VOCATIONAL REHABILITATION FOR PERSONS WITH DUAL DIAGNOSIS: AN EXAMINATION OF OUTCOMES FOR MINORITY AND NON-MINORITY CLIENTS

Presented in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy in the Graduate School of The Ohio State University

By

Hermona Cozella Robinson, B.S., M.A., CRC

* * * * *

The Ohio State University

2005

Dissertation Committee:

Dr. Michael Klein, Adviser

Dr. Bruce Growick

Dr. James Moore, III

Approved by

____________________________________

Advisor

College of Education
ABSTRACT

The purpose of this study was to examine vocational rehabilitation outcomes of persons who were dually diagnosed with substance abuse and mental health disorders. The study sought to examine whether differences existed in vocational rehabilitation outcomes based upon the individuals’ race. This ex-post facto study utilized national data from closure records of 54,937 dually diagnosed consumers who sought services from the state-federal rehabilitation system in federal fiscal year 2002.

Disparities between minority and non-minority consumers have long been documented in vocational rehabilitation, thus this study examined the extent of those disparities when the individual also had a dual diagnosis of mental illness and substance abuse. This study further addressed the issues of inequities in the state-federal VR system and the need for the provision of culturally competent services to minorities.

A multivariate analysis of variance (MANOVA) was selected for evaluating the relationship between race and variables such as earnings, number of services, duration the case was opened, and case expenditures. Additionally, Chi -square analysis was used to address any statistical differences that existed in the type of services that minority and non-minority clients received.

MANOVA and Chi-square results of the study concluded that statistically significant differences existed in vocational rehabilitation outcomes between minority and non-minority clients at closure with minorities faring worse than their non-minority
counterparts. Minority clients earned $8.82 per hour while non-minority clients earned $9.79 per hour at closure. Minority clients’ cases were open for a shorter duration than non-minority clients and fewer dollars were spent on case services for minority than non-minority clients when comparing successful closures. However, on a positive note minority and non-minority clients both worked an average of 37 hours per week.

Minority consumers with a dual diagnosis face formidable challenges in rehabilitation that are compounded by both disorders. Thus, the desired results of this study would be to strengthen the awareness about the need for culturally competent service delivery to individuals with a dual diagnosis and to subsequently offer recommendations that will challenge rehabilitation practitioners, educators, and administrators to move from awareness to action.
Dedicated to my parents,

In memory of my mother, Annie Jean Trudell
    And
In honor of my father, Herman Trudell
ACKNOWLEDGMENTS

First, I would like to give honor to God for all of the many blessings that he has bestowed upon me. Because of God’s grace and mercy, I have come this far.

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Thanks to my siblings, Rosia, Cathy, Ronda, Herman Jr., Tina, Michael, and Angela for your prayers, understanding, and encouragement. To my best friend, Emma Easton, thanks for always being there for me. To my pastor, Dr. Donald J. Washington and Lady Shirl Washington, thank you for your prayers and leadership.

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VITA

February 16, 1959.......................... Born: Columbus, Ohio

1982............................................. B.S., Psychology
The Ohio State University
Columbus, Ohio

2001............................................. M.A., Rehabilitation Counseling
The Ohio State University
Columbus, Ohio

1993-2003.................................... Rehabilitation Administrator
Vocational Rehabilitation Counselor
Center of Vocational Alternatives
Columbus, Ohio

2002-2005.................................... Graduate Teaching Associate
The Ohio State University

2003-2005.................................... Rehabilitation Counselor
VoCare, Services, Inc.
Columbus, Ohio

2003-2004.................................... Adjunct Professor/Consultant
Wilberforce University
Wilberforce, Ohio

PUBLICATIONS

Research Publication

FIELDS OF STUDY

Major Field: Education
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CHAPTER 1

INTRODUCTION

Statement of the Problem

The lack of cultural competence has been suggested as one of the main reasons that historically underrepresented racially and ethnically diverse persons have experienced less than desirable outcomes as compared to their white counterparts within mental health and rehabilitation systems (Watson & Collins, 1993; Vontress & Epp, 1997; Sue & Sue, 2003, Wheaton, Wilson, Brown, 1996; Granello, & Wheaton, 1998; Robinson, 1999; Capuzzi & Gross, 2003). The cultural diversity of our country is continually increasing and it is estimated that by the year 2050, no more than 50% of the population will be of Anglo ancestry. In addition, advances in technologies have increased each person's ability and likelihood of interacting with people of cultural backgrounds quite different from his/her own (Robinson, 1999; D'Angelo & Dixey, 2001; Bellini, 2002; Granello & Wheaton, 1998; Sue, Arrendondo, & McDavis, 1992).

With growing acknowledgement of these issues, rehabilitation and mental health practitioners have begun to consider the integration of culture, race, and other aspects of human socialization into mental health assessment and delivery (Locke, 1993; Vontress & Epp, 1997, Sue & Sue, 2003; Robinson, 1999). To that end, the U.S. government began a campaign in the 1960’s to remove barriers that prevented equal access and
opportunities for women and historically underrepresented racial and ethnic groups. Efforts to provide culturally competent services intensified in the 1970’s and peaked during the 1980’s. Additionally, in an effort to ensure diversity within the rehabilitation workforce, Section 21 was included in the 1992 Amendments to the 1973 Rehabilitation Act. The goal of Section 21 was to ensure that governmental polices represented Americans with disabilities (Middleton, Rollins, Sanderson, Leung, Harley, Ebener & Leal-Idrogo, 2000; Paugh, 2003).

Today, however, the work in this area if far from over as there continues to be a need for research in the area of multicultural competencies, specifically as it relates to minority and non-minority treatment outcomes (Sue & Sue, 2003, Vontress & Epp, 1997; Wheaton et al., 1996; Robinson, 1999; Sue et al., 1992). To compound the issue, add dual diagnosis to picture. Not only does the counselor need to deliver culturally competent services, but they need to address the unique issues of substance abuse and mental illness. With these combined factors, consumers who are dually diagnosed and are of minority status face formidable challenges in rehabilitation (Paugh, 2003; Dunston-McLee, 2001).

Despite the large number of persons diagnosed with a dual diagnosis, vocational rehabilitation literature that focuses on dual diagnosis is scarce. Researchers suggested that 37% of alcohol abusers and 53% of drug abusers also have at least one serious mental illness. Mental disorders account for 4 of the 10 leading causes of disability in the United States (Substance Abuse Mental Health Services Administration, SAMSHA, 2002; National Mental Health Association, NMHA, 2003). Miller & Fine (1997) posited that there is a lifetime prevalence of 55% among alcoholics with a mental disorder and 64% among drug users with a mental illness. Approximately 29 % of persons diagnosed
with a mental illness abuse either alcohol or drugs (National Alliance for the Mentally Ill, NAMI, 2004). Yet, very few studies that have been conducted on this population by rehabilitation researchers, specifically, those diagnosed with mental illness and substance abuse (Paugh, 2003; Sengupta, Drake, McHugo, 1998).

While research has shown that disparities exist between minority and non-minority consumers, the impact has to be even greater when the consumer also has a dual diagnosis. Since persons with dual diagnosis often enter rehabilitation programs with a poor prognosis (Paugh, 2003; Dunston-McLee, 2001). Hence, the question arises: what is the extent of the impact of multicultural issues on program outcomes such as hours worked per week, earnings per hour, number of services provided, and types of services provided, average time case is open, and average case expenditures at time of closure.

There are various options available for treatment for persons with mental illness and substance abuse disorders. There is a lack of services available for persons who are dually diagnosed. Persons with a dual diagnosis continue to receive services for discrete disorders of mental illness or substance abuse instead of getting treatment for both disorders simultaneously (Sciaccia, 1996; Steele, 2003). Several problems exist that contribute to this lack of services including lack of proper funding, lack of training and expertise on the part of clinicians, negative connotations ascribed to individuals with dual diagnosis, and the inability of systems to develop integrated services targeted at providing comprehensive services in one setting. This problem will continue to cost society billions of dollars until adequate attention is given to the plight of individuals with a dual diagnosis. Thus, it is imperative that rehabilitation practitioners have the
competencies necessary to work with minority consumers who are dually diagnosed (SAMHSA, 2002; NMHA, 2003; Paugh, 2003; Steele, 2003; Dunston-McLee, 2001).

Purpose of the Study

The purpose of this study is to contribute to the understanding of the impact of multicultural issues on vocational rehabilitation program outcomes for consumers with a dual diagnosis (mental illness and substance abuse). The study will examine whether there are differences in program outcomes for minority consumers with a dual diagnosis as compared to their non-minority counterparts. Ever since the 1960’s counseling and psychotherapy have been challenged as lacking in the appropriateness of the services offered to minority clients (Sue, 1981; Sue et al., 1982; Vontress & Epp, 1997; Paugh, 2003; NIMH, 2001). Capuzzi & Gross (2003) posited that traditional counseling and psychotherapy is based on the dominate culture and often fails to meet the needs of culturally diverse populations. This study will examine the differences in program outcomes of persons with dual diagnosis in relation to their racial/ethnic status.

Need for the Study

Despite the Civil Rights Movement that originated in the 1960’s and thirty years of disability rights legislation, minorities and people with disabilities continue to fare worse than their non-minority and non-disabled counterparts in social, economic, educational, and vocational arenas. Minorities who have a dual diagnosis (mental illness and substance abuse) face dual challenges within the rehabilitation system that have yet to be resolved (Olney & Kennedy, 2002).

Disparities between minority and non-minority consumers have been well-documented in the rehabilitation literature. Advocates of multicultural counseling
concerns maintain that counselors are not provided the proper training to work with the increasingly diverse population, and thus, conclude that the disparities between minority and non-minority consumers will continue to exist unless training programs are mandated or vigorous actions are taken to encourage multicultural skill development (Bellini, 2002; Wilson, 2002; Moore, Feist-Price, & Alston, 2002; Pack-Brown, 1999; Locke & Kiselica, 1999; Ponterotto, Fuertes, & Chen, 2000; Sue et al., 1992).

However the same cannot be said for persons with a dual diagnosis. There is a paucity of research literature available on persons with a dual diagnosis who are involved in vocational rehabilitation system. The scarcity of research may be a reason why rehabilitation professionals are not adequately trained to work with persons with dual diagnosis. Perhaps many practitioners are not aware of the problem. This study hopes to bring the need for changes in service delivery for minority consumers who have a dual diagnosis to the attention of rehabilitation practitioners, educators, and administrators. One unfortunate result of this lack of research for persons with dual diagnosis is that without counselors who are adequately trained to work with minority persons with a dual diagnosis and programs that are designed to provide integrated treatment in one setting, this population will not flourish (Paugh, 2003; Dunston-McLee, 2001). Therefore, additional research is needed to bring the plight of minority consumers who are dually diagnosed to the forefront of rehabilitation, in hopes that some of the inequities can be resolved (Capella, 2002).
Research Questions and Variables

*Research Question 1.* Is there a significant difference in the hours worked per week for minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)?

*Research Question 2.* Is there a significant difference in the earnings per hour for minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)?

*Research Question 3.* Is there a significant difference in the number of services provided to minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)?

*Research Question 4.* Is there a significant difference in the number of services provided to minority vs. non-minority consumers with a dual diagnosis who were closed unsuccessfully (status 28)?

*Research Question 5.* Is there a significant difference in the time the case was open to provide services to minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)?

*Research Question 6.* Is there a significant difference in the time the case was open to provide services to minority vs. non-minority consumers with a dual diagnosis who were closed unsuccessfully (status 28)?

*Research Question 7.* Is there a significant difference in the case expenditures for services provided to minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)?
Research Question 8. Is there a significant difference in the case expenditures for services provided to minority vs. non-minority consumers with a dual diagnosis who were closed unsuccessfully (status 28)?

Research Question 9. Is there a significant difference in the types of services provided to minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)?

Research Question 10. Is there a significant difference in the types of services provided to minority vs. non-minority consumers with a dual diagnosis who were closed unsuccessfully (status 28)?

Variables

The independent variable for all of the research questions in this study is the racial/ethnic status of the individual subject (minority versus non-minority). The specific categories of minorities included in the research questions will include: African American, Asian American, Native Hawaiian or Pacific Islander, and Hispanic or Latino American. The non-minority category will include European Americans. Gender and age will be added as control variables to see if any statistical differences exist. The dependent variables are the hours worked per week, earnings per hour, number of services provided, and type of services provided, time the case is open, and case expenditures. All of the dependent variables are operationally defined as rehabilitation employment outcomes as recorded in the RSA-911 database. Status 26 is defined as follows: the case was closed successfully after the consumer had been employed for 90
days. Status 28 is defined as follows: the case was closed unsuccessfuflly as the consumer did not obtain or maintain employment.

Hypotheses

H0: There is no relationship between the racial/ethnic status (minority vs. non-minority) and the hours worked per week for consumers with a dual diagnosis at successful closure (status 26).

H1: There is a relationship between the racial/ethnic status (minority vs. non-minority) and the hours worked per week for consumers with a dual diagnosis at successful closure (status 26).

H0: There is no relationship between the racial/ethnic status (minority vs. non-minority) and the earnings per hour for consumers with a dual diagnosis at successful closure (status 26).

H2: There is a relationship between the racial/ethnic status (minority vs. non-minority) and the earnings per hour for consumers with a dual diagnosis at successful closure (status 26).

H0: There is no relationship between the racial/ethnic status (minority vs. non-minority) and the number of services provided to consumers with a dual diagnosis who were closed successfully and unsuccessfully (status 26 and status 28).

H3: There is a relationship between the racial/ethnic status (minority vs. non-minority) and the number of services provided to with a dual diagnosis who were closed successfully and unsuccessfully (status 26 and status 28).
H0: There is no relationship between the racial/ethnic status (minority vs. non-minority) and the time the case was open to provide services to consumers with a dual diagnosis who were closed successfully and unsuccessfully (status 26 and status 28).

H4: There is a relationship between the racial/ethnic status (minority vs. non-minority) and the time the case was open to provide services to consumers with a dual diagnosis who were closed successfully and unsuccessfully (status 26 and status 28).

H0: There is no relationship between the racial/ethnic status (minority vs. non-minority) and the case expenditures to provide services to consumers with a dual diagnosis who were closed successfully and unsuccessfully (status 26 and status 28).

H5: There is a relationship between the racial/ethnic status (minority vs. non-minority) and the case expenditures to provide services to consumers with a dual diagnosis who were closed successfully and unsuccessfully (status 26 and status 28).

H0: There is no relationship between the racial/ethnic status (minority vs. non-minority) and the types of services provided to consumers with a dual diagnosis who were closed successfully and unsuccessfully (status 26 and status 28).

H6: There is a relationship between the racial/ethnic status (minority vs. non-minority) and the types of services provided to consumers with a dual diagnosis who were closed successfully and unsuccessfully (status 26 and status 28).

Limitations of the Study

The limitations in this study are due to the use of an ex-post facto research design as opposed to a true experimental design. True random sampling does not occur in this study since the study is limited to minority consumers with a dual diagnosis who have elected to participate in the state-federal vocational rehabilitation system and is not
representative of all minority consumers with a dual diagnosis. The essential elements of true experimental research are typically not feasible for this study and social science research in general as the assignment of subjects to different treatments and manipulation of the independent variable cannot occur (Campbell & Stanley, 1963; Ary, Jacobs, & Razavieh, 1996). Although, RSA has a system in place to verify the accuracy of information, there may undoubtedly be some coding errors that occur during the archival process. Therefore, coding errors can be identified as a limitation to this study. Lastly, this study will utilize data from federal fiscal year and therefore the findings from this study cannot be generalized to other federal fiscal years.

Definition of Terms

The following terms are offered for clarification:

**Dual Diagnosis**: Dual diagnosis refers to the co-occurrence of mental health disorders and substance abuse disorders (alcohol and/or drug dependence or abuse) (American Psychiatric Association, APA, 2000; Sadock, B. & Sadock, V., 2003; Sciacca, 1996; Capuzzi & Gross, 2003; Seligman, 1998; Lewis, Dana, & Blevins, 2002; National Alliance for the Mentally Ill, NAMI, 2004). Dual Diagnosis disorders are often categorized as severe mental illness and a substance abuse disorder. Dual diagnosis can occur in several different combinations of mental illness and substance abuse disorders such as: 1) depression and alcohol abuse, 2) schizophrenia and drug abuse, and 3) alcohol and abuse and personality disorders (Sciacca, 1996; Seligman, 1998; Lewis et al., 2002; Guy, 1997).
Supported Employment: The federal RSA-911 defines supported employment as full-time or part-time employment in an integrated setting with ongoing support services for individuals with significant disabilities.

Competitive employment: Is defined as wages, tips, and commissions for which an individual is compensated at or above the minimum wage, but not less than the customary wage and level of benefits paid by the employer for the same or similar work performed by individuals who are not disabled. This does not include work performed in sheltered workshops.

Earnings at closure: All wages the individual earned after achieving an employment outcome. Earnings include all income from wages, salaries, tips, and commissions, including self-employed individuals.

Weekly hours worked at closure: The total number of hours an individual who achieved an employment outcome worked for earnings in a typical week when the service record was closed.

Type of Closure: A successful closure is achieved when the individual has an employment outcome. An unsuccessful closure is recorded when there is no employment outcome achieved.

