

FCN	Eigen Value	% of Variance	CUM %	Can. Corr.	After FNC	Wilk's λ	χ2	DF	SIG
				:	0	.35	55.0	32	.00
1	.7284	57.74	57.749	.64:	1	.61	25.7	21	.21
2	.3118	24.71	82.45	.48:	2	.81	11.2	12	.51
3	.1288	92.66	92.66	.33:	3	.91	4.7	6	.44
4	.0926	7.34	100.00	.29:					

Table 4-11. Group Centroids

Group	Func 1	Func 2	Func 3	Func 4
1	.40	.41	-.23	-.04
2	.34	-1.06	-.13	-.14
3	.57	.21	-.92	-.33
4	1.09	-.25	.36	1.17
5	-1.40	.01	.06	.07

The discriminant function correctly classified 50% of the drug dependent participants as alcoholics, 54% as cocaine addicts, and 80% as marijuana addicts. The incorrect classification of drug dependent participants was evenly distributed across all of the categories as shown in Table 4-12.

Table 4-12. Classification Results of the Discriminant Analysis on Drug Use

Actual Group	# of Cases	Predicted Group Membership				
		1	2	3	4	5
Group 1	26	13	3	3	4	3
Alcohol		50%	11%	11%	11%	11%
Group 2	11	2	6	0	2	1
Cocaine		18%	54%	0%	18%	9%
Group 3	6	0	1	4	1	0
Crack		0%	16%	66%	16%	0%
Group 4	3	0	1	1	1	0
Heroin		0%	33%	33%	33%	0%
Group 5	15	1	0	1	1	12
Marijuana		10%	0%	10%	10%	80%

An analysis of variance was performed to assess differences in psychosocial factors according to the types of addiction. Significant results from the ANOVA and Tukey HSD are demonstrated in Appendix K. The focus of this study was to evaluate the relationship among childhood abuse, psychosocial factors, and substance use. Figure 4-1 demonstrates the direct relationships between the specific types of child abuse and substance use, while Figure 4-2 expands these relationships to demonstrate the indirect relationship between childhood abuse and substance use. Although the hypotheses on psychosocial factors and childhood abuse were not completely supported, the discriminant analysis demonstrated that affective and avoidance beliefs and avoidance

coping predict membership into the category of drug use. Additional exploratory analyses are presented in Appendix K, which further supports the hypothesis that drug use is an indirect and direct response to childhood abuse.

Exploratory Analyses

Given that the hypothesized theoretical model was not entirely supported, exploratory analyses were conducted on drug dependent participants' responses to gain understanding of the relationship between parental alcoholism/mental illness and alcohol use. A backward regression analysis was performed on first and second-order relatives and alcohol use. One variable significantly predicted alcohol use, accounting for 5% of the variance (F [2, 122] = 3.33, p <.039). As predicted, the strongest predictor of alcohol use was maternal alcoholism (β = .20, t [123] = 2.21, p <.029). Along with maternal alcoholism, additional familial variables significantly predicted alcohol and other drug use as shown in Appendix L.

The results from familial analyses partially support the exploratory hypotheses that familial variables are related to substance use. Famial analyses support that family variables had a stronger association with child abuse than with alcohol use. An exploratory path analysis consisting of a series of hierarchical regression analyses tested the hypothesized model among family variables, child abuse, psychosocial factors, mental health, and medication usage among drug dependent participants in residential, partial, and outpatient treatment. This exploratory model provided an opportunity to gain insight into the relationship among familial alcoholism/mental illness, child abuse, psychosocial factors, mental health, and medication usage. The variable medication use

refers to the frequency and severity of prescription psychotropic medication during the past 14 days, 30 days, and 12 months. Figure 4-3 present the results of the path model, showing only significant paths. Arrows indicate the standardized regression analysis equations, and thus demonstrate the relationships between factors and medication usage.

Model of Child Abuse and Medication Usage

The model (Figure 4-3) indicates that individuals with a history of familial mental illness are more likely to have experienced childhood abuse (β= .23, t [9,106] = 2.44, p <.015), physical abuse (β = .27, t [9,127] = 2.75, p <.007), emotional abuse (β = .29, t [4,124] = 2.96, p <.004), and physical neglect (β = .28, t [9,126] = 2.98, p <.003). Individuals with a history of family mental illness are likely to have been abused either physically, emotionally, or neglected during childhood. As depicted in Figure 4-3, familial mental illness is indirectly related to medication use through childhood abuse, sexual abuse, mental health, and affective beliefs. Along with these relationships, familial mental illness is indirectly linked to medication through physical abuse, emotional abuse, family and social support, low esteem, and avoidance beliefs. Familial mental illness is also indirectly related to medication use through physical neglect, avoidance coping, and negative mood states.

Childhood abuse predicted by familial mental illness is directly and positively linked with sexual abuse (β = .69, t [1,130] = 10.8, p <.000). Sexual abuse is directly and negatively related to mental health (β = .19, t [1,146] = 2.3, p <.022), which in turn is

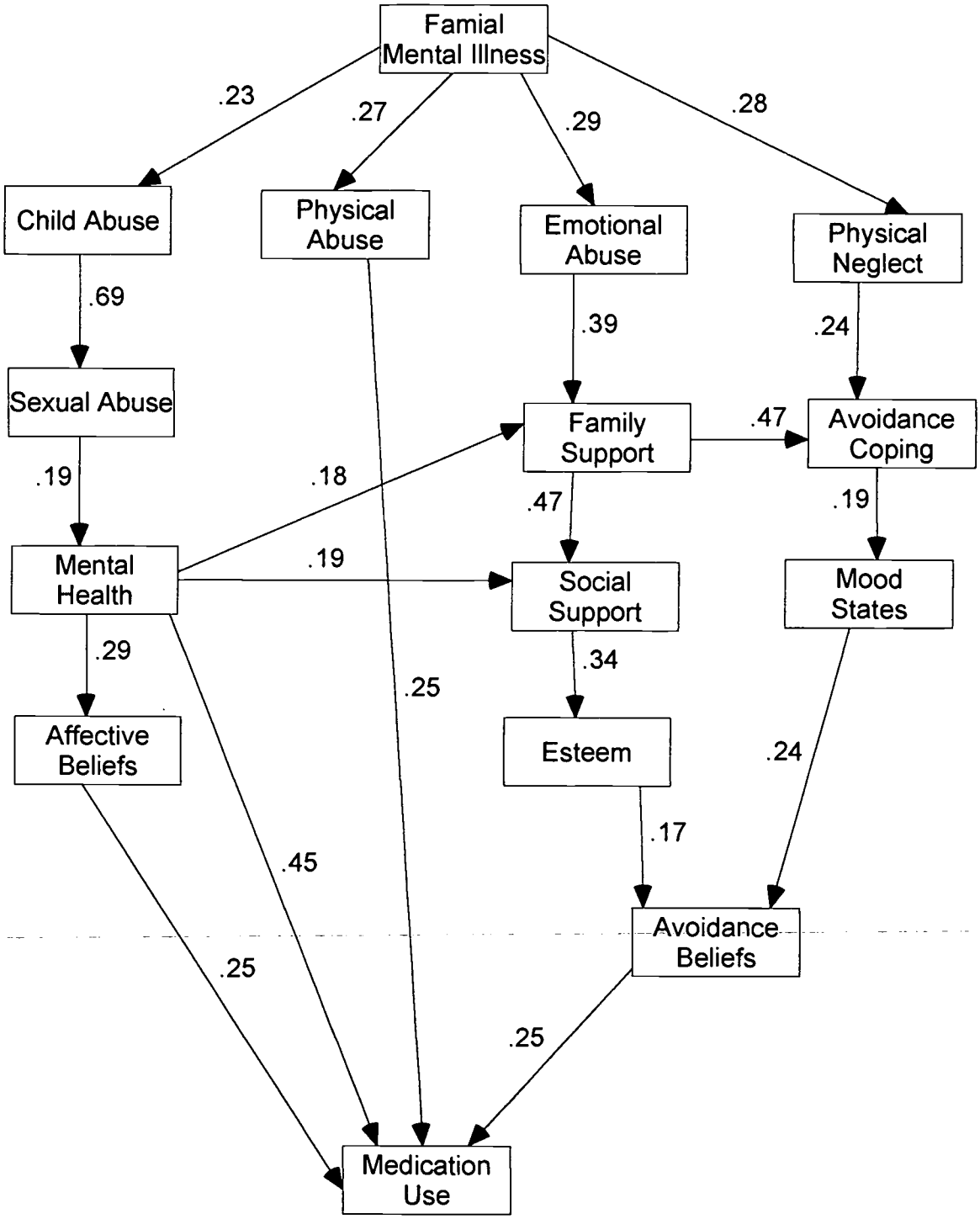


Figure 4-3: Model of Medication Use

directly and positively associated with medication use (β = .45, t [1,146] = 6.16, p <.000). Familial mental illness is also indirectly and negatively associated to medication through physical abuse (β = .30, t [1,120] = 2.14, p <.034). Individuals with a history of familial mental illness and childhood abuse are likely to have endured sexual or physical abuse. Individuals with a history of family mental illness who endured sexual abuse are likely to be diagnosed with a psychological disorder, while those who experienced emotional neglect are likely to be prescribed medication.

Mental health is also indirectly related to medication use through affective beliefs. Mental health is directly and positively related to affective beliefs (β = .29, t [1,147] = 3.69, p <.000) and affective beliefs are directly and negatively linked with medication use (β = .25, t [1,135] = 3.02, p <.003). Individuals diagnosed with a psychological disorder are more likely to engage in affective beliefs regarding alcohol use. These individuals tend to believe that alcohol makes them feel better when they feel down. Individuals with a co-occurring psychological and drug dependency disorder are likely to be prescribed medication. The level of adherence to medication may serve as an intervention for continuing to drink alcohol.

Familial mental illness is also indirectly linked to medication use through emotional abuse, family support, social support, esteem, and avoidance beliefs. Emotional abuse is directly and negatively related to family support (β = .39, t [1,146] = 5.97, p <.000). Mental health is directly and positively linked with level of family support (β = .18, t [156] = 2.27, p <.024) and social support (β = .19, t [151] = 2.39, p <.018).

Individuals with a history of family mental illness are likely to have been abused emotionally. Individuals with a history of family mental illness and childhood emotional abuse are less likely to have positive family and social support. Family support is directly and positively associated with social support ($\beta = .47$, t [1,150] = 6.60, $p < .000$), and negatively linked with avoidance coping ($\beta = .21$, t [1,137] = 2.52, $p < .013$). Individuals with a history of emotional abuse who have limited family and social support may be more likely to engage in avoidance coping. It appears as if having psychological disorder influences the degree of support, and in turn, support mediates one's coping ability.

Individuals with a psychological disorder who have limited support and engage in avoidance coping methods are also likely to have low self-esteem. Social support not only influences one's coping ability but also one's self-perception. Social support is directly and positively related to esteem ($\beta = .27$, t [1,139] = 3.34, $p < .001$), and in turn, esteem is negatively associated with avoidance beliefs ($\beta = .17$, t [135] = 2.03, $p < .044$). Family support, social support, and low esteem are indirectly linked to medication use through avoidance beliefs. Individuals with a psychological disorder who have limited support and low self-esteem are likely to believe that medication may reduce their negative thoughts and feelings.

Familial mental illness is indirectly related to medication use through physical neglect, avoidance coping, mood states, and avoidance beliefs. Physical neglect is directly and positively associated with avoidance coping ($\beta = .24$, t [1,130] = 2.93, $p < .004$), and in turn avoidance coping promoted by negative family support is directly and positively linked with mood states ($\beta = .19$, t [1,125] = 2.15, $p < .033$). Individuals with a

history of childhood neglect are more likely to engage in avoidance coping methods to redirect negative affective states. Mood states are directly and positively associated with avoidance beliefs ($\beta = .24$, t [1,125] = 2.74, $p < .007$), and indirectly and negatively linked with medication use ($\beta = .25$, t [133] = 2.95, $p < .004$) through avoidance beliefs. Individuals who have been deprived of basic needs exhibit negative cognitive and affective states, but are more likely to comply with medication regiments.

A discriminant analysis and a logistic regression analysis were performed to explore the relationship between mental illness and medication usage. The results from these analyses further support the link among childhood abuse, mental health, and medication regiments and shown in Appendix L.

While the primary purpose of the current study was to investigate the relationships among child abuse, biopsychosocial factors, and substance use, the secondary purpose of this study was to examine the relationships between these factors and program retention. Program retention was defined by the number of days in treatment. The focus of the secondary part of this study was to evaluate child abuse and psychosocial factors in terms of precipitating program completion and premature discharge from treatment as well as relapse and sobriety following program completion. The results on program retention are limited for two reasons. First, the directors of each unit maintained retention information on clients differently. Information on clients in outpatient and partial treatments could not be obtained. Second, some of the clients used factitious social security numbers so their length of treatment could not be monitored or obtained from the central data management unit. Therefore, retention information is

limited to only female subjects in residential treatment. The means and standard deviations on retention and relapse are presented in Table 4-13.

Table 4-13. Retention Information on Residential Treatment Sample

Variables	%	M	SD
Completed Treatment			
Yes	34	1.24	.76
No	43		
Still in progress	19		
Relapsed After Program Treatment			
Yes	44.6	1.72	.76
No	34.9		
No response	18.1		

Given that retention analysis are limited to women in the Hutchinson Place program, path analyses on child abuse, psychosocial factors, and alcohol and other drug use were performed prior to retention analysis. The variable alcohol and other drug use in this path model refer to alcohol, nicotine, and crack-cocaine, which simplified the recursive relationships within the model. Figure 4-4 presents the results of the path model, showing only significant paths. Arrows indicate the standardized regression coefficients of the series of hierarchical regression analysis equations, and thus demonstrate the direct and indirect relationships between factors and alcohol and other drug use.

Residential Treatment Model for
Drug Dependent Women with Dependent Children

The model (Figure 4-4) indicates that emotionally neglected and sexually abused individuals are more likely to use alcohol and other drugs. As depicted in Figure 4-4, emotional neglect (β = .32, t [70] = 2.79, p <.007) is directly and positively related to alcohol use, while sexual abuse is directly and negatively associated with alcohol (β = .27, t [71] = 2.35, p <.021). Emotional neglect and sexual abuse are also indirectly related to alcohol and other drug use through family and social support. Emotional neglect (β = .49, t [72] = 4.71, p <.000) and sexual abuse are directly and negatively linked to family support (β = .33, t [74] = 3.05, p <.003), and indirectly linked to alcohol and other drug use through negative social support. Women with a history of either emotional neglect or sexual abuse are likely to have negative family support and limited social support. Family support is directly and positively related to social support (β = .51, t [75] = 5.12, p <.000) and indirectly linked to alcohol and other drug use (β = .37, t [49] = 2.40, p <.021) through social support.

