

AN EXPLORATION OF HIGH SCHOOL COMPLETION AND ITS
PSYCHOSOCIAL CORRELATES IN ADULT MALES WITH
SUBSTANCE USE DISORDERS

A Dissertation
Submitted to
the Temple University Graduate Board

In Partial Fulfillment
of the Requirements for the Degree
DOCTOR OF PHILOSOPHY
OF EDUCATION
School Psychology

by
Sara Paulus Serbun
May 2016

Examining Committee Members:

Dr. Frank Farley, Advisory Chair, School Psychology/ Educational Psychology
Dr. Joseph DuCette, Educational Psychology
Dr. Catherine Fiorello, School Psychology
Dr. Steven Gross, Educational Leadership and Administration

ABSTRACT

Substance use disorders (SUD) are a prominent public health problem in the United States of America. Substance use disorders, by definition, beget significant health and social consequences. The purpose of this study was to investigate the association between negative educational outcomes (failure to complete high school and low-literacy) and behavioral, clinical, and social correlates in people with SUD. It was hypothesized that men with high school completion would report less negative clinical, social, and behavioral correlates. Independent analyses ran for each behavioral, clinical, and social correlate failed to reject the null hypothesis that differences between the high school completion and non-completion groups were not statistically significant. This study utilized intake data for a sample of socially disadvantaged adult males with SUD at an inpatient treatment facility in a large urban area. Of significance, only 33.9% of this sample reported completing high school. Census Data estimates that 81.2% of adults in the same county are high school graduates, suggesting a significant relationship with high school non-completion in this group of people with SUD. This research presents a starting point for a conversation related to accommodations for literacy challenges in treatment programs for SUD.

The theoretical basis for this study relates to the underlying development of competence and identity that is achieved through educational success early in life, which can affect later life outcomes (Erikson, 1963). The relationship between high school completion and reported confidence for achieving sobriety in the study was not

significant. A separate analysis also found non-significant results using reported school-aged reading and writing problems as the independent variable. Among many limitations, the time that the data was collected and the age range of the sample is thought to have impacted the results. Future directions include recommendation to investigate the influence of educational attainment on treatment outcomes.

A secondary analysis explored SUD and spirituality. Ellis and Shoenfeld (1990) argued that the spirituality component of Alcoholics Anonymous, which is largely incorporated into inpatient SUD treatment for socially disadvantaged populations, was impeding people from potential recovery. In this study men who placed value on spirituality were statistically significantly more confident in their ability to find treatment success than those who did not place value on spirituality, indicating an association between spirituality and confidence for success in treatment.

My compassion for those who struggle with addiction is a direct result of having loved someone who knew their affliction. This project is dedicated to my brother, Dan, who may no longer be here in body but has left his fingerprints on my heart and mind forever.

There are pieces of you in all that I do.

Daniel B. Paulus

1990-2016

ACKNOWLEDGMENTS

I would like to first acknowledge the community at ReEnter, Inc. The time I spent with you has altered my mindset and opened my heart in a way that I could never repay. Thank you for allowing me to step outside my comfort zone and for teaching me that people are far more alike than they are different.

This project would not have been possible without the support and guidance from Temple University over the past five years. I am indebted to both my professors and peers, as each of you have challenged me and helped me to grow professionally and personally. I am especially grateful to the members of my committee: My adviser, Dr. Frank Farley, Dr. Joseph DuCette, Dr. Catherine Fiorello and Dr. Steven Gross. Each of you brought support and inspiration in a unique way to this study. Additionally, I could never have done this without two members of my cohort, Ashley Baran and Kate Cariss. Throughout graduate school you quickly transformed from colleagues to dear friends. Thank you for supporting me through countless “dissertation days” and for making this process, dare I say it, fun.

I am forever grateful for my family (Mom, Dad, Megan, & Jeremy) who has supported and encouraged me along this journey and all my journeys. Together, my parents have always put their children before themselves and have consistently modeled work ethic, compassion, intellectual curiosity, and resiliency, all of which I attempted to channel in order to see this project to its completion. Specifically, I would like to acknowledge my mom who courageously went back to school to earn her own masters degree in substance use counseling at the age of 60. Not only has your knowledge been

instrumental in strengthening this project but also your drive and motivation has inspired me to continue to set new goals and dream new dreams.

Finally, it is with thanks and love that I acknowledge my very patient and supportive husband, Luke. From the little things like supplying me with candy for late night writing sessions, to the big things like prioritizing my career goals as we started our life together, there is no other person who deserves to take ownership in this accomplishment with me than you. Our love is truly one of balance and I look forward to a life of supporting each other in the way that you have selflessly demonstrated throughout my time in graduate school.

I have grown to recognize and truly appreciate this level of education as a privilege, one that for me would not likely have been possible without the circumstances of opportunity in which I was raised. While I can never properly acknowledge all that has gone into the opportunities that I have been given, I strive to work to ‘pay it forward’ so that others have the chance to enrich their lives through education.

TABLE OF CONTENTS

	Page
ABSTRACT	ii
DEDICATION	iv
ACKNOWLEDGMENTS	v
LIST OF TABLES	x
CHAPTER	
1. INTRODUCTION	1
Statement of the Problem	3
Theoretical Perspective	4
Purpose of the Study	5
Research Questions and Hypotheses	6
Definition of Terms	7
Application of Results	9
2. REVIEW OF LITERATURE	11
High School Completion, Low Literacy, and Psychosocial Outcomes	11
High School Completion, Low Literacy, and SUD	13
Psychosocial Heterogeneity Among Persons In Recovery with SUD	14
Substance Use Disorders and Mental Health	18
Depression	19
Substance Use Disorders and Behavioral Correlates	21
Criminal History	21

Employment History	23
Sexual Risk-Taking	25
Substance Use Disorder and Social Correlates	29
Interpersonal Relationships and Support.....	29
SUD and Spirituality	30
Current Treatment Available.....	35
Summary.....	38
3. METHODS.....	40
Participants	40
Design.....	41
Measures.....	41
Coding	44
Data Analysis.....	46
4. RESULTS	47
Descriptive Statistics	47
Research Question 1	51
Research Question 2	51
Research Question 3	52
Mental Health Correlates.....	53
Behavioral Health Correlates	56
Social Correlates.....	59
Secondary Analysis	60

5. DISCUSSION	63
Summary and Meaning of Results	64
Implications	71
Limitations and Future Direction	74
REFERENCES	75
APPENDICES	
A. BIOPSYCHOSOCIAL FORM.....	86

LIST OF TABLES

Table	Page
2.1 The Twelve Steps.....	31
3.1 Correlates Questions and Codes.....	45
4.1 Participant living arrangement and marital status.....	48
4.2 Family Histories.....	48
4.3 Percentage of Primary Substance of Use at Treatment Admission for Sample and Philadelphia: 2013.....	49
4.4 Highest Level of Education Completed.....	50
4.5 Mental Health Treatment History.....	54
4.6 Distribution of Total BDI-II scores by severity level cut score.....	55
4.7 Criminal History Descriptive Statistics for Sample.....	57
4.8 Means for Criminal History in High School Completion and Non-completion... ..	57
4.9 Lifetime Legal Employment History for Sample.....	59
4.10 Summary of High School Completion and Correlates.....	61

CHAPTER 1

INTRODUCTION

Substance use disorders (SUD) are a prominent public health problem in the United States of America. The 2014 National Survey on Drug Use and Health data show that 21.2 million Americans ages 12 and older needed treatment for an illegal drug or alcohol use problem in 2014 (Center for Behavioral Health Statistics and Quality, 2015). Substance use disorders, which include the abuse of tobacco, alcohol, and illicit drugs, cost the United States of America \$700 billion annually in costs related to crime, lost work productivity, and health care (U.S. Department of Health and Human Services, 2014; Centers for Disease Control and Prevention, 2015; National Drug Intelligence Center, 2011). Moreover, the vast scope of SUD literature has converged upon the complexity of SUD in terms of comorbid disorders, health, and social consequences making it difficult to establish gold standards for treatment.

The prevalence and significant implications of SUD have led to a surge in attention and demand for treatment. There are currently multiple therapeutic recovery avenues that are geared specifically towards people with SUD. The Substance Abuse and Mental Health Service Administration (SAMHSA) National Registry of Evidence-based Programs and Practices (NREPP) recognizes over 350 programs and reports effective, promising, and ineffective outcomes for individualized populations and desired outcomes. Inpatient care is the most intensive level of support for SUD. The care provided between inpatient treatment facilities is highly variable. Furthermore, the evidence base for the treatment provided for substance use disorders contains significant

limitations (Manuel et al., 2011). Some examples of commonly used evidence-based practices in inpatient treatment are cognitive-behavioral therapy, motivational interviewing, and contingency management (Manuel et al., 2011). As commonplace with healthcare nationwide irrespective of the problem, an evident gap exists between the qualities of care available for self-pay, privately insured, and uninsured people with SUD. The research relating to SUD funding and implications on populations related to socioeconomic status is beyond the scope of this study. However, it is widely acceptable that SUD effective treatment has only recently reflected regulations for evidence-based practices and in the most ideal settings those practices have not established treatment integrity. As such, this study focuses on what is commonplace in socially disadvantaged populations where the needs are arguably more complex.

Inpatient recovery programs that employ a variety of formal treatments in combination with twelve step groups are increasingly common for treatment of SUD (Delany, Shields, & Roberts, 2009). In addition, much of the treatment for SUD involves individual or group counseling. As people in SUD inpatient treatment reside in facilities for 24 hours a day, when they are not in structured group or individual therapy a large majority of the treatment also involves independent work involving reading literature and using personal insight to reflect and journal responses to assignments. Furthermore, when treatments such as Cognitive Behavior Therapy (CBT) and Dialectical Behavioral Therapy (DBT) are used in the aforementioned structured counseling, they involve some aspect of completing assignments in order to gain insight that will initiate behavior change (Linehan, Schmidt, Dimeff, Craft, Kanter, & Comtois, 1999). The Alcoholics Anonymous program is centered on regular reading of *The Big Book of Alcoholics*

Anonymous and completion of the twelve steps; many of the steps include reading and journaling progress, emotions, and reflection. Therefore, it can be generally inferred that literacy is imperative in order to actively participate in the multifaceted inpatient treatment programs.

Statement of the Problem

A relationship between reading development and a variety of negative consequences, including high school dropout, has been accepted by leading researchers in school psychology (Reschly, 2010). In adulthood, men who were less educated were more subjected to distress than those with higher educational levels and less likely to report and seek treatment for common mental problems whenever distressed (Khlal, Legleye, & Sermet, 2014). It is well established that high school non-completion, be it related to literacy challenges or not, is strongly associated with negative social consequences.

Socially disadvantaged adult males seeking recovery from SUD are presented with options if they decided to seek help. Inpatient programs, in particular, typically provide multifaceted treatment modalities, commonly include some reliance on individual and group counseling, family involvement, and participation in 12- step groups (Delany, Shields, & Roberts, 2009; Manuel et al., 2011) While one tool was found that outlined treatment differentiation suggestions for a variety of cognitive difficulties (SAMHSA Treatment Improvement Protocol, 1998), there is a gap in the research reflecting the implementation of those recommendations to evidence-based practices.

Substance Use Disorders, by definition, beget significant health and social consequences. There is a gap in the literature investigating the association between negative educational outcomes (failure to complete high school, low-literacy) and psychosocial outcomes in people with SUD.

Theoretical Perspective

A theoretical perspective is useful to better understand the conceptualization of this study. Erikson's Stages of Psychosocial Development (1959) serves as the theoretical basis. Erikson (1959) introduced the concept *psychosocial* to encompass one's psychological development in, and interaction with, a social environment. The individual need not be fully aware of this relationship with his or her environment.

Erikson proposed that psychosocial development progresses over eight sequential stages:

Stage 1: Infancy: Trust vs. Mistrust (Age 12-18 months)

Stage 2: Early Childhood: Autonomy vs. Shame/Doubt (Age 18 months-3 years)

Stage 3: Preschool: Initiation vs. Guilt (Age 3- 6 years)

Stage 4: School Age: Industry vs. Inferiority (Age 6-12 years)

Stage 5: Adolescence: Identity vs. Role Confusion (Age 12-18 years)

Stage 6: Young Adult: Intimacy vs. Isolation (Age 19-40 years)

Stage 7: Adulthood: Generativity vs. Stagnation (40-65 years)

Stage 8: Old age: Integrity vs. Despair (65- death)

Erikson (1963) describes overarching crises that occur sequentially at each stage of development. According to the theory, successful completion of each stage results in obtaining lifelong virtues that are necessary for living as an autonomous adult (Erikson,

1963). Moreover, difficulty successfully completing a stage can negatively impact the ability to complete further stages, leading to continuous increased psychosocial difficulties.

For this study, it is useful to focus on the time between the start of school age and the beginning of adolescence (Stage 4) that Erikson theorized is a time at which a child's world extends from his or her home to the school. Children are faced with learning new skills each day and those who cannot master their schoolwork can potentially identify as a failure and feelings of inferiority may arise (Erikson, 1959). According to the theory, the virtue of competence is helpful in navigating the ever-changing challenges of life (Erikson, 1963). Therefore according to Erikson's theory, a failure in education can theoretically lead to difficulties in psychosocial aspects of life.

To further understand the conceptualization of this study, it is also useful to unpack *Stage 5*. As mentioned, Erikson theorized that failure to resolve the crisis of one stage would likely lead to difficulty in future stages. In Adolescence (Identity vs. Role Confusion), Erikson (1963) suggests that success in this stage will lead to the virtue of fidelity. It is explained that it is during this time frame that adolescents form their own identity based upon the outcome of their experiences. As such, failure to establish this sense of identity can lead to role confusion, or identity crisis, which is associated with exploration of different lifestyles. It is hypothesized that pressure to establish identity may result in a rebellion associated with *negative* identity development and emotional response (Erikson, 1963).