Significant Disability: The federal RSA-911 defines an individual with a significant disability is an individual:

a) Who has a physical or mental impairment that seriously limits one or more functional capacities (such as mobility, communication, self-care, self-direction, interpersonal skills, work tolerance, or work skills) in terms of an employment outcome;
b) Whose VR can be expected to require multiple VR services over an extended period of time; and

c) Who has one or more physical or mental disabilities resulting from amputation, arthritis, autism, blindness, burn injury, cancer, cerebral palsy, cystic fibrosis, deafness, head injury, heart disease, hemiplegia, hemophilia, respiratory or pulmonary dysfunction, mental retardation, mental illness, multiple sclerosis, muscular dystrophy, musculo-skeletal disorders, neurological disorders (including stroke and epilepsy), spinal cord conditions (including paraplegia and quadriplegia), sickle cell anemia, specific learning disability, end-stage renal disease, or another disability or combination of disabilities determined on the basis of an assessment for determining eligibility and VR needs to cause comparable substantial functional limitation.
CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

The purpose of this study was to examine the impact of multiculturalism on vocational rehabilitation outcomes for individuals who are dually diagnosed. The study sought to examine whether there were differences in vocational outcomes based upon the individual’s racial/ethnic status. The aim of this section is to provide an overview of dual diagnosis, including etiology, prevalence, and treatment. The study will also address the unique challenges that counselors’ face when providing vocational rehabilitation services to persons with a dual diagnosis. Additionally, this section will discuss the challenges faced by clinicians who often treat substance abuse and mental health disorders as discreet disorders as opposed to providing integrated services in integrated settings. Lastly, this section will discuss the development of multiculturalism, the importance of culturally competent service delivery when working with diverse populations, current controversies surrounding multiculturalism, and the training needs of the counselor.

Etiology of Dual Diagnosis
Dual diagnosis refers to the co-occurrence of mental health disorders and substance abuse disorders (alcohol and/or drug dependence or abuse) (American
Psychiatric Association (APA), 2000; Sadock, B. & Sadock, V., 2003; Sciacca, 1996; Capuzzi & Gross, 2003; Seligman, 1998; Lewis, Dana, & Blevins, 2002; National Alliance for the Mentally Ill (NAMI), 2004) Dual Diagnosis disorders are often categorized as severe mental illness and a substance abuse disorder. Dual diagnosis can occur in several different combinations of mental illness and substance abuse disorders such as: 1) depression and alcohol abuse, 2) schizophrenia and drug abuse, and 3) alcohol and abuse and personality disorders (Sciacca, 1996; Seligman, 1998; Lewis et al., 2002; Guy, 1997).

Persons who are dually diagnosis are typically seen in all facets of mental health, substance abuse and rehabilitation systems. They are often found in disproportionate numbers among the homeless and in correctional and rehabilitations systems. An estimated 50% of homeless adults with serious mental illnesses have a dual diagnosis. Of those incarcerated in jails and prisons, 16% are estimated to have a dual diagnosis (Sciacca, 1996; Seligman, 1998; Lewis et al., 2002; Guy, 1997; NAMI, 2004; NAMH, 2003).

The term dual diagnosis has been used interchangeably with other terms such as co-morbidity, concurrent disorders, and co-occurring disorders. As such, professional literature can at times lack clarity when referring to persons diagnosed with substance abuse disorders and a mental disorder (Dudley, Ahlgrim-Delzell, & Calhoun, 1999; Lewis, et al., 2002; Seligman, 1998). For the purpose of this paper the definition will include a diagnosis of substance abuse (alcohol and/or drugs) and mental illness. Sciacca (1991) utilized a detailed system to classify several combinations of dual diagnosis and provided a list of various acronyms used to define dual disorders: “MICAA: Mentally Ill,
Chemical Abusers, and Addicted: denotes the severely mentally ill chemical abuser, MISA: Mentally Ill Substance Abuser: denotes various combinations of dual disorders with or without severe mental illness, MIDAA: denotes the inclusion of Mental Illness, Drug Addiction and Alcoholism in various combinations as dual/multiple disorders, CAMI: Chemical Abusing Mentally Ill: denotes Chemical abuse or dependence as primary with personality disorders (but without severe mental illness), and CAMI, With substance induced psychotic episodes: same as CAMI with induced acute symptoms”(Sciacca, 1991, p. 69-84).

An individual who is dually diagnosed is usually affected by both chemical dependency and an emotional or psychiatric illness. The combination of both illnesses may negatively impact physical, psychological, physiological, social, spiritual, and occupational functioning. The individual is impacted by both the symptoms of the psychiatric condition as well as the substance abuse. An exacerbation in illnesses is often seen and each disorder predisposes the individual to relapse in the other disease. At times, it can be difficult to tell which illness is primary as the symptoms can overlap and even mask each other making diagnosis and treatment more difficult (NIMH, 2001; Sciacca, 1991; Capuzzi & Gross, 2003; Seligman, 1998; Lewis et al., 2002; NAMI, 2004).

There is no single type of dual diagnosis, which sometimes adds to the cadre of confusion surrounding the diagnosis and treatment of person who are experiencing symptoms of mental illness and are abusing substances. There are many classifications of dual diagnosis because there are numerous forms of psychiatric illness. Additionally, there are many patterns of alcohol or drug abuse. As a result, a variety of combinations of
dual disorders are possible (Paugh, 2003, NIMH, 2001; Sciacca, 1991; Seligman, 1998; Lewis et al., 2002; APA, 2000).

A variety of problems are possible as a result of a dual diagnosis. For example: psychiatric symptoms may be covered up or masked by alcohol or drug use, alcohol or drug use or the withdrawal from alcohol or other drugs can mimic or give the appearance of some psychiatric illness, untreated chemical dependency can contribute to a reoccurrence of psychiatric symptoms, and untreated psychiatric illness can contribute to an alcohol or drug relapse. There are times when a person “self-medicates” to mask the symptom of either the substance abuse or the mental illness. Self-medication often occurs because the person has difficulty narrowing down the cause of the problem. Over time, persons who are dually diagnosed often experience problems with low self-esteem as a result of feeling like a failure (Sciacca, 1991, NIMH, 2001; Seligman, 1998; Lewis et al., 2002).

Other problems and consequences that are associated with dual disorder include: family problems or problems in intimate relationships, isolation and social withdrawal, financial problems, employment or school problems, high risk behavior while driving, multiple admission for chemical dependency services due to relapse, multiple admissions for psychiatric care, and increased emergency room admissions (NIMH, 2001; Sciacca, 1991; Seligman, 1998; Lewis et al., 2002).

The relationship between substance abuse and mental illness

Alcohol and drug abuse has many negative connotations in our society. For many, drug abuse is perceived to result from lack of willpower, laziness, or selfishness. Unfortunately, many people hold these same erroneous perceptions about those who are
dually diagnosed and are vulnerable to drug abuse in addition to having a mental disorder. Persons diagnosed with a mental disorder can be very sensitive to the effects of drug abuse; not only can it be easier to abuse drugs, but it can also be harder to quit. In similarity to the rest of the population, a person with a mental disorder is more likely to abuse drugs if there is a family history of alcohol and drug abuse. If it difficult to say what predisposes a person to alcohol abuse but it typically has a strong familial component. Environmental factors, such as peer pressure, location, and the availability of the drug also contribute to a pattern of drug abuse. Using drugs can interfere with prescribed medication, increase symptoms, and increase the risk of relapse. Dual diagnosis can be difficult to treat as the pattern becomes a vicious cycle as the substance abuse usually exacerbates the mental condition. Likewise, severe symptoms of the mental disorder can exacerbate substance abuse use (NIMH, 2001; Sciacca, 1991; Seligman, 1998; Lewis, et al., 2002; Sadock & Sadock, 2003).

Lewis et al., (2002) and Sciacca (1991) contend that it is difficult to tell which develops first, the substance abuse or the mental illness. Often the psychiatric problem develops first. In an attempt to resolve the symptoms of the mental condition, a person may drink or use drugs. Frequent self-medication may eventually lead to physical or psychological dependency on alcohol or drugs. If it does, the person then suffers from the effects of both of the conditions. In some instances, alcohol or drug dependency is the primary condition. A person whose substance abuse problem has become severe may develop symptoms of a psychiatric disorder that may include episodes of depression, aggression, hallucinations, or suicide attempts. Determining whether a person has a primary diagnosis of substance abuse or a psychiatric disorder can be problematic for
physicians as many of the symptoms of severe substance abuse mimic psychiatric conditions. Conversely, many psychiatric conditions can mimic the symptoms of severe substance abuse or can be substance abuse induced. Subsequently, the person must go through withdrawal from the substance before the physician can accurately assess whether there is an underlying psychiatric condition. In most instances, both the mental disorder and the substance abuse should be treated simultaneously. Ideally, for the psychiatric treatment to be successful, the substance abuser should undergo detoxification first. Although regardless of what disorder comes first, persons who are dually diagnosed must be treated for both conditions and preferably in one integrated setting (Seligman, 1998; Sciacca, 1991; Sadock & Sadock, 2003; APA, 2000; NAMI, 2004).

The following psychiatric disorders are often co-morbid with alcohol or drug dependency which results in a diagnosis of dual disorder; depressive disorders, such as depression and bipolar disorder, anxiety disorders, including generalized anxiety disorder, panic disorder, obsessive-compulsive disorder, and phobias, and other psychiatric disorders, such as Schizophrenia and Personality disorders (Seligman, 1998; Sciacca, 1991; Sadock & Sadock, 2003; APA, 2000).

An individual with a dual diagnosis may have any of one or more psychiatric conditions ranging from depression, personality disorders, to phobias. Likewise, an individual with dual diagnosis may be concurrently abusing one or more different substances such as alcohol or cocaine (Seligman, 1998).

Poland (1997) postulated that Schizophrenia was the leading psychiatric condition in those who are dually diagnosed. NAMI (2004) found that 47% (four times the rate found in the general population) of individuals with a diagnosis of Schizophrenia also
had a substance abuse disorder. Gomez et al., (2000) contends that there is a strong co-
morbidity between alcoholism and depression. NAMI (2004) found that 61% (five times 
the rate found in the general population) of persons diagnosed with Bipolar Disorder also 
abused substances. Sadock & Sadock (2003) posited that persons who abuse substances 
are 20 times more likely to commit suicide than the general population. In addition, about 
15% of persons who abuse alcohol commit suicide. Thus, this researcher feels it prudent 
to provide some diagnostic criteria for at least one of the major mental illnesses in 
addition to substance abuse criteria. To establish clarity, depression will be used as an 
example in this paper.

Diagnostic criteria for substance abuse

Substance abuse is defined as a maladaptive pattern of abuse leading to clinically 
significant impairment or distress, manifested by at least one of the following within a 12 
month period; 1) recurrent use resulting in an inability to fulfill major role obligations 2) 
recurrent use in physically hazardous situations 3) continued use despite recurrent use-
related social or interpersonal problems and 4) recurrent use-related legal problems.
Substance dependence is defined as a maladaptive pattern of abuse leading to clinically 
significant impairment or distress, manifested by at least three of the following occurring 
at any time within the same 12 month period; 1)Tolerance as defined by either a) need for 
markedly increased amounts to achieve intoxication or desired effect b) markedly 
diminished effect with continued use of same amount of substance; 2) Withdrawal as 
manifested by either a) characteristic withdrawal symptoms b) same substance taken to 
relieve or avoid withdrawal symptoms; 3) often taken in larger amounts or over longer 
period than intended 4) persistent desire or unsuccessful efforts to cut down or control
use 5) great deal of time spent in activities necessary to obtain or use the substance, or recover from its effects. Dependence is a chronic, progressive, and often fatal illness that includes 1) compulsion to use or reuse a drug 2) loss of control over the drug and 3) continued use despite adverse consequences (American Psychiatric Association, 2000; Sadock, B. & Sadock, V., 2003).

Diagnostic criteria for depression

A Major Depressive Episode is manifested by the presence of a depressed mood (dysphoria) or loss of enjoyment or interest in almost everything (anhedonia) and the presence of at least four of the following symptoms nearly every day for at least two weeks: 1) Significant weight or appetite change (found in over 70 percent of cases), 2) Insomnia or hypersomnia (found in 90 percent of cases), 3) Psychomotor retardation or agitation, 4) Fatigue or loss of energy, 5) Feelings of guilt or worthlessness, 6) Reduced ability to think or concentrate, and 7) Recurrent thoughts of death or suicide (American Psychiatric Association, 2000; Sadock, B. & Sadock, V., 2003; Seligman, 1998). A Major Depressive Disorder consists of one or more Major Depressive Episodes. In diagnosing a Major Depressive Disorder, clinicians must make determinations related to the following areas: Severity, Presence of psychotic features, Chronicity, Presence of melancholic features, Presence of atypical features, Presence of postpartum onset, Presence of full interepisode recovery, and Presence of seasonal pattern (American Psychiatric Association, 2000; Sadock, B. & Sadock, V., 2003; Seligman, 1998).

According to Seligman (1998) there have been many causes suggested as an explanation for those who are dually diagnosed with substance abuse and mental illness. Current theories view dual diagnosis as adaptive and defensive and at the same time,
dysfunctional. The medical or disease model of substance abuse that was developed by Jellinek focuses on describing the dysfunctional use of alcohol. The Jellinek model forms the basis for Alcoholics Anonymous and other Twelve-Step programs. Most theoreticians will agree that dual diagnosis come from various origins including biological, cultural, environmental, behavioral, interpersonal, and intrapersonal factors (Seligman, 1998; Gomez, 2000; Guy, 1997; Sadock & Sadock, 2003).

Prevalence of Dual Diagnosis

Thirty-seven percent of alcohol abusers and fifty-three percent of drug abusers also have at least one serious mental illness. Mental disorders account for 4 of the 10 leading causes of disability in the United States. Miller & Fine (1997) suggested that there is a lifetime prevalence of 55% among alcoholics with a mental disorder and 64% among drug users with a mental illness. Approximately 29% of persons diagnosed with a mental illness abuse either alcohol or drugs (NAMI, 2004).

The Substance Abuse Mental Health Services Administration, (2002) conducted a study to determine the number of individuals diagnosed with a dual diagnosis of mental illness and substance dependence or abuse throughout the United States. The study included questions for adults aged 18 or older to assess serious mental illness (SMI) during the year prior to the survey interview. For the study, SMI was defined as having a diagnosable mental, behavioral, or emotional disorder that met criteria in the 4th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM–IV) and that resulted in functional impairment that substantially interfered with or limited one or more major life activities. Adults were also asked about their experiences with mental health
treatment. Treatment was defined as the receipt of treatment or counseling for any problem with emotions, "nerves," or mental health in the past year in any inpatient or outpatient setting, or use of prescription medication for treatment of a mental or emotional condition. "Any illicit drug" refers to marijuana/hashish, cocaine (including crack), inhalants, hallucinogens, heroin, or prescription–type drugs used non-medically. (SAMHSA, 2002; NIMH, 2001; U.S. Department of Health and Human Services, 1999).

Co-Occurrence of Serious Mental Illness with Substance Dependence/Abuse

The results of the SAMHSA (2002) study found that SMI was highly correlated with substance dependence or abuse. Among adults with SMI in 2002, 23.2% were dependent on or abused alcohol or illicit drugs, while the rate among adults without SMI was only 8.2%. Adults with SMI were more likely than those without SMI to be dependent on or abuse illicit drugs (9.6% versus 2.1%) and more likely to be dependent on or abuse alcohol (18% vs. 7%). In 2002, an estimated 4 million adults met the criteria for both SMI and substance dependence or abuse in the past year. (SAMHSA, 2002).

Additional findings from the SAMHSA (2002) study showed that Whites were more likely to receive treatment or counseling than blacks or Hispanics. Co-occurring disorders admissions were more likely to be White than substance abuse only admissions (68% vs. 54%). Co-occurring disorders admissions were less likely to be in the labor force than substance abuse only admissions (47% vs. 58%). Co-occurring disorders admissions to substance abuse treatment were more likely to have been referred through alcohol, drug abuse, and other health care providers than substance abuse only admissions. In contrast, substance abuse only admissions were more likely to have been
referred by the criminal justice system than co-occurring disorders admissions to substance abuse (SAMHSA, 2002).

The burden of mental illness on health and productivity in the United States and throughout the world has long been underestimated. Data developed by the massive Global Burden of Disease study conducted by the World Health Organization, the World Bank, and Harvard University, indicate that persons diagnosed with a mental illness (including those who commit suicide), account for over 15% of the burden of disease (78 billion dollars in indirect costs 69 billion dollars in direct costs) in countries, such as the United States. These figures indicate that the disease burden for mental illness is more than the disease burden caused by all cancers. Society incurs a cost of approximately $200 billion per year as a result of substance abuse. Based on these astounding figures regarding the pervasiveness of mental illness and specifically, dual diagnosis, you would think more would be done to try to address adequate treatment programs. Unfortunately, this is a growing problem that has yet to be resolved (NIMH, 2001a; Murray & Lopez, 1996; Sadock & Sadock, 2003).

The statistics do not look promising for persons with a severe mental illness or substance abuse disorder however the problems are compounded when they are co-occurring. Paugh (2003) posited that rehabilitation professionals are not equipped to work with this unique problem. Sciacca (1996) reported that clinicians are not properly trained to work with persons who are dual diagnosed.
Treatment of Dual Diagnosis

Despite the documented high prevalence rates of co-existing mental illness and substance disorders, and the serious consequences, facilities that provide comprehensive services for dual/multiple disorders are limited as compared to services for single disorders (Paugh, 2003; Poland, 1997; NAMI, 2004). In terms of access to treatment programs for dually diagnosed individuals, statistics indicate that by 1999, nearly half of the substance abuse treatment facilities provided programs for dually diagnosed clients. Fifty-seven percent of facilities with a mental health focus provided dual diagnosis programs. Facilities offering hospital inpatient care were more likely to provide service for dually diagnosed clients than were other types of facilities. Mental health and substance abuse providers alike encounter difficulties in accessing comprehensive services for dually-diagnosed clients. The underlying reasons may include a combination of the following: 1) bureaucracies are divided and often offer services to discrete disorders that meet their specific admissions criteria, treatment programs, services and reimbursement guidelines 2) providers are educated and trained to deliver services for single, discrete disorders only not dual disorders; and, 3) treatment approaches different for dual and single disorders. (Sciacca, 1996; NIMH, 2001; SAMHSA, 2002; Seligman, 1998; Paugh, 2003; NAMI, 2004).