Sexual abuse is also indirectly linked to alcohol and other drug use through child abuse, avoidance coping, health and behavior risks, and affective beliefs. Sexual abuse (β = .31, t [64] = 8.87, p <.000) is directly and positively associated with child abuse. Women in residential treatment with a history of sexual abuse are likely to have experienced other forms of childhood abuse. Child abuse is directly and positively linked with avoidance coping (β = .31, t [54] = 2.36, p <.022) and health risks (β = .30, t [56] = 2.31, p <.025). Avoidance coping is directly and positively linked with crack-cocaine use

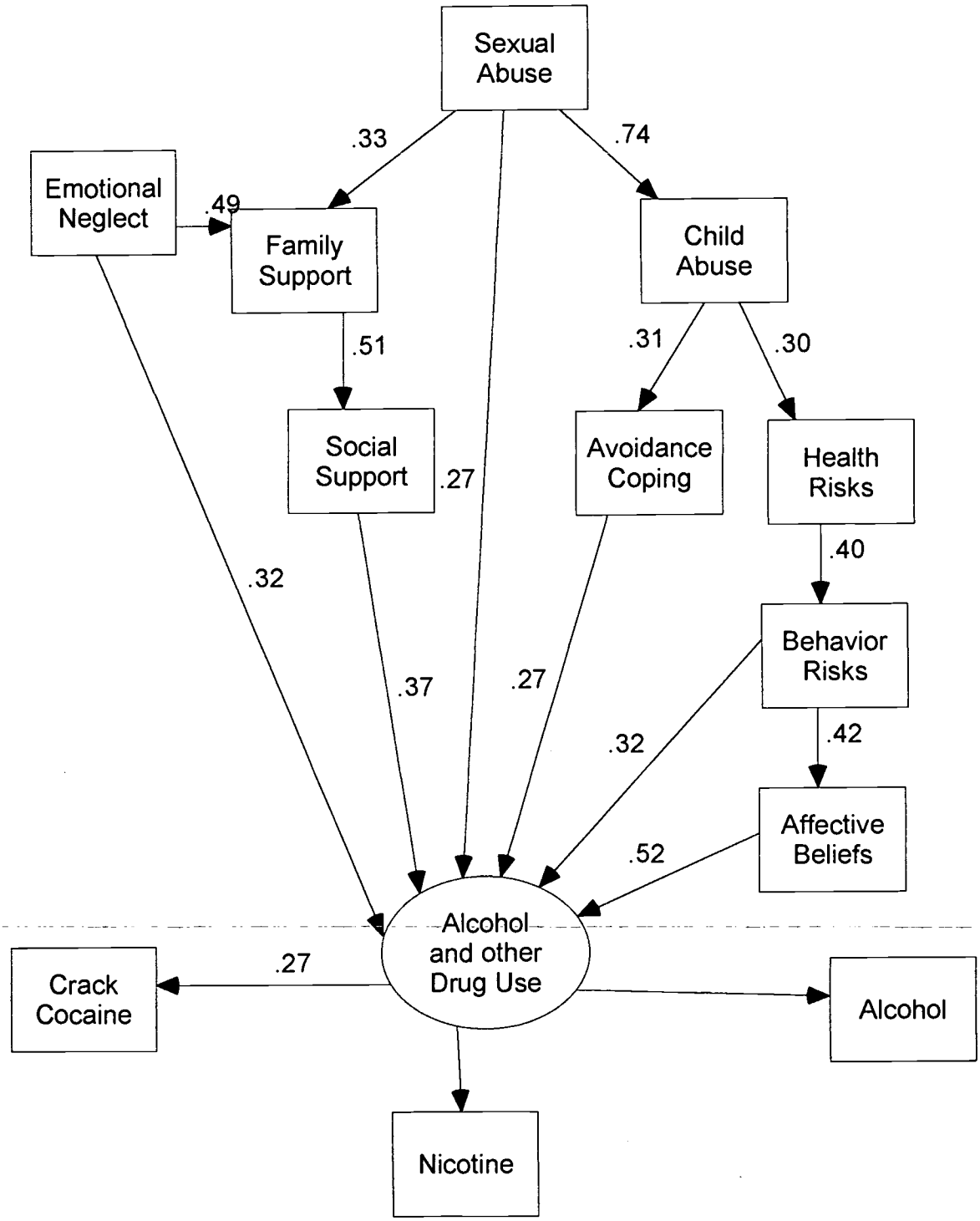


Figure 4-4: Gender-Specific Model of Women in Residential Treatment

(β = .27, t [68] = 2.29, p <.025). Women in residential treatment with a history of childhood abuse are likely to practice avoidance coping styles and abuse crack-cocaine.

Women in residential treatment continually use crack-cocaine to cope with behavior risks, aside from health risks. Health risks are directly and positively related to behavior risks (β = .40, t [52] = 3.13, p <.003), and in turn behavior risks are directly and negatively associated with nicotine use (β = .32, t [51] = 2.4, p <.019). Women in residential treatment who do not participate in support services such as NA, AA, sponsorship, or church place themselves at risk for drinking and using drugs. Behavior risks are also directly and positively linked with affective beliefs (β = .77, t [72] = 10.3, p <.000), and in turn, affective beliefs are directly related to alcohol use (β = .52, t [70] = 5.07, p <.000). Alcohol dependent women who lack recovery supports tend to exhibit pleasurable thoughts about drinking.

Program Retention

A path analysis consisting of a series of hierarchical relationships tested the hypothesized model among child abuse, psychosocial factors, and program retention among women with their children in residential treatment. The results did not support the hypothesized model. Contrary to prediction, psychosocial factors were not specifically related to program retention. However, among women in residential treatment a number of significant relationships were found among the variables that partially supported some of the hypothesized predictions. First, child abuse was positively related to program retention (β = .31, t [62] = 6.67, p <. 012). Second, days in treatment were associated with program retention (β = .76, t [78] = 10.25, p <. 000). Third, avoidance coping was

negatively linked with days in treatment (β = .23, t [67] = 1.95, p <. 05). Women with a history of abuse are more likely to stay in treatment and as their length of stay increases, they are less likely to use avoidance coping methods. While women with a history of abuse learn to practice constructive coping, those with a history of emotional neglect are more likely to engage in risk behaviors and thus relapse following program completion. Fourth, emotional neglect was negatively associated with relapse following program completion (β = .26, t [71] = 2.25, p <. 027). Finally, risk behaviors were linked with relapse following program completion (β = .29, t [53] = 2.17, p <. 34).

A discriminant analysis tested the hypothesized relationship between psychosocial factors and relapse status following program completion among drug dependent women in residential treatment. The three conditions were relapse, sober and inconclusive. The inconclusive category was eliminated due to a small number of participants in this condition. Then another discriminant analysis retested the relationship between psychosocial factors and the two conditions: Relapse and sober. The results partially supported the hypothesized relationships that specific psychosocial factors predict relapse among women who received residential treatment. The means and standard deviations of psychosocial variables are presented in Table 4-14.

Table 4-14. The Means and Standard Deviations of Psychosocial Factors

	Relapsed		Sober	
Predictor Variables	M	SD	M	SD
Avoidance Coping	15.9	4.8	11.3	5.1
Esteem	27.9	3.8	30.7	2.4
Family Support	13.1	1.6	17.5	2.7

Table 4-14. (continued)

	Relapsed		Sober	
Predictor Variables	M	SD	M	SD
Social Support	14.2	2.6	16.4	2.8
Behavior Risk	30.6	10.5	27.3	13.8
Health Risk	3.1	2.8	1.7	2.3
Mood States	20.9	2.1	20.6	1.3
Affective Beliefs	14.7	8.3	15.1	10.2
Avoidance Beliefs	22.4	10.9	20.7	14.0

Note. Means differ significantly at $p < .03$

The discriminant function analysis assessed the predictability of membership in the relapse and sober categories from a combination of family support and avoidance coping variables. The significant psychosocial variables are shown in Table 4-15.

Table 4-15. Discriminant Function of Psychosocial Variable and Program Retention

Variable	Function 1
Family Support	.79*
Social Support	.01
Esteem	.42
Avoidance Coping	-1.09*
Behavior Risks	.58
Health Risks	-.29
Avoidance Beliefs	-1.12
Mood States	-.17
Affective Beliefs	1.14

*Asterisks indicate significance.

One discriminant function was statistically significant and accounted for 72% of the between-group variability as shown in Table 4-16. The discriminant function separated women who relapsed from those who remained sober following residential treatment. Canonical discriminant functions evaluated group means. Group centroids are (-1.51) for the relapse condition and (1.66) for the sober condition.

Table 4-16. Canonical Discriminant Functions

FCN	Eigen Value	% of Variance	CUM %	Can. Corr.	After FNC	Wilk's λ	χ2	DF	SIG
					: 0	.22	30.1	18	.031
	1.85	76.2	76.2	.80	:				

The function correctly classified 90% of the women in the relapse condition and 100% of them in the sober condition. The incorrect classified participants were distributed evenly across all of the categories as shown in Table 4-17.

Table 4-17. Classification of Results of the Discriminant Analysis

Actual Group	% of Cases	Predicted Group Membership 1	2
Group 1 Relapse Condition	11	10 90.9%	1 9.1%
Group 2 Sober Condition	10	0 0%	10.0 100.0%

Another discriminant function evaluated days in treatment among women in residential treatment. Days in treatment were divided into 10 categories ranging from left within the first month to continuing in treatment beyond one year. Then categories were combined to represent three categories: Left within the first 45 days, left midway ranging from 46 to 180 days, and treatment completion from 181 to 385 days. Results from these analyses are shown in Appendix M. For women in residential treatment, there were significant treatment predictors of program completion. First, previous treatment (β = .33, t [175] = 3.05, p <.003) is negatively associated with days in treatment and positively related to program retention (β = .26, t [80] = 2.45, p <.016). Second, medication use is also positively linked with program retention (β = .27, t [78] = 2.45, p <.016). Women in residential treatment with a history of previous treatment who adhered to medication regiments while in treatment were likely to complete treatment, whereas those with a history of relapse without a psychological condition were likely to relapse following program completion. Third, previous relapse is positively associated with relapse following program completion (β = .24, t [69] = 2.01, p <.000). Finally, mental health is negatively related to relapse following program completion (β = .25, t [81] = 2.29, p <.024).

Differences in program retention according to the type of program: Residential, partial, and outpatient were unable to be assessed, due to the limited retention information on participants in partial and outpatient treatment. However, a number of significant differences in child abuse, psychosocial factors, and substance use were examined among participants in residential, partial, and outpatient treatment. These

findings are presented in Appendix M. There were also differences in childhood abuse, psychosocial factors, mental health and medication compliance, and substance use between male and female participants. Results from these analyses demonstrate significant gender differences and shown in Appendix M.

Overview of Findings

Path analyses support that the relationship between child abuse and substance use appears to be mediated by psychosocial factors, including family support, social support, avoidance coping, self-esteem, mood states, affective beliefs, and avoidance beliefs. These psychosocial factors, along health and behavior risks also mediate the relationship between child abuse and crack-cocaine use. Child abuse appears to indirectly predict substance use, whereas physical abuse, physical neglect, and emotional neglect directly promote alcohol use. In addition, the model of child abuse and substance use was expanded to include exploratory factors of familial mental illness, mental health and medication usage. This exploratory model may further expound the relationship between child abuse and psychosocial factors for drug dependent clients with co-occurring psychological conditions that require medication management. These relationships were simplified among women in residential treatment, but were not replicated among males in treatment, although the failure to replicate is most likely due to the lack of power. Treatment implications based upon these findings further support the need for gender-specific programs.

There were several similarities and differences found among the hypothesized models. First, child abuse and other types of abuse were consistently related to negative family support and avoidance coping. Second, family support was linked with social

support which in turn was related to level of esteem in most of the models. Third, belief systems consistently predicted substance use, and finally, avoidance coping precipitated crack-cocaine and alcohol use in the models with crack-cocaine and alcohol as the criterion variable.

There were also a few differences among the models. First, physical and emotional neglect was directly linked with alcohol use in Figure 4-1. Second, for the medication model (Figure 4-3), the exploratory variables familial mental illness and mental illness were implemented. The paths from sexual abuse to mental health, and mental health to affective beliefs and medication use were not replicated in any other model. Finally, sexual abuse was directly linked with substance use among women in residential treatment (Figure 4-4). The direct and indirect paths from sexual abuse to substance use were not replicated in any other model.

There were several additional exploratory findings including: Type of drug use, psychosocial factors, child abuse, mental health, medication, familial mental illness, program retention, treatment and gender differences. These secondary analyses and their corresponding results are summarized in Table 4-18 and shown in the Appendices (Please review Appendix K, Appendix L, and Appendix M).

Table 4-18. Summarization of Significant Findings

Questions	Findings
Biopsychosocial Factors	
1. What were the differences in psychosocial factors according to type of drug use?	Marijuana addicts had lower affective belief than alcoholics, crack addicts and cocaine addicts. Marijuana addicts also had lower avoidance belief scores than crack

Table 4-18. (continued)

Questions	Findings
	addicts, and lower avoidance coping scores than alcoholics.
2. What were the differences in drinking and smoking rates according to type of drug use?	Alcoholics had greater nicotine frequencies scores than crack addicts, while crack addicts had greater nicotine scores than marijuana addicts. Marijuana addicts had higher alcohol frequency scores but lower severity Scores than cocaine addicts.
3. What were the differences in alcohol use according to child abuse?	Participants with a history of childhood abuse had greater alcohol severity scores than those without a history of abuse.
Familial History of Alcoholism and Mental Illness	
1. What is the relationship between familial alcoholism/mental illness and substance use?	The presence of a mentally ill sister and socioeconomic problems predicted alcohol use.
2. What is the relationship between familial mental illness, first and second order relatives, and childhood abuse?	Familial mental illness, the presence of having a mentally ill brother and an alcoholic grandfather predicted childhood abuse.
3. What familial variables predict the specific types of child abuse?	
a). Emotional Abuse	Alcoholic father, familial mental illness, familial structure, socioeconomic hardships
b). Emotional Neglect	Alcoholic Mother and Mentally ill Sister
c). Sexual Abuse	Alcoholic brother and mentally ill Sister

Table 4-18. (continued)

Questions	Findings
d). Physical Abuse	Alcoholic father, alcoholic grandfather, familial mental illness, mentally ill brother and grandfather
e). Physical Neglect	Alcoholic father, familial mental illness, mentally ill father, and familial structure
Mental Health and Medication	
1. What is the relationship between psychological disorders and medication compliance?	Participants with depressive disorders were more compliant with medication than those with bipolar and thought disorders.
2. What types of child abuse predict mental health and medication use?	Child abuse, emotional and physical abuse predicted both a mental health disorder and medication adherence. Sexual abuse and physical abuse predicted the presence of a psychological disorder.
3. What were the differences in the types of child abuse according the presence of a mental health disorder?	Participants with a history of childhood abuse, physical abuse and neglect, emotional abuse, and sexual abuse were more likely to be diagnosed with a psychological disorder compared to those without a history of abuse.
Program Retention and Residential Treatment	
1. What types of substance use predict length of treatment?	Alcohol frequency and crack cocaine use predicted clients who left treatment prematurely from those who left midway and completed treatment.
2. What type of childhood abuse predicts by length of treatment?	Participants with a history of sexual abuse were more likely to

Table 4-18. (continued)

Question	Answer
	relapse following treatment than those without a history of abuse.
Treatment Differences	
1. What treatments are predicted by substance and medication use?	Participants in residential treatment had lower alcohol scores compared to those in partial and outpatient treatment. Participants in residential also had higher medication scores than those in partial.
2. What psychosocial factors predict treatment regimes?	Participants in outpatient had higher esteem and social support scores and lower behavior risk scores than those in residential and partial.
2. Does the type of child abuse predict the level of treatment?	Participants in partial had higher child abuse, emotional abuse, and physical abuse scores than those in residential and outpatient.
3. What are the differences in substance use according to type of treatment?	Participants in outpatient smoked more heavily than those in partial.
4. What are the differences in psychosocial factors according to type of treatment?	Participants in residential had higher avoidance belief scores than those in outpatient.
5. What are the differences in child abuse according to type of treatment?	There were differences in emotional abuse, physical abuse and physical neglect among participants in outpatient, partial, and residential.
6. What are the differences in mental health according to type of treatment?	There were differences in mental health and medication usage among participants in outpatient, partial, and residential.