Purpose of the Study

The purpose of this study is to describe a sample of socially disadvantaged, adult males with Substance Use Disorder, which is a complex illness that is highly associated with various health and social consequences. The understanding of common behavioral, mental health, and social correlates for this sample in general is beneficial to better understand and ultimately better assist this population. Furthermore, this study will highlight the prevalence of high school dropouts among this population and the significance of education in the current treatment for adult males with Substance Use Disorders. The relationship between high school completion and the aforementioned psychosocial correlates is explored to determine the need for differentiation and accommodations for education-related skills in substance use treatment. In sum, this study aims to expand the literature in the following ways:

- 1) This study seeks to add to the literature on substance use disorders and comorbid learning difficulties and high school drop-out.
- 2) A major aim of the study is to provide a descriptive summary of behavioral, social, and mental health correlates in Persons in Recovery in this sample who had completed high school and those who had not.
- 3) The literacy level necessary to participate fully in commonly used treatment modalities in inpatient substance use treatment will be explained.
- 4) To reflect the prevalence of 12-step group participation in inpatient treatment facilities, this study will explore the relationship between spirituality and recovery in a secondary analysis.

Research Questions and Hypothesis

Specifically, the research questions that will be addressed are:

1. Do reported literacy challenges while school aged have a relationship with high school education completion among this population of adult male substance users?
 - a. It is hypothesized that literacy challenges will be negatively correlated with high school completion.
2. Do men with substance use disorder who have completed a high school education differ from those who have not in their self-reported confidence of achieving sobriety in treatment?
 - a. It is hypothesized that high school completion will have a positive relationship with reported confidence in ability to achieve sobriety through treatment.
3. Do high school completers and non-completers differ in clinical, social, and behavioral correlates that have been well-established as comorbid difficulties for substance use disorders?
 - a. It is hypothesized that men with high school completion will have less negative clinical, social, and behavioral correlates and more positive correlates.
4. A secondary analysis will explore reported spirituality among this sample. Do men who report spirituality as important to their recovery differ from those who do not in their self-reported confidence of achieving success in treatment?

- a. It is hypothesized that men who report more value on spirituality's importance of recovery will have more confidence in their ability to achieve sobriety through treatment due to the historical association with Alcoholics Anonymous method of achieving recovery.

Definition of Terms

The language associated with Substance Use Disorders (SUD) is changing as the science around SUD and recovery evolves. A language guide was created by SAMHSA's Center for Substance Abuse Treatment (CSAT) in collaboration with SAMHSA's National Alcohol and Drug Addiction Recovery Month Planning Partner organizations, SAMHSA's Partners for Recovery (PFR) initiative and the PFR National Subcommittee on Reducing Stigma. The purpose of the language guide was to highlight terminology that currently causes confusion and perpetuates stigma within the prevention/treatment/recovery workforce and also to promote the use of words that will advance the understanding of substance use disorders as a health issue. Literature published prior to the adoption of the most recent substance use terminology will be described using the most recent term throughout this study.

Substance Use Disorder: The American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-V; American Psychiatric Association, 2013) defines substance use disorders as a maladaptive pattern of substance use leading to clinically significant impairment or distress. The most recent DSM released by the American Psychiatric Association in 2013 (DSM-V) combined the previous diagnostic criteria for substance dependence and substance abuse into one

category of substance use disorders. The number of diagnostic criteria met by an individual determines whether the Substance Use Disorder (SUD) is classified as mild, moderate, or severe to indicate the level of severity. Examples of inclusive criteria for SUD are cravings for substances, an inability to control substance intake, the development of tolerance to a substance's effects, report of prominent interpersonal and social implications, and expending significant time and/or resources to use or recover from the intake of a substance (American Psychiatric Association, 2013).

Recovery. SAMHSA defines the term "recovery" as a process of change through which individuals improve their health and wellness, live a self-directed life, and strive to reach their full potential. SAMHSA has identified four dimensions of recovery from substance use: health, home, purpose, and community.

Person in Recovery: This term is used to describe a person with a SUD who is working towards the aforementioned definition of recovery.

Socially Disadvantaged: This term is used to describe individuals who have been subjected to racial or ethnic prejudice or cultural bias because as members of groups without regard to their individual qualities. In this study, this term is also used to reflect the uninsured and those who may not fall into this category if not for having a SUD, which is a social disadvantage in itself.

Low literacy: For the purpose of this study, the Framework for the 2003 National Assessment of Adult Literacy's definition of literacy will be used: Literacy is the ability to use printed and written information to function in society, to achieve one's goals, and to develop one's knowledge and potential. The skills required to perform literacy tasks are word-level reading skills and higher-level literacy skills (White & McCloskey, 2003).

High school non-completion will be considered as low-literacy, as generally they are such when compared to their high school graduated counterparts.

Psychosocial: According to Erikson (1959) for a concept to be psychosocial means it relates to one's psychological development in, and interaction with, a social environment. The psychosocial correlates that were explored were broken down to reflect clinical, behavioral, and social correlates.

Application of the Results

Research utilizing small samples of self-report data contains well-known limitations in both validity and reliability yet these limitations do not undermine the utility of this study. This research will shine light on the current literacy demands in many substance use treatment modalities, particularly for the uninsured, and the prevalence of literacy challenges in this population. This research presents a starting point for a conversation related to accommodations for literacy challenges in treatment programs for SUD. In addition, it outlines support for a heightened need for remedial literacy support for adults with SUD while simultaneously acknowledging and addressing the socioemotional repercussions of comorbid low literacy and SUD. For school psychologists, this research adds to the existing support for integration of student level services that concurrently develop academic, social, and life skills.

CHAPTER 2

REVIEW OF LITERATURE

The following literature review provides a contextual framework for this study. First, an overview of the relationship between low literacy and high school non-completion and the associated life outcomes is presented. The existing literature that has explored substance use disorder and comorbid learning disabilities, specifically in reading, will be outlined. A gap in literature relating to literacy and SUD in adults is discussed. Two prior studies that have explored psychosocial heterogeneity of samples of people with SUD are outlined as they closely relate to this project. An overview of the current literature on SUD and its association with the selected clinical, behavioral, and social correlates that are investigated in this study will be provided in order to better understand the prevalence of a myriad of comorbid challenges that are commonly associated with SUD. As pertinent to a secondary analysis, spirituality and SUD is discussed. Finally, an overview of the status of current inpatient treatment options available to socially disadvantaged, urban, adult populations is reviewed with a specific focus on the literacy proficiency required to actively participate in treatment.

High School Completion, Low literacy, and Psychosocial Outcomes

Data from the U.S. Department of Labor Surveys showed that the median income for individuals without a high school diploma was roughly two-thirds of the median income for individuals with a high school diploma and less than half those with a bachelor's degree. Furthermore, the rate of unemployment is highest for people without a

high school diploma compared to their more educated counterparts. It is well known that adults who have poor reading skills compose a large number of those who are high school dropouts. Adult illiteracy also has a well-established relationship with unemployment, poverty, and or incarceration, all of which are costly to society as a whole.

As such, the association between high school non-completion and reading difficulties is well recognized. For example, Zabolocki and Krezmien (2013) conducted a study using data from the National Longitudinal and Transitional Study 2 database to investigate predictors of high school dropout, particularly among students with high incidence disabilities. Findings indicated that low academic achievement was a significant risk factor in dropout for students with disabilities (Zabolocki & Krezmien, 2013).

Reschly (2010) presented findings to support intensive early interventions for student reading skills. Data suggested that early reading interventions resulted in lower rates of grade retention, reduced incidence of placement in special education, and higher rates of high school completion. Reschly presents an overview of evidence connecting reading difficulties to high school non-completion before introducing an intervention mutually directed at literacy and school engagement. Through the review of evidence, the “Matthew effect” as described by Stanovich (1986) is reiterated as situations in which initial differences or effects are multiplied over time. The Matthew effect as it relates to reading exists in school where first we ‘learn to read’ before quickly ‘reading to learn’. Students who successfully master reading will be able to acquire knowledge on a large scope at an exponentially faster rate, without the confounding emotional difficulties that

relate to early reading failure (Reschly, 2010; Stanovich, 1986) In turn, the “Matthew effect” as it relates to reading is exacerbated by a decreased motivation and school engagement that is commonplace for struggling readers (Reschly, 2010). A lack of school engagement has been associated with decreased high school completion (Wang & Fredricks, 2013).

Literature is available to suggest that adults with reading difficulties continue to be affected by their shortcomings particularly when faced with academic material beyond high school, even if they successfully completed high school (Cantrell et al., 2013). A recent study exploring psychosocial aspects of college students in developmental reading courses indicated that students had significantly lower levels of self-efficacy for academic and personal experiences than students in general college-level English courses (Cantrell et al., 2013).

High School Completion, Literacy and Substance Use Disorders

In the United States, according to the National Survey on Drug Use and Health (NSDUH; Substance Abuse and Mental Health Services Administration [SAMHSA], 2013), rates of SUD are associated with a person’s level of education. Much of the research related to low-literacy and SUD over the past few decades has focused on the adolescent populations (Karacostas & Fisher, 1993; Rhodes & Jasinski, 1990; Yu, Buka, Fitzmaurice, & McCormick, 2006; Kelly et al., 2015). Research specifically related to comorbid learning disabilities in adolescent populations has found high learning disability prevalence, ranging from 40–70% of chemically dependent adolescents (Karacostas & Fisher, 1993; Rhodes & Jasinski, 1990). Research has also been done that

suggests that this population of students with learning problems and comorbid substance use problems is not only prevalent, but may require additional support than their non-learning disabled peers (Yu et al., 2006). Yu and colleagues conducted a 6-month longitudinal study comparing a group of chemically dependent adolescents with learning disorders (LD) to a group of chemically dependent adolescents without learning disorders. Compared to chemically dependent teenagers without LD, those with LD were twice as likely to re-use substances at least once by follow-up (Yu et al., 2006).

There is evidence to support behavior relating to SUD as a predictor of high school non-completion. A recently published study of the association of polydrug use, alcohol use, and high school non-completion on a sample of Australian adolescents found that polydrug use (high rates of alcohol, tobacco, and marijuana) predicted subsequent school non-completion after accounting for a range of potential confounding factors (Kelly et al., 2015).

There is a significant gap in the literature concerning literacy skills and success of substance use addiction recovery at this time. Resources are available that outline accommodations to treatment for people with cognitive disabilities including a mention of reading difficulties; however, a significant research-to-practice gap exists in the awareness and implementation of those suggestions. It can be inferred that if people cannot read, write or comprehend the reasoning for the questions that are being asked of them, it would be more difficult to succeed in obtaining recovery through treatments that require these cognitive abilities. Lincoln (2006) and his colleagues found low literacy to be associated with worse depressive symptoms in people with substance use disorders. The authors suggested that the relationship between literacy and mental health outcomes

be explored; however, there is limited research in this area regarding substance use disorders (Lincoln et al., 2006).

Psychosocial Heterogeneity in Persons in Recovery from SUD

Various psychosocial characteristics are known to affect substance use disorder recovery. Within-group heterogeneity of people with SUD is not well researched. Cohen (1999) investigated within-group heterogeneity across a range of psychological and social domains in low-income, African American, female crack cocaine users using factor and cluster analyses in relation to various clinical and behavioral indicators. The subgroup in that study evidencing the highest levels of psychological distress and dysfunction also reported the riskiest sexual behaviors and most extensive drug use history (Cohen, 1999).

More recently, a study by Mendelson, Dariotis and Agus (2013) looked at the psychosocial profiles among both male and female low-income substance abusers to begin to explore within group heterogeneity. Psychosocial characteristics assessed included depressive symptoms, perceived social support, self-efficacy, and coping. The following measures were used to assess the aforementioned psychosocial variables:

- 1) *Depressive symptoms*: The Patient Health Questionnaire-9 (PHQ-9; Kroenke, Spitzer, & Williams, 2001) asks respondents to rate how often over the past two weeks they experienced each of nine symptoms for major depression from the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, on a scale ranging from 0 (not at all) to 3 (nearly every day).
- 2) *Perceived Social Support*: An 11-item abbreviated version of the Medical

Outcomes Study (MOS) Social Support Survey (Sherbourne & Stewart, 1991). The measure asks respondents to report the extent to which each listed type of support is available to them on a scale ranging from 1 (*none of the time*) to 5 (*all of the time*). (e.g., “someone to take you to the doctor if you really needed it;” “someone to love and make you feel wanted”). The measure was found to have good internal reliability and construct validity (Sherbourne & Stewart, 1991), Cronbach’s alpha was 0.96.

- 3) *Self-efficacy*: The 7-item Mastery Scale (Pearlin & Schooler, 1978) includes items such as “I often feel helpless in dealing with the problems of life” and “There is really no way I can solve some of the problems I have.” The measure asks respondents to rate the extent to which they agree with each statement on a scale ranging from 1 (*strongly agree*) to 4 (*strongly disagree*). The scale has been found to have good internal reliability and factor structure (Bovier, Chamot, & Perneger, 2004).
- 4) *Positive and negative coping*: The 28-item Brief COPE (Carver, 1997), in which respondents rate whether they use various coping methods (e.g., “I’ve been getting help and advice from other people”) on a scale ranging from 1 (strongly agree) to 5 (strongly disagree). The scale was found to have good internal reliability and factor structure (Carver, 1997).

Mendelson and colleagues used cluster analysis, a multivariate statistical procedure for generating homogenous groups based on several characteristics of interest, to identify subgroups of individuals with similar levels of the aforementioned psychosocial variables. Results indicated that the largest cluster (38.4% of the sample) was

characterized by a pattern of high levels of depressive symptoms and negative coping, coupled with low levels of perceived social support, self-efficacy, and positive coping (Mendelson et al., 2013). This group was then referred to as “distressed”. Two other groups were identified and labeled “adjusted” (34.2%) and “resilient” (27.4%). After clusters were established, they were associated with sociodemographic (gender, age, race, marital status, education, employment, and living situation), behavioral (substance use severity, criminal history), and clinical (trauma exposure, mental health history) correlates. As compared with individuals in the other clusters, those in the “distressed” cluster were more likely to be female and reported more housing instability and underemployment, more severe substance use problems in the past year, more trauma symptoms, and more current use of individual therapy (Mendelson et al., 2013). While 44.7% of the sample did not have a high school education, high school completion was not significantly correlated with any of the established clusters (distressed, adjusted, or resilient). However, the relationship between high school non-completion and other behavioral and clinical outcomes was not explored in isolation.

Outcomes from existing studies that have investigated psychosocial heterogeneity among people with substance use disorders and explored their association with socio-demographical, behavioral, and clinical indicators suggest a need for the development of intensive and multifaceted treatment for individuals with more psychosocial distress and less positive psychosocial indicators (Cohen, 1999; Mendelson et al., 2013).