For the most part, dual diagnosis are treated as separate disorders, specifically an individual would receive treatment for the mental illness and a separate treatment for the substance abuse. Historically, most treatment settings are not equipped to serve dual diagnosis clients but rather treat each discrete disorder (Sciacca, 1996; NIMH, 2001; SAMHSA, 2002; Seligman, 1998; Paugh, 2003; NAMI, 2004; NAMH, 2003). The good
news is that more and more programs are recognizing the need for a program that addresses the issues of dual diagnosis and are designing effective programs to treat both problems. There is still scant information available on programs that treat dual diagnosis therefore most of the information contained in the treatment section will consist of treatment options that are currently available to individuals who have mental illness and/or substance abuse disorders but can be tailored to meet the needs of persons who are dually diagnosed (Sciaccia, 1996; NAMI, 2004; NAMH, 2003).

Dual diagnosis services should include different types of assistance that go beyond standard therapy for substance abuse and mental illness and should be conducted in one setting to allow for continuity of care leading to positive outcomes. The services should include: medications, employment, assertive outreach, housing assistance, family counseling, financial, and relationship management. The services should be provided on an individualized basis should be delivered in whatever stage of recovery the individual is in. This may mean meeting the client at his/her home as opposed to coming into a treatment center. Hence, whenever possible persons with dual diagnosis should be given the opportunity to proceed through a self-paced treatment program. Instillation of hope and optimism should form the foundation of this integrated treatment approach. Consumers who are dually diagnosed tend to be more at risk for violence, AIDS, failure in treatment, social rejection, relapse, etc. than the individuals who have either a substance abuse disorder or mental disorder. Thus it is imperative that integrated programs be established to serve this growing population (Seligman, 1998; NAMH, 2003).
In order to obtain the best results, a holistic approach should be used when providing treatment for a person who is dually diagnosed. Clinicians must create a culture of respect by building a rapport with the client. Clinicians can accomplish this by embracing some of the prerequisite values and attitudes representative of the population they are serving. Values such as cooperativeness, partnership, instillation of hope, and equality are an important part of establishing a good working relationship with clients with a dual diagnosis. Intervention strategies that are provided should be nonconfrontational and supportive. Effective integrated treatment must deliver culturally competent services to various groups such as African-Americans, homeless, women with children, Hispanics and others that can benefit from services that are specific to their particular racial and cultural needs (NAMH, 2003; Corey, 2000; NAMH, 2003; Sciacca, 1996; Finch & Robinson, 2003; Seligman, 1998).

Practitioners working with persons with a dual diagnosis should be aware that the person is often in denial about their substance abuse and sometimes even deny the mental health symptoms as well. Seligman (1998) found that family support was essential to conducting interventions to assist a reluctant dually diagnosed person in getting necessary treatment. Interventions of this type typically enlist the aid of friends and family members to help point out the negative consequences of the substance abuse to the person, thereby allowing them to see that there is a problem and get help (e.g. loss of job). This method has proved to be successful in terms of getting the person involved in treatment and leading to positive outcomes.

Friends and family of a person who is dually diagnosed can play an important role in their recovery by providing support and encouragement. An important part of being
supportive is taking the time to learn the symptoms of the illness and be understanding of the impact the illness has on the person’s life and functioning. Family and friends should be caring as opposed to critical of the person with a dual diagnosis. Education is vital at this stage to help family members understand the nuances of being dually diagnosed. One additional caveat is that the support network should not enable the individual with a dual diagnosis by giving them money to support their drug habit. By participating in the rehabilitation and recovery process, family and friends give the person with a dual diagnosis a better chance at recovery and less chance for relapse (Corey, 2000; NAMH, 2003; Sadock & Sadock, 2003).

Continuum of Care

Treatment for dual diagnosis should be provided across a continuum of care beginning with the least intensive care. Relatively few studies have been conducted using brief interventions for those who are dependent on illicit substances, with the exception of detoxification. For the most part, brief interventions are not effective with severe substance abuse or mental health conditions and caution should be exercised when providing brief interventions for someone with severe dependence.

Persons with dual diagnosis may need more intensive treatment such as hospitalization to stabilize conditions, particularly if the person needs to go through detoxification. Other considerations prior to hospitalization include the nature and severity of the condition and the associated risks and complications. A thorough review of the person’s treatment history should be done prior to considering hospitalization. If a person is at risk for harming themselves or others, they may need to be hospitalized until the symptoms are brought under control. Some clients are reluctant to participate in

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inpatient hospitalization or residential programs because it means they will have time away from their job and family. Due to financial obligations, hospitalization is sometimes not a viable option (Seligman, 1998; NAMH, 2003).

Specific treatment interventions include individual therapy, family therapy, group therapy, behavioral therapy, relapse prevention, pharmacotherapy, Self-help, such as Alcoholics Anonymous, Schizophrenia Anonymous, and Narcotics Anonymous, transitional employment, inpatient and outpatient hospitalization. Hospitalization is not always required; however, it may be necessary to assist the person in achieving abstinence. NAMH (2003) posited that while attempts to achieve abstinence should be a goal of treatment, it should not be a prerequisite for services or many consumers who are dually diagnosed will continue to be prematurely terminated from programs due to their inability to maintain abstinence. Similarly, Sciacca (1991) suggested that persons with dual diagnosis are not always “motivated” to seek treatment and should be encouraged to participate in services rather than be denied admittance from the program or terminated from the program for lack of compliance (Sadock & Sadock, 2003, NAMH, 2003; Seligman, 1998).

Detoxification is often the first step in the recovery process for persons with a dual diagnosis. After the detoxification process is completed the person is ready for rehabilitation for the substance abuse problem and mental health services for the psychiatric condition. For optimal results these services should be provided simultaneously and through one system. Rehabilitation services for the substance abuse problem usually entail psychotherapy, education about drugs and alcohol, exercise, proper nutrition and involvement in a 12 step self-help program such as AA. The mental
condition will require individual or group therapy, and possibly medications. Support
groups are also a valuable tool to use at this juncture. A support group consists of other
individuals with the same or similar diagnosis who can share their experiences in efforts
to assist each other with recovery. Supports groups also are a means of allowing the
person with a dual diagnosis the opportunity to share their feelings and sharpen or
develop better coping skills (NAMH, 2003; Seligman, 1998).

Employment

Finch & Robinson (2003) posited that work is an important component of
recovery for a person who is dually diagnosed. Encouraging persons who are dually
diagnosed to participate in some type of work activity will most likely aid in recovery.
The value of work as a source of personal identity and reward is a strong component of
many dually diagnosed people’s lives. (Szymanski, Ryan, Merz, Trevino & Johnston-
Rodriguez, 1996). Using employment as a recovery tool has led to positive outcomes for
consumers who were diagnosed with severe mental illness. Unfortunately, although this
research has been well documented, 80-90% of persons diagnosed with mental illness are
still unemployed (Finch & Wheaton, 1999; Garske & Stewart, 1999). This researcher
feels that work should be explored more in depth and used as a viable option used in the
treatment of persons with a dual diagnosis consumers. Persons who are dually diagnosed
will require acute care in addition to long term follow up services to aid in recovery. It
appears that there is no single intervention that works best for treating dual diagnosis, but
by taking an eclectic approach, positive outcomes are more likely (Sadock & Sadock,
Summary

There are various options available for treatment for persons with mental illness and substance abuse disorders. There is a lack of services available for persons who are dually diagnosed. Persons with a dual diagnosis continue to receive services for discrete disorders of mental illness or substance abuse instead of getting treatment for both disorders simultaneously (Sciacca, 1996). Several problems exist that contribute to this lack of services including lack of proper funding, lack of training and expertise on the part of clinicians, negative connotations ascribed to individuals with dual diagnosis, and the inability of systems to develop integrated services targeted at providing comprehensive services in one setting. This problem will continue to cost society billions of dollars until adequate attention is given to the plight of individuals with a dual diagnosis (SAMHSA, 2002; NAMH, 2003).

VR Literature: Unique aspects of Rehabilitation Counseling in addressing dual diagnosis

Despite the large number of persons diagnosed with a dual diagnosis, vocational rehabilitation literature that focuses on dual diagnosis is scarce. There are very few studies that have been conducted on this population, specifically, those diagnosed with mental illness and substance abuse (Paugh, 2003). There is however a larger amount of rehabilitation literature available on each separate disorder of substance abuse and mental illness. While Paugh (2003) and Sengupta, Drake, & McHugo (1998) both examined vocational rehabilitation and dual diagnosis outcomes, very few studies have been conducted in terms of vocational rehabilitation. As such, the next three studies were conducted in mental health settings and the remaining studies are specific to vocational rehabilitation settings.
Steele (2003) examined 20,000 people with dual diagnosis living in the community or an institutionalized setting. The results of the study showed that most people diagnosed with severe mental illness had a greater propensity to develop a substance abuse disorder. The goal of this particular study was to review treatment approaches and to subsequently offer recommendations for future training programs that were cost effective and efficient. The end result of the study was to provide quality, integrated treatment options for those consumers who are dually diagnosed.

Glenn (1999) examined the role of Certified Clinical Mental Health Counselors (CCMHC) who work with clients who are dually diagnosed as compared to those CCMHC who do not work with clients with a dual diagnosis. CCMHC (hereafter referred to as counselor) is a specialty certification of the National Board for Certified Counselors (NBCC) and is recognized at the state and national levels as an indicator of professional excellence in mental health counseling. The purpose of the study was fourfold; 1) determine the professional profile of counselors who diagnose clients with a dual diagnosis as compared to those counselors who diagnose clients with a mental disorder using other diagnostic criteria; 2) to determine if counselors who specialize in substance abuse diagnose more dual diagnosis than those counselors who do not specialize in substance abuse; 3) identify how important functioning in a multidisciplinary teams is to counselors who specialize in substance abuse as opposed to those who do not specialize in substance abuse; and 4) to compare differences between counselors working in different settings. Implications of the study show that counselors working with dually diagnosed individuals must have a certain level of preparedness in order to diagnose dual diagnosis and to produce successful treatment outcomes.
Pita (2003) postulated that substance abuse therapeutic alliances and patterns of substance abuse should be examined in treatment programs. Counselors should recognize that there are stages of treatment that should be adhered to in order to achieve positive outcomes. Once the patterns of abuse are examined, the active treatment phase begins where consumers are taught social skills, cognitive behavioral techniques and how to develop appropriate support networks. The final stage is relapse prevention and it is necessary for consumers to maintain recovery gains.

Most of the literature on dual diagnosis, specifically as it relates to mental illness and substance abuse focuses on treatment approaches in mental health centers or substance abuse facilities. Typically, each facility is only equipped to handle the need of one presenting disorder. In many instances one disorder is not treated and often goes undiagnosed (Sciacca, 1996). For example, a person with a dual diagnosis who presents at a mental health center will get treatment for the mental condition but most likely will not receive treatment for substance abuse. This section will look at the literature that is available and subsequently discuss the unique aspects vocational rehabilitation counselors face in addressing consumers with a dual diagnosis.

Sengupta et al. (1998) described a New Hampshire study that examined a group of 223 dually diagnosed subjects and found that of the 9% that were competitively employed at the beginning of the study, the number rose to 26% after a three-year follow up period. Unfortunately, there was no increase in the remission rate during this period which may suggest that integrated services were not delivered since the services were provided in a mental health center.
In another study Sengupta et al. (1998) did a comparison between two models of vocational rehabilitation that looked at the treatment of persons with a mental disorder and those who had a dual diagnosis. The study found similar rates of employment for both groups (26% and 22%). In addition there were significant differences between remission rates with employment being the highest in the remission group at 6 months (27% vs. 13%) and (24% vs. 11%) at 18 months. The overall results of the study underscored the importance of vocational rehabilitation treatment services that are designed for dual diagnosis as opposed to discrete treatment services. Additionally, results of the study indicated that people should not be excluded from programs on the basis of sobriety as the substance abuse disorder did not impair the person anymore than the affects that already exist as a result of the mental illness. One other finding suggested that the substance abuse did not significantly affect their ability to participate in supported employment. Unfortunately, the study was unable to show results that indicated that one model was more effective than the other in producing positive treatment outcomes (Sengupta et al., 1998).

Paugh (2003) examined 13 vocational rehabilitation services provided to consumers with a dual diagnosis by utilizing the RSA- 911 dataset. The database consisted of national case service reports that were provided to state and local rehabilitation agencies in 1998. More than one third of clients in the dataset had mental illness and/or chemical dependency. The intent of the study was to determine which of the services provided produced successful outcomes that led to increased earnings at closure. Additionally, the study sought to examine whether there was a relationship between the specific classification of dual diagnosis and the services received. The study
also examined whether or not race of the consumer affected the type of services received. A change in income was the predictor that was used to determine if there was a relationship between race and services received. The results of the study dispelled the myth that those with a dual diagnosis cannot be successful in vocational rehabilitation programs (Paugh, 2003).

Consumers with a dual diagnosis who received college and training services showed an increase in earnings. Thus, this service should be offered to this population more often. Additionally (Paugh, 2003) noted that job development/placement and transportation services were effective in increasing earnings for the person with a dual diagnosis and should be encouraged. Paugh, 2003 recommended that future research be directed toward examining sets of services for consumers with a dual diagnosis to see if they lead to positive outcomes.

Persons who are dually diagnosed typically enter vocational rehabilitation (VR) programs with a poor prognosis. Success in VR is typically dependent upon sobriety. Therefore, consumers are typically given a specified timeline for achieving sobriety before being admitted or allowed to continue in a VR program. Relapse is an inherent part of dual diagnosis, thus positive outcomes for consumers with a dual diagnosis is hindered from the beginning of the program. The 1998 Amendment to the 1973 Rehabilitation Act prohibited VR services to those abusing illegal substances. This legislation severely limited services being offered to consumers who are dually diagnosed. Hence, interagency cooperation is utmost importance in order to achieve desirable outcomes for person with a dual diagnosis. Consumers with a dual diagnosis who cannot access the VR system because of illicit substance abuse should be referred to
treatment programs. Further services should be coordinated between the treatment center and the VR system to help the person with dual diagnosis achieve rehabilitation goals (Paugh, 2003).

Dunston-McLee (2001) conducted a study of approximately 500 rehabilitation counselors to determine if a significant relationship existed between the amount of contact, specialized training in dual diagnosis, and counselors’ attitude toward persons with a dual diagnosis. The specific attitudes were operationally defined as attitude toward pessimism, integrated treatment, separate treatment, and vigilance in recovery. Results of the study indicated that counselors who had more contact with clients with dual diagnosis and had more than 15 hours of training in dual diagnosis were more optimistic about working with clients with dual diagnosis. The study further showed that rehabilitation counselors working with clients with a dual diagnosis had positive attitudes toward persons with a dual diagnosis but lacked knowledge of the importance of the recovery process. Implications from this study indicate that rehabilitation counselor training needs should be addressed as the demographics of this nation continue to change (Ponterotto et al., 2000; Fuertes et al., 2002; Chan, Leahy, Saunders, Tarvydas, Ferrin, & Lee (2003).

Chan et al., (2003) conducted a study designed to gather information from Certified Rehabilitation Counselors (CRC) as it relates to their training needs. Results of the analysis were divided into 23 knowledge areas and broken down into 5 factors, all of which identified critical training needs. Counselors were asked to rate the level of importance of specific factors under each area of knowledge and indicated how prepared they felt their current training made them to perform the task. Dual diagnosis was rated at 80% for the level of importance and 67% reported limited preparedness. Findings from
this study clearly show the need for additional training for rehabilitation counselors who are working with individuals with a dual diagnosis if they are going to achieve successful outcomes.

Summary

Leahy, Chan, & Saunders (2003) posited that the practice of rehabilitation counseling in the 21st will require a knowledgeable counselor who is able to service the needs of an ever increasingly diverse population. Additionally, significant changes in federal legislation, managed care, and the licensure movement will greatly impact VR service delivery. The charge for VR systems is to provide adequate training to meet the need of vocational rehabilitation counselors. Research shows that counselors self-reported that they are ill-equipped to work with persons who are dually diagnosed. Another key factor that counselors self-reported their lack of preparedness was in regards to multicultural competencies. It is imperative that these issues be addressed as the demographics of our nation continue to change (Chan et al., 2003; Granello & Wheaton, 1998).

Multicultural Counseling: The fourth force in counseling

Multiculturalism has been described as the fourth force in psychology. Pedersen (1991) posits that multiculturalism complements the psychodynamic, behavioral and humanistic explanations of human behavior. Multiculturalism is described as “a wide range of multiple groups without grading, comparing or ranking them as better or worse than one another and without denying the very distinct and complementary or even contradictory perspectives that each group brings with it” (p.4). The definition of multiculturalism includes many variables, e.g. age, sex, place or residence, education,
socioeconomic factors, affiliations, nationality, ethnicity, language, religion, making multiculturalism generic to all counseling relationships (Locke, 1993). Locke (1990) offers a more narrow definition of multiculturalism as it relates to counseling and focuses the attention on the “racial/ethnic minority groups within that culture” (p.24).

Vontress & Epp (1997) contend that there are five cultures involved in multiculturalism; 1) universal: the planet we live on, 2) ecological: region of the world, 3) national: money, trade, community, legal and economic system, 4) region: southern vs. northern culture, dialect, and 5) racioethnic: values, food, and communication of which oppression is born of.