Table 4-18. (continued)

Question	Answer
Gender Differences	
1. Does abuse predicts alcohol use among males?	Physical abuse and emotional abuse predicted alcohol use among males.
2. Are there gender differences in mental health diagnoses?	Females are more likely to be diagnosed with a psychological disorder than males.
3. What are the differences in medication adherence between males and females?	Females had greater adherence scores than males.
4. What are the differences in substance use and child abuse between males and females?	Males had higher alcohol frequency, alcohol severity and nicotine frequency scores than females. Males had higher rates of physical abuse than females, while females had higher rates of sexual abuse than males. Females also had greater crack-cocaine use than males.

CHAPTER 5
DISCUSSION

In the past 30 years, research, treatment, and theory of substance use have developed quite separately from mental health and human services (DeLeon, 1993). A considerable knowledge base has evolved that contains broad implications for psychological science, practice, and theory. The work in the field of addiction studies has also generalized several paradigms that require concepts and comprehension beyond the chemical disease perspective. Child sexual abuse and familial alcoholism have received a tremendous amount of clinical research and policy attention during the past three decades (Melchert, 2000), and there have been significant advances in knowledge regarding the effects of each of these factors. Despite these developments, there is still a great deal about the consequences from child sexual abuse and other forms of child maltreatment that remains unclear. In particular, there are limited data to help explain why child abuse directly and indirectly mitigates substance use and why specific types of abuse account for a greater proportion of the variance in alcohol use. Implications from the current investigation furthers the knowledge of substance use by integrating factors from the biological, psychological, and social paradigms to elucidate substance use as an avoidance coping method for the different types of child abuse promoted by familial mental illness.

Child Abuse, Psychosocial Factors, and Substance Use

Child Abuse and Substance Use

The relationship between child abuse and substance use appears to be mediated by psychosocial factors consisting of family support, social support, coping methods, mood states, esteem, and belief systems. Childhood abuse is indirectly linked to drinking and smoking through psychosocial factors consisting of negative family support, poor social support, avoidance coping, negative mood states, low esteem, affective beliefs, and avoidance beliefs. Psychosocial factors have been known to serve as both protective and risk factors in studies of resilience.

Positive family support contributes to enhanced self-efficacy and greater levels of motivation which seems to foster educational resilience (Wang & Gordon, 1994), while negative family support and low self-esteem appear to promote substance use. Therefore, psychosocial factors serve as risk factors for drinking and smoking among drug dependent participants. Psychosocial factors of family support, social support, low esteem, mood states, avoidance coping, and affective and avoidance beliefs promoted by childhood abuse precipitate drinking and smoking. These results suggest that participants with a history of childhood abuse are likely to have poor family and social supports, low esteem, and negative affective states which indirectly lead to alcohol and nicotine use through avoidance coping and negative belief systems. Investigations on drinking and smoking behaviors have found similar results. Smoking cessation investigations have demonstrated that negative mood states precipitate relapse (Brownwell, et al., 1986). Downey and Kilbey (1995) also found that college students returned to smoking

following a period of negative moods, and that students who returned to smoking had positive nicotine expectancies as a mood reducer compared to those who continued to abstain from smoking. Marlatt (1987) similarly found that negative mood states and belief systems precipitate relapse among abstaining alcoholics. Subsequently, individuals with a history of child abuse may be more likely to engage in avoidance coping such as drinking and smoking to deal with negative belief systems and mood states promoted by childhood abuse.

The relationship between childhood abuse and substance use was replicated with cocaine use. In fact, belief systems appear to be the key factor in predicting crack-cocaine use, which is congruent with previous investigations on dysfunctional beliefs and substance use. Shafer and Brown (1991) found that drug use patterns were associated with expectancies of drug use. In their study, they found that marijuana expectancies were similar to alcohol expectancies in that positive expectations about drug effects precipitated drug use and continual use among college students. However, drug-specific expectancies were identified with cocaine use. Students who expected cocaine to relax them used and continued to use cocaine regardless of initial positive or negative expectancies. Downey and Kilbey (1995) also found that alcohol expectancies precipitated alcohol use among alcohol dependent and non-dependent participants. It is interesting to note that beliefs about cocaine may differ from the actual drug effects, but, at the same time, beliefs about drug use play a significant role in the development and maintenance of substance use.

While childhood abuse was indirectly linked with alcohol and other drug use, physical abuse, physical neglect, and emotional neglect were directly associated with alcohol use. Physical abuse, physical neglect, and emotional neglect also indirectly led to alcohol use. Physical abuse, physical neglect, and emotional neglect influenced family support, which in turn promoted alcohol use through social support, esteem, avoidance coping, mood states, affective and avoidance beliefs. Investigations from these results suggest that individuals with either a history of physical abuse, physical neglect, or emotional neglect may be more likely to consume alcohol to cope with abuse aftereffects and limited family support.

Previous investigations have focused on sexual abuse and physical abuse in explaining substance use. Volpicelli, Balaraman, Hahn, Wallace, & Bux, (1999) stated that the relationship between alcohol use and post-traumatic stress disorder (PTSD) was attributed to childhood sexual and physical abuse. Another study on PTSD found that sexual abuse in childhood was the only trauma linked with this disorder in both men and women in adulthood (Mueser, et al., 1998). In addition to these investigations, studies on addiction found that sexual abuse was a contributing factor to alcohol dependency and addiction relapse. Young (1990) noted that incest was the hidden contribution in addiction relapse. Although sexual abuse may play a role in alcoholism and relapse, previous research has excluded neglect as a predictor of substance use. Therefore, these findings provide a new understanding of the nature of alcohol use and other drug use as an avoidance coping method for childhood trauma.

Individuals with a history of abuse may be more likely to use avoidance coping methods such as drinking and drug use to deal with the abuse experience. Clinical studies indicate that chronic stress has a major role in the development of alcohol and other drug disorders. Women who used problem-focused coping strategies consumed less alcohol compared to those who used emotion-focused coping methods (Brady & Sonne, 1999). Women who have been abused are more likely to engage in emotional-coping strategies (Morrow & Smith, 1995), and given the prevalence of abuse among both male and female participants, it is probable that they used emotion-focused coping skills over problem-solving methods. Alcohol and drug use is a form of avoidance coping which is a type of emotional-focused coping in that alcohol and drug use narcotizes painful thoughts and feelings linked with child abuse. Research on PTSD and alcohol use has indicated that alcohol is used as a coping method for feelings of helplessness associated with sexual and physical abuse (Volpicelli et al., 1999). Sharkansy, Brief, Peirce, Meehan, and Mannix (1999) found that drug use and addiction relapse was associated with emotional and physical responses to trauma related reminders. Together, these results support that alcoholics and drug addicts drink alcohol and use drugs, in order to redirect chronic stress associated with trauma.

The relationship between childhood abuse and substance use was expanded to include health and behavior risks. Health and behavior risks also appear to mediate the relationship between child abuse and substance use along with other psychosocial factors. Health and behavior risks directly predicted substance use. Health and behavior risks are subscales from a questionnaire that was created for the study and developed by clients in

addiction treatment through focus groups. While health risks measured physiological reactions to abstinence such as hot flashes or butterflies in stomach, behavioral risks measured the frequency of meetings or contacting a sponsor. Health and behavior risks may be more likely to predict substance use, since they include cognitive, affective, and behavioral responses which were identified by drug dependent clients in treatment.

Predictors of Substance Use

Affective and avoidance beliefs appear to predict the type of drug use. Affective and avoidance beliefs are more likely to predict alcohol and cocaine use than marijuana use. Implications from these results suggest that alcoholics and crack addicts have higher affective and avoidance beliefs about the effects from substance use compared to marijuana addicts. These findings are inconsistent with other research on drug expectancies and drug use patterns. Brown and Munson (1987) found that positive alcohol expectancies predict alcohol use, whereas Shafer and Brown (1991) indicated that the pattern between marijuana expectancies and marijuana use was similar to those of alcohol use. This study further supported that cocaine expectancies were different from both alcohol and marijuana in that the pattern of cocaine use followed a tension reduction model. A possible explanation for the inconsistent findings is that previous studies were conducted with college students who reported minimal cocaine and alcohol use, while the current study was conducted with drug dependent participants and many of them are poly-substance dependent. Beliefs are perceived as a common pathway by which a range of variables represent a vulnerability to substance use, therefore affective and avoidance

beliefs may be major predictors of alcohol and drug use excluding marijuana among poly-substance dependent participants.

Familial Predictors

Maternal alcoholism significantly predicted alcohol use among drug dependent participants, which is congruent with previous research on children of alcoholics and familial alcoholism. There is a consensus that alcoholism tends to run in families regardless if the transmission is attributed to genetics or the environment. Studies have recognized that children of alcoholics are at heightened risk of becoming problem drinkers compared to children of non-alcoholics (Sayette, 1999), and, furthermore, sons of male alcoholics appear to be at greater risk for developing a substance abuse disorder than sons of male nonalcoholics (Dobkin, Tremblay, & Sacchitelle, 1997).

Childhood Abuse, Psychosocial Factors, and Comorbid Disorders

Familial Mental Illness and Childhood Abuse

There appears to be a strong association between familial mental illness and childhood abuse. Individuals with a history of childhood abuse are more likely to have witnessed some type of familial mental illness compared to those without a history of abuse. In particular, having a mentally ill parent increases the possibility of experiencing childhood abuse. Individuals with a history of emotional abuse are likely to have mentally ill parent and raised in a non-traditional family structure compared to those without a history of emotional abuse. This result suggests that familial mental illness leads to a non-traditional family structure, which in turn contributes to familial

alcoholism and then financial hardship. It appears that individuals raised within this context are likely to have been emotionally abused because of the lack of traditional roles and familial structure, as well as family members that were available were consumed by their own problems of alcoholism and mental illness. Familial mental illness appears to prohibit one from providing support and nurturance to their children, which is consistent with research on familial alcoholism and dysfunctional families. Stein and Gelberg (1995) found that poor, female-headed families were at risk for becoming homeless, while children of these women were at risk for abuse and neglect. These children seem to be at risk for abuse and neglect because of the high level of stress associated with living in an impoverished environment. A study on cocaine using mothers indicated that maternal cocaine use was associated with negative caregiving in terms of physical and social environments (Das Eiden, Peterson, & Coleman, 1999).

Individuals with a history of physical neglect are also likely to have a history of familial mental illness and reared in a non-traditional family environment. This result suggests that being raised in non-traditional environment places one at greater risk for not having basic needs met which is exacerbated by living with a mentally ill parent. Living with a mentally ill parent suggests an unstable or chaotic environment, a common characteristic of poverty. Children raised in an impoverished or deprived environment are at greater risk for physical neglect. Research on maternal cocaine use indicates that the maternal caregiving environment of cocaine addicted mothers place children at risk for abuse. Maternal cocaine use was associated with more problem disciplinary tactics, fostercare placements, and changes in primary caregivers (Das Eiden et al., 1999).

Children of poor female headed households living below poverty are also at risk for abuse, neglect, and becoming homeless independent of mothers' drug use (Stein & Gelberg, 1995). The level of risk for neglect is far greater when the mother is using drugs.

It seems noteworthy to explore family and abuse issues in addiction treatment, especially since many individuals will turn to their family once they entered and completed treatment. This perspective may contradict traditional treatment approaches based upon the disease model of addiction that suggests one avoid people, places, and things to remain drug-free. However, it is an unrealistic view to think that clients and especially women in treatment are not going to return to the familial environment that they have known all of their lives and obtain support even when negative after a few months of being in treatment. Drug dependent clients tend to find comfort in repetition meaning that they are likely to return to family members and fathers of their children even when they are negative influences and poor sources of support. Therefore, treatment may be more effective if family members and partners were brought into treatment even if they have substance abuse problems of their own. A final note is that treatment may be more optimal if addiction services offered clinical assistance to family members and treated the family as a whole instead of parts by focusing solely on the adult addict.

Child Abuse and Comorbid Disorders

The relationship between childhood abuse and medication appears to be mediated by psychosocial factors of family support, social support, avoidance coping, esteem, mood states, affective beliefs, avoidance beliefs, behavioral risk, and mental health. In

fact, this relationship appears to be directly influenced by familial mental illness. As previously mentioned, familial mental illness contributes to physical neglect, emotional abuse, physical abuse and child abuse in general. Physical abuse directly leads to medication use, whereas emotional abuse, physical neglect, and child abuse indirectly lead to medication use. This exploratory model furthers the comprehension of affective, cognitive, and behavioral mechanisms that elucidate the role of medication as a constructive coping method for negative psychosocial factors promoted by childhood abuse. Treatment implications based upon this model suggest that these relationships be addressed in treatment and more so with participants with co-occurring disorders. Therefore, this model may serve as a new paradigm for explaining and treating mentally ill substance abusers.

Child Abuse and Medication Use

The type of childhood abuse predicted mental health and medication compliance. Emotional abuse, sexual abuse, and childhood abuse predicted the presence of a mental health disorder. Participants with a history of emotional abuse, sexual abuse, or childhood abuse are likely to be diagnosed with a mental health disorder compared to those without a history of abuse. This finding is consistent with previous studies on Trauma and PTSD. Mueser et al. (1998), found that childhood trauma was related to the severity of mental health symptoms. He estimated that 98% of his patients with a severe mentally illness experienced at least one type of trauma and that the majority of these patients experienced more than one traumatic event. In addition, investigations on the homeless found that homeless mentally ill persons also had a higher incident of trauma than the

general homeless. Homeless mentally ill women were more likely to be victimized regardless of drug use, whereas only homeless drug-using men were likely to be victimized (Stein & Gelberg, 1995).

Along with emotional abuse, physical neglect, and abuse, sexual abuse, and childhood abuse predicted medication compliance. Implications from this finding suggest that individuals with a history of abuse are compliant with medication regiments. Participants with a history of abuse may be more likely to be diagnosed with a mental health disorder and prescribed medication compared to those without a history of abuse. Because of the sensitivity required to deal with participants with mental disorders, abuse issues must be delicately handled and content-limited when addressed in addiction treatment. Participants diagnosed with mental health disorders may regress or revert to drug use if child abuse issues are either ignored or overly addressed. Some techniques may be too aggressive for clients during initial stages of recovery, and thus further place them at risk for both mental and addiction relapse. It is a catch twenty-two situation since ignoring child abuse issues or rigorously addressing them in treatment appear to place participants at risk for relapse. Medication use may assist participants to deal with their abuse aftereffects. Medication may be utillized to stabilize mental health symptoms, and in turn participants may be more capable of addressing abuse issues. Therefore, medication monitoring may serve as an effective intervention for participants with co-occurring disorders who also have histories of abuse.