Substance Use Disorders and Clinical Correlates

Mental Health

Substance use disorders and mental illness are often correlated. The nature of the relationship between substance use disorders and psychopathology has long been an area of controversy. Consistent findings indicate that substance users differed significantly from non-users in levels of depression, interpersonal problems, aggression, cognition, and other psychosocial indicators (Compton, Thomas, Stinson, & Grant, 2007; Eisinger, Wodarski & Ferguson, 2009). Drake and Wallach (1989) found that participants in a study that were substance abusers and diagnosed with mental illness were less able to manage their lives in the community in terms of meals, finances, housing, and activities; showed greater hostility, suicidality, and speech disorganization; and had poorer medication compliance. They were also twice as likely to be re-hospitalized during a 1-yr follow-up compared to non- substance abusers (Drake & Wallach, 1989).

A study on mental health and substance abuse prevalence was done interviewing people as part of the National Institute of Mental Health Epidemiologic Catchment Area Program. The study found that among those with an alcohol disorder, 37% had a comorbid mental disorder (Regier, Farmer & Rae, 1990). Among the institutional settings, comorbidity of substance use disorders and severe mental illness was highest in the prison population, most notably with antisocial personality, schizophrenia, and bipolar disorders (Regier, Farmer & Rae, 1990).

More recently, longitudinal study results were reported reflecting an investigation of educational inequalities in the co-occurrence of mental health and substance use problems. Findings concluded that obtaining a high school diploma by age 21 decreased

the chance of an individual belonging to the comorbid group of substance use and mental health disorders (Lee, Herrenkohl, Kosterman, Small, & Hawkins, 2013). Furthermore, results of the study suggested that young adults with SUD and comorbid mental health disorder symptoms have a harder time achieving long-term adult economic stability (Lee et al., 2013). Economic stability was measured by constructive engagement, household income, and a measure of “wealth” as compared to a control group who did not meet criteria for SUD or mental health disorders (Lee et al., 2013).

The relationship between high school completion and mental illness has been explored. A study on a sample of adults who were hospitalized for the first time for non-affective psychosis explored a number of descriptive variables in a group of high school dropouts compared to those who completed high school (Goulding, Chien, & Compton, 2010). Goulding and colleagues found that school dropout was associated with poorer social functioning measured by scores on the Social Functioning Scale (SFS; Birchwood et al., 1990) and a greater number of psychosocial problems indicated by the number of Axis IV psychosocial problems observed, based on definitions from the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (American Psychiatric Association, 2000).

Depression

Over the past 20 years, a number of studies established common comorbidity between depression and substance use disorders. In a review of studies of psychiatric patients, the range of comorbid alcoholism has been from 10% to 30% (Renner, Baxter, Suzuki & Ciraula, 2011). Wilson and colleagues (2006) compared the National

Epidemiologic Survey on Alcohol and Related Conditions (NESARC) data from 2001 to 2002 with the National Longitudinal Alcohol Epidemiologic Survey (NLAES), conducted in 1991–1992. This comparison showed that the prevalence of comorbid major depression and substance use disorders increased from 10% in 1991–1992 to 15.1% in 2001–2002 (Wilson et al., 2006). More recently, NESARC data were indicative of an association between major depressive disorder and an individual’s transition from non-drug use status to problem drug use status (Compton, Dawson, Conway, Brodsky, & Grant, 2013).

Investigation of the implications of major depressive disorder and comorbid substance use disorder has suggested an earlier return to substance use following treatment (Greenfield et al., 1998). This highlights the importance of the treatment of depression and substance use disorders concurrently if symptoms of depression are recognized in the individual who is seeking treatment for the substance use disorder. One study conducted a longitudinal analysis to determine if low literacy was associated with more depressive symptoms among people with SUD (Lincoln et al., 2006). Findings indicated that in people with substance use disorders, low literacy is associated with worse depressive symptoms (Lincoln et al., 2006).

Substance Use Disorders and Behavioral Correlates

Criminal History

Prior to the recent, evolving support for the understanding of addiction as a brain disease, punitive approaches to individuals with substance use disorders have been

commonplace, resulting in an associated relationship between SUD and the criminal justice system. This problem is not new, as an older study reported that 74% of a state prison population met the criteria for DSM-IV substance abuse or dependence, where more than 50% was currently dependent on alcohol and/or drugs, attesting to the longstanding correlation between substance use disorders and criminal activity (Peters, Greenbaum, Edens, Carter & Ortiz, 1998). Beyond the criminalization of substance use alone, people with substance use disorders and comorbid psychological problems have been found to be more likely to engage in criminal behavior than those without comorbidities, including higher rates of new criminal offenses and re-incarceration (Baillargeon et al., 2010; McNiel, Binder, & Robinson, 2005).

Not all drug-related crimes are alike. Prison time is a potential consequence for a variety of drug-related crimes including distribution of illegal substances, possession of illegal substances, and driving while under the influence. There are other drug-related offenses that are not always as clearly linked to substance use disorders such as crimes that involve illegally obtaining money in order to purchase substances. According to the United States Department of Justice in 2004, 17% of state prisoners and 18% of federal inmates reported committing their current offense to obtain money for drugs (Mumola & Karberg, 2007). The same survey reported that nearly a third of state and a quarter of federal prisoners committed their current crime under the influence of drugs (Mumola & Karberg, 2007). Adding to the significance of the substance abuse problem in the criminal system, in 2004, 40% of state and 49% of federal inmates took part in drug abuse treatment or programs since admission to prison (Mumola & Karberg, 2007).

Research has been conducted investigating the relationship between violent behavior and drug addiction. Fernandez-Montalvo, Lopez- Goni and Arteaga (2012) found significant differences between two groups of patients who were seeking outpatient treatment for substance use disorders dependent on whether they were associated with violent behaviors or not. In this particular study, violent behaviors were closely associated with recent drug consumption and were typically directed at close friends or family, or executed in order to obtain money to purchase substances. The authors found that on average, patients who displayed violent behavior were younger, more likely to have experienced an overdose, and had significantly higher scores on the European version of the Addiction Severity Index (EuropASI) than patients without violent behavioral issues (Fernandez-Montalvo et al., 2012).

According to the National Institute on Justice (NIJ), Drug Courts are specialized court docket programs that target specific populations (e.g. parents, juveniles, veterans) who have committed non-violent crimes and also have alcohol and other drug dependency problems. The intention of drug courts is to provide an alternative to incarceration (where minimal rehabilitation is provided) by utilizing a comprehensive response to substance-motivated criminal behavior geared toward rehabilitation (NIJ, 2015). Drug Courts commonly involve screenings for individuals to determine needs, followed by a period of monitoring, supervision, mandated treatment, and ultimately graduation (NIJ, 2015). Failure to comply with recommendations of multidisciplinary drug court teams can lead to Drug Court termination and can result in incarceration.

A recent study investigating predictors of Drug Court termination found that participants were most likely to be terminated from drug court if they did not have a high

school diploma, were not employed or a student, identified cocaine as a drug of choice, had more positive drug tests, had a violation within the first 30 days of the program, and had a criminal history (Gallagher, Nordberg, Deranek, Ivory, Carlton, & Miller, 2015).

Employment History

The societal impact of SUD is not only felt through the association with the criminal justice system but also with lost work productivity and increased need for government health care (U.S. Department of Health and Human Services, 2014).

Over a decade ago, common obstacles to employment for people with SUD were outlined. Physical illness and interpersonal relationship difficulties are symptomatic of SUD and understandably affect progress in job-related skill building. Gold (2004) describes the rarity of formal and informal accommodation for SUD in the workplace. Furthermore, while accommodations are available through the American with Disabilities Act (ADA, 1990) for people who are not currently using drugs but have had a history of SUD, the stigma and illegal association is often discouraging (Gold, 2004). The risk of legal involvement for substance use is also high, which in turn can affect work attendance and engagement. Additionally, a criminal history makes it more difficult to obtain employment. In an attempt to break the cycle and improve employment opportunities and outcomes for people with SUD, Gold (2004) recommended the following:

- 1) Redesigning and funding of vocational rehabilitation services specifically tailored for persons with SUDs by the state and federal governments;
- 2) overcoming obstacles inherent in the unforgiving secondary macro-labor market with education and employment supports;
- 3) insurance parity for payment of SUD treatment;
- 4) strengthening protections of the ADA; and
- 5) formulating coherent policies and laws regulating alcohol, illicit drugs, and tobacco; clinical treatment and rehabilitation; and legal consequences for use (p. 2635).

Ten years later, Harris, Matthews, Penrose-Wall, Alama and Jarworski (2014) surveyed a small sample of people with comorbid mental health problems and substance use problems regarding their perspective on their barriers to employment. The small study qualitatively investigated job seekers, support persons (family members of job seekers) and employment services staffs' attitudes about barriers to employment. Job seekers, who suffered with mental health concerns and substance use problems were assessed to be capable to work by independent health associates in order to be included in the study. Length of time unemployed was perceived as the most significant barrier to future employment associated with mental illness, and substance use problems were perceived as associated with negative community and employer perceptions (Gold, 2004). Importantly, employment service staff reported a theme of lack of familiarity with "work culture" among people with mental health and substance use problems that affected job obtainment as well as keeping the job (Harris et al., 2014).

To highlight the intensity of the problem, a study investigating IV-drug users and legal job employment concluded that only 27% of the participants had a legal job at some point during their follow-up study (Richardson, Wood, Li & Kerr, 2010). Research has explored ways in which paid employment can contribute to a person's recovery from a SUD. McIntosh, Bloor and Robertson (2008) summarize findings that suggest steady employment is helpful to recovery because it is a productive time replacement, introduces positive and likely drug-free social relationships through coworkers and increases self-esteem which can help prevent relapse (McIntosh et al., 2008). The extent of individuals' psychological dependence upon illegal drugs, as measured by their Severity of

Dependence score (SDS), is correlated with one's ability to secure paid employment (McIntosh et al., 2008). Researchers concluded that this association was not surprising given the expected increased impairment of emotional well-being and social functioning (McIntosh et al., 2008). According to the National Survey on Drug Use and Health (NSDUH; Substance Abuse and Mental Health Services Administration [SAMHSA], 2013), rates of SUD are associated with a person's level of education. As employment opportunities are positively associated with educational attainment, the focus on education as a supportive factor for people with SUD is evident.

Sexual Risk History

Research on comorbid severe mental illness and SUD relating to sexual risk-taking behavior are suggestive of established correlation yet varied specifics (Meade, 2006). Among people with dual diagnosis, lifetime SUD predicted sexual activity and partner-related risk whereas active substance abuse predicted condom-related risk (Meade, 2006). It is necessary to understand the importance of the distinction between lifetime SUD and substance abuse when discussing their relationship with sexual risk-taking behavior.

A group of researchers hypothesized that risk-taking propensity would be correlated with sexual risk behavior for people with substance use disorders (Lejuez,, Simmons, Aklin, Daughters, & Dvir, 2004). In order to test this hypothesis, adult participants from two urban substance use treatment center completed the Balloon Analogue Risk Task (BART; Lejuez et al., 2002) as a measure of risk-taking propensity. The BART is a computer test that requires the participant to "pump up" a balloon by

clicking on a balloon pump, each pump adds five cents to their account. At any point the participants could stop and collect the money but if they clicked too much the balloon would explode and their account would deplete to “0”. A measure of risk-taking propensity was derived from the BART using the average number of pumps on each balloon in which money was collected. The participants were also given a battery of self-report measures of impulsivity, self-esteem, and depressive symptoms and a six-item risky sexual behavior scale (HIV Risk-taking Behavior Scale (HRBS-RSB); Darke, Hall, Heather, Ward, & Wodak, 1991) that focused on past month behavior including total number of sexual partners, frequency of RSB including condom use with regular partners as well as with acquaintances, condom use when money/drugs were exchanged, and anal sex. Significant findings included risk-taking propensity and low self-esteem as predictors of sexual risk behavior among this sample of people with SUD (Lejuez et al., 2004).

Distinctive from lifetime substance use, substance abuse in the form of acute intoxication has also been explored to lead directly to sexual risk behavior (Maisto, Carey, Carey, Gordon, Schum & Lynch, 2004). Maisto and colleagues conducted a study where participants were assigned to random groups reflecting alcohol, placebo, and control. Following the experimental manipulation, all participants completed measures relating to sexual risk behavior including attitudes toward condom use, intention to engage in risky sex, and condom use negotiation skills (Maisto et al., 2004). Consistent with their hypothesis, participants in the group demonstrating acute intoxication had poorer negotiation skills and greater intention to engage in risky sex compared to participants who did not drink alcohol (Maisto et al., 2004).

Interestingly, a study looking at the reduction of HIV-risk behavior among adults in outpatient psychiatric treatment compared sexual risk-taking behavior post-intervention for a group receiving HIV intervention and a group receiving a substance use reduction intervention (Carey, Carey, Maisto, Gordon, Schroder, & Venable, 2004). The patients who received the substance use reduction intervention were more likely than control participants to demonstrate enhanced interpersonal skills and to reduce the number of sexual partners. They were also more likely than control patients to express more favorable attitudes toward condoms and to endorse stronger intentions to use condoms. While the HIV intervention group had more positive outcomes than substance use reduction intervention, this study supported the prediction that a substance use reduction intervention would help to indirectly reduce sexual risk behavior (Carey et al., 2004). Descriptive information from the same study also established that lifetime history of substance use was not associated with increased number of partners (Carey et al., 2004).

More recently, differences in substance use, sexual risk behaviors, and social support among black and non-black men who have sex with men have been explored (MSM) (Mance, Kurtz, & Surratt, 2013). All of the men in the study met criteria outlined by the research for excessive substance use, but descriptive results indicated that black MSM were more likely to be cocaine users and to meet DSM-IV-TR criteria for substance dependence. Sexual risk was measured by self-report history of buying sex. Major findings were conclusive of social support as a partial mediator for the relationships between black race/ethnicity and SUD and between black race/ethnicity and buying sex among this sample (Mance, Kurtz, & Surratt, 2013). Mance and colleagues

suggested the major implication of the study was evidence for enhancing social support in intervention development for both substance use and sexual risk behaviors.