During the mid-twentieth century, humanistic psychology emerged in protest to the already established conceptualizations and practices of mainstream psychology. The goal of humanistic psychology was to promote healthy personalities by making contact with the inner self and identifying and expressing feelings. Hence, humanistic approaches to psychology proved to be extremely successful in psychotherapy in the Western culture. While humanistic psychology often is steeped in cultural values of the West, it clearly places an emphasis on self-actualization in context to cultural values. Many psychologists in this era discovered that while it is imperative that attention be given to historical and cultural contexts, it is also important to embrace a philosophy that takes a holistic approach to the human experience. Thus, the psychologists conceptualized a transpersonal orientation that extended beyond personal psychological boundaries and the emergence of transpersonal psychology as a movement began following the ideas of the psychodynamic, behavioral, and humanistic movements of the past (Jiang, 1994; Capuzzi & Gross, 2003).
Capuzzi & Gross (2003) suggested that there was recognition during the 1960’s that humanistic theories mired in Western culture, such as person-centered and Gestalt might not be conducive to working with clients from diverse cultural backgrounds. As such, multiculturalism, the “fourth force” originated within the civil rights and other social movements of the 1960’s. Inherent in multiculturalism are issues of race, ethnicity, culture, social class, sexual orientation, gender, physical ability, age, and religious preference (Locke, 1993; Sue & Sue, 2003). Sue (1981) and Vontress & Epp (1997) posited that there are four essential elements of multicultural issues in counseling; awareness, knowledge, skills, and relationships that counselors must, but often do not embrace. Ever since the 1960’s counseling and psychotherapy have been challenged as lacking in the appropriateness of the services offered to minority clients (Sue, 1981; Sue et al., 1982; Vontress & Epp, 1997; Paugh, 2003; NIMH, 2001). Capuzzi & Gross (2003) posited that traditional counseling and psychotherapy is based on the dominate culture and often fails to meet the needs of culturally diverse populations.

Today, the lack of cultural competence has been suggested as one of the main reasons that historically underrepresented racially and ethnically diverse persons have experienced less than desirable outcomes as compared to their white counterparts within mental health and rehabilitation systems (Watson & Collins, 1993; Vontress & Epp, 1997; Sue & Sue, 2003, Wheaton, Wilson, Brown, 1996; Granello, & Wheaton, 1998; Robinson, 1999; Capuzzi & Gross, 2003). To that end, the U.S. government began a campaign in the 1960’s to remove barriers that prevented equal access and opportunities for women and historically underrepresented racial and ethnic groups. Efforts to provide culturally competent services intensified in the 1970’s and peaked during the 1980’s.
Additionally, in an effort to ensure diversity within the rehabilitation workforce, Section 21 was included in the 1992 Amendments to the 1973 Rehabilitation Act. The goal of Section 21 was to ensure that governmental polices represented Americans with disabilities (Middleton, Rollins, Sanderson, Leung, Harley, Ebener & Leal-Idrogo, 2000; Paugh, 2003).

With growing acknowledgement of these issues, rehabilitation and mental health practitioners have begun to consider the integration of culture, race, and other aspects of human socialization into mental health assessment and delivery (Locke, 1993; Vontress & Epp, 1997, Sue & Sue, 2003; Robinson, 1999). Today, however, the work in this area if far from over as there continues to be a need for research in the area of multicultural competencies, specifically as it relates to minority and non-minority treatment outcomes (Sue & Sue, 2003, Vontress & Epp, 1997; Wheaton et al., 1996; Robinson, 1999).

The cultural diversity of our country is continually increasing. It is estimated that by the year 2050, no more than 50% of the population will be of Anglo ancestry. In addition, advances in technologies have increased each person's ability and likelihood of interacting with people of cultural backgrounds quite different from his/her own. As a counselor, educator, or any other type of human service worker it is very important to be aware of your own cultural values as well as be sensitive to those of different cultures.

In order to understand how great the vast number of different sub-cultures existing in the U.S, one must consider that sub-cultures exist according to gender, socioeconomic status, age, race, religion, ethnic heritage, and sexual orientation. The difficulty for many sub-cultures is that if they do not have the same physical characteristic, values, customs, or beliefs as the dominant culture then their culture is devalued and members may even be
oppressed or subjugated due to the dynamics of the dominant cultural structure
(Robinson, 1999; D’Angelo & Dixey, 2001; Bellini, 2002; Granello & Wheaton, 1998).

Robinson (1999) stated that each of us belongs to many cultures. Our age, race,
gender, socio-economic situation, marital status, ethnicity and other qualities create
values, traditions and patterns in our relationship to ourselves, to others and to the world.
Thus, multicultural counseling must address issues such as stress, anxiety, depression,
career challenges, relationship problems, cultural conflict, grief and loss, family violence
and abuse, parenting, loneliness, and aging.

The cultural diversity of our nation is quickly changing. Consider that almost
sixty percent of the nation’s immigrant population entered the United States in the
1980’s, with the most immigrants coming from Mexico, the Philippines, Korea, China,
Taiwan, India, Cuba, and the Dominican Republic (Marlowe & Page, 1999). Similarly, it
is predicted that, in 2050, American society “will be composed of 53% White, 25%
Hispanic, 14% Black, 8% Asian / Pacific Islander, and 1% American Indian” (D’Angelo
& Dixey, 2001, p. 83). The importance of multicultural education and counseling cannot
be overstated. With this unprecedented rise in diversity comes a challenge for counselors.
Development of multicultural competencies

Sue (2003) defines multicultural counseling and therapy as:

both a helping role and process that uses modalities and defines goals consistent
with the life experiences and cultural values of clients, recognizes client identities
to include individual, group, and universal dimensions, advocates for the use of
universal and culturally specific strategies and roles in the healing process, and
balances the importance of individualism and collectivism in the assessment,
diagnosis, and treatment of client and client systems (p. 16).

Cultural competence entails a counselor working with diverse populations while
in the process of working toward several primary goals. Effective counselors must
ascribe to a process that (Locke, 1993; Vontress & Epp, 1997; Sue, 1998; Sue & Sue, 2003; Robinson, 1999; Ponterotto, Fuertes, & Chen, 2000) described as a multicultural awareness continuum when counseling culturally different clients, a) self-awareness which includes an examination of one’s own thoughts and feelings, beliefs and attitudes prior to entering in the counseling process, is actively in the process of becoming aware of his or her own assumptions about human behavior, values, biases, preconceived notions, personal limitations, and so forth; b) awareness of one’s own culture to avoid bringing cultural baggage into the counseling process, actively attempts to understand the worldview of his or her clients; c) awareness of oppression in all of its forms: racism, sexism, poverty, etc. and be aware that it is often rooted in systems, d) awareness of individual differences by recognizing that overgeneralization can be dangerous when counseling the culturally different client, e) awareness of other cultures by being sensitive to the body language, nonverbal and verbal language of a particular culture, f) awareness of diversity by recognizing that although the country has become a melting pot, most of the cultural groups did not participate in the process and were not welcomed. 

Acknowledging more of a salad bowl concept which implies the distinct aspects of the various cultures are retained within the country, and g) skills/techniques – actively develops and practices appropriate, relevant, and sensitive intervention strategies and skills in working with his or her clients, implement was has been learned about culturally different groups and add specific techniques to the repertoire of counseling skills (Locke, 1993; Vontress & Epp, 1997; Sue, 1998; Sue & Sue, 2003; Robinson, 1999; Tatum, 1997; Cose, 2002).
Hofstede (1984) identified four dimensions of cultures; 1) Power distance – the extent to which a culture accepts that societal power in institutions and organizations is distributed equally, 2) Uncertainty avoidance – the extent to which members of a culture feel threatened by uncertain and ambiguous situations, 3) Individualism – a social framework where members of a culture are expected to take care of their own. Collectivism – a social framework in which people distinguish between in-group and out-groups and look after each other within and without of groups, 4) Masculinity/Femininity – the extent to which dominant values within a culture are assertiveness, money, things, caring for others, quality of life, and people. In order for an individual to be an effective culturally competent counselors they must be able to: a) express respect for the client who is culturally different and recognize the individuality of a client while simultaneously acknowledging and honoring the deep cultural values held by the client. The counselor or therapist must be extremely sensitive to cross-cultural issues: to the individual, to the culture of the client, and to his or her own prejudices and racism. b) feel and express empathy for culturally different clients, c) personalize his or her own observations and do not generalize them to the client, d) provide counseling that is non-judgmental, e) tolerate ambiguity by reacting to situations without visible discomfort or irritation, and f) have patience and perseverance when trying to get things done (Sue & Sue, 2003; Vontress & Epp, 1997; Sue et al., 1982; Robinson, 1999; Granello & Wheaton, 1998; Chung & Bemak, 2000).

Sue (1998) offered a definition of cultural competence that relates to effectiveness in psychotherapy. Sue (1998) posed the question: what therapist characteristics or skills are important? Does cultural competence with one group make you competent with all
groups? The answer to that question is: there are three critical characteristics for cultural competency 1) empathy and listening skills that do not allow for drawing premature conclusions, but rather frees the therapist from ethnocentric biases or theories 2) the therapist knows when to generalize and when to be inclusive and can thereby appreciate the importance of culture, and 3) being proficient with a particular cultural group. There are degrees of cultural competence and to adequately measure all three characteristics should be considered (Sue, 1998; Sue & Sue, 2003; Robinson, 1999; Vontress & Epp, 1997; Granello & Wheaton, 1998).

During the 1980’s research on cross-cultural counseling competencies stemmed from the perspective that mental health research failed to realistically account for the role of ethnicity in counseling outcomes (Sue, 1981; Sue & Sue, 2003; Wheaton et al., 1996; Robinson, 1999). Research on ethnic matching of therapist and client to achieve better treatment outcomes was conducted and the findings were as follows: 1) research is lacking for ethnic groups. The specific dilemma posed was whether to stop providing ethnic based matching of client and therapist because there was no research or to start doing further research. The dilemma was resolved by various researchers’ decision to conduct research in this area. Empirical evidence shows that persons from various ethnic backgrounds tended to stay in treatment longer with an appropriate match (Sue, 1981; Vontress & Epp, 1997; Robinson, 1999). Additionally, no rigorous research findings at the time showed therapy to be effective for minorities so the next dilemma faced was whether to continue to offer therapy. Sue et al., (1982) concluded that some therapy was better than none, citing that therapist should use their best judgment when making decisions about continuing therapy. 2) Matching of clients and therapists was seen as an
attempt to encourage segregation. The researchers concluded that persons of various ethnic backgrounds are underserved or inappropriately served through an integrated system of service delivery since services are typically dispersed through already divided areas such as neighborhoods and churches. Matching should not be at the exclusion of mainstream services but as a complementary service. In terms of client-therapist matching, all of the groups fared better in terms of length of service, premature termination, treatment outcomes when matched, not just groups from ethnic backgrounds. Thus, the researchers concluded that client-therapist matching was beneficial and should be encouraged (Vontress & Epp, 1997; Robinson, 1999; Wilson, 2002; National Institutes of Mental Health, NIMH, 2001).

Unfortunately, research findings regarding studies conducted which specifically look at race are often misused or misinterpreted (Sue et al., 1982; Bellini, 2002; Sue, Arrendondo, & McDavis, 1992). The intent of the research was not to say that clients should be ethnically matched but to find out if ethnically matching resulted in positive outcomes and thus could determine what was useful about the match that accounted for the positive outcomes (Sue, 1998; Robinson, 1999; Sue & Sue, 2003; NIMH, 2001). Individual differences appeared to play an important role; therefore matching may not be a necessary or sufficient condition for positive treatment outcomes. Matching may however be important for some clients but not all, nonetheless, it provides choice if clients want an ethnic match (Wilson, 2002; NIMH, 2001; Sue et al., 1992).

One impetus from the research has state mental health and rehabilitation systems looking at how minority clients are not faring as well as their non-minority counterparts.
States have tried to improve culturally competent service delivery to ethnic clients by hiring more minority providers and creating more ethnic specific services (NIMH, 2001).

Sue (1998) demonstrated that more sessions were attended and lower drop out rates were seen when ethnic client-therapist matching occurred. Needless to say, many skeptics question whether managed care was the reason for these outcomes since shorter sessions are inherent in managed care systems. One other misinterpretation to the research findings was that higher costs could be attributed to client-therapist matching and it could be argued that it doesn’t work because it cost more (Sue, 1998; Bellini, 2002; NIMH, 2001; Sue et al., 1992).

Controversy in Multicultural Counseling

One of the most significant controversies that exist in the counseling literature relates to the provision of culturally competent services to ethnic minority persons with disabilities specifically, as it relates to African American and White consumers of services. The controversy will most likely continue to exist in this area since much of the dialogue regarding multicultural competencies is steeped in conversations involving race and racism (Bellini, 2002; Wilson, 2002; Moore et al., 2002; NIMH, 2001).

Tatum (1997) suggested that there is anger, fear, and denial involved in racism. She further contended that having conversations about racism might stimulate us to understand how racism impacts each of us and ultimately to inspire us to embrace diversity. While racism exists in several forms; race, gender, sex, religion, and ethnicity; color, specifically black and white seem to stand out in the forefront. Much of the research literature is focused on African American and White populations due to the disparity in treatment outcomes between the two races. Additionally, the research
literature on the disparity between minority and non-minority outcomes is often linked to the lack of cultural competence in counselors and racism; intentional and/or non-intentional (Tatum, 1997; Vontress & Epp, 1997; Sue & Sue, 2003; Granello & Wheaton, 1998; Moore et al., 2002; Wilson, 2002; Locke & Kiselica, 1999; NIMH, 2001).

Ponterotto et al. (2000) posited that an increasing amount of studies done in the past couple of decades on the efficacy of counselors’ cultural competencies when working with diverse populations have validated the necessity for training that addresses the counselors inadequate preparedness (Fuertes, J.N., Mueller, L.N., Chauhan, R.V., Walker, J.A., & Ladany, N., 2002). Fuertes et al. (2002) conducted a study with White psychologists in which they were asked to recall their most recent sessions with Black clients that led to successful outcomes. The results of the study indicated that psychologists acknowledged that they had to use different culture-specific techniques and sensitive interventions to strengthen the counseling relationship. They further acknowledged that race was a primary concern of the client and that they had to consider their own racial identity development in relating to the clients issues concerning racism. It is important to note in this particular study that the researchers specifically chose subjects who had familiarity with the theory of dominant culture and its expectations for those from diverse populations. This writer postulates that if the psychologists did not have prior knowledge and application of cultural sensitivity techniques, the results of the study would have been much different. The psychologists in this study entered into the counseling process with basic knowledge and application of the skill sets, whereas, most counselors do not enter the counseling process with such preparedness. We can glean
from the study and others like it, that there is validity in not only acknowledging but addressing the impact of racism in counseling.

Some of the lessons learned from the research findings when conducting studies that involved looking at race and ethnicity showed that they these studies often invoke conflict and emotional reactions. Many of the findings have implications for policy and practices that involve challenging societal values and beliefs. Racial and ethnic research is different from cross cultural research because it examines forces within that take in account the history of the race which includes ethnic relations, prejudice, stereotypes, discrimination and often evokes emotional responses and can be a volatile area of research. These reasons alone could speak to why there is paucity of research on treatment outcomes for ethnic populations who are dually diagnosed with substance abuse and mental illness (Tatum, 1997; Vontress & Epp, 1997; Sue & Sue, 2003; Robinson, 1999; Cose, 2002; Neath & Reed, 1998; Paugh, 2003; Locke & Kiselica, 1999; NIMH, 2001).

RSA-911 Data Outcomes Research and Minority Consumers

“The racial profile of America is rapidly changing. While the rate of increase for white Americans is 3.2 percent, the rate of increase for racial and ethnic minorities is much higher: 38.6 percent for Latinos, 14.6 percent for African Americans, and 40.1 percent for Asian Americans and other ethnic groups. By the year 2000, the Nation will have 260,000,000 people, one of every three of whom will be either African American, Latino, or Asian American” (Rehab Act, 21 (a), 2003).

In an effort to ensure diversity within the rehabilitation workforce, Section 21 was included in the 1992 Amendments to the 1973 Rehabilitation Act. The goal of Section 21
was to ensure that governmental polices represented Americans with disabilities (Middleton, Rollins, Sanderson, Leung, Harley, Ebener & Leal-Idrogo, 2000; Paugh, 2003). Minority consumers tended to have disproportionately higher rates of disability and the disabilities were more severe in nature than their non-minority counterparts. African Americans were one and one-half time more likely to be disabled than their White counterparts and the disabilities tended to be more significant (Patterson et al., 2000, Rehab Act, 21 (a) (2), 2003).

Section 21 of the 1992 Rehabilitation Act stated: “patterns of inequitable treatment of minorities have been documented in all major junctures of the vocational rehabilitation process. As compared to White Americans, a larger percentage of African American applicants to the vocational rehabilitation system is denied acceptance. Of applicants accepted for service, a larger percentage of African American cases are closed without being rehabilitated. Minorities are provided less training than their white counterparts. Consistently, less money is spent on minorities than their white counterparts” (Rehab Act, Section 21 (a) (3). This legislation has served as an impetus for the bulk of RSA-911 dataset studies that have been conducted to examine vocational rehabilitation outcomes for minority consumers versus their non-minority counterparts. Thus, this researcher feels it would be appropriate to discuss some of those studies as the research is very pertinent to this study in that it will focus on minority consumers who are dually diagnosed with mental illness and substance abuse disorders.

Moore, Alston, Donnell, & Hollis (2003) conducted a study utilizing the RSA-911 database for federal fiscal year 1998. The purpose of the study was to identify any disparities that existed in rehabilitation success (status 26) rates at closure. Moore et al.
(2003) examined the success rates between Caucasian and African American Social Security Disability Insurance (SSDI) recipients who were diagnosed with mild retardation. The sample consisted of 2,788 Caucasian and African American consumers closed into status 26 (successful) or status 28 (unsuccessful) during fiscal year 1998. The study employed a single regression analysis, absent of a cross-validation procedure. Moore et al. (2003) pointed out that this procedure is often problematic in predicting the analysis to the population since regression weights developed in one study and applied to a new study often yield a smaller explained variance coefficient of effect size. To minimize shrinkage, Moore et al. (2003) “applied a split-half cross-validation procedure to increase the likelihood that the regression prediction is accurate” (p. 27).

The two tests of statistical significance used were logistic regression analysis and chi-square tests. Alpha levels were set at .02 to adjust for Type I error. The results of the study indicated that “Caucasian SSDI recipients with mild mental retardation were more likely to be successful at closure as compared to African American SSDI recipients with mild mental retardation. Additionally the study found that Caucasian SSDI recipients were provided a significantly greater proportion of job placement services when compared to their African American counterparts” (p.29).