Childhood Abuse, Psychosocial Factors, and Program Retention

Program Retention

The relationship between child abuse and substance abuse mediated by psychosocial factors was extended to program retention, in order to detect the specific factors that contribute to length of treatment. However, participants length of treatment was monitored differently among program directors and some of the participants used factitious social security numbers so that the data management department could not track them. Because of these limitations, retention information was gathered only on female participants in residential treatment. Prior to exploring retention rates, the relationship between child abuse and substance use was examined among this gender specific sample.

Residential Treatment Model

The relationship between child abuse and alcohol and other drug use was mediated by psychosocial factors of family and social support, avoidance coping, health and behavior risks, and affective beliefs. In fact, emotional neglect and sexual abuse directly contributed to alcohol and other drug use among women in residential treatment. Emotional neglect was also indirectly linked with alcohol and other drug use through mediating factors of family and social support. Sexual abuse was indirectly associated with alcohol and other drug use as well. Sexual abuse was linked to alcohol and other drug use through mediating factors of family and social support, child abuse, avoidance coping, health and behavioral risks, and affective beliefs. Avoidance coping was linked with cocaine use, while behavioral risks were associated with alcohol and nicotine use. Women in residential treatment appear to have higher rates of trauma and lower psychosocial levels which need to be considered when providing therapeutic services.

Predictors of Retention

The relationship between child abuse and substance use was expanded to program retention. These relations were not replicated. In fact, there were only two predictors of retention. Child abuse and days in treatment predicted program retention. Participants with a history of child abuse were more likely to stay and complete treatment compared to those without a history of abuse among drug dependent women with dependent children in residential treatment. This result suggests that women with children in residential treatment are more likely to stay in treatment when they have a history of abuse which is congruent with a preliminary investigation. A preliminary investigation was conducted on 53 women admitted into residential treatment between August of 1998 and April of 1999. This investigation found that child abuse directly and indirectly predicted program retention through mediating factors of mood states and coping methods. Although this finding is based on a small sample of women, theoretically abused women have little self-esteem, lack physiological needs such as shelter and food, and lack psychological needs such as trust and safety. Therefore, these women may be more likely to stay in a program that provides such nurturance. In addition to child abuse, days in treatment predicted program completion, which is consistent with previous outcome evaluations. Program retention was directly related to length of stay in residential and outpatient treatments (DeLeon, 1993). Preliminary analyses also supported that the length of treatment predicted program completion among women in residential treatment (Simons, 2000).

Among women with dependent children in residential treatment, avoidance coping decreased as their days in treatment increased. Implications from this result suggest that avoidance coping methods were reduced with the length of time the women stayed in treatment. Avoidance coping may be used less often with participants who complete treatment, while emotional neglect and risk behaviors were associated with relapse following treatment. These results suggest that individuals with a history of emotional neglect may be more likely to relapse and those who also engage in risk behaviors are at even greater risk for relapse. Treatment implications would be to incorporate coping methods for emotional neglect and reduction strategies for behavior risks into aftercare groups to prevent relapse following program completion.

Women with dependent children in residential treatment without family support are also more likely to relapse compared to those with family support. These findings are consistent with other research on relapse, which suggests that support systems foster program retention. Stahler et al., (1997 & 1998) compared women in residential treatment to those in residential treatment with added community support. Women in residential treatment with added support had higher retention rates, psychosocial functioning, and lower drug and alcohol rates compared to those in residential treatment without added support. Therefore, individuals with support are more likely to complete treatment and remain drug-free, since support serves to buffer at-risk conditions and enhance constructive coping methods that are necessary to remain drug-free following treatment.

Stages of Treatment

The stages of treatment were based upon the number of days in treatment and then the number of days in treatment were divided into three phases: treatment rejecters, remained in treatment, and completed treatment. The stages of treatment were predicted by alcohol and crack-cocaine use among women in residential treatment. In fact, participants classified as treatment rejecters meaning that they left within the first phase of treatment reported crack-cocaine as their primary drug of choice compared to those who completed treatment. Treatment rejecters left within the first 45 days of treatment compared to those who remained in treatment between 185 to 300 days. These findings suggest that women in residential treatment are either likely to leave treatment prematurely or complete treatment. These findings are consistent with previous outcome investigations in that dropout rates are the highest in the early days of treatment and decline thereafter (DeLeon, 1993). Other outcome studies report that clients who remain in treatment three months or longer have better outcomes in all major behavior domains than those who leave prior to three months (Simpson, Joe, & Brown, 1997). A final thought is that crack-cocaine users must have a degree of readiness to be admitted into treatment, remain in treatment, and leave treatment.

Client Characteristics and Stages of Treatment

Treatment history variables were associated with program retention. Women in residential treatment with a history of previous treatment are more likely to stay and complete treatment, compared to those without a history of previous treatment. It seems as if reverting to drug use after treatment motivates women with dependent children to

return and complete treatment. In addition, women who used medication were also more likely to complete treatment. Women may be more likely to complete treatment since they are addressing possibly unaddressed mental health issues by taking medication, which is inconsistent with previous outcome studies. DeLeon (1993) found that a predictor of shorter retention is psychopathology. Other investigations have found that the discontinuation of medication-precipitated relapse in studies on obesity (Craighead & Agras, 1991) and homeless persons with comorbid disorders (Stein & Gelberg, 1995). Women with previous relapse histories and mental health disorders may be at risk for relapse following program completion. This likelihood is heightened if they are noncompliant with medication. Therefore, women with dependent children in residential treatment need to address their psychological disorders and comply with medication in order to reduce their potential for relapse. A final comment is that their potential for relapse is greatly reduced when they have had a prior treatment, because they know what to expect and need to change such as adhering to medication and abstaining from substance use for themselves and their children.

Treatment Group Differences

There were several differences detected in participants in residential, partial, and outpatient treatment. The degree of difference in alcohol frequency differed among participants in residential, partial, and outpatient treatment. Participants in residential treatment had lower alcohol frequency scores than those in outpatient and partial treatment.

There were also differences in esteem, social support, and behavioral risk among participants in the three types of treatments. Participants in outpatient treatment had higher esteem and social support scores and lower behavior risk scores than those in residential and partial treatment. This finding suggest that the level of esteem, support, and risk influence the type of treatment sought by drug dependent participants. Participants who are higher functioning in terms of esteem, support, and risk may be more capable of complying with a less structured program as in outpatient, whereas those who are lower functioning may need more structure and intensity as in partial or residential treatment.

Participants in partial treatment had higher physical abuse scores, emotional abuse scores, and child abuse scores compared to those in residential and outpatient treatment. This finding suggests that the degree of abuse among drug addicts influence the type of treatment program sought. Participants with high degrees of abuse may need the structure of a partial program but not the therapeutic intensity of residential treatment, whereas those with low degrees of abuse may require minimal structure and therapeutic intensity of outpatient treatment.

Gender Differences

There were also significant differences in mental health rates between males and females. Females were more likely to be diagnosed with a mental health disorder than males. This finding is consistent with other investigations on gender differences and mental health. Stein and Gelberg (1995) found that homeless women were more likely to be diagnosed with a mental health disorder, while Volpicelli et al. (1999) found that

women were two to three times more likely to be diagnosed with PTSD. Females were also more likely to be prescribed medication than males which is linked with the rate of psychological disorders. It is noteworthy to expect that there is an inherent bias when it comes to diagnosing women with a mental health disorder and treating them with medication. At the same time, addressing mental health and prescribing medication positively influences treatment outcomes and even more so among women with dependent children. Treatment implications based upon these results are bitter-sweat in that females may be labeled and treated for mental disorders, while overall progress in treatment in terms of length of stay and preventing relapse improves with medication compliance.

Males and females differed in substance use rates, child abuse rates, and parenting styles. Females had greater crack-cocaine use, while males had higher alcohol and nicotine use. The rate of sexual abuse was higher among females, while the rate of physical abuse was higher among males. A final difference was that males had more children than females, but females had more children living with them than males. Implications from these results suggest that gender differences need to be considered when offering treatment services for men and women. Gender specific and sensitive models need to be developed, implemented, and evaluated so that men and women are provided with the most optimal available treatment. If gender specific models were to be utillized in addiction treatment then gender sensitive issues of sexual abuse, parenting, and mental health could be sensitively addressed and the potential for relapse following program completion may be reduced. A final note is that if these suggestions were to be

utillized then the quality of treatment services might be more comprehensive and cost-effective.

Conclusions

Theoretical Generalizations

There appears to be a relationship among child abuse, psychosocial factors, and alcohol and other drug use. In fact, the role of child abuse in predicting alcohol and other drug use is two-fold in that it directly and indirectly contributes to alcohol and drug use. Recently, attention has been given to the relationship between post-traumatic stress disorder and substance use promoted by childhood sexual abuse and more so among women than men. This seems to be a reasonable assumption, as well as sexual abuse independently appears to be a predicting variable for alcoholism among women. A previous investigation conducted with college students demonstrated similar relationships between sexual abuse and drinking and smoking behaviors mediated by family support, social support, self-esteem, mood states, and avoidance coping (Simons & Cameron, 1996). These findings further support the results from the current study.

Although sexual abuse appears to be linked with alcohol use and possibly post-traumatic stress disorder, physical and emotional neglect may further explain how substance use serves as an avoidance coping method for lack of support and negative mood states promoted by childhood trauma independent of PTSD. Emotional and physical neglect are also linked with familial mental illness which strengthens the interaction among biological, psychological, and social mechanisms in elucidating alcohol and other drug use. The interaction among biological, psychological, and social

domains may better explain the nature of alcohol and drug use rather than using one theoretical paradigm over another. Familial mental illness appears to influence alcoholism and mental illness in their offspring. This finding supports the genetic perspective of alcoholism and other disorders. It appears as if the interaction among biological, psychological, and social domains furthers the comprehension of substance use as an avoidance coping method for psychological states promoted by childhood trauma.

The biopsychosocial paradigm provides a comprehensive and theoretical perspective of substance use. While this model provides new and original insights in drug use, it is also an innovative approach to understanding co-occurring conditions of substance dependence and psychological disorders. Investigations on co-occurring disorders have been inconclusive, therefore this exploratory model offers a theoretical explanation and treatment suggestions for this specific population. Gender sensitive and specific treatments need to be implemented in addiction treatment for women with and without co-occurring disorders. There are relatively few gender-specific programs and evaluations on these programs are even rarer. The biopsychosocial model may be an effective method for providing comprehensive services to women in addiction treatment.

Overall, treatment for males and females with and without co-occurring disorder is a complicated process. One method of treatment will not effectively treat every drug dependent individual. However, treatments should be utillized that are considered to be the most optimal and cost-effective, while meeting the needs of the participants they serve. Inconsistent research on psychosocial factors presents difficulties for practitioners

because of the prevalence of child abuse, family dysfunction, and mental health in the clinical population. Explanations for treatment of these factors must rely on clinical experience and theoretical approaches without empirical evidence. Theoretical knowledge and clinical experiences obviously are valuable tools for practice, but empirical support for assessments and treatments are of equal importance. Therefore, finding treatments to these questions are imperative, and implementing and evaluating the biopsychosocial model in treatment may provide such answers.

Prevention and Treatment Implications

Implications for prevention and treatment programs would be to incorporate treatment modalities that address coping methods, improving self-esteem, modifying dysfunctional belief systems, managing negative affective states, and techniques for childhood abuse, aside from addressing drug and alcohol addiction. Addiction treatment programs may implement these modalities along with methods to enhance one's level of social support to effectively address drug-related factors. While addiction treatment may modify existing programs to incorporate groups that include these topics, prevention programs may use these models as a guide to identify at-risk individuals and implement corresponding interventions. Prevention programs may identify individuals with a history of childhood abuse and provide services that enhance self-esteem, improve support, modify negative affective-cognitive processes, and teach constructive coping methods to redirect symptoms of abuse as well as abuse-related issues. Implications from these suggestions may improve prevention and treatment programs and thus deter the onset of a drug and alcohol disorder.

Unsupported Hypotheses

Although there were several findings, there were also a few hypotheses that were not supported. First, childhood abuse did not directly predict drinking, smoking, or other types of drug use. There were differences between drug dependent participants with a history of abuse compared to those without a history of abuse. However, the direct path from child abuse and substance use was not supported. Second, only avoidance and affective beliefs predicted alcohol and other types of drug use. In spite of the mediating effect of belief systems, it was expected that other psychosocial factors would predict substance use. One possible explanation for the lack of relationships may be attributed to measurements. While the Rosenberg Self-esteem Scale is a reliable and valid measurement, it measures the self-acceptance aspect of self-esteem. One would not expect self-acceptance to be linked with drug use. Because of this, a better method of measuring the self-esteem concept may be to measure the self-efficacy aspect of self-esteem. Third, retention analyses could not be conducted among partial and outpatient treatment groups due to biases associated with the survey research design method. Therefore, the hypothesized relationships among child abuse, psychosocial factors, and program retention could not be supported. Fourth and finally, sexual abuse directly predicted alcohol use among females in residential treatment. The direct path from sexual abuse to substance use was not supported in the other models, which contradicts previous investigations on sexual abuse and drug addiction. However, the limited degree of association between sexual abuse and substance use may be attributed to confounding factors of emotional abuse, emotional neglect, and physical neglect.

Limited research has been conducted on the different types of abuse, and in particular, emotional and physical neglect. Without partialling out the effects from emotional and physical neglect, sexual abuse may account for a greater proportion of the variance in alcohol and other drug use. Therefore, sexual abuse may serve as a secondary predictor variable for substance use as well as a gender specific predictor variable for female participants.

Limitations to the Study

There were a few limiting factors to the study. First, the directors of inpatient and outpatient programs resisted the method of a survey research design. The lack of support limited information provided on subjects' length of treatment. Second, subjects were also hesitant to place their social security numbers on the survey. Some of them used factitious numbers, which in turn prevented the researcher from tracking and monitoring subjects' length of treatment. Therefore, findings on retention may be inconclusive and limited to women in residential treatment. Third, questionnaires were self-report measures of retrospective data and subjects may not have recalled answers accurately or answered honestly (Rosenthal & Rosnow, 1991). Fourth, subject and situational effects may have been included in the study and thus limited the results (Rosenthal & Rosnow, 1991). Items may have been answered differently by subjects who were assisted by clinical and/or residential staff due to literacy and comprehension difficulties, thus affecting the results from the study. Fifth, demand characteristics and in particular the good subject effect may have been retained with subjects in residential treatment, since subjects were aware that the program director had a dual role as the researcher of this

study. Subjects may have answered the items based upon what they thought the researcher was looking for. Potential biases from demand characteristic may have limited results drawn from subjects in residential treatment. Sixth, the diversity of subjects may limit results drawn from the models. Models may vary according to gender, socioeconomic level, and non-addicted subjects. Finally, the findings within the model are hierarchical in nature and impossible to verify the directions of causality among factors.

While the path analysis method does not allow the researcher to demonstrate causality among the variables in the path equation, there are several strengths to using this statistical method. First, the path analysis method presents a picture of the data so that the researcher may make causal inferences. Second, causal inferences may be made from correlational data, which in turn allows the researcher to make predictions of the variables in the path equation. Researchers may take steps in making further predictions among the variables in the path equation than with other regression methods. Third and final, predictions of the variables based upon the path technique are stronger than those from other types of regression and correlational analyses.