Research has investigated the association between educational attainment and risky sexual behavior among high school students (Frisco, 2008). Findings based on data derived from the National Education Longitudinal Study from 1988-1994 suggested non-use of contraception, becoming a parent in high school, and age of initial sexual activity predicted educational attainment (Frisco, 2008). It is well established that acute intoxication is associated with increased sexual risk-taking (Maisto et al., 2004). Furthermore the relationship of low education attainment, sexual risk-taking, and substance use has been indirectly explored.

In sum, research has shown that lifetime SUD is conflicting in terms of its association with increased number of sexual partners (Carey et al., 2004, Meade, 2006). Risk-taking propensity and low self-esteem are correlated with sexual risk taking behaviors in lifetime SUD (Lejuez et al., 2004). Social support has been established as a potential mediator among men for black race and SUD and black race and buying sex (Mance, Kurtz, & Surratt, 2013). Substance use reduction interventions were found to indirectly reduce sexual risk-taking behavior (Carey et al., 2004), emphasizing the relationship between substance use and sexual risk-taking.

Substance Use Disorder and Social Correlates

Interpersonal Relationships and Support

Stevens, Jason, Ram, and Light (2015) recently published a study exploring the relationship between sources of social support and feelings about social support and

abstinence specific self- efficacy among a group of people with SUD. Among a group of participants living across five recovery houses, a significant positive relationship was found between general social support and abstinence-specific self-efficacy (Stevens et al., 2015). Abstinence-specific self-efficacy was defined as one's perceived ability to exert control over substance-using behaviors and was measured by The Drug Taking Confidence Questionnaire (DTCQ). Stevens and his colleagues (2015) also found general social support to be significantly associated with the specific social support measures of sense of community and Alcoholics Anonymous (AA) affiliation. In addition, the amount of social support, or social network size, predicted abstinence-related factors such as AA affiliation and decreased perceived stress (Stevens et al., 2015)

Nearly two decades ago, a study was done investigating the relationship between scholastic self-competence, perceived social support, gender, and substance use in young adolescents (Lifrack, McKay, Rostain, Alterman, & O'Brien, 1997). Among Lifrank and colleagues' significant findings was a negative association between perceived scholastic competence and substance use in both genders. In boys, more perceived support from teachers, and parents (to a lesser degree), was associated with less substance use, particularly in those with low scholastic competence (Lifrank et al., 1997). Thus, the relationship between social supports among a population of undereducated males with substance use disorders may be of use to explore. In addition, this social support aspect has been explored in treatment outcomes, such that low levels of social support are associated with poorer treatment prognosis (Ciraulo et al., 2003).

A confounding variable for family support lies in the fact that family members of people with SUD may also have SUD. Well-established genetic studies have shown that

genetic factors may contribute to substance use disorders (Chen et al., 2012). Chen and colleagues (2012) overview of the recent advances in genetic epidemiology and molecular genetics of substance use disorders and found that heritability for substance use disorders concerning most psychoactive substances are between 40-55%, which is similar to other common chronic diseases affecting Western populations. The benefits of social support, from family or otherwise, for people with SUD looking for recovery may be compromised when those both parties are struggling with SUD (Pizzarello & Taylor, 2011).

Spiritually and Substance Use Disorders

Generally speaking, mental health and religion have historically had a controversial relationship. Spirituality and religion have been investigated as coping skills for physical illness. Recently there has been research that has looked at the potential value of religion and spirituality in the lives of individuals suffering from a variety of mental illnesses including substance use disorder. One of the reasons for this investigation is the dominance that the Alcoholic Anonymous (AA) program has in the recovery of people suffering from substance use disorders. While AA is not a religious program, in order to fully participate in its practice the belief that a Higher Power exists who can guide an individual through recovery is essential (Emrick, Tonigan, Montgomery, & Little, 1993). Alcoholics Anonymous identifies as a spiritual program, rather than a religious one, leaving researchers challenged to operationally define the differences between the two. Ellis and Shoenfeld (1990) noted that the AA literature frequently refers to characteristics of God in biblical terms and its program's advocates

often support religious principles such as prayer and confession. Ellis and Shoenfeld (1990) went on to state that more people could be helped if the AA program eliminated the concept of needing a Higher Power. They theorized that the focus on a Higher Power has turned away some people suffering with substance use disorder because of the perceived reliance on spirituality and religion. In their 1990 paper, they discussed the therapeutic benefits and drawbacks of each of the steps in the twelve-steps process of Alcoholic Anonymous. The twelve steps are frequently reference in SUD literature and therefore the steps are presented in Table 2.1.

Table 2.1

The Twelve Steps

1. We admitted we were powerless over alcohol—that our lives had become unmanageable.
2. Came to believe that a power greater than ourselves could restore us to sanity.
3. Made a decision to turn our will and our lives over to the care of God as we understood Him.
4. Made a searching and fearless moral inventory of ourselves.
5. Admitted to God, to ourselves, and to another human being the exact nature of our wrongs.
6. Were entirely ready to have God remove all these defects of character.
7. Humbly asked Him to remove our shortcomings.
8. Made a list of all persons we had harmed, and became willing to make amends to them all.
9. Made direct amends to such people wherever possible, except when to do so would injure them or others.
10. Continued to take personal inventory, and when we were wrong, promptly admitted it.
11. Sought through prayer and meditation to improve our conscious contact with God as we understood Him, praying only for knowledge of His will for us and the power to carry that out.
12. Having had a spiritual awakening as the result of these steps, we tried to carry this message to alcoholics, and to practice these principles in all our affairs.

Retrieved from *Twelve Steps and Twelve Traditions*, Alcoholics Anonymous World Services. Inc

Ellis and Shoefeld (1990) agreed with the first step, and confirm that those suffering from addiction would be helped by the notion that they were powerless over their substance of choice. The second step refers directly to God or the Higher Power. Steps three, five, six, seven and eleven are also steps that Ellis and Shoefeld found troublesome because of the reliance on the Higher Power. “We strongly believe that telling patients they can only recover through the direct intervention of a Higher Power is often destructive to the treatment process” (Ellis & Shoefeld, 1990, p. 462). They stated that this concept reinforces people to believe that they are powerless, helpless and must turn to a spiritual source or their chances of recovery will not be realized. Ellis and Shoefeld stated that a major flaw with these steps is that a reference to a Higher Power, whether it is God or another spiritual influence, is the power differential, giving away the control of an individual’s actions and limiting the change responsibility of that individual. In their paper, they compare the help of a therapist for a substance use disorder to “...physicians when we are ill, mechanics to repair our vehicles, plumbers to repair a broken faucet...” (Ellis & Shoefeld, 1990, p.463). They argue that people who simply have a different knowledge base than the person who is suffering deliver specialized substance abuse treatment, but the terminology and incorporation of a hierarchical being is not necessary to recovery.

Ellis and Shoefeld (1990) also supported many of the steps of the AA program, stating that they have therapeutic benefits for people suffering from substance use disorders, and can even be beneficial to those who are not suffering. In particular, step four, taking an individual’s own inventory and assessing for character assets and deficits

can be thought of as a tool which would benefit anyone who wishes to gain insight and self-awareness. Steps eight, nine, and ten, which prompt individuals to list people they have harmed and to make amends and continue to practice taking responsibility for their actions, can also be a beneficial activity for personal and relational improvement. Finally, the twelfth step, which encourages individuals to aid others suffering through the process, leading them to sobriety can also be useful as helping others often leads to general psychological benefits.

Ellis and Shoenfeld (1990) felt that mixing persons' preconceived beliefs regarding religion into the treatment of a clinically diagnosed problem was detrimental to the treatment of those individuals and eliminated the opportunity for more people to be helped if they did not identify a pre-established comfort with a Higher Power. Their support of half of the teaching of the AA program leads them to suggest a modification to the program rather than an elimination of it, so that more people could be helped.

In contrast and more recently, Brown, Tonigan, Pavlik, Kosten and Volk (2011) investigated whether spirituality affected the confidence to remain sober in a religious 12-step program and concluded that there is potential for spirituality to be an important explanatory variable. Measures of self-efficacy were used to determine the amount of confidence an individual had for remaining sober once in treatment. Brown and his colleagues report that there are currently religious organizations that offer specifically religious-based 12-step programs, differing from the aforementioned traditionally spiritual programs. In 1990 Saddleback Church in California developed the faith-based Celebrate Recovery program using the 12-steps and adding "8 Recovery Principles" based on the Bible to define a Christian interpretation of the higher power (Brown et al.,

2011). Since 1990, Celebrate Recovery reports over 500,000 participants and 10,000 participating churches worldwide from various Christian denominations (Celebrate Recovery, 2014). Brown and his colleagues recruited 10 of these programs and their participants for the purpose of their study (n=115). Their results concluded that it is possible that slight increases in an individual's spiritual beliefs and involvement could lead to increased self-efficacy and contribute to successful recovery (Brown et al., 2011). After further investigation, it was found that spirituality and longer durations of sobriety were both associated with higher self-efficacy, providing more emphasis on the potential of spirituality to be an important part of positive behavior change, especially in a religious 12-step SUD program (Brown et al., 2011).

Pardini, Plante, Sherman and Stump (2000) looked specifically at the relationship between spirituality and mental health outcomes among people who were reportedly in recovery from substance use disorders. Spirituality and religiosity were measured and compared with various measures of mental health. Participants rated their spirituality higher than they rated their religiosity (Pardini et al., 2000). Pardini and colleagues (2000) concluded that many of the recovering people in their study choose to define themselves as spiritual; however, they shared many of the same core behaviors and beliefs as people who consider themselves religious. People recovering from substance use disorders are likely to place great importance on prayer, belief in a God, and a strong sense of faith (Ellis & Shoenfeld, 1990). The study consequently suggested that perhaps the issues of spirituality versus religion are actually a matter of semantics and it may be best to describe this variable operationally rather than categorically.

In sum, while spirituality and religion find no place in the treatment of the majority of mental illnesses, the topics are relevant in the discussion about substance use disorders. Ellis and Shoenfeld (1990) argued that this aspect of AA was what was impeding people from potential recovery, while others (Brown et al., 2011; Pardini et al., 2000) suggest that spirituality and religion may be a key psychosocial variable in the successful recovery of substance use disorders.

Current Treatment Available

The National Survey of Substance Abuse Treatment Services (N-SSATS) examines the extent to which substance use treatment facilities were providing recovery support services across each of the four dimensions of recovery outlined by the Substance Abuse and Mental Health Service Administration. In order to improve treatment, SAMHSA established four dimensions of recovery as health, home, purpose, and community. The most recent report of the N-SSATS reflect data collected in 2012 and reflects data reported by 14,311 substance use disorder treatment facilities. Virtually all facilities provided individual counseling (98 percent); however, the specific type of “counseling” was not identified.

Relative to research on other mental and physical illness, treatment data for substance use is fairly new. The current N-SSATS has evolved from national survey efforts begun in the 1970s by the National Institute on Drug Abuse (NIDA) to measure the scope and use of drug abuse treatment services in the United States. However, congress did not establish the Substance Abuse and Mental Health Services Administration (SAMHSA) until 1992, which marks the beginning of an effort to make

substance use and mental disorder information, services, and research more accessible. Even with available N-SSAT data that have provided researchers with imperative information on substance use disorder treatment, researchers are faced with the limitations of a historically stigmatized nature of this population coupled with insufficient funding for research and development of treatment. Therefore as the research base on treatment has developed, findings have generally been inconsistent in terms of concrete descriptions and regulations for effective treatment.

Manuel, Hagedorn and Finney (2011) sought to investigate the implementation of treatment in substance use disorder care. The researchers identified treatment modalities in which some consensus exists that there is sufficient empirical support to designate them as “evidence-based”. The study also provided some data on the extent to which these evidence-based treatments (EBTs) are being used in SUD treatment in the United States. Citing the aforementioned N-SSATS data, it was reported that many of the facilities utilized substance abuse counseling and 12-step treatment; however, due to limitations of specificity and measurability, these treatments have not been designated as “evidence-based.” Among the facilities that reported using evidence-based practices, relapse prevention was reportedly used at 90.7% of facilities. The percentages of agencies that reported “often” using other EBTs were 68.5% for cognitive-behavioral therapy, 55.7% for motivational interviewing, and 19.5% for contingency management (Manuel, et al., 2011).

A unique program recognized by the National Institute on Drug Abuse (NIDA) is SMART (Self-Management for Addiction) Recovery. What started as a derivative of Rational Emotive Behavior Therapy (REBT), developed by psychologist Albert Ellis, has

evolved into SMART Recovery, which offers an alternative approach to recovery than that of the 12-step spiritual fellowship (Horvath & Yeterian, 2012). Horvath and Yeterian (2012) overview the current status of the SMART Recovery program as of 2012 and explain its current foundation is based largely on evidence-based CBT and motivational enhancement techniques. The inclusion of three fundamental characteristics have emerged in the most recent developments of SMART recovery: evidence-based, self-empowering, suitability for mutual aid group ran by non-professional (Horvath & Yeterian, 2012). These foundations seek to provide effective, attainable support for all people with SUD and behavioral addictions who want help.

Substance Use Disorder literature and resources have rapidly expanded throughout the duration of this project. Furthermore, from September 2013 to September 2015, the number of evidence- based programs for mental health and/or SUD on SAMHSA’s National Registry Evidence Based Programs (NREBP) has grown from 230 to 356. Programs are searchable based on criteria specific to the generalizability of the evidenced based results. Educated application of EBP is intended to promote culturally competent intervention development in order to foster the most effective outcomes. Programs showing effective outcomes, promising outcomes, and ineffective outcomes for specific populations are listed. Special populations include “co-occurring disorders”; however, there are no results for effective programs when searching for ‘learning disability’, ‘low literacy’, ‘illiterate’, or ‘uneducated’ when searching the current EBP database. Programs are available, and commonly report the inclusion of employment readiness, adult literacy, and GED prep classes. However, there is no mention of academic and literacy accommodations to the *therapeutic* tools that are used in treatment.

As in many fields, the research-to-practice gap is evident relating to supporting low literacy in treatment of SUD. The Center for Substance Abuse Treatment (CSAT) along with SAMHSA published an excellent resource outlining tips for accommodating different physical and cognitive disabilities in substance use treatment in 1998 entitled *Substance Use Disorder Treatment For People With Physical and Cognitive Disabilities*. While this resource is almost twenty years old, the need to provide tip sheets for the accommodation of disabilities in treatment remains applicable. The manual considers learning disabilities associated with underdeveloped reading and writing as cognitive disabilities and outlines accommodations to support these individuals, as the prevalence of comorbid disabilities in substance use disorder treatment is high.