Moore, Feist-Price, & Alston (2002) utilized the RSA-911 dataset for federal fiscal year 1997. This study used data from one Midwestern state as opposed to utilizing the entire dataset. The purpose of the study was to examine the relationship between race, vocational rehabilitation (VR) services and the rehabilitation outcomes (i.e., closure status and income) of persons with severe/profound mental retardation. Data on African
Americans and European Americans were used in this study since there was not an adequate sample of other racial/ethnic groups.

Wilson (2002) conducted a study to determine if race was a factor in rehabilitation acceptance rates for African Americans, European American, Native Americans/Alaskan Native, and Asians/Pacific Islanders with disabilities. Through an ex-post facto design, the study utilized the RSA-911 database for federal fiscal year 1997. The original sample consisted of 599,444 consumers. The sub-sample with no missing data consisted of n=259,734.

Results of the study indicated that there was statistically significant difference between ethnic group membership and VR acceptance in the US. It further found that there was a significant association between ethnicity and VR acceptance. Specifically, European Americans were more likely to be accepted for VR services than their African American counterparts (Wilson, 2002). Wilson (2002) suggested there are various reasons that African Americans are less likely to be accepted for VR than their European American counterparts including possible discrimination (Wilson, Harley, McCormick, Jolivette, & Jackson, 2001).

Capella (2002) conducted an investigation to determine whether differences exist for racial minorities and women in VR acceptance rates, employment outcomes, and quality of successful closure. Capella (2002) used three separate logistic regression analyses to utilize data for the RSA-911 federal fiscal year 1997. The original database (includes persons with no missing data) consisted of 523,047 persons that was subsequently divided into three smaller databases for each regression model. Each of the three samples contained 10,000 persons. “The sample size was chosen because it
accounted for an adequate number of persons from smaller minority groups (i.e. Native Americans and Asian Americans)” (p.146).

“An alpha level of .01 was established to determine significance for the regression coefficients associated with gender, age, education level, and severity of disability, which included all 10,000 persons in the sample” (Capella, 2002 p. 147). All logistic regression models were found to be statistically significant, thus there was an association between the response variable and at least one of the independent variables in the model. Capella (2002) concluded that race was the only variable that was found to significantly influence whether an applicant was accepted for VR services, specifically, for African Americans versus European Americans. Thus, this research validates that inequities still exist in VR service delivery, particularly as it relates to African Americans versus their European American counterparts.

Moore, Feist-Price, & Alston (2002) conducted a study utilizing the RSA-911 dataset for federal fiscal year 1997 for one mid-western state that was extrapolated from the RSA-911 database. The purpose of the study was to analyze the rehabilitation outcomes of persons with mild/moderate mental retardation by investigating the relationship between gender, race, secondary psychiatric disability, VR services, and the rehabilitation outcomes as measured by work status and earnings at closure. The population for this sample was 838 African American and Caucasian consumers. The sampling frame consisted of n=253.

Multiple linear regression and logistics regression were used for analysis. The results of the study indicated that persons who received job placement services appeared to increase the possibility of getting competitive jobs. Conversely, persons who received
transportation and adjustment were more likely to get non-competitive jobs. “There were no statistically significant differences noted for achieving higher levels of income based on gender, race, the presence of a secondary psychiatric disability or whether or not consumers received maintenance services, transportation, adjustment training, or job placement services” (Moore, Feist-Price, & Alston, 2002, p. 17). Thus, implications for the future include rehabilitation counselors advising consumers with mild/moderate mental retardation of the availability of job placement services as this might increase their chances for finding competitive employment (Moore, Feist-Price, & Alston, 2002).

Wilson, Alston, Harley, & Mitchell (2000) employed a binary logistic regression model to examine the relationship between vocational rehabilitation (VR) acceptance and race, gender, education, work status at application, and primary source of support at application. The study utilized the RSA-911 database for federal fiscal year 1997. The population consisted of 599,444 consumers and the sampling frame was 216,573.

Wheaton (1995) and Peterson (1996) concluded that there was not a statistical difference between African American and European American consumer in VR acceptance. Therefore “in an attempt to overcome earlier limitations in studies that used a univariate analysis (chi-square) to look at VR acceptance (dependent variable) based on race, education, work status, and source of support at application (independent variables) using binary logistic regression and the stepwise method of entry” (Wilson et al., 2002, p. 134). “Binary logistic regression is a multivariate statistical procedure used to predict a dichotomous dependent variable from a set of dichotomous or polytomous independent variables” (Hair, Anderson, Tatham, & Black, 1998).
The chi-square statistic was used to test the null hypothesis. The coefficients of all of the independent variables in the regression equation were 0. The stepwise method was used because the goal of the study was primarily predictive rather than exploratory (Hair et al., 1998).

Wilson et al. (2002) concluded that while Asian or Pacific Islanders were less likely to be accepted for VR as compared to their European American counterparts, African Americans were more likely to be accepted for VR services. This research obviously is in conflict with numerous studies that have documented that African American lag behind their European American counterparts in terms of VR acceptance (i.e. Wilson, 2000; Peterson, 1996; & Wheaton, 1995). However, Wilson et al. (2002) suggested that “the use of different sampling methods, statistics, hypotheses, racial/ethnic groups, and populations (state vs. national) could be possible explanations for the discrepancies” (p. 139).

Wilson, Turner, & Jackson (2002) conducted an investigation utilizing the RSA-911 database for federal fiscal year 1996. The sampling frame (with no missing data) consisted of 42,574 consumers in a large Midwestern state who received vocational rehabilitation services. The final sub-sample consisted of 10,188. The purpose of the study was to investigate whether African Americans who were successfully closed (status 26) differed in the type of vocational rehabilitation services received by their White American counterparts. The chi-square and phi coefficient was employed to ascertain the association and significance between the independent and dependent variables.

Wilson et al. (2002) concluded that race and VR services were found to be statistically significant. “The most frequent service received for both groups were
diagnostic, job placement, and counseling. However, differences in patterns of services by race were noted” (p. 29). The study suggested that there are patterns of discrepancies in VR services received by African American and White Americans who are closed successfully (Wilson et al. 2002). Implications for the future include a closer examination of cultural bias by White rehabilitation counselors in that they tend to provide fewer services (i.e. college training) to African Americans than to their White American counterparts (Wilson et al., 2002).

Patterson, Allen, Parnell, Crawford, & Beardall (2000) undertook a study to investigate equitable treatment in the rehabilitation process as it relates to ethnicity, specifically, African Americans and European Americans. The study used the RSA-911 database for cases closed in federal fiscal year 1996. The sampling frame consisted of 14,030 consumers in a southeastern state who received vocational rehabilitation services through the state-federal agency. Due to the large sample size, the alpha level was set at .01 (Patterson et al., 2000).

The independent variable (racial/ethnic status) had two levels: African American and European American. The dependent variables were closure status, expenses, similar benefits, district, and county. The methods chosen to analyze the data were descriptive statistics (e.g., mean, range, standard deviations), analysis of variance (ANOVA) and analysis of covariance (ANCOVA) (Patterson et al., 2000). One-way ANOVA’s were used to investigate expenditures (VR case service dollars), closure status, (successful vs. unsuccessful), and similar benefits (comparable benefits) by racial status. Patterson et al. (2000) found that the difference in expenditures for European Americans and African Americans was significant. The mean for African American expenditures was $2095.51
versus $2478.60. Additionally, the difference in successful closure status of European Americans (60.3%) and African Americans (54.7%) was also significant (Patterson et al., 2000).

Wheaton, Wilson, & Brown (1996) conducted a study using the RSA 911 dataset to investigate the number and type of vocational rehabilitation services that consumers received by examining sex, race, and closure status. The sampling frame consisted of 42,742 consumers who received VR services during federal fiscal year 1994. A final sub-sample consisted of 6,156 consumers in large Midwestern state. A three-way analysis of variance was used to compare the groups and to determine if interactions were statistically significant. Multivariate analysis of variance (MANOVA) and analysis of variance (ANOVA) were used for the data analysis (Wheaton et al., 1996). The results of the binomial tests revealed no differences were found between sex, race, and closure status. The ANOVA results showed that African Americans and persons closed successfully received more VR services. At an alpha level of .01, the study showed that the number of services a person received was related to their race and closure status, specifically, African Americans received more services than European American consumers. Additionally, persons who were closed successfully (status 26) received more services than those who were closed unsuccessfully (status 28).

Wheaton et al. (1996) concluded that “because of large sample sizes typically found in state agency RSA-911 data banks, high statistical power may be achieved even with small effect sizes. The issue of small effect size should be of particular interest to persons conducting training and program effectiveness research. Given the low effect
sizes for race and sex, training evaluators will need large sample sizes, highly sensitive measure, or both to detect change” (p. 130-131).

The aforementioned studies point out the need for cultural competencies in counselors who are working with an ever increasing diverse population. Many of the studies utilizing the RSA-911 database have consistently documented findings that suggest that counselor competencies play an important role in decreasing disparities between minority and non-minority consumers. Thus, this next section will discuss the multicultural training needs of the counselor.

Multicultural training needs of the Rehabilitation Counselor

As the cultural demographics of the United States continue to change, Counselors working with individuals from all segments of society must be cognizant of the fact that each group presents a unique set of challenges. Counselors who work with diverse populations should be aware that there are similarities as well as differences between groups that require culturally competent service delivery. Research has shown that disparities continue to exist between minority and non-minority consumers of vocational rehabilitation services who are dually diagnosed. Persons with a dual diagnosis disorder comprise a large portion of the psychiatric population however they have lower successful treatment outcomes (Paugh, 2003; NIMH, 2001; Fuertes et al., 2002; Ponterotto, et al., 2000). Minority consumers who are dually diagnosed often have poorer vocational rehabilitation outcomes than their non-minority counterparts. However, literature on disparities that exist between minority and non-minority consumers with a dual diagnosis of mental illness and substance abuse is limited and further studies should be encouraged (Paugh, 2003; NIMH, 2001). Hence, this researcher proposes that
counselors should participate in a formal training program in multicultural diversity to enhance cultural competencies of counselors working with individuals with dual diagnosis.

While multicultural concerns have been in the forefront of professional issues for several decades, there is an abundance of work that needs to be done to ensure counselors are delivering culturally competent services (Tatum, 1997; Cose, 2002; Bellini, 2002; Granello & Wheaton, 1998; Wilson, 2002; Moore et al., 2002; Locke & Kiselica, 1999; Pack-Brown, 1999; NIMH, 2001; Ponterotto, et al., 2000). Counselors should possess a thorough understanding of multicultural issues and recognize that the individuals that they serve may require advocacy as well as assistance in resolving concerns. In order for Counselors’ to be successful in the counseling relationship they must first look at themselves and be aware of their own biases. Counselors must be willing to accept the client where they are and provide services that are non-judgmental. Effective Counselors should exhibit counseling skills emphasizing rapport building and empathy (Finch & Robinson, 2003; Chung & Bemak, 2002). Much of the current research stresses that the degree to which culturally responsive counseling is successful depends largely upon the attitudes, knowledge, and behavior of the counselor (Le Roux, 2001; Sue & Sue, 2003; Bellini, 2002; Chan et al., 2003; Stebnicki et al., 1999; Leahy et al., 2003; Pack-Brown, 1999; Finch & Robinson, 2003). Counselors (like other members of society) “must realize the mismatch between their own life experiences and professional training and the cultural backgrounds of most of their clients” (Le Roux, 2001, p. 45). Therefore, counselors need to be aware of their own cultural assumptions, and need to evaluate themselves by using self-awareness skills to interpret their own feelings about race
(D’Angelo & Dixey, 2001; Cose, 2002; Tatum, 1997; Bellini, 2002; Finch & Robinson, 2003).

Many counselors self-reported that they lack competence in the areas of multicultural counseling, substance abuse, and mental health and feel they would benefit from additional training either in the classroom or through continuing education workshops. (Chan, Leahy, Saunders, Tarvydas, Ferrin & Lee, 2003; Leahy, Chan & Saunders, 2003; Froehlich & Linkowski, 2002; Bellini, 2002; Wheaton et al., 1996; Garske & Stewart, 1999; McReynolds et al., 1999; Doughty & Hunt, 1999).

Chan et al. (2003) conducted a study designed to gather information from Certified Rehabilitation Counselors (CRC) as it relates to their training needs. Results of the analysis were divided into 23 knowledge areas and broken down into 5 factors, all of which identified critical training needs. Counselors were asked to rate the level of importance of specific factors under each area of knowledge and indicated how prepared they felt their current training made them to perform the task. On the multicultural counseling factor 91% indicated that it was important and only 61% reported limited preparedness. Dual diagnosis was rated at 80% for the level of importance and 67% reported limited preparedness.

Summary

The 1992 Rehabilitation Act specifically acknowledged that disparities exist between minority and non-minority consumers within the state-federal rehabilitation system. As such the Rehabilitation Cultural Diversity Initiative was established to address the issues of inequities in the state-federal VR system and to enhance the provision of culturally competent services to minorities (Bellini, 2002; Granello & Wheaton, 1998;
NIMH, 2001) reported that efforts should be undertaken to increase the number of minority researchers and practitioners in the field to address some of the disparities that occur between African American and White consumers of services. This researchers also found that there is a paucity of empirical data on minorities with dual diagnosis while minorities contribute significantly to the disproportionately large number of mental health cases found in the population.

To date, many graduate training counselor education programs offer classes in multicultural counseling, substance abuse and mental health counseling. However for most rehabilitation counseling programs, these courses are not required, but rather suggested course offerings. Thus, many rehabilitation counselors continue to lack the skills necessary to assist in eliminating the disparities between minority and non-minority consumers with a dual diagnosis. Needless, to say one course in each of these subject areas is not nearly enough to provide counselors with the competency necessary to work with such challenging populations (Bellini, 2002; McReynolds et al., 1999; Leahy et al., 2003; Granello & Wheaton, 1998; Pack-Brown, 1999; Fuertes et al., 2002; Ponterotto et al., 2000). Advocates of multicultural counseling concerns maintain that counselors are not provided the proper training to work with the increasingly diverse population, and thus, conclude that the disparities between minority and non-minority consumers will continue to exist unless training programs are mandated or vigorous actions are taken to encourage multicultural skill development (Bellini, 2002; Wilson, 2002; Moore et al., 2002; Pack-Brown, 1999; Locke & Kiselica, 1999; Ponterotto et al., 2000).

Current Council on Rehabilitation Education (CORE) guidelines require that a multicultural diversity domain be offered as a part of all graduate training programs
curriculum (Council on Rehabilitation Education, 2004). It should also be noted that rehabilitation counseling programs have historically been much more reluctant to offer mandatory multicultural course offerings than the traditional counseling program. To that end, graduate rehabilitation training programs are encouraged to expand their course offerings to include mandatory courses in multicultural counseling as well as offer specialized tracks that encompass multiculturalism, substance abuse, mental health and dual diagnosis (Bellini, 2002; Pack-Brown, 1999). Finally, this researcher opined that counselors who are already working in the field should be required to participate in formal course work or continuing education seminars that focus on multicultural counseling and dual diagnosis in order to ensure delivery of culturally competent services to this often underrepresented and underserved population.
CHAPTER 3

METHOD

The purpose of this study was to examine the impact of multicultural issues on program outcomes for persons who are dually diagnosed and received services through the state-federal vocational rehabilitation system. The study examined the impact of multicultural issues by comparing the program outcomes for minority versus non-minority consumers who are dually diagnosed to determine if there were differences in the number of hours worked, earnings per hour, number of services provided, type of services provided, average time the case was open, and average case expenditures at the time of closure.

The statistical package that was used to perform the data analysis in this study was the Statistical Package for Social Sciences (SPSS). SPSS is well known for its flexible and omnibus application programs that allow researchers to meet all of their computing needs in one integrated system (Bryman & Cramer, 2001).

This study further utilized a method of research termed as ex-post facto, the Latin phrase which literally means “after the fact”. Ex-post facto research is also commonly referred to as causal-comparative research. Ex-post facto or causal-comparative research typically signifies that the research in question is conducted after the variations in the independent variable have already naturally occurred, such as in this study where subjects have self-selected to be in the study and were not randomly assigned as in experimental
research (Ary et al., 1996; Fraenkel & Wallen, 2000). Because the subjects are self-selected the researcher does not have control and cannot manipulate the independent variable (RSA, 2003). For example, the independent variable in this study is the racial/ethnic status (minority vs. non-minority) of the consumer with a dual diagnosis and inherently cannot be manipulated. In ex-post facto research, the researcher attempts to find causes or differences that already exist between or among groups of individuals that have already occurred by comparing previously established data to determine what created the differences. Thus, it is sometimes considered to be a form of associational research (Ary et al., 1996; Fraenkel & Wallen, 2000). While ex-post facto research is not a substitute for experimental research, it provides an alternative method of research that is valuable to educational researchers who may be unable to ethically test a hypothesis by assigning subjects to various conditions so that the independent variable can be manipulated (Ary et al., 1996).

Research Questions

The following research questions will be answered in this study:

Research Question 1. Is there a significant difference in the hours worked per week for minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)?

Research Question 2. Is there a significant difference in the earnings per hour for minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)?
Research Question 3. Is there a significant difference in the number of services provided to minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)?

Research Question 4. Is there a significant difference in the number of services provided to minority vs. non-minority consumers with a dual diagnosis who were closed unsuccessfully (status 28)?

Research Question 5. Is there a significant difference in the time the case was open to provide services to minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)?

Research Question 6. Is there a significant difference in the time the case was open to provide services to minority vs. non-minority consumers with a dual diagnosis who were closed unsuccessfully (status 28)?

Research Question 7. Is there a significant difference in the case expenditures for services provided to minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)?