Although there are several benefits to utilizing the path analysis method, there are also a few limitations to using this method. One limitation to the path analysis method is that it does not demonstrate causality among the variables within the path equation model. The path analysis method does not allow a researcher to verify the direction of causality among the variables in the path equation. A final limiting factor to the path

analysis is that it presents a picture of the data without validating cause and effect relationships within the data set.

Future Investigations

Future research would be to replicate this study and address limiting factors. For instance, a more diverse population should be selected to control for homogeneity effects. Another suggestion would be to replicate the model and retention analyses using a pre-post test design with matched control and equivalent groups of male and female drug dependent subjects with and without co-occurring disorders. This method would also provide an opportunity to compare pre-post differences in child abuse symptoms, psychosocial functioning, and substance use. It would allow for a test-retest analysis of the risk behavior questionnaire in order to validate it as a reliable measure of substance use. Implications for treatment would be to incorporate the intervention based upon the biopsychosocial model in residential, partial, and outpatient programs and evaluate its overall effectiveness in predicting program retention. A final suggestion would be to use a diagnostic measure to validate psychological and drug disorders, as well as it would provide an opportunity to differentiate between subjects diagnosed with and without post-traumatic stress disorder. If these suggestions were to be utillized then potential biases from limiting factors would be eliminated, and results would be more accurate and generalizable.

REFERENCES CITED

Abrams, D., & Niaura, R. S. (1987). Social learning theory. In Blane, H. T, & Leonard, K. E. (Eds). Psychological theories of drinking and alcoholism (pp. 131-172). New York, NY: Guilford Press.

Alexander, B., & Dibb., G. (1977). Interpersonal perception in addicted families. Family Process, 16, 17-28.

Alexander, J., & Landmark, C. (1997). Directors' perceptions of the effects of managed care in outpatient substance abuse treatment. Journal of Substance Abuse, 9, 1-14.

American Psychiatric Association (1994). Diagnostic and Statistical Manual of Mental Disorders. Washington, DC.

Annis, H. (1990). Relapse to substance use: Empirical findings within a cognitive-social learning approach. Journal of Psychoactive Drugs, 22, 117-124.

Annis, H., & Davis, C. (1991). Relapse prevention. Alcohol, Health & Research World, 15 (3), 204-212.

Anthenelli, R., & Tabakoff, B. (1995). The search for biological markers. Alcohol, Health and Research World, 19 (3), 176-181.

Apolinsky, S., & Wilcoxon, S. (1991). Adult survivors of childhood sexual abuse: A group procedure for women. Family Therapy, 18, 38-45.

Attia, P. (1989). Dual diagnosis: Definition and treatment. Alcoholism Treatment Quarterly, 5, 53-63.

Bagley, C. (1991). The long-term psychological effects of sexual abuse: A review of some British and Canadian studies of victims and their family. Annuals of Sex Research, 4, 23-48.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavior change. Psychological Review, 84, 191-215.

Bass, E., & Davis, L. (1988). The courage to heal. New York, NY: Harper & Row.

Bassuk, E. L., Weinreb, L. F., Buckner, J. C., Browne, A., Salomon, A., & Bassuk, S. S. (1996). The characteristics and needs of sheltered homeless and low-income housed mothers. Journal of the American Medical Association, 276, 640-646.

Beck, A., Steer, R., Kovacs, M., & Garrison, B. (1985). Hopeless and eventual suicide: A 10-year prospective study of patients hospitalized with suicidal ideation. American Journal of Psychiatry, 142, 559-563.

Beck, A., Wright, F., Newman, C., & Liese, B. (1993). Cognitive therapy of substance abuse. New York, NY: Guildford Press.

Beitchman, J., Zucker, K., Hood, J., DaCosta, G., Akman, D., & Cassavia, E. (1992). The long term effects of child sexual abuse. Child Abuse and Neglect, 16, 101-118.

Belar, C., & Deardoff, W. (1995). Clinical health psychology in medical settings: A practitioners guidebook. Washington, DC: American Psychological Association.

Bergstrom, M. (1988). A 10 year follow-up of female opiate addicts. International Journal of Family Psychiatry, 9, 67-91.

Berstein, D. (1995). Child Trauma Questionnaire. Bronx VA Medical Center, Bronx, NY.

Blane, H. T., & Leonard, K. E.. (1987). Psychological theories of drinking and alcoholism. New York, NY: Guilford Press.

Blankertz, L., Cnaan, R., & Freedman, E. (1993). Childhood risk factors in dually diagnosed homeless adults. Social Work, 38, 587-594.

Blankertz, L., Cnaan, R., White, K., Fox, J., & Messinger, K. (1990). Outreach efforts with dually diagnosed homeless persons. Journal of Contemporary Human Services, 1, 387-394.

Blankertz, L., & White, K. (1990). Implementation of Rehabilitation Program for Dually Diagnosed Homeless. Alcoholism Treatment Quarterly, 149-163

Blume, S. (1990). Secret survivors. New York, NY: Ballantine.

Bollerud, K. (1990). A model for the treatment of trauma related syndromes among chemically dependent inpatient women. Journal of Substance Abuse Treatment, 7, 83-87.

Brady, K., & Sonne, S. (1999). The role of stress in alcohol use, alcoholism treatment, and relapse. Alcohol, Health, & Research World, 23 (4), 263-271.

Branden, N. (1991). The power of self-esteem. Dearfield Beach, FL: Health Communications.

Briere, J. (1992). Child abuse trauma. Newbury Park, CA: Sage.

Brown, S., & Munson, E. (1987). Extroversion, anxiety, and perceived effects of alcohol. Journal of Studies on Alcohol, 48 (3), 272-275.

Browne, A., & Finkelhor, D. (1986). Impact of child sexual abuse: A review of the research. Psychological Bulletin, 99, 66-77.

Brownell, K., Marlatt, A. G., Lichtenstein, E., & Wilson, G. T. (1986). Understanding and preventing relapse. American Psychologist, 41, 765-782.

Bukstein, O. G. (1994). Treatment of adolescent alcohol use and dependence. Alcohol, Health, and Research World, 18, 296-300.

Cadorte, R. J. (1995) Adoption studies. Alcohol, Health and Research World, 19 (3), 195-200.

Cameron, L., Shaefer, P., Leventhal, E., & Leventhal, H. (1988, April). The immediate and long term effects of social support and self-esteem on the relationship between chronic stress, negative mood, and health care utilization. Paper presented at the meeting of the Midwestern Psychological Association, Chicago, IL.

Carrol, J. (1990). Treating drug addicts with mental health problems in a therapeutic community. Alcoholism Treatment Quarterly, 2, 237-258.

Castaneda, R. (1994). Empirical assessment of self-medication hypothesis among dually diagnosed inpatients. Comprehensive Psychiatry, 35 (3), 180-184.

Caudill, B., Hoffman, J., Hubbard, J., Flynn, P., & Luckey, J. (1994). Parental history of substance abuse as a risk factor in predicting crack smoker's substance use, illegal activities, and psychiatric status. Journal of Drug and Alcohol Abuse, 20 (3), 341-354.

Center for Substance Abuse Treatment (CSAT) (1997). Drug abuse targeted populations. Targeted Outreach: Getting the Facts about Substance Abuse and Treatment. Substance use among women in the United States (Substance Abuse and Mental Health Services Administration). Washington, DC: U.S. Government Printing Office.

Chassin, L., Curran, P. J., Hussong, A. M., & Colder, C. R. (1997). In Marlatt, G. A., & Vandenbos, G. R. (Eds). Addictive Behaviors (pp. 509-533). Washington, DC: American Psychological Association.

Chiauzzi, E., & Lilgen, S. (1993). Taboo topics in addiction treatment. Journal of Substance Abuse Treatment, 10, 303-316.

Childress, A. R., Ehrman, R., McLellan, A. T., & O'Brien, C. P. (1989). Update on Behavioral Treatments. Problems of Drug Dependence, (1), 1-11.

Childress, A. R., Ehrman, R., McLellan, A. T., MacRae, J., Natale, M., & O'Brien, C. P. (1991) Negative mod states trigger conditioned drug craving and conditioned withdrawal in opiate abuse patients. Paper presented at the meeting of the University of Pennsylvania, Addiction Treatment Research Center, Philadelphia, PA.

Childress, A. R., Hole, A., & DePhillipis, D. (1990). Active tools for reducing craving/arousal to drug related cues manual. The coping with craving program at the Addiction Research Center of the University of Pennsylvania School of Medicine and the Philadelphia VA Medical Center, Philadelphia, Pennsylvania.

Conners, G., O'Farrell, T., Cutter, H., & Thompson, D. (1986). Alcohol expectancies among male alcoholics, problem drinkers, and nonproblem drinkers. Alcoholism: Clinical and Experimental Research, 10 (6), 667-671.

Covington, S. (1994). A woman's way through the twelve steps. Center City, Minnesota: Hazleton.

Craighead, L., & Agras, S. (1991). Mechanisms of action in cognitive-behavioral and pharmacological interventions for obesity and bulimia nervosa. Journal of Consulting and Clinical Psychology, 59 (1), 115-125.

Daley, D. (1989). Relapse prevention. Summit, PA: Tab Books.

Das Eiden, R., Peterson, M., & Coleman, T. (1999). Maternal cocaine use and the caregiving environment during early childhood. Psychology of Addictive Behaviors, 13 (4), 293-302.

DeLeon, G. (1993). What psychologists can learn from addiction treatment research. Psychology of Addictive Behaviors, 7 (2), 103-109.

DiGuiseppe, R., & McInerney, J., (1990). Pattern of addiction: A rational-emotive perspective. Journal of Cognitive Psychotherapy, 4, 121-134.

Dobkin, P., Tremblay, R., & Sacchitelle, C. (1997). Predicting boys early-onset substance abuse from father's alcoholism, son's destructiveness, and mother's parenting behavior. Journal of Consulting and Clinical Psychology, 65 (1), 86-92.

Downey, K., & Kilbey, M. (1995). Relationship between nicotine and alcohol expectancies and substance dependence. Experimental and Clinical Psychopharmacology, 3 (2), 174-182.

Dunkel-Schetter, C., Feinstein, L., Taylor, S., & Falke, R. (1992). Patterns of coping with cancer. Health Psychology, 11, 79-87.

Ellis, A (1988). How to stubbornly refuse to make yourself miserable about anything, yes, anything. New York, NY: Carol.

Engle, B. (1989). The right to innocence. New York, NY: Ivy.

Ettore, E. (1992). Women and substance use. New Brunswick, NJ: Rutgers University Press.

Evans, K., & Sullivan, D. (1994). Sexual abuse and addiction. New York, NY: Guilford Press.

Famularo, R., Kinscherff, R., & Fenton, T. (1992). Parental substance abuse and the nature of child maltreatment. Child Abuse and Neglect, 16, 475-483.

Finkelhor, D. (1979). Sexually victimized children. New York, NY: Macmillan.

Fletcher, B., Tims, F., & Brown, B. (1997). Psychology of Addictive Behaviors, 11 (4), 216-299.

Folkman, S., & Lazarus, R. (1988). Ways of coping questionnaire. California: Consulting Psychological Press.

Fox, K., & Gilbert, B. (1994). The interpersonal and psychological functioning of women who experience physical abuse, incest, and parental alcoholism. Child Abuse and Neglect, 18, 849-858.

Gil, E. (1983). Outgrowing the pain. New York, NY: Del Trade.

Goldsmith, R. (1986). Dimensionality of Rosenberg self-esteem scale. Journal of Social Behavior, 1 (2), 253-264.

Gorski, T., & Miller, M. (1986). Staying Sober. Independence, Missouri: Independence Press.

Grella, C. (1996). Background and overview of mental health and substance abuse treatment systems: Meeting the needs of women who are pregnant or parenting. Journal of Psychoactive Drugs, 28 (4), 319-343.

Grimm, L., & Yarnold, P. (1995). Reading and understanding multivariate statistics. Washington, DC: American Psychological Association.

Hagan, T., (1988). A retrospective search for the etiology of drug abuse: A background comparison of drug-addicted population of women and a non-addicted population of women. NIDA Research Monograph Series, 81, 245-261.

Harden, P. W., & Pihl, R. O. (1997). In Marlatt, G. A., & Vandenbos, G. R. (Eds). Addictive Behaviors (pp. 485-508). Washington, DC: American Psychological Association.

Havassy, B., Hall, S., & Wasserman, D. (1991). Social support and relapse: Commonalties among alcoholics opiate users, and cigarette smokers. Addictive Behaviors, 16, 235-246.

Health, A., & Phil, D. (1995). Genetic influences on alcohol risk. Alcohol, Health and Research World, 19 (3), 166-171.

Hill, W. (1990). Learning: A survey of psychological interpretations. New York, NY: Harper Collins.

Jones, B., & McMahon, J. (1994). Negative and positive alcohol expectancies as predictors of abstinence after discharge from a residential treatment program: A one-month and three-month follow-up study in men. Journal of studies on Alcohol, 55,543-548.

Kazdin, A. (1995). Methodological issues and strategies in clinical research. Washington, DC: American Psychological Association.

Kerlinger, F. (1986). Foundations of behavioral research. Orlando, FL: Harcourt Brace College.

Kinsley, J. (1998). A survivors group for perinatal substance abusers (spring). Berkley, California: University of California, National Abandoned Infants Assistance Resource Center (DHHC/ACF Children's Bureau No. 90-CB0036).

Kirsch, I. (1985). Response expectancy as a determinant of experience and behavior. American Psychologist, 40, (11), 1189-1202.

Kogel, P. (1995, Summer). Impediments to recovery in treatment programs for dually diagnosed homeless adults: An ethnographic analysis. Contemporary Drug Problems, 193-232.

Kosten, T., Behnaz, J., Hogan, I., & Kleber, H. (1983). Family denial as a prognostic factor in opiate addiction treatment outcome. The Journal of Nervous and Mental Disease, 171, 161-615.

Kranzler, H. R., & Anton, R. F. (1997). Implications of recent neuropsychopharmacologic research for understanding the etiology and development of alcoholism. In Marlatt, G. A., & Vandenbos, G. R. (Eds). Addictive Behaviors (pp. 68-94). Washington, DC: American Psychological Association.

Lanktree, C., Briere, J., & Zaidi, L. (1991). Incidence and impact of sexual abuse in child outpatient sample: The role of direct inquiry. Child Abuse and Neglect, 15, 447-453.

Larkby, C., & Day, N. (1997). The effects of prenatal alcohol exposure. Alcohol, Health, & Research World, 21 (3), 192-198.

Lazarus, R., & Folkman, S. (1984). Stress, appraisal, and coping. New York, NY: Springer.

Leigh, B. (1987). Beliefs about the effects of alcohol on self and others. Journal of Studies on Alcohol, 48 (5), 467-474.

Leitenberger, H., Greenwald, E., & Cado, S. (1992). A retrospective study of long-term methods of coping with having been sexually abused during childhood. Child Abuse and Neglect, 16, 399-407.

Leshner, A. (1998). NIDA probes the elusive link between child abuse and later drug use. (NIH Publication No. 98-3478). Bethesda, MD: NIH Publication.