Summary

The relationship between low literacy and high school non-completion is well established (Reschly, 2010). A relationship between literacy and self-efficacy in adulthood has been presented (Cantrell et al., 2013). Literature is available investigating SUD and comorbid low literacy and high school non-completion; however, a gap in the literature is identified for this population once they have entered adulthood. This review of literature presented an overview of SUD and the association with selected clinical, behavioral, and social correlates. The current treatment programs for this population are outlined. Base levels of literacy required to participate in programs is discussed. This is important because of the established comorbidity of learning disorders and substance use disorders.

As pertinent to the common inclusion of 12-step groups in inpatient treatment,

particularly in socially disadvantaged populations, a secondary investigation explores the relationship between the perceived importance of spirituality to recovery and treatment success self-confidence.

CHAPTER 3

METHODS

Participants

Data were collected from a substance use disorder treatment facility in a large city in southeastern Pennsylvania. Intake data collected consisted of the Biopsychosocial form and the Beck Depression Inventory, Second Edition (Beck, Steer, & Brown, 1996). Data were collected from a small (maximum 16 Persons in Recovery at one time), licensed, non-profit, in-patient residential drug and alcohol treatment facility for men. Two levels of care are provided at this treatment facility. Medically Monitored Short Term Residential treatment (30 days or less) and Medically Monitored Long Term Residential treatment (longer than 30 days) was offered at this treatment facility. Both groups were included in the study.

All participants were male and at least 18 years of age. Participation in this specific treatment facility is a combination of voluntary and court stipulated. All of the participants participated in treatment utilizing state funded insurance. In order to qualify for this type of treatment the men needed to meet the criteria for short term or long term inpatient care or be stipulated to treatment through a criminal incident that was determined to be motivated by substance use. Psychosocial information was collected during standard intake procedures by the treatment facility staff using a structured interview developed by the Division of Substance Abuse Programs- Biopsychosocial. I obtained the de-identified data in hard copy format, and a digital version of the data was created. A copy of the intake form can be found in Appendix A. In addition to the

biopsychosocial form, the Beck Depression Inventory was also digitized and utilized in this study.

Consent was deemed unnecessary for this study, as data were de-identified upon acquisition. This study received IRB approval from Temple University.

Design

The intent of the study was to describe a sample of socially disadvantaged, adult males with Substance Use Disorder relating to clinical, behavioral, and social correlates. Therefore, univariate descriptive statistics were used to present central tendencies of the aforementioned variables in this sample. It was hypothesized that a prevalence of high school non-completion and literacy problems will be higher than the general population. A Chi-square test for association was used to determine the relationship between high school completion and self-reported reading and writing problems in this sample. To determine if high school completion among this sample has an effect on selected clinical, behavioral, and social correlates, a between-subjects design using largely non-parametric inferential statistics were used. Univariate descriptive statistics are then used to describe spirituality in this sample followed by a nonparametric inferential analysis of spirituality and self-confidence of achieving success in treatment for substance use disorders.

Measures

Data were collected during standard patient intake procedures by the treatment facility staff using a structured interview developed by the *Division of Substance Abuse Programs- Biopsychosocial*. A complete copy of the instrument

can be found in Appendix A. In supplement to the interview, a reliable and valid measure of depression was also be used in the psychosocial profiles. The Beck Depression Inventory- Second Edition (BDI- II) is a 21-item, self-report rating inventory that measures characteristic attitudes and symptoms of depression for people 13-80 years old (Beck, Ward, Mendelson, Mock & Erbaugh, 1961). Internal consistency for the BDI-II is high, measured with a coefficient alpha = .92 (Beck, Steer, & Garbin, 1988). Cut score guidelines for the BDI-II are given with the recommendation that thresholds be adjusted based on the participants of the sample. A total score of 0-13 is considered minimal depression symptoms, 14-19 is mild, 20-28 is moderate, and 29-63 is severe. Test-retest reliability was studied using the responses of 26 outpatients who were tested at first and second therapy sessions one week apart. There was a correlation of .93, which was significant at $p < .001$.

The following information collected from the biopsychosocial form was included in this study:

Descriptive information: race, age, marital, status, primary substance of use, current living arrangement and history of military service involvement. Available data from the county in which the facility is located are presented for this sample to explore the generalizability of this sample to the population.

- 1) *Education Information* was collected by report of highest level of education completed, and by report of difficulty with reading and writing while in school.

- 2) A question relating to treatment success sobriety self-efficacy was included: How confident are you that you can achieve sobriety through this treatment? (Likert scale 1-5).
- 3) The following variables were explored for the sample as a whole followed by a comparison of means for high school completion and non-completion groups:
 - a. Clinical correlates: Measured by dichotomous variables relating to reported: 1) history of mental health difficulty; 2) history of mental health hospitalization and, 3) history of mental health medication; The total score on the BDI-II at intake specifically measured depression levels. To reflect the significance of the inclusion of the valid and reliable measure among a group of data with more extensive limitations, the BDI-II totals were explored in depth and compared to other populations to determine generalizability.
 - b. Behavioral correlates: *Employment History* was measured by the presence of legal employment history and history of employment for one year or longer. *Sexual Risk-Taking History* was explored using three questions: 1) at what age did you become sexually active? 2) Have you ever paid for sex? And 3) How many sexual partners have you had in the last 12 months? *Criminal History* was measured by the reported number of arrests and incarcerations. A

variable was included to assess if the participant was mandated to treatment.

c. Social Correlates: *Social support* was measured by: 1) Who will support you through this recovery process? and 2) Are you currently in a relationship?

4) *SUD and Spirituality* was assessed through three questions: 1) What are you current spiritual beliefs? 2) Is spirituality important to your recovery? 3) How does spirituality impact your daily life now?

Coding

The data that were used from the Biopsychosocial form included primarily quantitative data with some qualitative information. Specifically, the employment history section was coded by the following procedure: The employment section of the form prompted men to identify two most recent jobs held and to specify the dates they were held. Two other questions were also asked: 1) Describe any period of steady employment. When? What made it steady for you? 2) Describe any period of unemployment or underemployment? When? What were the factors?

Based on information reported in these questions the men were split into two groups for a variable 'Job History': 1) men who listed any type of legal job (defined as anything other than illegal gambling, drug distribution, or unspecified self employment); or, 2) men who listed one of the exclusionary criteria for the first group or those that listed "none" or any variation of "never had a job". Full questions and description of correlates is outlined in Table 3.1.

Table 3.1

Correlates questions and codes

<i>Survey Question</i>	<i>Code</i>	<i>Data Type</i>
<i>Clinical</i>		
Have you ever been hospitalized for psychiatric reasons?	Yes=1, No=0	Dichotomous
Describe any psychiatric difficulties currently or in the past that resulted in treatment.	Any response=1, no response =0	Dichotomous
Have you ever been prescribed medication for emotional or psychiatric reasons?	Yes= 1, No= 0	Dichotomous
<i>Behavioral</i>		
Job History	Any legal job listed=1, no legal job= 0	Dichotomous
Length of Steady Employment	1 year of greater in same job=0, no steady employment for 1 year =0	Dichotomous
Number of arrests.	--	Continuous
Number of incarcerations.	--	Continuous
Are you legally mandated to treatment?	Yes=1, No=0	Dichotomous
At what age did you become sexually active?	--	
Have you ever paid or received sex for money?	Yes=1, No=0	Dichotomous
How many sexual partners have you had in the past 12 months?	--	Continuous
<i>Social</i>		
What level of involvement do you expect any of your family members or others will have in your treatment? Describe your support system.	Any system described= 1 No system or "no one"=0	Dichotomous
Are you in a relationship now?	Yes=1, No=0	Dichotomous
<i>Spirituality</i>		
What are you current spiritual beliefs?	Any beliefs listed=1, no beliefs=0	Dichotomous
Is (spirituality) important to your recovery?	Yes=1, No=0	Dichotomous
How do your spirituality beliefs impact your daily life now?	Indicated that they do=1, no impact=0	Dichotomous

Data Analysis

First, descriptive statistics are presented for demographic information and compared to available data from the county where the sample was derived. Next, descriptive statistics for the focal independent variable, high school education completion, are presented. An association is investigated between literacy problems and high school education completion. The data were split into two groups: those who have completed high school and those who did not complete high school. Bi- and multivariate inferential statistics were used to determine clinical, behavioral, and social correlates. High school completers and non-completers were compared in their reported confidence for achieving sobriety in treatment.

Finally, a supplemental exploratory analysis was conducted to investigate spirituality and SUD. The relationship between self-reported value on spirituality to recovery and one's confidence of treatment success was explored.

CHAPTER 4

RESULTS

Descriptive Statistics

Descriptive statistics and frequencies were computed to identify missing data and determine the distribution of variables. Sixty-eight male subjects were included in this study; however the sample size for included variables ranged from 31 to 62, reflecting incomplete survey items and inconsistent data entry methods. Half of the data were entered along with complete biopsychosocial surveys while a second half included only the initially intended variables of study. The data were no longer accessible for data entry to resolve this latter issue at the time the error was realized. Therefore, the sample size pertaining to each variable is reported. Furthermore, according to the Shapiro-Wilk Test of Normality, data were generally non-normally distributed. As a consequence of both the small sample size and the non-normality violation, non-parametric analyses were computed.

The average age was 42 (SD=11), with a range of 18- 68 years old. The racial/ethnicity breakdown was reported to be 55.9% black, 35.3% white, 8.8% Hispanic (any race). Only 8.6% of this sample had prior involvement in the United States military. Sixty-two men in this sample reported information around current living arrangements. Table 4.1 displays current living arrangements and marital status. As seen in Table 4.1, of those who reported their current living arrangement, a majority (58 %) reported living with a stable family member or friend, while a significant portion reported that they were homeless (19.4%). The majority (74.2 %) of the sample reported that their marital status was “single”.

Table 4.1

Participant Living Arrangement and Marital Status

	Sample
Living situation (n=62)	
Homeless	19.4
Stable	58
Other	22.6
Marital status (n=31)	
Married	6.5
Separated	16.1
Single	74.2
Widowed	3.2

Family History. The men were asked if anyone in their family besides themselves had a history of alcoholism, drug use, or psychiatric problems. As shown in Table 4.2, 13.5% reported a family history of psychiatric problems, while slightly over half (54.5%) reported a history of alcoholism and 43.6 % reported a history of drug use.

Table 4.2

Family Histories

	Percent of Sample	
	Family History	No Family History
Alcoholism	54.5	45.5
Drug use/ abuse	43.6	56.4
Psychiatric Problems	13.5	86.5

Primary Substance. Data presented in this sample are compared to data derived from the treatment admissions for residents of Philadelphia County that were provided by the Behavioral Health Special Initiative (BHSI), supported by the Office of Addiction Services (OAS), Philadelphia for the year 2013. The data included information for both males (n=6,651) and females (n=2,151). They were 53% black, 31.9% white, 14.7% Asian, and 12.6% Hispanic (any race). Four percent of reported uninsured drug users seeking treatment were under the age of 18. For the remainder, 20% were ages 18-25, 33.5% were 26-34, and were 42.5% 35 and older. The distribution of primary substance of use at intake for this sample is presented alongside comparable population data in Table 4.3. In this sample, just over one quarter (25.8%) reported cocaine as their primary substance of use compared to 12.8% reporting cocaine in Philadelphia. The most commonly reported primary substance in Philadelphia among this population was alcohol (36.8%).

Table 4.3

Percentage of Primary Substance of Use at Treatment Admission for Sample and Philadelphia: 2013

Primary Substance	Current Study (n =31)	Philadelphia (n= 8,380)
Alcohol	22.6	36.8
Heroin	19.4	22.7
Cocaine (any form)	25.8	12.6
Marijuana	19.4	20.5
PCP	3.2	1.3
Other Opiates (non-	9.7	4.4
All Other known drugs	--	1.6

* *City of Philadelphia, Department of Behavioral Health and Intellectual disability, Behavioral Health Special Initiative.*

Education. Sixty-two men reported their highest level of completed education. The highest grade completed ranged from 8th grade to four years post high school (M=10.92, SD=1.65). Highest level of education was non-normally distributed, with skewness of 1.00 (SE = 0.306) and kurtosis of 1.72 (SE = 0.604). The distribution of highest level of education is outlined in Table 4.4

Table 4.4

Highest Level of Education Completed

Highest Level of Education Completed	N	Percent of sample
8 th Grade	2	3.2
9 th Grade	9	14.5
10 th Grade	17	27.4
11 th Grade	13	21.0
12 th Grade	15	24.2
High School +1 year	1	1.6
High School +2 years	3	4.8
College degree	2	3.2

The men were grouped into two categories, those who reported their highest level of education as 11th grade or lower, and those who reported their highest level of education as 12th grade (assumption of high school graduation) and higher. A report of post- secondary education was coded into numerical values reflecting the number of years enrolled (e.g. two years of college was coded to a 14). As seen in table 4.3, for those who reported their highest level of education (n=62), 33.9% completed high school or more and 66.1 % did not complete high school. Census Data from the county where the facility was located were used to compare this sample relating to high school education completion. These data are collected in the American Community Survey (ACS) and are projected estimates for five year time periods (2009-2013). The

percentage of people (n=1,212,976) in that county that was estimated to be high school graduates was 81.2%.

Of the men who responded to questions relating to their educational history (n=62), 22.1% of them had received a GED. All of the men who received a GED had not completed 12th grade. Fifty-nine men responded to a question relating to reading and writing problems while in school (22% yes, 78% no).

Research question 1

The first research question investigated the relationship between literacy challenges while school- aged and high school education completion among this sample of adult male substance users. A chi-square test for association was conducted between high school completion and reported reading and writing problems while school- aged. Twenty five percent of cells had an expected count less than five. Therefore, Fishers Exact Test was used. There was a statistically significant association between high school completion and reading and writing problems (p=.002). Therefore, subjects who did not complete high school more typically had reading and writing problems.