Research Question 8. Is there a significant difference in the case expenditures for services provided to minority vs. non-minority consumers with a dual diagnosis who were closed unsuccessfully (status 28)?

Research Question 9. Is there a significant difference in the types of services provided to minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)?
Research Question 10. Is there a significant difference in the types of services provided to minority vs. non-minority consumers with a dual diagnosis who were closed unsuccessfully (status 28)?

Subjects in the Analysis

The population of subjects used in this study was obtained from the Rehabilitation Services Administration (RSA) 911 database. The subjects received services from the state-federal rehabilitation agency throughout the United States during federal fiscal year 2002. The original dataset consisted of 630,205. The final population of individuals diagnosed with mental illness and substance abuse (dual diagnosis) consisted of 54,937 consumers. Consumers who were coded as having a diagnosis of mental illness and substance abuse were compared to determine if there were differences in the number of hours worked, earnings per hour, number of services provided, type of services provided, average time the case was open, and average case expenditures at the time of closure.

Data Analysis

Multivariate analysis of variance (MANOVA) and Chi-square analysis were used to compare groups and to determine if interactions were statistically significant and to compare the mean differences between racial/ethnic status (minority vs. non-minority) of consumers with a dual diagnosis as it relates to the following program outcomes: hours worked per week, earnings per hour, number of services provided, average time the case is open and average case expenditures at time of closure.

This particular study examined 54,937 closure records for persons with dual diagnosis whose cases were closed successfully or unsuccessfully in 2002. Due to the large sample size a power analysis was performed in MANOVA to assist with assessing
the strength of the relationship between the groups. Likewise, Chi-square analysis is sensitive to large sample sizes, such as found in the RSA-911 dataset. Specifically, large sample sizes tend to show everything statistically significant especially when utilizing Chi-square analysis. Therefore, Cramer’s phi was run as a follow up to test the importance of significance. The purpose of the follow up tests was to assist in determining both practical and theoretical significance. Cramer’s phi is useful for examining dependent variables in 2x2 contingency tables to assess the affect of treatments (Ary et al., 1996). In order to accomplish this task the means of both groups are compared. Statistical power is often used in statistical tests of significance. Power is used to determine the probability of correctly rejecting the null hypothesis when it is false, that is correctly finding a hypothesized relationship when it exists (Hair et al., 1998, p. 3). Statistical significance determines whether the results can be attributed to chance, while practical significance assesses whether the results are useful or substantial enough to warrant action (Hair et al., 1998, p. 3).

Research questions 1-8, that are posed in this study such as: Is there a significant difference in the case expenditures for services provided to minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)? And is there a significant difference in the case expenditures for services provided to minority vs. non-minority consumers with a dual diagnosis who were closed unsuccessfully (status 28)? were analyzed in MANOVA. Once statistical differences were determined in MANOVA, Analysis of Variance (ANOVA) was used to test the null hypothesis for the equality of dependent variable means across groups. In other words, with ANOVA a univariate analysis was used to test a single dependent variable for equality across the groups.
MANOVA was used to examine patterns of VR services to minorities with a dual diagnosis. Of the ten research questions, MANOVA was used for questions 1-8 to determine if any differences existed. Box’s M and the Levene test were used to test the assumptions of MANOVA. Box’s M is a statistical test used for assessing the equality of group covariances of the independent variables across the groups of the dependent variable. If the statistical level is greater than the critical level (e.g., .01), then the equality of the covariance matrices is supported. If the test shows statistical significance, then the groups are deemed different and the assumption is violated (Hair et al., 1998, p. 240). Levene test is used to assess whether the variances of a single metric variable is equal across groups.

MANOVA has several criteria for significance testing available with which to assess multivariate differences across groups. Specifically the criteria are used to test differences across dimensions of the dependent variable. This study utilized the four most popular criteria to perform the analysis; Roy’s greatest characteristic root (gcr), Wilks’ lambda, Hotelling’s trace and Pillai’s criterion. Roy’s gcr is most appropriate when the dependent variables are strongly interrelated on a single dimension, but is also the measure most likely to be severely affected by violations of the assumptions. The other three measures assess all sources of difference among the groups. Wilks’ lambda examines whether groups are somehow different without being concerned with whether they differ on at least one linear combination of the dependent variables. Hotelling’s trace and Pillai’s criterion are similar to Wilks’ lambda in that they consider all the characteristic roots and can be approximated by an F statistic. Roy’s gcr is concerned with measuring the difference only on the first characteristic root. The decision to choose
which statistic to use should be based on which one is most immune to violations of the assumptions of MANOVA and still maintains the greatest power (Hair et al., 1998, p. 351).

Chi-square analysis was used to address the final two questions, 9-10, which contain two categorical variables. The specific categories of minorities included in the research questions included: African American, Asian American, Native Hawaiian or Pacific Islander, and Hispanic or Latino American. The non-minority category included European Americans. The results of which this researcher hopes will directly impact decisions regarding future rehabilitation service delivery to this underserved population. The questions posed in this study will produce valuable data that can be used to make a case for changes in the provision of rehabilitation services to minority consumers with a dual diagnosis. The anticipated results of this study will conclude that there will be differences in the descriptive statistics (means, proportions, and percentages).

Multivariate analysis of variance (MANOVA) was not widely used until the development of appropriate test statistics and the availability of computer programs to compute the statistics was made available. MANOVA is now a very practical tool for researchers. MANOVA is an extension of analysis of variance (ANOVA) and it used when there is more than one dependent variable. MANOVA typically measures the differences for two or more metric dependent variables based on a set of categorical (non-metric) variables acting as independent variables. The unique value of MANOVA is that the variate optimally combines the multiple dependent measures into a single value that maximizes the differences across group (Hair, Anderson, Tatham, & Black, 1998 p. 334).

MANOVA has been used to study outcome variables that contributed to group
differences. MANOVA was selected for evaluating the relationship between one factor, a nominal variable (race) and several interval dependent variables such as earnings at closure, number of services, and case expenditures. MANOVA employs a computation formula in order to simultaneously evaluate differences among group means on multiple dependent variables. Caution should be exercised so as not to violate the assumptions of MANOVA, specifically, equal group covariances and multivariate normality as they can result in too few or many Type I errors (Moore, 2002 p. 12).

Another method that is frequently utilized for data analysis in rehabilitation research is chi-square analysis. Chi-square analysis was deemed to be appropriate for this study as it is utilized for independent variables that are nominal and have at least two categories. Additionally, research questions 9-10 contained a categorical independent variable and a categorical dependent variable. Specifically, chi-square analysis was used to answer the research questions: Is there a significant difference in the types of services provided to minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)? And is there a significant difference in the types of services provided to minority vs. non-minority consumers with a dual diagnosis who were closed unsuccessfully (status 28)?

One must use caution so as not to violate assumptions and choose a different procedure when the independent variable is interval or ratio (Hopkins, Hopkins, & Glass, 1996). In this particular study the assumptions would not be violated as the independent variable is non-metric. Chi-square is used to find the significance of differences among the proportions of subjects that fall into different categories (Ary et al. 1996). Chi-square can also be used to test a null hypothesis, by indicating that there is no significant
difference between the proportions of the subjects falling into any number of different
categories (Ary et al., 1996 p. 216)

Chi-square has two principal applications: 1) the chi-square goodness-of-fit test,
and 2) the chi-square test of association. In both chi-square tests two sets of frequencies
are compared: observed frequencies and expected frequencies. Obtained frequencies are
the actual frequencies obtained by observation. Expected frequencies are theoretical
frequencies, which are used for comparisons (Ary et al., 1996). For the goodness-of-fit
test, the expected frequencies are hypothesized on the basis of some a priori theory.
Additionally, chi-square goodness-of-fit can assess whether the observed distribution of
choices differs significantly from the hypothesized distribution or whether sampling error
remains a tenable explanation for any obtained differences (Hopkins et al., 1996 p. 234).

Some of the advantages of using the chi-square test for independence are that it is
one of the relatively few quantitative data analyses that allow nominal data to be
compared with each other to demonstrate a relationship. In addition, the chi-square is not
influenced by outliers or asymmetrical shapes of distributions that could be seen as
problematic in others (Schweigert, 1994).

A disadvantage of using the chi-square analysis is that while it is appropriate for
analyzing categorical data, it provides the researcher with very little information. The
researcher is unable to control for other relevant variables that may contribute to
acceptance for and outcomes of VR services. However, two control variables were added
to the study; namely, educational level and age as both could conceivably affect the
quality of the closure. The quality of the closure would address the issue of earnings per
hour and hours work per week (Capella, 2002).
Another disadvantage is that the value of chi-square is greatly influenced by the size of the sample. Subsequently, using large samples such as the RSA-911 dataset greatly increases the probability that statistical significance will be found, and it is not dependent upon whether or not practically significance differences exist (Capella, 2002). Therefore, an analysis was performed using Cramer’s phi as a follow up test to compare the mean of the groups to assist in assessing the strength of the relationship. The chi-square coefficient is often dependent on the strength of relationship and sample size. Hence, Cramer’s phi allows the researcher to divide the sample size and takes the square root of the results. In essence, Cramer’s phi eliminates the effect of sample size. Therefore, this was the most appropriate statistic to use with this study due to its large size (Garson, 2004). Statistical power is often used in statistical tests of significance. Power is used to determine the probability of correctly rejecting the null hypothesis when it is false, that is correctly finding a hypothesized relationship when it exists (Hair et al., 1998, p. 3). Statistical significance determines whether the results can be attributed to chance, while practical significance assesses whether the results are useful or substantial enough to warrant action (Hair et al., 1998, p. 3). Due to the large population size, a follow up analysis was performed. The results demonstrated, not surprisingly, a high power of 1.0 which means we achieved the highest power possible which suggested that the results were valid. This researcher believed that the results obtained by using the entire population were deemed more representative of the dual diagnosis population. As such, a decision was made not to reduce the sample size, but use statistics such as Cramer’s phi and Wilks’ lambda to perform an analysis to assess the strength of the relationship between the groups once statistical significance was found.
Capella (2002) concluded that many researchers using chi-square analysis limited their findings by focusing on two races, African Americans and European Americans instead of capturing all minorities. Some researchers have eliminated data on racial and ethnic minorities other than African American and European American because the sample size was inadequate. This study included all minorities (white and non-white) and hopefully the results will bring some clarity to this issue.

Instrument

The state-federal vocational rehabilitation system is the largest purveyor of services to persons with disabilities in the United States (Ficke, 1992). Each state has an agency that provides services to eligible individuals with disabilities. Some states have two agencies, a separate agency for persons who are blind or visually impaired and an agency for general disabilities. The overall goal of the state vocational rehabilitation program is to provide services to persons with disabilities to help them achieve and sustain self-sufficiency through employment, homemaking, or independent living (RSA, 2003).

The Rehabilitation Services Administration (RSA) has been collecting data on individuals served through the vocational rehabilitation agencies in each state since the Rehabilitation Act was legislated in 1921. RSA utilizes the RSA-911 database to collect and disseminate information on people with disabilities. The RSA-911 dataset currently has 43 data element categories which are coded at closure that can result in over 100 data points for each individual with a disability. Data is collected during the eligibility and counseling process by counselors throughout the United States. Hence, due to the large
number of people collecting data, there is room for error (Fraenkel & Wallen, 2000; Campbell & Stanley, 1963).

To assure that the most recent data was reported in the study, FY 2002, the latest federal fiscal year that was available for research purposes was used. The information contained in the RSA-911 database contains archival information on successfully (status 26) and unsuccessfully (status 28) closed cases that has been obtained from all of the state-federal vocational rehabilitation agencies and is reported to the Rehabilitation Services Administration (RSA) on an annual basis. The population of 54,937 included all cases that have been successfully and unsuccessfully closed and that are coded with a dual diagnosis (mental illness and substance abuse). The subjects were diagnosed with a disability of mental illness and substance abuse, specifically: Cognitive impairments (impairments involving learning, thinking, processing information and concentration), Psychosocial impairments (interpersonal and behavioral impairments, difficulty coping, Alcohol Abuse or Dependence, and Drug Abuse or Dependence (other than alcohol) (RSA, 2003).

RSA is able to track the amount and types of services that each individual receives. These services may include: cognitive psychological assessment and services, employment-development, postsecondary training, maintenance, and transportation, to name a few. The information is used to evaluate program effectiveness and outcomes.

The RSA-911 data reporting system also tracks demographic information which allows RSA to monitor services patterns to ascertain whether or not inequities exist in vocational rehabilitation service delivery in each state. Thus, the RSA-911 data set has been a resource utilized by many researchers to conduct studies on disparities that exist
within the minority community, specifically, racial and ethnic minorities (RSA, 2003). The specific research studies were discussed in the literature review portion of this study.

Independent Variable

The independent variable for all of the research questions in this study is the racial/ethnic status of the individual subject (minority versus non-minority). The independent variable (racial/ethnic status) had two levels: European American and non-European American. The methods chosen to analyze the data were descriptive statistics (e.g., mean, range, standard deviations). Multivariate analysis of variance (MANOVA) and Chi-square analysis were used to investigate expenditures (VR case service dollars), closure status, (successful vs. unsuccessful), and similar benefits (comparable benefits) by racial status.

Dependent Variable

The dependent variables are the hours worked per week, earnings per hour, number of services provided, and types of services provided, time the case is open, and case expenditures. All of the dependent variables are operationally defined as rehabilitation employment outcomes as recorded in the RSA-911 database. Status 26 is defined as follows: The case was closed successfully after the consumer had been employed for 90 days. Status 28 is defined as follows: The case was closed unsuccessfully as the consumer did not obtain or maintain employment. Again, the methods chosen to analyze the data were descriptive statistics (e.g., mean, range, standard deviations). Multivariate analysis of variance (MANOVA) and Chi-square analysis were used to investigate expenditures (VR case service dollars), closure status, (successful vs. unsuccessful), and similar benefits (comparable benefits) by racial status.
Threats to Validity

Internal and External Threats to Validity

The researchers’ inability to manipulate the independent variable and the lack of randomization are two threats to internal validity that are inherent in ex-post facto research (Ary et al., 1996). In this particular study, the independent variable is racial/ethnic status, thus it does not lend itself to manipulation. Fraenkel & Wallen (2000) concluded that “the major threat to the internal validity of an ex-post facto study is the possibility of a subject characteristics threat. Because the researcher has no say in either the selection or formation of the comparison groups, there is always the likelihood that groups are not equivalent on one or more important variables other than the identified group membership variable (p. 397-398). There are various methods available to the researcher to control for extraneous variables including, matching subjects from a comparison group on that variable, finding or creating homogeneous subgroups, and statistical matching.

Some additional difficulties encountered with ex-post facto research that can affect the internal validity of the study include lack of control. In this instance, the researcher can try to gain control by testing and ruling out rival hypotheses. Contaminated variables can also make the study difficult. The researcher can attempt to control extraneous variables through statistical techniques such as partial correlation, multiple correlation and regression, and analysis of covariance. Lastly, once the researcher has determined that a relationship exists between two variables, they may have difficulty determining which is the “cause” and which is the “effect” (Fraenkel & Wallen, 2000; Ary et al. 1996).
Population external validity is concerned with external threats to the validity of the study, namely, generalization. “External validity asks the question of generalizability: to what populations, settings, treatment variables, and measurement variables can this effect be generalized (Campbell & Stanley, 1963, p.5). Since this study utilized data on individuals in a specific federal fiscal year, the information cannot be extrapolated to any other federal fiscal year as RSA-911 data yielded for each year could be different.

One other important note regarding external validity includes the study of consumers with a dual diagnosis. Since this is a rather heterogeneous group, differences will undoubtedly occur that cannot be accounted for in the study. For example, a person diagnosed with schizophrenia and drug abuse may have very different outcomes in a vocational rehabilitation program than a person diagnosed with anxiety disorder and alcohol dependence.

Ex-post facto research is most frequently used to conduct research in education and the social sciences since manipulation of the independent variable is not usually possible. Thus, even though it has inherent limitations, it is the most appropriate way to conduct research in this study.
CHAPTER 4

RESULTS

Included in this chapter are the results of the statistical analysis for each of the variables examined. The information contained in this chapter will include data derived from closure records of individuals who were coded with mental illness and substance abuse disorders (dual diagnosis) and who received services through the state-federal vocational rehabilitation program during federal fiscal year 2002. The purpose of the study was to examine whether or not differences existed in vocational rehabilitation outcomes between minority and non-minority clients who were coded as dual diagnosis. The following research questions were examined in this study:

Research Question 1. Is there a significant difference in the hours worked per week for minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)?

Research Question 2. Is there a significant difference in the earnings per hour for minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)?
Research Question 3. Is there a significant difference in the number of services provided to minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)?

Research Question 4. Is there a significant difference in the number of services provided to minority vs. non-minority consumers with a dual diagnosis who were closed unsuccessfully (status 28)?

Research Question 5. Is there a significant difference in the time the case was open to provide services to minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)?

Research Question 6. Is there a significant difference in the time the case was open to provide services to minority vs. non-minority consumers with a dual diagnosis who were closed unsuccessfully (status 28)?

Research Question 7. Is there a significant difference in the case expenditures for services provided to minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)?

Research Question 8. Is there a significant difference in the case expenditures for services provided to minority vs. non-minority consumers with a dual diagnosis who were closed unsuccessfully (status 28)?

Research Question 9. Is there a significant difference in the types of services provided to minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)?
Research Question 10. Is there a significant difference in the types of services provided to minority vs. non-minority consumers with a dual diagnosis who were closed unsuccessfully (status 28)?

Presentation of the Results

This chapter is divided into two sections. The first section will give demographic information related to the subjects in the population. The second section will provide descriptive statistics and data analysis comparison of the population utilizing Multivariate Analysis of Variance (MANOVA) for research hypotheses 1-5. Additionally, Chi-square analysis was used for research hypotheses 6. A summary of the significant findings and the interpretation of the data analysis included in this section are recorded in chapter 5.