Lind, M. (1988). Attitudes and social normative beliefs as predictors of relapse after treatment for chemical dependency. Alcohol Treatment Quarterly, 5 (1/2), 285-291.

Margolis, R., & Zweben, J. (1998). Treating patients with alcohol and other drug problems: An integrative approach. Washington, DC: American Psychological Association.

Marlatt, G. A., & Vandenbos, G. R. (1997). Addictive Behaviors. Washington, DC: American Psychological Association.

Marlatt, G. A., & Gordon, J. R. (1985). Relapse prevention. New York, NY: Guilford.

Marlatt, G. A. (1987). Alcohol, expectancy, and emotional states. Alcohol, Health, and Research World, 2, 10-14.

Mattson, M. (1994). Patient-Treatment matching: Rationale and results. Alcohol, Health, and Research World, 4, 287-296.

McAuliffe, W., Albert, J., Cordill-London, G., & McGarragh, T. (1990). Contribution to social conditioning model of cocaine recovery. International Journal of Addictions, 25, 1141-1177.

McCaul, M., & Furst, J. (1994). Alcoholism treatment issues in the United States. Alcohol, Health & Research World, 18 (4), 253-260.

McLellan, A. T., Urschel, H. C., & Blair, J. (1997). Addiction Severity Index, 5th Edition.

McLellan, A. T. (1992). How effective is substance abuse treatment. In O'Brien, C. P., & Jaffe, J. H. (Eds.). Addictive States (pp. 231-252). New York, NY: Raven.

McLellan, A. T., Childress, A. R., Ehrman, R., & O'Brien, C, P. (1986). Extinguishing conditioned responses during opiate dependence treatment: Turning laboratory findings into clinical procedures. Journal of Substance Abuse Treatment, 3, 33-40.

Melchert, T. (2000). Clarifying the effects of parental substance abuse, child sexual abuse, and parental caregiving on adult adjustment. Professional Psychology Research and Practice, 31 (1), 64-69.

Metsch, L., Rivers, J., Miller, M., Bohs, R., McCoy, C., Morrow, C., Bandstra, E., Jackson, V., & Gissen, M. (1995). Implementation of a family centered treatment program for substance-abusing women and their children: Barriers and resolutions. Journal of Psychoactive Drugs, 27 (1), 73-83.

Menicucci, L., & Wermuth, L. (1989). Expanding the family systems approach: Culture, class, development, and gender linkages in drug abuse. American Journal of Family Therapy, 17 (2), 129-143.

Miller, N. (1994). Psychiatric comorbidity. Alcohol, Health, and Research World, 18 (4), 261-264.

Miller, T. W., Leukefeld, C., Jefferson, B. (1994). Dual diagnosis: Clinical issue in substance abuse treatment. Journal of Contemporary Psychiatry, 7 (44), 666-669.

Miller, T. W., Cormoni, J., & Leukefeld, C. (1993). Prevention, education, and substance abuse treatment. Journal of Contemporary Psychiatry, 23 (3), 193-205.

Miller, W. R., & Bennett, M. E. (1996). Treating alcohol, problems in the context of other drug abuse. Alcohol, Health, & Research World, 20 (2), 118-127.

Minkoff, K. (1994). Treating the dually diagnosed in psychiatric settings. In. Miller, N. (Ed.). Treating coexisting psychiatric and addictive disorders (pp. 53-68). Center City, Minnesota: Hazleton.

Morrow, S., & Smith, M. (1995). Constructions of survival and coping by women who have survived childhood sexual abuse. Journal of Counseling Psychology, 42 (1) 24-33.

Mueser, K., Goodman, L., Trumbetta, S., Rosenberg, S., Osher, F., Vidaver, R., Auciello, P., & Foy, D. (1998). Trauma and posttraumatic stress disorder in severe mental illness. Journal of Consulting and Clinical Psychology, 66 (3), 493-499.

Muenzehnmaier, K., Meyer, I., Struening, E., & Ferber, J. (1993). Childhood abuse and neglect among women outpatients with chronic mental illness. Hospital and Community Psychiatry, 7 (44), 666-669.

National Institute on Drug Abuse (NIDA). (1998a). Current trends in drug use worldwide (NIH Publication No. 98-3478). Bethesda, MD: NIH Publication.

National Institute on Drug Abuse (NIDA). (1998b). Center on substance abuse treatment: Substance abuse and mental health services administration (NIH Publication No. 98-3478). Bethesda, MD: NIH Publication.

National Institute on Drug Abuse (NIDA). (1991). Summary of findings from the 1991 national household survey on drug abuse (NIH Publication No. C-86-13). Maryland, Rockville: NIH Publication.

Newlin, D. B., & Thomson, J. B. (1997). Alcohol challenge with sons of alcoholics: A critical review and analysis. In Marlatt, G. A., & Vandenbos, G. R. (Eds). Addictive Behaviors (pp. 534-578). Washington, DC: American Psychological Association.

O'Brien, C. P., & Jaffe, J. H. (1992). Addictive States. New York, NY: Raven Press.

O'Brien, C. P., Childress, A. R., McLellan, A. T., Ehrman, R. (1991). A learning model of addiction. In O'Brien, C. P., & Jaffe, J. H. (Eds.). Addictive States (pp. 157-178). New York, NY: Raven.

Office of Drug and Alcohol Programs (ODAP) (1991). Annual Report. Pennsylvania Department of Health. Harrisburg, Pennsylvania.

Pearlin, L. (1985). Social structure and processes of social support. Social Support and Health, (pp. 43-60). Academic Press.

Peele, S. (1986). What treatment for addiction can do and what it can't do: What treatment for addiction should do and what is shouldn't. Journal of Substance Abuse Treatment, 2, 225-228.

Prochaska, J., DiClemente, C. C., & Norcross, J. C. (1992). In search of how people change. American Psychologist, 47 (9), 1102-1114.

Platt, J., Husband, S., & Yaube, S. (1991). Major psychotherapeutic modalities for heroin addiction: A brief overview. International Journal of Addictions, 25, 1453-1477.

Preston, C., & Viney, L., (1984). Self and ideal self perception of drug addicts in therapeutic communities. International Journal of Addictions, 19, 805-818.

Procidano, M., & Heller, K. (1983). Perceived social support from friends and perceived social support from family scales.

Rice, R., & Longabaugh, R. (1996). Measuring general social support in alcoholic patients: Short forms for perceived social support. Journal of Addictive Behaviors, 18 (2), 104-114.

Rice, R. (1996). Perceived social support from friends and perceived social support from family scales revised.

Rioux, P., & VanMeter, W. (1990). The ABC's of awareness: A multimodal approach to relapse prevention. Alcohol Treatment Quarterly, 7 (3), 77-89.

Rohrer, G., Handley, R., Riordon, G., Stock, R., & Thomas, M. (1987). Crack cocaine education in public schools: A treatment center and the schools unite. Journal of Drug Education, 5, 381-386.

Rohsenow, D., Corbett, R., & Devine, D. (1988). Molested as children: A hidden contribution to substance abuse. Journal of Substance Abuse Treatment, 5, 13-18.

Root, M. (1991). Persistent disordered eating as a gender specific, post-traumatic stress response to sexual assault. Psychotherapy, 28, 96-102.

Rosenberg, M. (1966). The Self-esteem Scale.

Rosenthal, R., & Rosnow, R. (1991). Essentials of behavioral research: Methods and data analysis. New York, NY: McGraw-Hill.

Rotgers, F., Keller, D., & Morgenstern, J. (1996). Treating Substance Abuse: Theory and technique. New York, NY: Guilford Press.

SAMHSA (1998). Office of Applied Studies. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration. Rockville, Maryland, December, 1998.

SAMHSA (1997). Office of Applied Studies. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration. Rockville, Maryland, December, 1997.

Sayette, M. (1999). Does drinking reduce stress. Alcohol, Health, & Research World, 23 (4), 250-255.

Schafer, J., & Brown, S. (1991). Marijuana and cocaine effect expectancies and drug use patterns. Journal of Consulting and Clinical Psychology, 59 (4), 558-565.

Scheier, M. F., & Carver, C. S., (1992). Effects on psychological and physical well being: Theoretical overview and empirical update. Cognitive Therapy and Research, 16, 201-228.

Schuckit, M. (1995). A long-term study of sons of alcoholics. Alcohol, Health and Research World, 19 (3), 172-175.

Schukit, M. (1992). Advances in understanding the vulnerability to alcoholism. In O'Brien, C. P., & Jaffe, J. H. (Eds.). Addictive States (pp. 93-108). NY: Raven.

Schwartz, B., & Reisenberg, D. (1991). Learning and memory. New York, NY: W. W. Norton.

Searles, J. S. (1990a). Correlates of Drinking Behavior Project Screening Questionnaire.

Searles, J. S. (1990b). Children of Alcoholics. New York, NY: Guilford Press.

Searles, J. S. (1988). The role of genetics in the pathogenesis of alcoholism. Journal of Abnormal Psychology, 97, 153-167.

Seracini, A. M., Nunes, E. V., Tross, S., & Spano, C. (1996, June). Achieving abstinence in prenatal cocaine dependent women: A contingency management approach. Poster session presented at the annual meeting of the College of Drug Dependence, San Juan, Puerto Rico.

Sharkansky, E., Brief, D., Peirce, J., Meehan, J., & Mannix, L. (1999). Substance use patients with posttraumatic stress disorder: Identifying specific triggers of

substance use and their association with PTSD. Psychology of Addictive Behaviors, 13 (2), 89-97.

Slater, N., & Minton, M. F. (1998). An innovative program to serve low income women with histories of chemical dependency and child sexual abuse (spring). Berkley, California: University of California, National Abandoned Infants Assistance Resource Center (DHHC/ACF Children's Bureau No. 90-CB0036).

Simons, L. (2000). An evaluation of a biopsychosocial treatment model among drug dependent pregnant and parenting women (Spring). Berkley, California: University of California, National Abandoned Infants Assistance Resource Center (DHHC/ACF Children's Bureau No. 90-CB0036).

Simons, L., & Cameron, L. (1996, June). The hidden effects of sexual abuse in alcohol consumption: An evaluation of psychosocial factors and substance use. Paper presented at the College on Problems of Drug Dependence, Annual Meeting, San Juan, Puerto Rico.

Simpson, D. D., Joe, G. W., & Brown, B. S. (1997). Treatment retention and follow-up outcomes in the drug abuse treatment outcome study (DATOS). Psychology of Addictive Behaviors, 11 (4), 294-307.

Stahler, G. J., Kirby, K., & Shipley, T. E. (1999). Cocaine treatment for homeless women: Community support. Unpublished manuscript.

Stahler, G. J., Shipley, T. E., DuCette, J., Shandler, I., Godbolte, C., Ijoy, L., Grannum, G., Simons, L., Weiss, E., & Koszowski, L. (1998, August). Effectiveness of residential care and community support for crack-cocaine using women. Paper presented at the meeting of the American Psychological Association.

Stahler, G. J., Godbolte, C., Shipley, T. E., Shandler, I. W., Ijoy, L., Weinberg, A., Harrison-Horn, N., Nichols, C., Simons, L., & Koszowski, L. (1997). Preventing relapse among crack-using homeless women with children: Building bridges to the community. Journal of Prevention and Intervention in the Community, 15 (2), 53-66.

Stein, J., & Gelberg, L. (1995). Homeless men and women: Differential associations among substance abuse, psychosocial factors, and severity of homelessness. Experimental and Clinical Psychopharmacology, 3 (1), 75-86.

Swan, N. (1998). Exploring the role of child abuse in later drug abuse. (NIH Publication No. 98-3478). Bethesda, MD: NIH Publication.

Tanney, M., & Lowenstein, V. (1997). One-stop shopping: Description of a model

program to provide primary care to substance-abusing women and their children. Journal of Pediatric Health Care, 11 (1), 20-25.

Tarter, R. E., & Vanyukov, M. (1997). Alcoholism: A developmental disorder. In Marlatt, G. A., & Vandenbos, G. R. (Eds). Addictive Behaviors (pp. 43-67). Washington, DC: American Psychological Association.

Taylor, S. (1991). Health Psychology. New York, NY: McGraw-Hill.

Testa, M., Miller, B., Downs, W., & Panek, D. (1992). The modeling impact of social support following childhood sexual abuse. Violence and Victims, 1 (2), 173-185.

Thayer, R. (1986). The activation-deactivation adjective checklist.

Trotter-Steele, C. (1998). Sexual abuse and Chemical dependency (Spring). Berkley, California: University of California, National Abandoned Infants Assistance Resource Center (DHHC/ACF Children's Bureau No. 90-CB0036).

Tucker, B. (1982). Social support and coping: Applications for the study of female drug abuse. Journal of Social Issues, 83, 117-137.

US Department of Heath and Human Services (1993). Prevention resource guide: College youth and young adults (DHHS Publication). Washington, DC: Government Printing Office.

Valliant, G. (1991). Is there a natural history of addiction. In C. P. O'Brien & J. H. Jaffe (Eds.). Addictive states (pp. 41-58). New York, NY: Raven.

Volpicelli, J., Balaraman, G., Hahn, J., Wallace, H., & Bux, D. The role of uncontrollable trauma in the development of PTSD and alcohol addiction. Alcohol, Health, & Research World, 23 (4), 256-262.

Wallace, B. (1989). Psychological and environmental determinants of relapse in crack cocaine smokers. Journal of Substance Abuse Treatment, 6, 95-106.

Wallace, B. (1990). Treating crack cocaine dependence: The critical role of prevention relapse. Journal of Psychoactive Drugs, 22, 149-158.

Wallace, B. (1991). Crack cocaine: A practical treatment approach for the chemically dependent. Bristol, PA: Brunner/Mazel.

Wang, M. C., & Gordon, E. W. (1994). Educational resilience in inner-city America: Challenges and prospects. New Jersey: Lawrence Erlbaum.

Washton, A. (1988). Preventing relapse to cocaine. Journal of Clinical Psychiatry, 49 (2), 34-38.

Wilker, A. (1965). Conditioning actors in opiate addiction and relapse. In D. I. Wilner & G. G. Kassebaum (Eds.), Narcotics (pp. 85-100). New York, NY: McGraw-Hill.

Woody, G. (1996). The challenge of dual diagnosis. Alcohol, Health, & Research World, 20 (2), 76-79.

Young, E. (1990). The role of incest issues in relapse. Journal of Psychoactive Drugs, 22, 249-258.

APPENDIX A
DEMOGRAPHICS

Instructions: Please answer the following questions.