Research question 2

The theoretical basis for this study related to the underlying competence that is achieved through educational success early in life, which can affect later life outcomes (Erikson, 1959). Prior studies have utilized measures with psychometric validity to assess treatment self-efficacy (Mendelson, 2013; Steven et al., 2015). While not a valid measure of treatment self-efficacy, fifty -six men responded to a question “ How confident are you

in your ability to achieve sober/clean health through this treatment” on the biopsychosocial form. They were given a Likert scale where “1” was “not confident at all” and “5” was “extremely confident”. A Mann-Whitney U test was run to determine if there were differences in confidence of achieving sobriety between high school completion and non-completion groups. Distributions of the confidence scores for high school completion and non-completion groups were similar, as assessed by visual inspection. Confidence rating was not statistically significantly different between high school completion (Mdn = 5) and non-completion (Mdn = 4, $U = 145$, $z=1.660$ $p = .097$). A separate Mann-Whitney U test was run to determine if there were differences in confidence of achieving sobriety between those who reported reading and writing problems while school aged and those who did not. Confidence rating was not statistically significantly different between reading and writing problems (Mean rank 26.25) and no reading and writing problems (mean rank = 28.49, $U = 237$, $z=-.456$ $p = .648$).

Research question 3

A major aim of this study was to investigate the impact of high school education completion on clinical, social, and behavioral outcomes that have been well-established comorbid difficulties for substance use disorders. In order to answer this question, first, the descriptive statistics of the sample as they relate to each correlate are presented, followed by individual comparisons of means for high school completion and high school non-completion.

To determine if a difference between a group of men who had completed high school (n=21) and a group who did not complete high school (n=41), the data were split into two groups; those who have completed a high school education (defined as 12th grade or higher) and those who have not complete a high school education (defined and 11th grade or less). Included participants did not differ in terms of age or race/ethnicity at $p < 0.05$. Non- parametric statistical analyses were used to reflect non-normal distribution of data and uneven group size for high school completion.

Mental Health Correlates

Lifetime history of mental health difficulties and treatment was included. Missing data were excluded from each analysis. As shown in Table 4.5, 49.2% of the sample that responded to the question (n= 59) confirmed a history of mental health difficulty. Data were available for 60 men on mental health hospitalization where 35% reported a history of a hospitalization for mental health difficulty. Data were available for only 53 men relating to mental health medication. Slightly over fifty-four percent (54.7%) of the sample that responded reported having taken medication for mental health difficulties in the past.

Table 4.5

Mental Health Treatment History

	N	Percent of Sample
MH Difficulty (n=59)		
No reported difficulty	30	50.8
Reported difficulty	29	49.2
MH Hospitalization (n=60)		
No reported History of hospitalization for mental health	39	65.0
Confirmed history of 1 or more hospitalization for mental health	21	35.0
MH Medication (n=53)		
Denied history of mental health medication	24	45.3
Confirmed history of mental health medication	29	54.7

The Beck Depression Inventory- Second Edition was collected for 57 men in the sample. The mean score for this sample on the BDI-II was 18.54 (SD= 12.37). A large range (0-53) on BDI-II Total Score was revealed. An ANOVA was used to determine if a difference on the BDI-II total score existed as a function of race/ethnicity. The means for each group: Whites, [m=20.4 (SD=13.9)], Blacks [m=17.0 (SD=10.5)], and Hispanics [m=20.8 (SD= 17.3)] was not statistically significant $F(2,54)=.540, p=.586$. Therefore, all subsequent analyses are based on data collected across these three demographic groups.

Normative data of BDI-II total scores provided by Beck, Steer, and Brown (1996) on varying populations were used to conduct a one-sample t -test about the mean values to see how this sample data compared to the norming population for the BDI-II. Relative

to a random sample of college students ($m=12.6$), this sample was more depressed based on total BDI-II scores $t(56)= 5.944, p < .01$. The mean BDI-II score from this study was also compared a sample from a study done by Buckley, Parker, and Heggie (2000) on adult males with substance use disorders as part of their intake for treatment. Buckley and colleagues did a study on a group ($n=416$) with a mean age of 45 ($SD=8.2$). The difference between this sample's mean BDI-II total score ($m=18.5$) and the mean of the sample derived from Buckley and colleagues ($m=22.1$) was statistically significant $t(56)= -3.556, p=.034$, indicating this group had less reported depressive symptoms on the BDI-II at intake than another sample of males with SUD.

According to the BDI-II interpretative manual, a total score of 0-13 is considered minimal depression symptoms, 14-19 is mild depression symptoms, 20-28 is moderate depression symptoms, and 29-63 is severe depression symptoms. Therefore the data were broken up into groups to reflect the descriptive category where they aligned. Slightly more than sixty- six percent (66.6 %) of the sample obtained total BDI-II scores that were in the mildly depressed range or greater (total score greater or equal to 14). Full distribution of scores by descriptive category can be seen in Table 4.6.

Table 4.6

Distribution of Total BDI-II scores by severity level cut score:

	N	Percent of Sample
Minimal (0-13)	19	33.3
Mild (14-19)	17	29.8
Moderate (20-28)	11	19.3
Severe (29- 63)	10	17.5

High school completion and mental health correlates. A Pearson Chi-square test of independence was performed to examine the relationship between high school completion and history of mental health difficulty. The relation between these variables was not significant ($X^2 (1, N = 59) = .833, p = .361$). The relation between high school completion and lifetime use of mental health medication was also not significant at ($X^2 (1, N = 53) = 1.571, p = .210$), and the relationship between high school completion and lifetime history of mental health hospitalization was not significant at ($X^2 (1, N = 60) = .877, p = .349$).

A Mann-Whitney U test was run to determine if there was a difference in BDI-II total scores between high school completion and non-completion groups. Distributions of the BDI-II for high school completion and non-completion were not similar, as assessed by visual inspection. BDI-II scores for high school completion (mean rank = 28.32) and non-completion (mean rank = 24.84) were not statistically significantly different, $U = 328.5, z = .790, p = .430$.

Behavioral Correlates

Criminal History. The reported number of arrests and incarcerations were considered as a part of the criminal history data. These data reflect a large range of criminal history, where most men reported having been arrested one or more times. Table 4.7 reports the descriptive statistics for each variable of criminal history assessed.

Table 4.7

Criminal History Descriptive Statistics for Sample.

	Descriptive Statistics		
	N	Mean (SE)	Range
Number or arrests	55	7.70 (1.08)	37
Number of Incarcerations	54	3.33 (.52)	20

Frequency data were derived and indicated most of the sample (92.7 %) had been arrested at least one time and 87% had at least one incarceration. Data were available for 27 men relating to whether or not they were legally mandated to treatment; 37% of men were legally mandated to treatment.

High school completion and criminal history. As seen in Table 4.8, the men in this sample who completed high school reported a lower average number of arrests (M=6.21) and incarcerations (M=2.47) than those who did not complete high school (arrest, M=8.73, incarcerations, M=3.8).

Table 4.8

Means for Criminal History in High School Completion and Non-completion.

	High School			
	Completed		Did Not Complete	
	N	Mean (SE)	N	Mean (SE)
History of arrests	19	6.21 (1.56)	37	8.73 (1.47)
History of incarcerations	19	2.47 (.60)	35	3.80 (.73)
Legally mandated (n= 27)	13	--	14	--

As criminal history variables for high school completion and non-completion were not normally distributed, the nonparametric Mann-Whitney's U test was used to ascertain whether differences between central tendency in high school completion and non-completion group were significant. Difference between high school completion (mean rank= 24.92) and non-completion (mean rank = 30.34) groups were not significant for number of arrests ($U=283.5$, $z= -1.18$, $p=.237$.) Similarly while the non-completion group had more incarcerations than the high school completion group, the results were not statistically significant ($U=270.5$, $z= -1.14$, $p=.255$.) A chi-square test for association was conducted between high school completion and legally mandated to treatment. All expected cell frequencies were greater than five. The association between high school completion and legally mandated to treatment was not significant, $\chi^2(1) = 2.018$, $p = .236$.

Employment History. The men were split into two groups for a variable 'Job History': 1) men who listed any type of legal job (defined as anything other than illegal gambling, drug distribution, or unspecific self-employment); or, 2) men who listed one of the exclusionary criteria for the first group or those that listed "none" or any variation of "never had a job". As seen in Table 4.9, 56.4% had some history of a legal job and 43.6% had no legal job history. These data were also split into two groups to reflect a history with any period of steady legal job employment lasting 1) one year or greater or 2) less than one year. A majority of the sample (63.6 %) had never held a job for longer than one year and 36.4 % had a history of legal job attainment for one year or greater.

Table 4.9

Lifetime Legal Employment History for Sample

	N	Percent of Sample
Legal Employment		
No	24	43.6
Yes	31	56.4
Legal Employment 1 year or greater		
No	35	63.6
Yes	20	36.4

High school completion and employment history. A Pearson Chi-square test of independence was performed to examine the relationship between high school completion and a question pertaining to a history of legal job attainment. The relation between these variables was not significant at ($X^2(1, N=55) = .545, p = .327$). A second Pearson Chi-square test of independence was performed to examine the relationship between high school completion and a question pertaining to a history of legal job attainment for one year or greater. The relation between these variables was not significant at ($X^2(1, N=55) = 3.320, p = .084$).

Sexual Risk-Taking. The average age for age of first sexual activity ($n=54$) was 14.87 ($SD=3.4$). Fifty-five men responded to a question asking if they had ever paid or received money for sex (27.3% yes, 72.7% no). Twenty-nine men reported the number of sexual partners they had in the last years ($M=1.93, SD= 2.49$).

High School Completion and Sexual Risk-Taking. A Pearson Chi-square test of independence was performed to examine the relationship between high school completion and a history of receiving money or paying for sex. The relation between

these variables was not significant ($X^2(1, N = 55) = .013, p = .908$). A series of Independent samples Mann-Whitney-U Tests yielded no significance between high school completion and number of sexual partners within the last year ($U=92, z=-.592, p=.555$) or high school completion and age of first sexual activity ($U=359, z= .484, p=.628$).

Social Correlates.

Social support through recovery. Data were available for 59 men who responded to a question inquiring if they were currently in a relationship. Forty-four percent of men responded that they were currently involved in a relationship while 55.9% said they were not. Forty-three men responded to a question asking if their family members would be involved in their treatment; 27.9% that they did not have a support system and 72.1% listed at least one family member or friend.

High school completion and social support through recovery. The effect of high school education on a reported recovery support system was tested with a 2 X 2 Fischer exact test, $t=.308$ (2 -tailed). A Pearson Chi-square test of independence was performed to examine the relationship between high school completion and current relationship status (Yes=1, no=0). The relation between these variables was not significant ($X^2(1, N = 59) = .914, p = .339$).

In sum, the effect of high school completion was not significant for the mental health, behavioral, or social correlates explored in this study. Table 4.10 presents a summary of each analysis.

Table 4.10

Summary of High School Completion and Correlates

	<i>Mann Whitney- U (p-value)</i>	<i>Pearson Chi Square (p-value)</i>
<i>Clinical</i>		
Mental Health Hospitalization	---	.877 (.349)
Mental Health Difficulties	---	.833 (.361)
Mental Health Medications	---	1.571 (.210)
<i>Behavioral</i>		
Job History	---	.545 (.327)
Length of Steady Employment	---	3.320 (.084)
Number of arrests	283.5 (.237)	---
Number of incarcerations	270.5 (.255)	---
Legally mandated to treatment	---	2.018 (.236)
Age of Sexual Activity	359 (.628)	---
History of Paid for Sex	---	.013 (.908)
Number of Sexual Partners in Past Year	92 (.555)	---
<i>Social</i>		
Social Support	---	.914 (.339)
Current Relationship	---	.308*

* Fischer's exact test

Secondary Analysis

A secondary relationship was explored between self-reported belief that spirituality is important to recovery and the confidence for success in treatment. A Mann-Whitney U test was run to determine if there were differences in confidence of sobriety in treatment between those who placed value on spirituality for their recovery and those who did not. Distributions of the confidence scores for these groups were not similar, as

assessed by visual inspection. Men who placed value on spirituality (mean rank = 26.04) were statistically significantly more confident than those who did not place value on spirituality (mean rank = 15.41), $U = 281.5$, $z = 2.438$, $p = .015$.

Most (93.4 %) of the sample reported that they identified with some religious group or that they were a spiritual person who believed in a higher power; 78.2% felt that spirituality was important to their recovery from their substance use disorder and 67.2% felt that their spirituality impacted their daily life.

CHAPTER 5

DISCUSSION

The highest level of care for substance use disorders is inpatient treatment. Inpatient programs typically provide multidimensional treatment modalities including individual and group counseling, family involvement, and participation in 12- step groups (Delany, Shields, & Roberts, 2009; Manuel, et al, 2011). An evidence base is growing for the treatment of SUD; however, counselor certification programs and treatment facility requirements, particularly among available treatment for socially disadvantaged populations, are vague. Furthermore, the needs of this population may be the most complex. The current study sought to shine light on clinical, behavioral, and social commonalities of a sample of socially disadvantaged adult males with SUD.

A relationship between poor reading development and a variety of negative consequences, including high school dropout, has been confirmed (Reschly, 2010; Zabolocki & Krezmien, 2013) It is well established that high school non-completion, be it related to literacy challenges or not, is strongly associated with negative social consequences. This current study sought to investigate group differences about high school completion among selected clinical, behavioral, and social correlates.

Research has established a relationship between self-confidence/ self-efficacy as a meaningful component for treatment success. Theoretically, this study connected school related self-efficacy with later life outcomes. Therefore, this current study sought to investigate if high school completion was related with a question relating to self-efficacy. As pertinent to the prevalence of 12-step groups as inclusive for SUD treatment, and the

foundation of spirituality in 12-step groups, this current study sought to investigate the self-reported importance of spirituality on recovery and the association with a measure of treatment self-efficacy.

In the following discussion the results will be placed within the context of existing literature. Practical applications and implications are reviewed with attention made to implication for the field of school psychology. Study limitations are acknowledged and directions for future research suggested.

Summary and Meaning of Results

This sample of males with SUD receiving inpatient treatment was, on average, middle aged, undereducated, and single. Most of the sample was black, while just over one-third were white, and a small portion Hispanic. This sample was largely non-veteran, which is important to note, as there is an established link between SUD and the veteran population. The veteran prevalence in this sample is not suggestive of generalizability to that population. Most of the men in this sample reported stable housing; however, about one-fifth on the sample was homeless, which is notably higher than Project HOME's (2015) estimated homeless population for Philadelphia County.