Population Characteristics

The dataset included 630,205 consumers who received services from the state-federal vocational rehabilitation agency during fiscal year 2002. Descriptive statistics are provided for the total population of 54,937 consumers, which consisted of 25,613 minority subjects and 29,324 non-minority subjects who were coded with mental illness and substance and closed successfully or unsuccessfully during federal fiscal year 2002.

Race

There are 29,324 white people, consisting 46.6% of the total population. There are 25,613 non-white people, consisting 53.4% of the total population. The breakdown by race is as follows: 22,704 African Americans, consisting of 41.3% of the population, 5,102 Hispanic or Latino Americans, consisting of 9.3% of the population, 924 American Indians, consisting of 1.7% of the population, 218 Asian Americans, consisting of .4% of the population, and 157 Native Hawaiians or Pacific Islanders, consisting of .3% of the
total population. It is important to note that African-Americans account for approximately 14% of the general population and Hispanic or Latino Americans account for approximately 15% of the general population (US Census Bureau, 2005). Thus, African-Americans with a dual diagnosis occurred at disproportionate rates in this study.

<table>
<thead>
<tr>
<th>Race</th>
<th>Total Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>29,324</td>
<td>46.6%</td>
</tr>
<tr>
<td>African American/Black</td>
<td>22,704</td>
<td>41.3%</td>
</tr>
<tr>
<td>Hispanic or Latino American</td>
<td>5,102</td>
<td>9.3%</td>
</tr>
<tr>
<td>American Indian</td>
<td>924</td>
<td>1.7%</td>
</tr>
<tr>
<td>Asian American</td>
<td>218</td>
<td>.4%</td>
</tr>
<tr>
<td>Native Hawaiians or Pacific Islander</td>
<td>157</td>
<td>.3%</td>
</tr>
</tbody>
</table>

Table 4.1 Race of Population

**Gender**

The population consisted of 9,260 white females and 7,319 non-white females for a total of 16,579 females which accounted for 30% of the total population. The population consisted of 20,064 white males and 18,294 non-white males for a total of 38,358 males which accounted for 70% of the total population. Race is a categorical variable that was dummy coded with zero (0) and one (1). A zero (0) will represent Minority and one (1) will represent White.
<table>
<thead>
<tr>
<th></th>
<th>Race</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Sex</td>
<td>F</td>
<td>7319</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>18294</td>
</tr>
<tr>
<td>Total</td>
<td>25613</td>
<td>29324</td>
</tr>
</tbody>
</table>

Table 4.2 Gender

Education

The highest education level that was seen across both minority and non-minorities was at the high school graduate or GED level. 13,336 whites had high school diplomas or a GED, while 10,893 non-whites had diplomas or a GED. The numbers tended to decrease for the number of minorities with higher education as the degree became higher. At the master’s level, whites earned 271 master’s degrees, while non-whites earned 74 master’s degrees. Race is a categorical variable that was dummy coded with zero (0) and one (1). A zero (0) will represent Minority and one (1) will represent White. For a complete breakdown of education, see Table 4.3.
<table>
<thead>
<tr>
<th>Education level at closure</th>
<th>Race</th>
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<tbody>
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<td></td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Not available</td>
<td>3039</td>
<td>2288</td>
</tr>
<tr>
<td>No formal schooling</td>
<td>139</td>
<td>245</td>
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<tr>
<td>Grades 1 to 8</td>
<td>944</td>
<td>1204</td>
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<tr>
<td>Grades 9 to 12 no diploma</td>
<td>5835</td>
<td>4498</td>
</tr>
<tr>
<td>Special ed</td>
<td>187</td>
<td>190</td>
</tr>
<tr>
<td>High School Grad or GED</td>
<td>10893</td>
<td>13336</td>
</tr>
<tr>
<td>Post secondary ed, no degree</td>
<td>3105</td>
<td>4580</td>
</tr>
<tr>
<td>Assoc degree or voc certificate</td>
<td>960</td>
<td>1566</td>
</tr>
<tr>
<td>Bachelors degree</td>
<td>437</td>
<td>1146</td>
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<tr>
<td>Masters degree or higher</td>
<td>74</td>
<td>271</td>
</tr>
<tr>
<td>Total</td>
<td>25613</td>
<td>29324</td>
</tr>
</tbody>
</table>

Table 4.3 Education level at closure

**Age**

The average age of clients was 40.33. The range of ages was 17-103, with a range of 86 years old. The median age was 41 years old. Half of the population is between the age of 17 and 41.
### Table 4.4 Age of Population

<table>
<thead>
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<th>Statistic</th>
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<td>Age</td>
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<tr>
<td>95% Confidence</td>
<td>40.25</td>
</tr>
<tr>
<td>Interval for</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td></td>
</tr>
<tr>
<td>Lower Bound</td>
<td>40.41</td>
</tr>
<tr>
<td>Upper Bound</td>
<td></td>
</tr>
<tr>
<td>5% Trimmed Mean</td>
<td>40.26</td>
</tr>
<tr>
<td>Median</td>
<td>41.00</td>
</tr>
<tr>
<td>Variance</td>
<td>89.981</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>9.486</td>
</tr>
<tr>
<td>Minimum</td>
<td>17</td>
</tr>
<tr>
<td>Maximum</td>
<td>103</td>
</tr>
<tr>
<td>Range</td>
<td>86</td>
</tr>
</tbody>
</table>

Results for the Research Hypotheses

Assumptions of Multivariate Analysis of Variance (MANOVA)

Multivariate Analysis of Variance (MANOVA) has been used to study outcome variables that contributed to group differences. MANOVA was selected for evaluating the relationship between one factor, a nominal variable (race) and several interval dependent variables such as earnings at closure, number of services, and case expenditures. MANOVA employs a computation formula in order to simultaneously evaluate differences among group means on multiple dependent variables. In order for MANOVA to be valid, there are three assumptions that must be taken into consideration: (1) the observations must be independent, (2) the covariance matrices must be equal for all groups, and (3) the set of dependent variable should follow a normal distribution (Hair et al., 1998, p. 347). Caution should be exercised so as not to violate the assumptions of MANOVA, specifically, equal group covariances and multivariate normality as they can
result in too few or many Type I errors (Moore, 2002 p. 12). Multivariate normality assumes that the joint effect of two variables is normally distributed (Hair et al., 1998, p. 276). Since there is no direct test for multivariate normality, univariate normality of each variable will be tested (Hair et al., 1998, p. 276).

Research Hypotheses 1 and 2 are addressed by utilizing Multivariate analysis of variance (MANOVA). The independent or predictor variable was the racial/ethnic identity of the client. Specifically, based upon whether the client is white or not white (non-minority and minority). The dependent or response variables were the hours worked per week and the earnings per hour. Once statistical differences were determined in MANOVA, Analysis of Variance (ANOVA) was used to test the null hypothesis for the equality of dependent variable means across groups. ANOVA determines on the basis of one dependent measure, whether samples are from populations with equal means. In other words, ANOVA makes multiple comparisons of treatment groups to determine the probability that differences in the means across several groups are due solely to sampling error (Hair et al., 1998, p. 332).

Box’s M and the Levene test were used to test the assumptions of MANOVA. Box’s M is a statistical test used for assessing the equality of group covariances of the independent variables across the groups of the dependent variable. If the statistical level is greater than the critical level (e.g., .01), then the equality of the covariance matrices is supported. If the test shows statistical significance, then the groups are deemed different and the assumption is violated (Hair et al., 1998, p. 240). Levene test is used to assess whether the variances of a single metric variable is equal across groups.
Table 4.5 Race of Respondent for successful closures (N= 20,307)

Table 4.5 presents the descriptive statistics for white (non-minority) and non-white (minority) subjects in the study who were closed successfully (status 26). Of the 20,307 subjects who were closed successfully (status 26) in 2002, 10,530 were non-minority and 9,777 were minority.

Table 4.6 Mean & Standard Deviation of Hours Worked per Week & Earnings per Hour

Table 4.6 provides mean and standard deviations for clients with a dual diagnosis disorder in relation to hours worked per week and earnings per hour at closure. Both minority and non-minority subjects worked an average of 37.53 hours per week. Hence, no statistical significance was found between the hours of work per week. However, statistical significance was found in earnings per hour as the minority group earned $8.82
per hour while the non-minority group earned approximately $1.00 more per hour at $9.79 per hour. The standard deviation for the minority group was 6.6, while the standard deviation for the non-minority group was 7.0.

<table>
<thead>
<tr>
<th>Box's M</th>
<th>633.089</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>211.007</td>
</tr>
<tr>
<td>df1</td>
<td>3</td>
</tr>
<tr>
<td>df2</td>
<td>8971141</td>
</tr>
<tr>
<td></td>
<td>6601.46</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Sig.</td>
<td>.000</td>
</tr>
</tbody>
</table>

4.7 Box’s M Test of Equality of Covariance Matrices

Table 4.7 presents descriptive statistics that test the null hypothesis. MANOVA assumes that the covariance matrix is similar for each response variable. Box’s M and the Levene test were used to test the assumptions of MANOVA. Box’s M is a statistical test used for assessing the equality of group covariances of the independent variables across the groups of the dependent variable. If the statistical level is greater than the critical level (e.g., .01), then the equality of the covariance matrices is supported. If the test shows statistical significance, then the groups are deemed different and the assumption is violated (Hair et al., 1998, p. 240). Levene test is used to assess whether the variances of a single metric variable is equal across groups. Box's M tests this assumption. Based on the above output M is significant (small value of .000), so the assumption is not satisfied. That is, the dependent variables (hours worked per week and earning per hour) differ in their covariance matrices. The F test in MANOVA is quite robust even when there are departures from this assumption. Similar to t-tests the, F statistic was used to estimate
variance between groups. The F statistic is also used to determine if means between two groups vary significantly. Large values of the F statistic lead to rejection of the null hypothesis of no difference in means across groups (Hair et al., 1998, p. 333). If the analysis has several different treatments (independent variables) such as race/ethnic status and whether the case was closed successfully or unsuccessfully), then F statistics are calculated for each treatment. This allows for separate assessments for each independent variable.

<table>
<thead>
<tr>
<th>Hours worked per week at closure</th>
<th>F</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9.878</td>
<td>1</td>
<td>20305</td>
<td>.002</td>
</tr>
<tr>
<td>Earnings per hour at closure</td>
<td>238.378</td>
<td>1</td>
<td>20305</td>
<td>.000</td>
</tr>
</tbody>
</table>

Table 4.8 Levene Test of Equality of Error Variances

Table 4.8 presents MANOVA assumes that the dependent variables have similar variances across the groups of the independent variable non-white/white (minority and non-minority). Levene tests this assumption. The Levene test is used to assess whether the variances of a single metric variable is equal across groups. Based on the above output this assumption is not satisfied since the hours worked per week has a P-Value=.002 and earnings per hour has a P-Value of .000 at closure. However, the F test in MANOVA is quite robust even when there are departures from this assumption, especially when the groups of the independent variable non-white/white (minority and Non-minority) are of equal sample size.
Table 4.9 Multivariate Tests

From Table 4.9 We can test to see if the independent variable white/non-white (non-minority and minority) has significant effect simultaneously on the dependent variables (hours worked per week and earning per hour). MANOVA was computed using an exact F statistic. The degrees of freedom are 2. Degrees of freedom are a mathematical property of a set of data that is related to the number of restrictions imposed on the data (Ary et al., 1996). In general the number of degrees of freedom is based on the sample size. For this particular study there were 54,937 subjects, thus there were 2 degrees of freedom when performing the multivariate tests. The alpha level was set at .05 to calculate the power and to reduce Type I error. Type I error is concerned with the probability of incorrectly rejecting the null hypothesis. Specifically, stating that a difference exists when it actually does not.
Effect size is concerned with, in this instance, the degree to which the differences in the means exists in the population. The main effect is concerned with the individual effect of each treatment or independent variable on the dependent variable. In this study, we are looking at the effect of racial/ethnic status on the hours worked and earnings per hour. For each main effect and each intercept, there are four multivariate significance tests. MANOVA has several criteria for significance testing available with which to assess multivariate differences across groups. Specifically the criteria are used to test differences across dimensions of the dependent variable. In other words, the sample statistic tests to see whether a difference between the means of two samples is significant (Fraenkel & Wallen, 1993, p. 199). This study utilized the four most popular criteria; Roy’s greatest characteristic root (gcr), Wilks’ lambda, Hotelling’s trace and Pillai’s criterion. Roy’s gcr is most appropriate when the dependent variables are strongly interrelated on a single dimension, but is also the measure most likely to be severely affected by violations of the assumptions. The other three measures assess all sources of difference among the groups. Wilks’ lambda examines whether groups are somehow different without being concerned with whether they differ on at least one linear combination of the dependent variables. Hotelling’s trace and Pillai’s criterion are similar to Wilks’ lambda in that they consider all the characteristic roots and can be approximated by an F statistic. Roy’s gcr is concerned with measuring the difference only on the first characteristic root. The decision to choose which statistic to use should be based on which one is most immune to violations of the assumptions of MANOVA and still maintains the greatest power (Hair et al., 1998, p. 351). The results of all the tests,
namely Pillai’s Trace (.000), Wilks’ lambda (.000), Hotelling’s Trace (.000), and Roy’s Largest Root (.000) are the same. That is, they all show that the effect of independent variable white/non-white (non-minority and minority) is significant.

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Type III Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours worked per week at closure</td>
<td>3.823</td>
<td>1</td>
<td>3.823</td>
<td>.082</td>
<td>.774</td>
</tr>
<tr>
<td>Earnings per hour at closure</td>
<td>4733.145</td>
<td>1</td>
<td>4733.145</td>
<td>286.568</td>
<td>.000</td>
</tr>
</tbody>
</table>

Table 4.10 Test of Between-Subjects Effects

When examining Table 4.10 the tests of between-subjects effects, we have seen significant effect of the independent variable (white/non-white) simultaneously on the dependent variables (hours worked per week and earning per hour). The F test was used as a test statistic to determine if two or more group means differ significantly (Hopkins et al., 1996). The statistics were computed with the alpha level set at .05. To determine on which dependent variable (hours worked per week, or earning per hour, or both) this effect is significant, the output of the univariate ANOVA is given in the above table. From the table we can see that the effect of the independent variable (white/non-white) on the hours worked per week is insignificant (.774), while the effect of the independent variable (white/non-white) on the earnings per hour is significant (.000).
<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Parameter</th>
<th>B</th>
<th>Std. Error</th>
<th>Sig.</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower Bound</td>
</tr>
<tr>
<td>Hours worked per week at closure</td>
<td>Intercept</td>
<td>37.54</td>
<td>.066</td>
<td>.000</td>
<td>37.412</td>
</tr>
<tr>
<td></td>
<td>[racewhit=0]</td>
<td>-.027</td>
<td>.096</td>
<td>.774</td>
<td>-.215</td>
</tr>
<tr>
<td></td>
<td>[racewhit=1]</td>
<td>0(b)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earning per hour at closure</td>
<td>Intercept</td>
<td>9.792</td>
<td>.040</td>
<td>.000</td>
<td>9.714</td>
</tr>
<tr>
<td></td>
<td>[racewhit=0]</td>
<td>-.966</td>
<td>.057</td>
<td>.000</td>
<td>-1.078</td>
</tr>
<tr>
<td></td>
<td>[racewhit=1]</td>
<td>0(b)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.11 Parameter Estimates

Table 4.11 gives information on parameter estimation. The non-white (minority group) is coded 0. The white (non-minority group) is coded 1. The white group worked 37.543 hours per week. The non-white group worked .027 hours less per week than the white. This is not a statistically significant difference since the P-Value is .774. The white group earned $9.792 per hour. The non-white group earned .966 dollars less per hour than the white group. This is a statistically significant difference since the P-Value is .000. Confidence Intervals (CI) of 95% are provided with a lower bound of 37.412 to an upper bound of 37.673 for hours worked per week for the non-minority group. Confidence Intervals (CI) of 95% are provided with a lower bound of to an upper bound of 37.673 for hours worked per week for the non-minority group.
<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Race</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower Bound</td>
</tr>
<tr>
<td>Hours worked per week at closure</td>
<td>Not White</td>
<td>37.515</td>
<td>.069</td>
<td>37.380</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>37.543</td>
<td>.066</td>
<td>37.412</td>
</tr>
<tr>
<td>Earning per hour at closure</td>
<td>Not White</td>
<td>8.825</td>
<td>.041</td>
<td>8.745</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>9.792</td>
<td>.040</td>
<td>9.714</td>
</tr>
</tbody>
</table>

Table 4.12 Estimates

Table 4.12 gives descriptive statistics for hours worked per week for white and not white groups. The mean is reported as 37.515 for the minority group with 95% Confidence Intervals with a lower bound of 37.380 and an upper bound of 37.650. For the non-minority group the mean was reported as 37.543. 95% Confidence Intervals with a lower bound of 37.412 and an upper bound of 37.673 was seen for hours worked per week. The mean wage is reported as 8.825 for the minority group with 95% Confidence Intervals with a lower bound of 8.745 and an upper bound of 8.906 for earnings per hour at closure. For the non-minority group the mean was reported as 9.792 for earnings at closure. 95% Confidence Intervals with a lower bound of 9.714 and an upper bound of 9.869 was seen for hours worked per week. The findings for the hours worked per week were insignificant while the findings for the earnings at closure were significant.

Research Hypotheses 3, 4, and 5 are addressed by utilizing Multivariate analysis of variance (MANOVA). The independent or predictor variable was the racial/ethnic identity of the client. Specifically, based upon whether the client is white or not white (non-minority and minority). Additionally, the status of the closure; successful (26) or unsuccessful (28) was examined to see if any differences existed for minorities and non-
minorities. The dependent or response variables were the number of services, duration of the case, and case expenditures.