1. Gender: Female___ Male____ 2. Social Security Number_____
3. Age:_____ 4. Date of Birth:_____
5. Please indicate your racial background.
   White (Non-Hispanic)_____ Black/African-American_____
   Asian_____ American Indian_____
   Hispanic_____ Other_____
6. Please indicate your religious affiliation.
   Catholic_____ Islamic_____
   Protestant____ Other_____
   Jewish_____ None_____
7. Are you practicing your religious beliefs? Yes_____ Somewhat____ No____
8. What is your marital status: Single Married____ Separated____
   Divorced_____ Widowed_____
9. How long have you been in treatment? Less than 1 month_____ 2 to 4 months_____
   5 or more months _____
10. What type of treatment program are you currently attending? Outpatient_____
Partial_____ Inpatient____ Residential_____ Other_____
What is the name of your program?_____
11. How many treatment programs have you been in prior to this present one? None or one_____2 to 4 _____5 to 10 _____11 to 15_____More than 15 _____
   More than 20_____

12. What is your primary drug of choice? Alcohol_____ Cocaine____ Crack_____
   Heroin _____ Marijuana____ Other_____
13. What is your secondary drug of choice? Alcohol_____ Cocaine_____
Crack_____ Heroin_____ Marijuana_____ Other_____

14. What is your longest period of abstinence?_____
15. How many times have you relapsed?_____
16. Have you previously attended AA or NA when you relapsed? Yes No
17. Have you ever been treated for a mental illness? Yes No
If so, what is the diagnosis of your illness?_____
18. Are you taking medication for a mental illness at the present time? Yes No
If so, what is the medication?_____
19. Are you taking medication for a physical condition? Yes No
If so, what is the medication?_____
20. Do you have children? Yes No
21. If so, how many do you have?_____ 21. What are there ages?_____
22. If your children are under 18, how many are living with you?_____ How many are living with someone else?_____

APPENDIX B
CHILDHOOD TRAUMA QUESTIONNAIRE

Instructions: These questions ask about some of your experiences growing up as a child and a teenager. For each question, circle the number that best describes how you feel. Although some of these questions are of personal nature, please try to answer as honestly as you can. Your answers will be kept confidential.

When I was growing up,... Often	**Never true** 1	**Rarely true** 2	**Sometimes true** 3	4	**Often true** 5	**Very true**
1. There was someone in my family whom I could talk to about my problems.	1	2	3	4	5	
2. I didn't have enough to eat.	1	2	3	4	5	
3. People in my family showed confidence in me and encouraged me to succeed.	1	2	3	4	5	
4. Someone in my family hit me or beat me.	1	2	3	4	5	
5. I lived in a group home or in a foster home.	1	2	3	4	5	
When I was growing up,...						
6. I knew that there was someone to take care of me and protect me.	1	2	3	4	5	
7. People in my family called me things like "stupid", "lazy", or "ugly."	1	2	3	4	5	
8. I was living on the streets by the time I was a teenager or even younger.	1	2	3	4	5	
9. My parents were too drunk or high to take care of my family.	1	2	3	4	5	
10. People in my family got into trouble with the police.	1	2	3	4	5	
When I was growing up,...						
11. There was someone in my family who helped me feel important or special.	1	2	3	4	5	
12. I had to wear dirty clothes.	1	2	3	4	5	
13. I lived with different people at different times (foster families).	1	2	3	4	5	
14. People in my family hit me so hard that it left me with bruises or marks.	1	2	3	4	5	
15. I had sex with an adult or with someone who was a lot older than me (someone at least 5 years older than me).	1	2	3	4	5	
16. There was someone in my family who wanted me to be a success.	1	2	3	4	5	
17. I was punished with a belt, a board, a cord (or some other hard object).	1	2	3	4	5	
18. People in my family said hurtful or insulting things to me.	1	2	3	4	5	

19. I got hit or beaten so badly that it was noticed by someone like a teacher or doctor.	1	2	3	4	5
20. I believe that I was physically abused.	1	2	3	4	5

When I was growing up,...

21. I felt loved.	1	2	3	4	5
22. I spent time out of the house and no one knew where I was.	1	2	3	4	5
23. People in my family felt close to each other.	1	2	3	4	5
24. Someone tried to touch me in a sexual way or tried to make me touch them.	1	2	3	4	5
25. Someone threatened to hurt me or tell lies about me unless I did something sexual with them.	1	2	3	4	5

When I was growing up,...

26. People in my family looked out for each other.	1	2	3	4	5
27. I was frightened of being hurt by someone in my family.	1	2	3	4	5
28. Someone in my family hated me.	1	2	3	4	5
29. I believe that I was emotionally abused.	1	2	3	4	5

When I was growing up,...

30. Someone tried to make do sexual things or watch sexual things.	1	2	3	4	5
31. Someone molested me.	1	2	3	4	5
32. Someone in my family believed in me.	1	2	3	4	5
33. I believed I was sexually abused.	1	2	3	4	5
34. My family was a source of strength and support.	1	2	3	4	5

APPENDIX C
ROSENBERG SELF-ESTEEM SCALE

Instructions: Please read each of the following statements and indicate how strongly you agree or disagree with each.

1 = Strongly Agree	2 = Agree	3 = Disagree	4 = Strongly Disagree
1. On the whole, I am satisfied with myself	1	2	3	4
2. At times I think I'm not good at all	1	2	3	4
3. I feel that I have a number of good qualities	1	2	3	4
4. I am able to do things as well as most people	1	2	3	4
5. I feel I do not have much to be proud of	1	2	3	4
6. I certainly feel useless at times	1	2	3	4
7. I feel that I am a person of worth, at least on an equal plane with others	1	2	3	4
8. I wish I could have more respect for myself	1	2	3	4
9. All in all, I am inclined to think I am a failure	1	2	3	4
10. I take a positive attitude toward myself	1	2	3	4

APPENDIX D
PERCEIVED SOCIAL SUPPORT FROM FAMILY AND FRIENDS

Directions: The statements which follow refer to feelings and experiences which occur to most people at one time or another in their relationships with friends and/or families. For each statement there are three possible answers: Yes, No, Don't know. Please circle the answer you choose for each item.

1. My friends give me the moral support I need.	Yes	No	Don't know
2. Most other people are closer to their friends than I am.	Yes	No	Don't know
3. I rely on my friends for emotional support.	Yes	No	Don't know
4. My friends and I are very open about what we think about things.	Yes	No	Don't know
5. My friends are sensitive to my personal needs.	Yes	No	Don't know
6. My friends are good at helping me solve problems.	Yes	No	Don't know
7. I wish my friends were much different.	Yes	No	Don't know
8. My family give me the moral support I need.	Yes	No	Don't know
9. Most other people are closer to their family than I am.	Yes	No	Don't know
10. I rely on my family for emotional support.	Yes	No	Don't know
11. My family and I are very open about what we think about things.	Yes	No	Don't know
12. My family are sensitive to my personal needs.	Yes	No	Don't know
13. My family are good at helping me solve problems.	Yes	No	Don't know
14. I wish my family were much different.	Yes	No	Don't know

APPENDIX E
MOOD SCALE

Instructions: Please circle the words that describe how you feel.
How often do you feel...

active	All of the time	Some of the time	None of the time
sleepy	All of the time	Some of the time	None of the time
pissed	All of the time	Some of the time	None of the time
jittery	All of the time	Some of the time	None of the time
energetic	All of the time	Some of the time	None of the time
up-tight	All of the time	Some of the time	None of the time
calm	All of the time	Some of the time	None of the time
tired	All of the time	Some of the time	None of the time
fearful	All of the time	Some of the time	None of the time
still	All of the time	Some of the time	None of the time
clutched-up	All of the time	Some of the time	None of the time
full-of-pep	All of the time	Some of the time	None of the time
tense	All of the time	Some of the time	None of the time
upset	All of the time	Some of the time	None of the time
mad	All of the time	Some of the time	None of the time
down	All of the time	Some of the time	None of the time
nervous	All of the time	Some of the time	None of the time
exhausted	All of the time	Some of the time	None of the time
angry	All of the time	Some of the time	None of the time

APPENDIX F
SUBSTANCE BELIEFS

Directions: Listed below are statements about why people drink. Please answer the statements according to your drinking behavior. If you do not drink now, then answer the questions according to when you did drink.

1 = Never 2 = Rarely 3 = Sometimes 4 = Mostly 5 = Always

1. Alcohol helps me escape my problems	1	2	3	4	5
2. When I feel bad physically, alcohol seems to relieve this discomfort	1	2	3	4	5
3. Drinking helps me deal with family problems better	1	2	3	4	5
4. When I feel discouraged, alcohol seems to give me hope for the future	1	2	3	4	5
5. When I get angry or feel like hitting someone, alcohol helps keep me in control	1	2	3	4	5
6. Alcohol seems to help me deal with social situations better	1	2	3	4	5
7. I seem to be able to deal with loneliness better	1	2	3	4	5
8. Using alcohol enables me to think more clearly	1	2	3	4	5
9. Drinking seems to help me handle frustration better	1	2	3	4	5
10. My memory seems better if I drink	1	2	3	4	5
11. I feel more in control of my life when I drink	1	2	3	4	5
12. I drink to forget my worries	1	2	3	4	5
13. A drink helps cheer me up when I am in a bad mood	1	2	3	4	5
14. A drink helps me when I am depressed	1	2	3	4	5
15. A drink helps calm me down when I am stressed or uptight	1	2	3	4	5
16. My social activities revolve around or include the use of alcohol	1	2	3	4	5
17. A drink helps me when I am anxious	1	2	3	4	5

APPENDIX G
WAYS OF COPING SCALE

Instructions: To respond to the statements in this questionnaire, take a few minutes and think about stressful situations you have experienced, then read each statement and indicate by circling the appropriate number to what extent you used it to deal with these stressors.

0 = Did not use 1 = Used somewhat 2 = Used quite a bit 3 = Used a great deal

1. I hoped for a miracle	**0**	**1**	**2**	**3**
2. I slept more than usual	**0**	**1**	**2**	**3**
3. I tried to make myself better by eating, drinking, smoking, using drugs or medications, etc.	**0**	**1**	**2**	**3**
4. I generally avoided being with people	**0**	**1**	**2**	**3**
5. I took it out on other people	**0**	**1**	**2**	**3**
6. I refused to believe that it had happened	**0**	**1**	**2**	**3**
7. I wished that the situation would go away or somehow be over with	**0**	**1**	**2**	**3**
8. I had fantasies or wishes about how things might turn out	**0**	**1**	**2**	**3**

APPENDIX H
SUBSTANCE USE SURVEY

Directions: Circle the letter of the answer to the following questions that comes closest to your experience or opinion for each question.

1. How long has it been since you had your last drink of beer, wine, or hard liquor?

A. Today
B. 1-7 days ago
C. 8-14 days ago
D. 15-30 days ago
E. 1-2 months ago
F. 2-3 months ago
G. 4-6 months ago
H. 7-12 months ago
I. More than one year ago
J. Never drank any beer, wine, or hard liquor (Skip to Question 6)

2. During the past 30 days, how often did you drink beer, wine, or hard liquor?

A. Every day
B. Nearly every day
C. 3-4 Times a week
D. Once or twice a week
E. 2-3 Times in the past 30 days
F. Once in the past 30 days
G. Didn't drink any alcohol beverages in the past 30 days

3. How much did you drink on a typical day (in which you drank) in the past 30 days?

A. 1 can of beer, glass of wine, or shot of liquor
B. 2 cans of beer, glasses of wine, or shots of liquor
C. 3 cans of beer, glasses of wine, or shots of liquor
D. 4 cans of beer, glasses of wine, or shots of liquor
E. 5 cans of beer, glasses of wine, or shots of liquor
F. 6 cans of beer, glasses of wine, or shots of liquor
G. 7 cans of beer, glasses of wine, or shots of liquor
H. 8-11 cans of beer, glasses of wine, or shots of liquor
I. 12-17 cans of beer, glasses of wine, or shots of liquor
J. 18 or more cans of beer, glasses of wine, or shots of liquor

4. In the past two weeks, how often did you drink alcoholic beverages?

A. Every day
B. Nearly every day
C. 8-10 days
D. 5-7 days
E. 3-4 days
F. 1-2 day(s)
G. None

5. How many drinks did you usually consume when you drank, during the past two weeks?

A. None or not applicable
B. 1-2 drink(s), beer(s), or shot(s)
C. 3-5 drinks, beers, or shots
D. 6-9 drinks, beers, or shots
E. 10-15 drinks, beers, or shots
F. More than 15 drinks, beers, or shots

Now Think About The Period Of The Past Year - From Today Back To One Year Ago...

6. During the past year, how often did you drink any beer, wine, or liquor?

A. Every day or nearly every day
B. 3-4 times a week
C. Once or twice a week
D. 1-3 times a month
E. 7-11 times in the past year
F. 3-6 times in the past year
G. Never in the past year
H. Never drank any beer, wine, or hard liquor

7. During the past year, how often did you have 8 or more cans of beer, 8 or more glasses of wine, or 8 or more shots of liquor in a single day?

A. Every day or nearly every day
B. 3-4 times a week
C. Once or twice a week
D. 1-3 times a month
E. 7-11 times in the past year
F. 3-6 times in the past year
G. Once or twice in the past year
H. Never in the past year
I. Never drank any beer, wine, or hard liquor

8. In the past two weeks, how often did you smoke cigarettes?

A. Every day
B. Nearly every day
C. 8-10 Times a week
D. 5-7 Times a week
E. 2-3 Times a week
F. Once in the past two weeks
G. Didn't smoke any cigarettes in the past two weeks

9. How much did you smoke on a typical day (in which you smoked) in the past two weeks?

A. 1-5 cigarettes
B. 6-10 cigarettes
C. 11-15 cigarettes
D. 16-20 cigarettes
E. 20-25 cigarettes
F. More than 25 cigarettes
G. At least 2 packs
H. Didn't smoke any cigarettes in the past two weeks

10. In the past 30 days, how often did you smoke cigarettes?

A. Every day
B. Nearly every day
C. 3-4 Times a week
D. Once or twice a week
E. 2-3 times in the past 30 days
F. Once in the past 30 days
G. Didn't smoke any cigarettes in the past 30 days

11. How much did you smoke on a typical day (in which you smoked) in the past 30 days?

A. 1-5 cigarettes
B. 6-10 cigarettes
C. 11-15 cigarettes
D. 16-20 cigarettes
E. 20-25 cigarettes
F. More than 25 cigarettes
G. At least 2 packs
H. Didn't smoke any cigarettes in the past 30 days

12. In the past month, how often did you use drugs (non-prescribed substances)?

A. Every day
B. Nearly every day
C. 3-4 Times a week
D. Once or twice a week
E. 2-3 times in the past 30 days
F. Once in the past 30 days
G. Didn't use any drugs in the past 30 days

13. How often did you use drugs (non-prescribed substances) during the past two weeks?

A. Every day
B. Nearly every day
C. 8-10 Times a week
D. 5-7 Times a week
E. 2-3 Times a week
F. Once in the past two weeks
G. Didn't use any drugs in the past two weeks

14. If you used drugs during the past month or two weeks then please place a check beside that particular drug(s) you used:

_____ Marijuana
_____ Heroin
_____ Barbiturates
_____ Hallucinogens (LSD, Ecstasy)
_____ Other:_____ Specify

_____ Cocaine
_____ Crack
_____ Amphetamines
_____ Ice
_____ Other:_____ Specify

_____ Sedatives
_____ Opiates
_____ Inhalants

15. The following is a list of problems that people might have because of their own drinking. Please circle which, if any, of your closest biological relatives or yourself experienced any of these difficulties.