The most commonly reported primary substance in this sample was cocaine (any form), differing from the most commonly reported in Philadelphia County in uninsured treatment facilities, alcohol. Consistent with findings from SUD epidemiology research (Chen et al., 2012) approximately half of this population reported a family history of drug or alcohol problems.

Of significance, only 33.9% of this sample reported graduating high school as measured by highest grade completed (high school completion was considered grade 12 or higher). This is significantly different than the Census Data estimates of high school graduates in Philadelphia County (81.2% high school graduates), suggesting a significant relationship with high school non-completion in this group of people with SUD.

While nearly two-thirds of this sample did not complete high school, less than a quarter reported problems with reading and writing while in school, indicating reading and writing difficulty was not likely the only factor in high school non-completion. The relationship between self-reported reading and writing problems and high school non-completion was significant. These findings are consistent with research that is suggestive of early intervention reading as a protective factor for later high school dropout (Reschly, 2010; Zabolocki & Krezmien, 2013)

The theoretical basis for this study relates to the underlying competence and identity that is achieved through educational success early in life, which can affect later life outcomes (Erikson, 1963). The relationship between high school completion and reported confidence for achieving sobriety in the study was not significant. A separate analysis also found non-significant results using reported reading and writing problems while school aged as the independent variable. Prior studies have utilized questionnaires relating to treatment self-efficacy that have included validated measures (Mendelson, 2013; Steven et al., 2015). Mendelson and colleagues' (2013) use of the 7-item Mastery Scale (Pearlin & Schooler, 1978) identified low self-efficacy as part of the *distressed psychosocial profile*, along with low perceived social support, high depressive symptoms, and low coping skills. Highest level of education (44.7 percent did not complete high

school) was included as an outcome variable in this study and was not significantly related to any of the established clusters. However, the relationship between self-efficacy and high school non-completion was not explored in isolation. Furthermore, a more valid measure of self-efficacy would be necessary before discounting the framework of this study.

A major aim of this study was to investigate the difference between high school completion and non-completion groups on various clinical, behavioral, and social correlates. Independent analyses ran for each variable failed to reject the null hypothesis that differences between the two groups were not statistically significant. However, findings related to the sample overall in terms of clinical, behavioral, and social comorbidities among this sample of people with SUD is useful to explore in the context of existing literature.

Clinical correlates. Quite possibly one of the most common comorbid health problems for people with SUD is that of other mental health disorders. As such, treatment facilities labeled as *dual diagnosis* strive to provide a more unique level of care that such a population requires. In this sample just about half of the sample confirmed a history of mental health difficulties that had led to treatment, while just over a third had been hospitalized for mental health difficulty. Of importance, the men in the sample were not receiving treatment at a dual diagnosis facility at the time the data were collected, suggesting the need for treatment equipped for comorbid mental health problems in people with SUD may be higher than what is currently available, particularly for socially disadvantaged populations. Furthermore, approximately two-thirds of the men endorsed items on the BDI-II that placed them into the mildly depressed range or above. Literature

suggests that males with lower education are more likely to be suffering with mental health distress but less likely to get help (Khlal et al., 2014). This sample had a high rate of high school non-completion suggesting that their self-report of mental health difficulty and report of a need for treatment may be confounded by decreased education.

Consistent with literature investigating the relationship of SUD and depression (Buckley, et al., 2000; Greenfield et al., 1998; Wilson, et al., 2006;), this sample was more depressed than a normative group as measured by the BDI-II (Beck et al., 1996). Interestingly, this sample was less depressed as measured by the BDI-II than a comparable sample of people with SUD at intake (Buckley et al., 2000), suggesting variability of depression among groups of people seeking treatment for SUD.

Importantly, Buckley and colleagues' study was conducted through the Veteran Affairs Medical Office in Jackson, Mississippi, implying a largely veteran sample that may differ in needs compared to the sample in the current study that was predominantly non-veteran. The BDI-II data from the current study add to the limited literature of population specific normative data for SUD.

There was no significant difference in clinical correlates between high school completion and non-completion groups. Divergent findings suggested that high school completion decreased the chance of an individual belonging to the comorbid group of substance use and mental health disorders (Lee et al., 2013).

Behavioral Correlates. The majority of the sample reported a history of at least one arrest. Approximately one-third of the sample was legally mandated to treatment, reflecting some type of involvement in a drug specific court. As mentioned, the goal of

Drug Courts is to provide rehabilitation for SUD outside of the prison system (NIJ, 2015). This sample had many of the characteristics that were associated with drug court termination in a recent study, namely high school non-completion, unemployed, and identified cocaine as a drug of choice (Gallagher et al., 2015). Furthermore, the average number of incarcerations in this sample was just over three, suggesting convergent findings with literature on non-drug court repercussions to criminal behavior among this sample (Gallagher et al., 2015). An explicit prior history of drug court involvement was not explored, but may be beneficial for future study to determine the utilization of Drug Courts among this sample. While differences were seen between the high school completion and non-completion group about their criminal history, those differences were not statistically significant.

The literature suggests that legal employment obtainment is riddled with obstacles for people who are 1) socially disadvantaged, 2) in treatment for SUD, 3) have a criminal history, 4) low educated, and 5) have comorbidity mental health problems (Gold, 2004; Harris et al., 2013; SAMHSA, 2013). The current sample is arguably at high risk for each of the categories that, even when experienced in isolation, can impede employment obtainment. Therefore, it is certainly consistent with the literature that in this current study, self-reported *lifetime history* of legal job attainment indicated that just over half had ever held a legal job. To add to the well-established literature suggesting difficulty in maintaining work, just over one-third of this sample had a *lifetime history* of holding a job for longer than one year.

Contrary to what the literature might predict, high school completion and non-completion groups in the sample did not differ in terms of their employment histories.

The research base suggesting comorbidity of mental health problems, criminal history, and primary substance of use as barriers to employment for people with SUD may be useful in directing future research for similar samples.

Research has investigated the association between educational attainment and sexual behavior among high school students, and has been indicative of a relationship between sexual risk-taking and lessened educational attainment (Frisco, 2008). While admittedly at a different time sample, results from the current study suggested no difference in sexual risk-taking between high school completion and high school non-completion group. Number of sexual partners within the last year was reported as a “sexual risk-taking” correlate. Prior research reports divergent findings relating to SUD and report of sexual activity (Carey et al., 2004, Meade, 2006). Of significance relating to the sample as a whole, just over one quarter of the sample confirmed a history of paying or receiving money for sex.

Interesting literature is available relating to risk-taking propensity and low self-esteem as correlated with sexual risk-taking behaviors in lifetime SUD (Lejuez et al., 2004). Future research directed at these variables specifically may be of use for tailoring interventions that limit such risk-taking behaviors that have been widely associated with health risks. Studies have found the relationship between sexual risk-taking and substance abuse significant enough that substance use reduction interventions were found to indirectly reduce sexual risk-taking behavior (Carey et al., 2004).

In sum, there was no statistically significant difference in behavioral correlates (number of arrests, number of incarceration, job history, job history for more than one year, sexual-risk-taking history) between high school completion and non-completion

groups. However, the sample's wide prevalence of negative behavioral outcomes was largely consistent with the literature base of both high school non-completion and SUD populations.

Social support. This sample was largely non-married, which is consistent with established interpersonal relationship difficulties in people with SUD. However, more than half of the men reported that they were currently in a romantic relationship. Furthermore, the majority of this sample reported at least one person who would support them through their recovery. Recent literature suggests social support for people with SUD may be associated with decreased sexual risk-taking behavior, positive treatment prognosis, and increased treatment self-efficacy (Ciraulo et al., 2003; Mance, Kurtz, & Surratt, 2013; Stevens et al., 2015). Moreover, low social support among people with SUD has been linked to underemployment, housing instability, and increased symptoms of mental health distress (Mendelson, 2013). Future research investigating social support and its relationship with variables of interest among these data is necessary in determining the current study's placement among recent literature.

There were no significant differences in social correlates (perceived social support, current relationship status) between high school completion and non-completion groups. Research has linked social support, particularly from teachers, as a protective factor for substance use among male students with low scholastic competence (Lifrank et al., 1997). It is hypothesized that the relationship between educational attainment and social support among this sample of SUD may not have been of significance as a reflection of error in time sampling in the research design pertaining to this area.

Moreover, future research investigating this association may be better conducted in terms of prevention or outcome study.

Secondary analysis. A secondary analysis explored SUD and spirituality. Ellis and Shoenfeld (1990) argued that the spirituality component of Alcoholics Anonymous, which is largely incorporated into inpatient SUD treatment for socially disadvantaged populations, was impeding people from potential recovery. In this study men who placed value on spirituality were statistically significantly more confident in their ability to find treatment success than those who did not place value on spirituality, indicating an association between spirituality and confidence for success in treatment. More recent studies have aligned with these data in the current study such as both Brown et al. (2011) and Pardini et al. (2000) who have suggest that spiritually may be a key psychosocial variable in the successful recovery of substance use disorders. Furthermore, these data may be supportive for the incorporation of SUD treatment programs, such as SMART recovery, that would eliminate the need for spirituality for SUD recovery and cast a wider net for treatment regardless of spiritual beliefs (Horvath & Yeterian, 2012).

Implications

A major implication of this study reflects the disheartening prevalence of high school non-completion in this sample. It is well established that a high school education is an essential accomplishment that is not only necessary to progress into careers that allow for self-sufficient adulthood, but also is the foundation for strong judgment, critical thinking, and a variety of other life skills which correlate to overall psychosocial success. The rapidly growing literature available on substance use disorders is also indicative of

well-established correlations between substance use disorders and a number of negative physical and social consequences. Taken together, people with SUD with comorbid low literacy (or lack of high school degree) have many odds stacked against them and may benefit from an alternative form of treatment to reflect the increased likelihood of multifaceted needs.

Mendelson and colleagues' (2013) research highlights the importance of consideration of social-contextual factors such as social support and socioeconomic resources as well as psychological factors in characterizing the functioning of substance abusers in recovery in order to better inform intervention. To take that one step further, this study provides evidence to highlight the addition of education and spirituality to those considerations.

Substance use disorder treatment programs are available, and commonly report the inclusion of employment readiness, adult literacy, and GED prep classes, specifically in socially disadvantaged populations. However, there is inadequate mention of academically related and literacy accommodations to the *therapeutic tools and programs* that are used in treatment. While almost two decades old, an implication of this study for current SUD clinicians is the utilization of the suggestions listed in *Substance use disorder treatment for people with physical and cognitive disabilities* (SAMHSA Treatment Improvement Protocol, 1998), and to remain abreast of more recent publications that may be specific to accommodations tailored to the program of use.

Implications for the field of school psychology. How can this be applied to researchers and practitioners in the field of school psychology? The role of a school

psychologist is transitioning from the traditionally reactive model of practice (wait to fail, gatekeeper to special education) to a more preventative, universal approach (Merrell, Ervin, & Peacock, 2011). Moreover, the scope of training and practice for a school-based school psychologist has expanded from solely assessment to multi-level consultation, behavioral support, and intervention development. This paradigm shift, accompanied by changes in society and litigious views on the importance of mental health care, precipitates a need for practitioners to familiarize themselves with the unique needs of various pathologies. The need for knowledge is even greater with largely stigmatized populations, such as substance use disorders.

Comorbid learning difficulties among this population provide support for the integration of social, behavioral, and academic interventions, as was suggested in studies finding a relationship between learning disabled students and self- efficacy (Hampton & Mason, 2010). Reschly (2010) encouraged the use of early intervention programs that use an integrated approach concerning academics and socioemotional objectives collectively; the heightened association between SUD and low literacy suggests enough reasoning to address the problem in the same way at our schools. Furthermore, a study done over two decades ago found that perceived support from teachers was associated with less substance use, particularly in those with low scholastic competence (Lifrank et al., 1997), supporting the implementation of staff student mentorship programs in our schools.

Finally, school psychologists are encouraged to become involved in universal, preventative programs for social, emotional, and behavioral development (Merrell et al., 2011). As such, it may be of interest to investigate the need and capability of

differentiation and accommodations available in various social emotional learning programs.

Limitations and Future Direction

These results should be viewed within the context of several limitations. The exploratory nature of the analyses leads to only cautious interpretations of the study and suggests the need for replication of more focused aspects of the study. First and foremost, it is unknown if fixed wordings interview style was used when the biopsychosocial form was completed at intake. The data are furthermore subjected to interviewer bias as the individual characteristics of interviewers and their presentation of particular questions may have elicited differential reactions and influenced responses. In addition, the small sample size of solely males with a large age range limits generalizability of results beyond the current sample. The generalizability of the data should be cautionary, even to the county where the treatment was provided, as the comparison between basic demographical information and primary substance use differed between this sample and available information for Philadelphia County.

The impact and complexity of SUD makes it tempting to hypothesize homogeneity in order to better understand, and therefore treat, this pervasive disease. Nevertheless, an aspect accounting for the non-significance in these data is the evidence in that even among seemingly demographically “homogeneous” groups, the variability in their pre-treatment functioning is vast.

The exploratory nature of the study with data available serves as a starting point for future more specific studies. Though the major results of this specific study were not

significant, it is hypothesized that the flaw may not be in theory but in the timing that the data were collected. It will be useful to further investigate the risk associated with low literacy and learning disabilities for SUD. Additionally, it may be more aligned with the theoretical nature of the study to explore literacy as *predictor* of treatment success and treatment recidivism. Future research to investigate whether differentiation and accommodations to interventions can enhance intervention efficacy may be useful. Even more pressing, it is important to continue to build on the National Registry of Evidence Based Programs (NREBP) whilst remaining mindful of the unique and diverse needs of individuals in treatment and accommodating needs in practice.

REFERENCES

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.
- Baillargeon, J., Penn, J. V., Knight, K., Harzke, A. J., Baillargeon, G., & Becker, E. A. (2010). Risk of re-incarceration among prisoners with co-occurring severe mental illness and substance use disorders. *Administration and Policy in Mental Health, 37*, 367–374.
- Beck, A.T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry, 4*, 561-571.
- Beck, A. T., Steer, R.A., & Brown B.K. (1996) *Beck depression inventory manual* (2nd ed.), Psychological Corporation
- Beck, A. T., Steer, R.A., & Garbin, M.G. (1988) Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review, 8*(1), 77-100.
- Birchwood, M., Smith, J., Cochrane, R., Wetton, S., & Copestake, S. (1990). The social functioning scale. the development and validation of a new scale of social adjustment for use in family intervention programmes with schizophrenic patients. *The British Journal of Psychiatry, 157*(6), 853-859.
doi:10.1192/bjp.157.6.853
- Bovier, P. A., Chamot, E., & Perneger, T. V. (2004). Perceived stress, internal resources, and social support as determinants of mental health among young adults. *Quality of Life Research, 13*(1), 161-170. doi:10.1023/B:QURE.0000015288.43768.e4

- Brown, A. E., Tonigan, J. S., Pavlik, V. N., Kosten, T. R., & Volk, R. J. (2013). Spirituality and confidence to resist substance use among Celebrate Recovery participants. *Journal of religion and health, 52*(1), 107-113.
- Buttram, M. E., Kurtz, S. P., & Surratt, H. L. (2013). Substance use and sexual risk mediated by social support among black men. *Journal of Community Health, 38*(1), 62-69. doi:10.1007/s10900-012-9582-8
- Buckley, T. C., Parker, J. D., & Heggie, J. (2001). A psychometric evaluation of the BDI-II in treatment-seeking substance abusers. *Journal of Substance Abuse Treatment, 20*(3), 197-204. doi:10.1016/S0740-5472(00)00169-0
- Cantrell, S. C., Correll, P., Clouse, J., Creech, K., Bridges, S., & Owens, D. (2013). Patterns of self-efficacy among college students in developmental reading. *Journal of College Reading and Learning, 44*(1), 8-34
- Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the Brief COPE. *International Journal of Behavioral Medicine, 4*, 92-100.
- Center for Behavioral Health Statistics and Quality. (2015). Behavioral health trends in the United States: Results from the 2014 National Survey on Drug Use and Health (HHS Publication No. SMA 15-4927, NSDUH Series H-50). Retrieved from <http://www.samhsa.gov/data/>
- Centers for Disease Control and Prevention (2014). *Excessive Drinking Costs U.S. \$223.5 Billion*. Retrieved from: www.cdc.gov/features/alcoholconsumption/.
- Chen, X., Dick, D., Maes, H., Gillespie, N., Kendler, K. S., Neale, M. C., & Riley, B. (2012). Recent advances in the genetic epidemiology and molecular genetics of substance use disorders. *Nature neuroscience, 15*(2), 181-189.

- Ciraulo, D. A., Pienchniczek-Buczek, J., & Iscan, E. N. (2003). Outcome predictors in substance use disorders. *Psychiatric Clinics of North America*, 26, 381–409.
- Compton, W. M., Thomas, Y. F., Stinson, F. S., & Grant, B. F. (2007). Prevalence, correlates, disability, and comorbidity of DSM-IV drug abuse and dependence in the United States: Results from the national epidemiologic survey on alcohol and related conditions. *Archives of General Psychiatry*, 64(5), 566–576
- Compton, W. M., Dawson, D. A., Conway, K. P., Brodsky, M., & Grant, B. F. (2013). Transitions in illicit drug use status over 3 years: A prospective analysis of a general population sample. *American Journal of Psychiatry*, 170(6), 660-670. doi:10.1176/appi.ajp.2012.12060737
- Delany, P. J., Shields, J. J., & Roberts, D. L. (2009). Program and client characteristics as predictors of the availability of social support services in community-based substance abuse treatment programs. *Journal of Behavioral Health*, 36(4), 450–464.
- Drake, R. E., & Wallach, M. A. (1989). Substance abuse among the chronic mentally ill. *Hospital & Community Psychiatry*, 40(10), 1041-6.
- Frisco, M. L. (2008). Adolescents' sexual behavior and academic attainment. *Sociology of Education*, 81(3), 284-311. doi:10.1177/003804070808100304
- Eisinger, G. J., Wodarski, J. S., & Ferguson, D. (2009). Psychosocial Correlates of Methamphetamine Use. *Journal of Human Behavior in the Social Environment*, 19(7), 915-931.
- Ellis, A., & Shoenfeld, E. (1990). Divine intervention and the treatment of chemical dependency. *Journal of Substance Abuse*, 2(4), 459-468.

- Erikson, E. H. (1959). Identity and the life cycle: Selected papers. *Psychological issues*.
- Fernández-Montalvo, J., López-Goñi, J. J., & Arteaga, A. (2011). Violent behaviors in drug addiction: Differential profiles of drug-addicted patients with and without violence problems. *Journal of interpersonal violence, 27*(1), 142-157
- Gallagher, J. R., Nordberg, A., Deranek, M. S., Ivory, E., Carlton, J., & Miller, J. W. (2015). Predicting termination from drug court and comparing recidivism patterns: Treating substance use disorders in criminal justice settings. *Alcoholism Treatment Quarterly, 33*(1), 28-43. doi:10.1080/07347324.2015.982451
- Harris, L. M., Matthews, L. R., Penrose-Wall, J., Alam, A., & Jaworski, A. (2014). Perspectives on barriers to employment for job seekers with mental illness and additional substance-use problems. *Health & Social Care in the Community, 22*(1), 67-77. doi:10.1111/hsc.12062
- Horvath, A. T., & Yeterian, J. (2012). SMART recovery: Self-empowering, science-based addiction recovery support. *Journal of Groups in Addiction & Recovery, 7*(2), 102-117. doi:10.1080/1556035X.2012.705651
- Gold, P. B. (2004). Some obstacles to employment for persons with chronic substance use disorders. *Substance use and Misuse, 39*(13-14), 2631-2636. doi:10.1081/LSUM-200034674
- Greenfield, S. F., Weiss, R. D., Muenz, L. R., Vagge, L. M., Kelly, J. F., Bello, L. R., & Michael, J. (1998). The effect of depression on return to drinking: A prospective study. *Archives of General Psychiatry, 55*, 259– 265. doi: 10.1001/archpsyc.55.3.259

- Kelly, A. B., Evans-Whipp, T. J., Smith, R., Chan, G. C. K., Toumbourou, J. W., Patton, G. C., & Catalano, R. F. (2015). A longitudinal study of the association of adolescent polydrug use, alcohol use and high school non-completion. *Addiction, 110*(4), 627-635. doi:10.1111/add.12829
- Karacostas, D. D., & Fisher, G. L. (1993). Chemical dependency in students with and without learning disabilities. *Journal of Learning Disabilities, 26*(7), 491-495.
- Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine, 16*(9), 606-613. doi:10.1046/j.1525-1497.2001.016009606
- Lee, J., Herrenkohl, T., Kosterman, R., Small, C., & Hawkins, J. (2013). Educational inequalities in the co-occurrence of mental health and substance use problems, and its adult socio-economic consequences: A longitudinal study of young adults in a community sample. *Public Health, 127*(8), 745-753. doi:10.1016/j.puhe.2013.04.005
- Lejuez, C., Simmons, B., Aklin, W., Daughters, S., & Dvir, S. (2004). Risk-taking propensity and risky sexual behavior of individuals in residential substance use treatment. *Addictive Behaviors, 29*(8), 1643-1647. doi:10.1016/j.adbeh.2004.02.035
- Lincoln, A., Paasche-Orlow, M. K., Cheng, D. M., Lloyd-Travaglini, C., Caruso, C., Saitz, R., & Samet, J. H. (2006). Impact of Health Literacy on Depressive Symptoms and Mental Health-related: Quality of Life Among Adults with Addiction. *Journal of general internal medicine, 21*(8), 818-822.

- Linehan M., Schmidt, H., Dimeff L., Craft, J., Kanter, J., & Comtois, K., (1999). A Dialectical behavior therapy for patients with borderline personality disorder and drug-dependence. *American Journal of Addiction*, 8 (4) 279- 292.
- Khlat, M., Legleye, S., & Sermet, C. (2014). Factors influencing report of common mental health problems among psychologically distressed adults. *Community Mental Health Journal*, 50(5), 597-603. doi:10.1007/s10597-013-9680-9
- Manuel, J. K., Hagedorn, H. J., & Finney, J. W. (2011). Implementing evidence-based psychosocial treatment in specialty substance use disorder care. *Psychology Of Addictive Behaviors*, 25(2), 225-237. doi:10.1037/a0022398
- Mathew, R. J., Mathew, V. G., Wilson, W. H., & Georgi, J. M. (1995). Measurement of materialism and spiritualism in substance abuse research. *Journal of Studies on Alcohol and Drugs*, 56(4), 470.
- McIntosh, J., Bloor, M., & Robertson, M. (2008). Drug treatment and the achievement of paid employment. *Addiction Research & Theory*, 16(1), 37-45.
- Mendelson, T., Dariotis, J. K., & Agus, D. (2013). Psychosocial strength and needs of low-income substance abusers in recovery. *Journal of Community Psychology*, 41(1), 19-34.
- Merrell, K. W., Ervin, R. A., & Peacock, G. G. (2011). *School psychology for the 21st century: Foundations and practices. second edition* Guilford Press.
- Meade, C. S. (2006). Sexual risk behavior among persons dually diagnosed with severe mental illness and substance use disorder. *Journal of Substance Abuse Treatment*, 30(2), 147-157. doi:10.1016/j.jsat.2005.11.005

- Moore, D., NCBI Bookshelf, & United States Substance Abuse and Mental Health Services Administration. (1998). *Substance use disorder treatment for people with physical and cognitive disabilities* U.S. Dept. of Health and Human Services, Public Health Services, Substance Abuse and Mental Health S.
- McNeil, D.E., Binder, R.L. & Robinson, J. C. (2005) Incarceration associated with homelessness, mental disorder and co-occurring substance abuse. *Psychiatric Services*, 56, 840-846.
- Mumola, C.J. & Karberg, J.C. (2007). Drug use and dependence, State and federal prisoners. *Bureau of Justice Statistics Special Report*. Retrieved from <http://www.bjs.gov/content/pub/pdf/dudsf04.pdf>
- National Drug Intelligence Center (2011). *National Drug Threat Assessment*. Retrieved from: www.justice.gov/archive/ndic/pubs44/44849/44849p.pdf
- National Institute of Justice (2014). *Drug Courts*. Retrieved from: <http://www.nij.gov/topics/courts/drug-courts/pages/welcome.aspx>
- Pardini, D. A., Plante, T. G., Sherman, A., & Stump, J. E. (2000). Religious faith and spirituality in substance abuse recovery: Determining the mental health benefits. *Journal of substance abuse treatment*, 19(4), 347-354.
- Pearlin, L. I., & Schooler, C. (1978). The structure of coping. *Journal of Health and Social Behavior*, 19, 2–21.
- Peters, R. H., Greenbaum, P. E., Edens, J. F., Carter, C. R., & Ortiz, M. M. (1998). Prevalence of DSM-IV substance abuse and dependence disorders among prison inmates. *The American journal of drug and alcohol abuse*, 24(4), 573-587.

- Pizzarello, S., & Taylor, J. (2011). Peer substance use associated with the co-occurrence of borderline personality disorder features and drug use problems in college students. *Journal of American College Health, 59*(5), 408-414.
doi:10.1080/07448481.2010.513407
- Project HOME (2015) *Facts on Homelessness*. Retrieved from:
<https://projecthome.org/about/facts-homelessness>
- Regier, D.A., Farmer, M.E & Rae D.S. (1990) Comorbidity of Mental Disorders With Alcohol and Other Drug Abuse: Results From the Epidemiologic Catchment Area (ECA) 264(19):2511-2518. doi:10.1001/jama.1990.03450190043026.
- Renner, J. A., Baxter, J., Suzuki, J., & Ciraulo, D. A. (2011). Substance abuse and depression. *Pharmacotherapy of Depression, 239-274*.
- Rhodes, S. S., & Jasinski, D. R. (1990). Learning disabilities in alcohol-dependent adults: A preliminary study. *Journal of Learning Disabilities, 23*(9), 551-556.
doi:10.1177/002221949002300904
- Richardson, L., Wood, E., Li, K., & Kerr, T. (2010). Factors associated with employment among a cohort of injection drug users. *Drug and Alcohol Review, 29*(3), 293–300. doi:10.1111/j.1465-3362.2009.00141.x
- Sherbourne, C. D., & Stewart, A. L. (1991). The MOS social support survey. *Social Science and Medicine, 32*, 705–714.
- Stanovich, K. E. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly, 21*(4), 360-407. doi:10.1598/RRQ.21.4.1

- Stevens, E., Jason, L. A., Ram, D., & Light, J. (2015). Investigating social support and network relationships in substance use disorder recovery. *Substance Abuse*, 36(4), 396-399. doi:10.1080/08897077.2014.965870
- Substance Abuse and Mental Health Services Administration, *Results from the 2011 National Survey on Drug Use and Health: Summary of National Findings*, NSDUH Series H-44, HHS Publication No. (SMA) 12-4713. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2012, p. 6.
- Substance Abuse and Mental Health Services Administration. (2013). Results from the 2012 National Survey on Drug Use and Health: National Findings. Rockville, MD: SAMHSA, Office of Applied Studies
- U.S. Department of Health and Human Services (2014) *The Health Consequences of Smoking—50 Years of Progress. A Report of the Surgeon General* Retrieved from: www.surgeongeneral.gov/library/reports/50-years-of-progress/full-report.pdf
- White, S., & McCloskey, M. (2006). Framework for the 2003 National Assessment of Adult Literacy. Washington, DC: U.S. Department of Education. National Center for Education Statistics.
- Wilson, M.C., Kevin P.C., Frederick S.S., & Bridget F.G. (2008). Changes in the prevalence of major depression and comorbid substance use disorders in the United States between 1991–1992 and 2001–2002. *American Journal of Psychiatry*, 163. 2141–2147.
- Yu, J. W., Buka, S. L., Fitzmaurice, G. M., & McCormick, M. C. (2006). Treatment outcomes for substance abuse among adolescents with learning disorders. The

Journal of Behavioral Health Services and Research, 33(3), 275-286.

doi:10.1007/s11414-006-9023-5

Zablocki, M., & Krezmien, M. P. (2013). Drop-out predictors among students with high-incidence disabilities: A national longitudinal and transitional study 2 analysis.

Journal of Disability Policy Studies, 24(1), 53-64.

doi:10.1177/1044207311427726