A. Marital separation or divorce because of their drinking.
B. Laid off from work or fired because of their drinking.
C. Problems with school because of their drinking.
D. Any arrest for drunk driving.
E. Any arrest for public intoxication or drunk and disorderly conduct.
F. Doctor said had harmed their health.
G. Repeatedly unable to care for the house or family due to alcohol use.
H. Attended Alcoholics Anonymous (AA) meetings.
I. **Other serious problems associated with drinking:**
(Specify)_____
J. Not Applicable

Indicate the relative with any of these problems and list which problem(s) by letter:

_____ Yourself
_____ Father
_____ Brothers
_____ Uncles
_____ Grandfather
_____ Mother
_____ Sisters
_____ Aunts
_____ Grandmother

16. Did your biological mother smoke cigarettes while she was pregnant with you?
YES NO DON'T KNOW

17. Indicate if you or any of your relatives smoke cigarettes by placing a "X" before their name.

_____Yourself	
_____ Father	_____ Mother
_____ Brothers	_____ Sisters
_____ Uncles	_____ Aunts
_____Grandfather	_____ Grandmother

18. How many of your friends smoke?
All of them Most of them Half of them
Hardly any of them None of them

19. If you smoke, do you smoke more when you drink? YES NO N/A

20. If you don't smoke regularly, are you more likely to smoke when you drink?
YES NO N/A

21. What is the marital status of your biological parents?

A. Married	D. Separated
B. Divorced	E. Never Married
C. Widowed	F. Don't Know

22. The family that predominantly raised you consisted of?
A. Biological Mother and Father
B. Biological Mother
C. Biological Father
D. Biological Mother and Step Father
E. Biological Father and Step Mother
F. Neither biological parent: Adoptive parents
G. Neither biological parent: Guardians
H. Neither biological parent: Grandparents
I. Neither biological parent: Foster Parents

23. Does anyone in your immediate biological family have a history of mental illness?
A. Yes B. No C. Don't Know

24. Indicate which relative had a mental illness:

A. Mother
B. Father
C. Sister
D. Brother
E. Aunt
F. Uncle
G. Grandmother
H. Grandfather
I. Other_____
Specify

25. During the past year, how often did you use prescription medication?

A. Every day or nearly every day
B. 3-4 times a week
C. Once or twice a week
D. 1-3 times a month
E. 7-11 times in the past year
F. 3-6 times in the past year
G. Once or twice in the past year
H. Never in the past year

26. In the past 30 days, how often did you use prescription medication?

A. Every day
B. Nearly every day
C. 3-4 times a week
D. Once or twice a week
E. 2-3 times in the past 30 days
F. Once in the 30 days
G. Didn't use any prescription medication

27. In the past two weeks, how often did you use prescription medication?

A. Every day
B. Nearly every day
C. 8-10 Times a week
D. 5-7 Times a week
E. 2-3 Times a week
F. Once in the past two weeks
G. Didn't use any prescription medication

28. If you used prescription medication during the past 2 weeks or 30 days please indicate what you used:

_____ Antibiotics
_____ Birth Control Pills or Contraceptives
_____ Allergy Medication
_____ Sinus Medication
_____ Headache
_____ Ulcer
_____ Antidepressants
_____ Antianxiety
_____ Pain

_____Other
Specify

_____Other
Specify

29. If you used any of these types of medication, please indicate the specific type:

_____
_____
_____
_____
_____
_____

30. During the past years, how often did you used over-the-counter medication?

A. Every day or nearly every day
B. 3-4 times a week
C. Once or twice a week
D. 1-3 times a month
E. 7-11 times in the past year
F. 3-6 times in the past year
G. Once or twice in the past year
H. Never in the past year

31. In the past 30 days, how often did you use over-the-counter medication?

A. Every day
B. Nearly every day
C. 3-4 times a week
D. Once or twice a week
E. 2-3 times in the past 30 days
F. Once in the 30 days
G. Didn't use any medication

32. In the past two weeks, how often did you use over-the-counter medication?

A. Every day
B. Nearly every day
C. 8-10 Times a week
D. 5-7 Times a week
E. 2-3 Times a week
F. Once in the past two weeks
G. Didn't use any medication

33. If you used over-the-counter medication during the past 2 weeks or 30 days please indicate what you used:

_____Stomach Medication
_____Allergy Medication
_____ Sinus Medication
_____ Headache
_____ Sleeping Pills
_____ Pain

_____Other
Specify

_____Other
Specify

34. If you used any of these types of medication, please indicate the specific type:

_____
_____
_____
_____
_____
_____

APPENDIX I
RISK BEHAVIORS

Directions: Please circle the response that describes how often you engaged or experienced the following list of behaviors associated with addiction and recovery.

How often do you have...			
1. Headaches	None of the time	Some of the time	All of the time
2. Chest pains	None of the time	Some of the time	All of the time
3. Back pains	None of the time	Some of the time	All of the time
4. Stomach pains	None of the time	Some of the time	All of the time
5. Muscle soreness	None of the time	Some of the time	All of the time
6. Hot spells	None of the time	Some of the time	All of the time
7. Numbness	None of the time	Some of the time	All of the time
8. Cold spells	None of the time	Some of the time	All of the time
9. Difficulties swallowing	None of the time	Some of the time	All of the time
10. Constipation	None of the time	Some of the time	All of the time

How often did you experience_____when you stopped using or were around drugs/alcohol...			
11. Cravings	None of the time	Some of the time	All of the time
12. Stomach flip-flops	None of the time	Some of the time	All of the time
13. Mouth watering	None of the time	Some of the time	All of the time
14. Jitters or shakes	None of the time	Some of the time	All of the time
15. Hot flashes	None of the time	Some of the time	All of the time
16. Cold flashes	None of the time	Some of the time	All of the time
17. Taste it	None of the time	Some of the time	All of the time
18. Smell it	None of the time	Some of the time	All of the time
19. Mood changes	None of the time	Some of the time	All of the time
20. Drug dreams	None of the time	Some of the time	All of the time
21. Headaches	None of the time	Some of the time	All of the time
22. Flashbacks	None of the time	Some of the time	All of the time

How often have you...			
23. Shared needles, etc	None of the time	Some of the time	All of the time
24. Cleaned works	None of the time	Some of the time	All of the time
25. Slept with someone for money	None of the time	Some of the time	All of the time
26. Slept with someone for drugs	None of the time	Some of the time	All of the time
27. Had unprotected sex	None of the time	Some of the time	All of the time
28. Had a STD	None of the time	Some of the time	All of the time
29. Used condoms	None of the time	Some of the time	All of the time
30. Had sex and did not remember	None of the time	Some of the time	All of the time
31. Did you go around people, places, & things	None of the time	Some of the time	All of the time
32. Were you homeless	None of the time	Some of the time	All of the time
33. Argued	None of the time	Some of the time	All of the time
34. Stop at a bar while sober	None of the time	Some of the time	All of the time

35. Feel uncomfortable around sober people	None of the time	Some of the time	All of the time
How often did you...			
36. Go around people, places, & things	None of the time	Some of the time	All of the time
37. Loose your job	None of the time	Some of the time	All of the time
38. Homeless	None of the time	Some of the time	All of the time
39. Argue over drugs	None of the time	Some of the time	All of the time
40. Feel tense around others who were using	None of the time	Some of the time	All of the time
41. Feel tense around others who were sober	None of the time	Some of the time	All of the time
42. Stop in a bar while you were drug-free	None of the time	Some of the time	All of the time
43. Think you could stop drinking after a few drinks	None of the time	Some of the time	All of the time
44. Think you could have a few drinks	None of the time	Some of the time	All of the time
45. Use because you had money in your pocket	None of the time	Some of the time	All of the time
46. Go to parties were drugs and alcohol were	None of the time	Some of the time	All of the time
47. Go around individuals who were drinking or using	None of the time	Some of the time	All of the time
48. Think of using because it was the weekend	None of the time	Some of the time	All of the time
49. Think of using because you got paid	None of the time	Some of the time	All of the time
50. Used because your partner used	None of the time	Some of the time	All of the time
51. Stay with a partner who was not in recovery	None of the time	Some of the time	All of the time
52. Think of using after you had sex	None of the time	Some of the time	All of the time
53. Use because you were bored	None of the time	Some of the time	All of the time
54. Use because you were upset	None of the time	Some of the time	All of the time
55. Drink because you were uptight	None of the time	Some of the time	All of the time
56. Use after receiving bad news	None of the time	Some of the time	All of the time
57. Tried to stay sober but the neighborhood was drug infested	None of the time	Some of the time	All of the time
58. Use after your family kept bugging you	None of the time	Some of the time	All of the time
59. Have support from your partner to stay sober	None of the time	Some of the time	All of the time
60. Use after fighting with your partner	None of the time	Some of the time	All of the time
61. Attend church	None of the time	Some of the time	All of the time

62. Attend AA/NA	None of the time	Some of the time	All of the time
63. Contact your sponsor	None of the time	Some of the time	All of the time
64. Participate in your home group	None of the time	Some of the time	All of the time
65. Engage in exercise	None of the time	Some of the time	All of the time
66. Drink or use after ending a relationship	None of the time	Some of the time	All of the time
67. Miss AA/NA	None of the time	Some of the time	All of the time
68. Get something out of AA/NA	None of the time	Some of the time	All of the time
69. Spoke at AA/NA	None of the time	Some of the time	All of the time
70. Attend AA/NA because someone told you to	None of the time	Some of the time	All of the time

APPENDIX J
CONSENT FORM

Principal Investigator: Lori Simons, MS, Psychological Studies in Education, (215) 790-1028 or (215) 223-1005
Academic Advisor: Joseph Ducette, Ph.D., Psychological Studies in Education, (215) 204-7962

I am currently engaged in a study on **Biopsychosocial Factors Associated with Addiction Relapse**. To help gain further insight into this area, you have been asked to complete a paper and pencil questionnaire packet consisting of 8 surveys that will take approximately 45 minutes of your time.

If any question causes emotional discomfort, I will be available to individually and privately deal with issues and answer any questions you may have.

The data you will provide will be recorded anonymously and your responses on the surveys will be held in the strictest confidence.

I welcome questions about this study at any time. Your participation in this study is on a voluntary basis, and you may refuse to participate at anytime without consequences or prejudice.

"I understand that if I wish further information regarding my rights as a research subject, I may contact the Office of the Vice Provost for Research of Temple University by phoning (215) 204-7460."

Signing your name below indicates you have read and understood the contents of this Consent Form and that you agree to take part in this study. Signing this form will not waive any of your legal rights. A copy of this signed Consent Form will be provided to you.

Participant's Signature	**Date**
Investigator's Signature	**Date**
Advisor's Signature (Witness)	**Date**

APPENDIX K
SUBSTANCE USE RESULTS

- Affective and avoidance beliefs predicted crack-cocaine use among male and female participants in residential, partial, and outpatient treatment. Affective and avoidance beliefs mediated the relationship between child abuse and crack-cocaine use.

- Health and behavior risks mediated the relationship between child abuse and alcohol use. Child abuse was negatively associated with avoidance coping, avoidance and affective beliefs. Affective beliefs predicted behavior risks, whereas avoidance beliefs predicted health risks. Behavior and health risks were directly linked with alcohol use among male and female participants in treatment.

- For affective belief scores, the results showed a significant main effect for the type of addiction. A Tukey HSD indicated that marijuana addicts had significantly lower belief scores than alcoholics, crack addicts, and cocaine addicts.

- The results also showed a significant main affect for avoidance belief scores. A Tukey HSD indicated that marijuana addicts had significantly lower avoidance belief scores than crack addicts.

- For coping scores, the results showed a significant main effect for type of addiction. A Tukey HSD indicated that marijuana addicts had significantly lower avoidance coping scores than alcoholics.

- A series of regression analyses were performed on first-order and second-order relatives, family variables, child abuse, and alcohol use to further assess the relationship between familial alcoholism and/or mental illness and substance use.
  - The results from the stepwise regression analysis demonstrated that having a mentally ill sister and a history of familial socioeconomic problems predicted alcohol use. These two variables accounted for 14% of the variance.

  - The results from another stepwise regression analysis demonstrated that familial mental illness, having a mentally ill brother, and an alcoholic grandfather predicted childhood abuse. These three variables accounted for 24% of the variance.

  - A multiple regression analysis supported that specific family variables predict the different types of childhood abuse: 1). An alcoholic father, familial mental illness, familial structure, and familial socioeconomic hardship predicted emotional abuse. 2). An alcoholic mother and a mentally ill sister predicted emotional neglect. 3). An alcoholic brother and a mentally ill sister predicted sexual abuse. 4). An alcoholic father, alcoholic grandfather, familial mental illness, mental ill brother, and grandmother predicted physical abuse,

APPENDIX L
FAMILY RESULTS

5). An alcoholic father, familial mental illness, mentally ill father, and familial structure predicted physical neglect.

- Results from a discriminant analysis supported that participants diagnosed with depression disorders are more compliant with medication regiments than those diagnosed with bipolar and thought disorders.

- The results from a logistic regression analysis showed a significant difference in mental heath and medication adherence according to the type of abuse. Child abuse predicted the presence of a mental health disorder and medication usage. Emotional abuse and physical abuse also predicted the presence of mental health disorder and medication compliance, while physical neglect and sexual abuse predicted the presence of a mental health disorder.

- The results from a one-way ANOVA revealed differences between participants with and without a history of abuse and the presence and absence of a mental illness. Participants with a history of child abuse, physical abuse, physical neglect, emotional abuse and sexual abuse were more likely to have a mental health disorder than those without a history of abuse.

- Results from a discriminant analysis support that a history of sexual abuse predicted relapse following program completion among women in residential treatment.

- Results from another discriminant analysis support that alcohol use with in the past 12 months predicts stages of treatment among women in residential treatment. The first discriminant function separated clients who left treatment midway from those who completed treatment. The second discriminant function separated clients left within the first 45 days from those who completed at least 185 days.

- A discriminant analysis tested alcohol and medication use among participants in residential, partial, and outpatient treatment. Participants in residential treatment had lower alcohol scores than those in partial and outpatient. Participants in partial treatment had lower medication scores than those in residential treatment.

- Another discriminant analysis tested psychosocial factors among participants in residential, partial, and outpatient treatment. Participants in outpatient treatment had higher esteem and social support scores and lower behavior risk scores than those in residential and partial treatment.

APPENDIX M
GENDER AND TREATMENT RESULTS

- Results from a discriminant analyses supported that participants in partial treatment had higher child abuse, emotional abuse, and physical abuse scores than those in residential and outpatient treatment.

- Results from a series of an analysis of variance supported that participants in outpatient treatment smoked more heavily than those in partial treatment.

- Participants in residential treatment had higher avoidance belief scores than those in outpatient treatment.

- There were significant differences in emotional abuse, physical abuse, and physical neglect among participants in residential, partial, and outpatient treatment.

- For males, there were two predictors of alcohol use. Physical abuse negatively predicted alcohol use, whereas emotional abuse was positively associated with alcohol use.

- For females, childhood abuse was indirectly linked to alcohol use through mediating factors of emotional abuse, sexual abuse, avoidance coping, physical abuse, affective beliefs, and behavior and health risks. Emotional abuse, affective beliefs, and behavior and health risks directly precipitated alcohol use among females in residential, partial, and outpatient treatment.

- Results from a log-linear analysis supported that females were more likely to be diagnosed with a mental illness than males.

- A series of one-way analysis of variance demonstrated differences in psychosocial factors between males and females.
  - Females had higher medication scores than males.
  - Females had higher rates of crack-cocaine use while males had higher alcohol frequency and severity scores.
  - Males had greater nicotine frequency scores than females.
  - Females had greater rates of sexual abuse, while males had greater rates of physical abuse.
  - Males had more children than females, but females had more children living with them than males.

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