<table>
<thead>
<tr>
<th></th>
<th>Value Label</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closure status</td>
<td>26.00</td>
<td>21005</td>
</tr>
<tr>
<td></td>
<td>28.00</td>
<td>33932</td>
</tr>
<tr>
<td>Race</td>
<td>0</td>
<td>25613</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>29324</td>
</tr>
</tbody>
</table>

Table 4.13 Race of Respondent for successful and unsuccessful closures (N=54,937)

Table 4.13 presents descriptive statistics for white (non-minority) and non-white (minority) subjects in the study who were closed successfully (status 26) and unsuccessfully closed (status 28). Of the total population of 54,937 subjects, 21,005 were closed successfully (status 26) and 33,932 were closed unsuccessfully (status 28) in 2002. 25,613 subjects were not white (minority) and 29,324 subjects were white (non-minority).
<table>
<thead>
<tr>
<th></th>
<th>Race</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Successful Closure (26)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of services</td>
<td>Not White</td>
<td>8.38</td>
<td>4.365</td>
<td>10109</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>7.66</td>
<td>4.084</td>
<td>10896</td>
</tr>
<tr>
<td>Duration case was open</td>
<td>Not White</td>
<td>439.89</td>
<td>445.14</td>
<td>10109</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>518.99</td>
<td>585.891</td>
<td>10896</td>
</tr>
<tr>
<td>Cost of purchased services</td>
<td>Not White</td>
<td>2338.42</td>
<td>3278.326</td>
<td>10109</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>2381.00</td>
<td>4035.686</td>
<td>10896</td>
</tr>
<tr>
<td>Unsuccessful Closure (28)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of services</td>
<td>Not White</td>
<td>4.07</td>
<td>4.023</td>
<td>15504</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>3.85</td>
<td>3.825</td>
<td>18428</td>
</tr>
<tr>
<td>Duration case was open</td>
<td>Not White</td>
<td>385.78</td>
<td>440.521</td>
<td>15504</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>420.09</td>
<td>539.019</td>
<td>18428</td>
</tr>
<tr>
<td>Cost of purchased services</td>
<td>Not White</td>
<td>847.46</td>
<td>1887.768</td>
<td>15504</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>812.01</td>
<td>2267.776</td>
<td>18428</td>
</tr>
</tbody>
</table>

4.14 Mean and Standard Deviations of Total Number of Services, Duration that Case is Open, and Cost of Services Purchased

Table 4.14 provides mean and standard deviations for clients with a dual diagnosis disorder in relation to the total number of services received, duration that the case is opened, and cost of services purchased (case expenditures) at closure. With regard to successful closures (status 26), the not white (minority group) had a mean of 8.38, 439.89, and 2338.32 respectively for the total number of services, duration that case was open, and case expenditures. While the white (non minority group) had a mean of 7.66,
518.99, and 2381.00, respectively for the total number of services, duration that case was open, and case expenditures. With regard to unsuccessful closures (status 28), the not white (minority group) had a mean of 4.07, 385.78, and 847.46 for the total number of services, duration that case was open, and case expenditures. While the white (non minority group) had a mean of 3.85, 420.09, 812.01 respectively for the total number of services, duration that case was open, and case expenditures. Hence, statistical significance was not found between case expenditures. However, statistical significance was found in the total number of services provided and the duration of the time the case was open as the minority group. The standard deviation for the minority group of successful closures for cost expenditures was 4.365 which represented N=10,109. The standard deviation for the minority group of unsuccessful closures for cost expenditures was 4.023 which represented N=15,504. While the standard deviation for the non-minority group of successful closures for cost expenditures was 4.084 which represented N=10,896. The standard deviation for the non-minority group of unsuccessful closures for cost expenditures was 3.825 which represented N=18,428.

<table>
<thead>
<tr>
<th>Box's M</th>
<th>13467.702</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>748.127</td>
</tr>
<tr>
<td>df1</td>
<td>18</td>
</tr>
<tr>
<td>df2</td>
<td>7099279553.848</td>
</tr>
<tr>
<td>Sig.</td>
<td>.000</td>
</tr>
</tbody>
</table>

4.15 Box’s M Test of Equality of Covariance Matrices

Table 4.15 presents descriptive statistics that test the null hypothesis. MANOVA assumes that the covariance matrix is similar for each response variable. Box's M tests this assumption. Based on the above output M is significant (small value of .000), so the assumption is not satisfied. That is, the dependent variables (number of services, duration
of the case, and case expenditures) differ in their covariance matrices. However, the F
test in MANOVA is quite robust even when there are departures from this assumption.

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of services</td>
<td>67.727</td>
<td>3</td>
<td>54933</td>
<td>.000</td>
</tr>
<tr>
<td>Duration that case was open</td>
<td>134.736</td>
<td>3</td>
<td>54933</td>
<td>.000</td>
</tr>
<tr>
<td>Cost of purchased services</td>
<td>1108.61</td>
<td>2</td>
<td>54933</td>
<td>.000</td>
</tr>
</tbody>
</table>

Table 4.16 Levene Test of Equality of Error Variances

Table 4.16 MANOVA assumes that the dependent variables have similar
variances across the groups of the independent variable (white/non-white and 26/28).
Levene tests this assumption. Based on the above output this assumption is not satisfied.
However, the F test in MANOVA is quite robust even when there are departures from
this assumption, especially when the groups of the independent variable (white/non-white
and 26/28) are of equal sample size. Levene test was used to examine the intercept
between closure status and race. Statistical significance was found as the P-Value=.000
for the total number of services, duration of time the case was open and the cost of
purchased services.

<table>
<thead>
<tr>
<th>Effect</th>
<th>Value</th>
<th>F</th>
<th>Hypothesis df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillai's Trace</td>
<td>.002</td>
<td>31.958(b)</td>
<td>3.000</td>
<td>.000</td>
</tr>
<tr>
<td>Wilks’ lambda</td>
<td>.998</td>
<td>31.958(b)</td>
<td>3.000</td>
<td>.000</td>
</tr>
<tr>
<td>Hotelling's Trace</td>
<td>.002</td>
<td>31.958(b)</td>
<td>3.000</td>
<td>.000</td>
</tr>
<tr>
<td>Roy's Largest Root</td>
<td>.002</td>
<td>31.958(b)</td>
<td>3.000</td>
<td>.000</td>
</tr>
</tbody>
</table>

Table 4.17 Multivariate Tests

Table 4.17 Multivariate tests were used to determine if the independent variable
(white/non-white and 26/28) have significant effect simultaneously on the dependent

95
variables (number of services, duration of the case, and case expenditures). The observed power was computed with the alpha level set at .05. For each intercept, each main effect and the interaction between the two independent variables, there are four multivariate significance tests, namely Pillai’s Trace (.000), Wilks’ lambda (.000), Hotelling’s Trace (.000), and Roy’s Largest Root (.000) The results of all the tests, are the same. That is, they all show that the effects of independent variables (white/non-white and 26/28) are significant. Furthermore, the interaction between the two independent variables (closurestatus * racewhit) is also significant, so the effect of white/non-white is significantly different between status 26 and status 28, and the effect of status 26 and status 28 is significantly different between the white and the non-white.

<table>
<thead>
<tr>
<th>Successful &amp; Unsuccessful Closures (26 &amp; 28)</th>
<th>Race</th>
<th>B</th>
<th>Std. Error</th>
<th>Sig.</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower Bound</td>
</tr>
<tr>
<td>Total number of services</td>
<td>Not White 26/28 Not White 26</td>
<td>.229 .488</td>
<td>.044 .071</td>
<td>.000 .000</td>
<td>.143 .349</td>
</tr>
<tr>
<td>Duration case was open</td>
<td>Not White 26/28 Not White 26</td>
<td>-34.11 -44.789</td>
<td>5.522 8.914</td>
<td>.000 .000</td>
<td>-45.135 -62.261</td>
</tr>
<tr>
<td>Cost of purchased services</td>
<td>Not White 26/28 Not White 26</td>
<td>35.41 -78.021</td>
<td>30.706 49.565</td>
<td>.248 .115</td>
<td>-24.742 -175.169</td>
</tr>
</tbody>
</table>

Table 4.18 Parameter Estimates

Table 4.18 gives information on parameter estimation. If we consider both the successfully closed and unsuccessfully closed cases, the non-white received 0.229 more services than the white, which is statistically significant. Remember that the interaction is significant, so the effect of white/non-white is different if we consider status 26 and
status 28 separately. If we only look at status 26, then the non-white received $0.229+0.488/2 = 0.473$ more services than the white. If we only look at status 28, then the non-white received $0.229-0.488/2 = -0.015$ more services than the white, or 0.015 less services than the white. If we consider the both successfully closed and unsuccessfully closed cases, the non-white spend 34.311 less days than the white, which is statistically significant. Remember that the interaction is significant, so the effect of white/non-white is different if we consider status 26 and status 28 separately. If we only look at status 26, $(34.311+(-44.789)/2 = 22.394) (34.311+(-22.394)=56.70)$, then the non-white spend 56.70 less days than the white. If we only look at status 28, then the non-white spend 11.92 more days than the white. For the case expenditures, the non-white spends 35.44 dollars more than the white, which is statistically insignificant.
<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Closure Status</th>
<th>Race</th>
<th>Mean</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lower Bound</td>
<td>Upper Bound</td>
</tr>
<tr>
<td>Total number of services</td>
<td>26</td>
<td>Not White</td>
<td>8.381</td>
<td>8.302</td>
</tr>
<tr>
<td></td>
<td></td>
<td>White</td>
<td>7.664</td>
<td>7.588</td>
</tr>
<tr>
<td></td>
<td>28</td>
<td>Not White</td>
<td>4.074</td>
<td>4.010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>White</td>
<td>3.845</td>
<td>3.787</td>
</tr>
<tr>
<td>Duration that case is open</td>
<td>26</td>
<td>Not White</td>
<td>439.893</td>
<td>430.015</td>
</tr>
<tr>
<td></td>
<td></td>
<td>White</td>
<td>518.994</td>
<td>509.479</td>
</tr>
<tr>
<td></td>
<td>28</td>
<td>Not White</td>
<td>385.777</td>
<td>377.800</td>
</tr>
<tr>
<td></td>
<td></td>
<td>White</td>
<td>420.088</td>
<td>412.772</td>
</tr>
<tr>
<td>Cost of purchased services</td>
<td>26</td>
<td>Not White</td>
<td>2338.418</td>
<td>2283.493</td>
</tr>
<tr>
<td></td>
<td></td>
<td>White</td>
<td>2380.998</td>
<td>2328.093</td>
</tr>
<tr>
<td></td>
<td>28</td>
<td>Not White</td>
<td>847.455</td>
<td>803.104</td>
</tr>
<tr>
<td></td>
<td></td>
<td>White</td>
<td>812.014</td>
<td>771.333</td>
</tr>
</tbody>
</table>

Table 4.19 Estimates by closure status

Table 4.19 gives means for the independent variable, minority and non-minority clients who were closed successfully (26) and unsuccessfully (28) and the dependent variable, number of services, duration that the case was open and the cost of services. The mean for the total number of services received by minorities was 8.381 and 4.074 and the mean for non-minorities was 7.664 and 3.845 respectively for successful and unsuccessful closures. The mean for the duration that the case was open for minorities
was 439.8 and 385.7 and the mean for non-minorities was 518.9 and 420 respectively for successful and unsuccessful closures. The mean for the cost of services provided to minorities was 2338 and 847 and the mean for non-minorities was 2380 and 812 respectively for successful and unsuccessful closures. The data concluded that minorities had a higher mean for the number of services received. Minorities tended to have the case open for shorter periods of time than non-minorities. The cost of services provided to minorities who were unsuccessful closures tended to be a somewhat higher rate than to non-minorities. However, the mean was only slightly higher.

Chi-Square Analysis

Chi-square analysis was used to examine the number and type of services provided to minority and non-minority clients. The independent, categorical variable that was examined was the racial/ethnic status of the client. The dependent, categorical variables that were examined were the type and number of services that clients received.

Chi-square analysis was deemed to be appropriate for this study as it is utilized for independent variables that are nominal and have at least two categories. One must use caution so as to not violate assumptions and choose a different procedure when the independent variable is interval or ratio (Hopkins, Hopkins, & Glass, 1996). In this particular study the assumptions would not be violated as the independent variable is non-metric. Chi-square is used to find the significance of differences among the proportions of subjects that fall into different categories (Ary et al. 1996). Chi-square can also be used to test a null hypothesis, by indicating that there is no significant difference between the proportions of the subjects falling into any number of different categories (Ary et al., 1996 p. 216).
<table>
<thead>
<tr>
<th>Service</th>
<th>White</th>
<th>Not White</th>
<th>Chi-square likelihood value</th>
<th>Df</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment</td>
<td>15,967</td>
<td>13,874</td>
<td>.440</td>
<td>1</td>
<td>.507</td>
</tr>
<tr>
<td>Diagnostic</td>
<td>9,886</td>
<td>8,110</td>
<td>26.090</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>Counseling</td>
<td>13,710</td>
<td>11,542</td>
<td>15.733</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>College/University</td>
<td>2,068</td>
<td>883</td>
<td>361.457</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occ/Vocational</td>
<td>2,504</td>
<td>2,366</td>
<td>8.243</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job Placement</td>
<td>4,202</td>
<td>5,161</td>
<td>326.907</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>Transportation</td>
<td>5,972</td>
<td>8,318</td>
<td>1041.977</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>Maintenance</td>
<td>3,524</td>
<td>4,202</td>
<td>217.321</td>
<td>1</td>
<td>.000</td>
</tr>
</tbody>
</table>

Table 4.20 Services provided

Table 4.20 presents descriptive statistics for the chi-square analysis that was used to address Hypothesis 6. Chi-square has two principal applications: 1) the chi-square goodness-of-fit test, and 2) the chi-square test of association. In both chi-square tests two sets of frequencies are compared: observed frequencies and expected frequencies. Obtained frequencies are the actual frequencies obtained by observation. Expected frequencies are theoretical frequencies, which are used for comparisons (Ary et al., 1996). For the goodness-of-fit test, the expected frequencies are hypothesized on the
basis of some a priori theory. Additionally, chi-square goodness-of-fit can assess whether the observed distribution of choices differs significantly from the hypothesized distribution or whether sampling error remains a tenable explanation for any obtained differences (Hopkins et al., 1996 p. 234).

Chi-square tests were used to test whether there was a significant relationship between racial/ethnic status (white/non-white) and each type of service provided. If the p-value (Sig.) is less than 0.05, then there is evidence in the data to conclude that the relationship between racial/ethnic status (white/non-white) and each type of the services provided is statistically significant. Hence, for this particular study statistical significance was found with all of the eight services examined with the exception of assessment. Therefore by utilizing chi-square analysis to test the research hypothesis determined that there is a relationship between the ethnic/racial status and the type of service provided to consumers with dual diagnosis who were successfully and unsuccessfully closed.

Chi-square analysis was used to look at the observations of 8 of the major services that were received by minority and non-minority clients. The likelihood-ratio chi-square test statistic was used to test the statistical null hypothesis. Of the 54,937 clients in sample population, 15,967 whites received assessment services. Likewise, 13,874 non-whites received assessment services. The likelihood-ratio chi-square statistic for assessment services was .440 and had 1 degree of freedom. Each value shows significance at the .05 level. Services provided to clients was shown to be statistically insignificant when p>0.05 and statistically significant when p<0.05. The P-Value for assessment services was .507. Therefore there is no statistical difference between
assessment services received for minority and non-minority clients. For the remaining services, the P-Value was .000. Hence, statistical significance was found.

The likelihood-ratio chi-square is the most fundamental measure of overall fit and is the only statistically based measure of goodness-of-fit available in SEM. A large value of chi-square relative to the degrees of freedom signifies that the observed and estimated matrices differ considerably. Statistical significance levels indicate the probability that these differences are due solely to sampling variations. Low chi-square values (significance values greater than .05 or .01) indicated that the actual and predicted input matrices are not statistically different (Hair et al., 1998, p. 654).

Chi-square analysis is sensitive to large sample sizes, such as found in the RSA-911 dataset. Therefore, Cramer’s phi was run as a follow up to test the importance of significance. Specifically, the purpose of the follow up tests was to assist in determining the strength of the relationship between the mean differences of the groups. Statistical power is often used in statistical tests of significance. Power is used to determine the probability of correctly rejecting the null hypothesis when it is false, that is correctly finding a hypothesized relationship when it exists (Hair et al., 1998, p. 3). Statistical significance determines whether the results can be attributed to chance, while practical significance assesses whether the results are useful or substantial enough to warrant action (Hair et al., 1998, p. 3).

Minorities received less college/university and occupational/vocational services than non-minorities. 2,068 non-minority clients received college training while only 883 minority clients received college training. 2,504 non-minority clients received occ/vocational training while only 2,366 minority clients received occ/vocational
training. This could account for why non-minorities earned a higher wage at closure as higher education levels tend to garner higher wages. The lack of multicultural competencies on the part of the counselor may be the reason that fewer minorities are provided services that lead to higher education. 5,161 minority clients received job placement services compared to 4,202 non-minority clients who received the same service. These findings would indicate that more minorities are placed directly into employment as opposed to college and vocational training to increase earnings potential. Lastly, 4,202 and 8,318 minority clients respectively received maintenance and transportation services as compared to 3,524 and 5,972 non-minority clients respectively. The fact that minorities received more transportation and maintenance services could be a result of them having less income than non-minorities. Maintenance and transportation services are typically provided by the counselor when the client has a financial need and is unable to pay for these services. The findings in this study are consistent with the overall findings in the rehabilitation field as it relates to minority and non-minority clients, in that minorities tend to have poorer outcomes.
<table>
<thead>
<tr>
<th>Service</th>
<th>White</th>
<th>Not White</th>
<th>phi</th>
<th>Likelihood ratio value</th>
<th>Df</th>
<th>P-Value</th>
<th>% White</th>
<th>% Not White</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment</td>
<td>15,967</td>
<td>13,874</td>
<td>.003</td>
<td>.440</td>
<td>1</td>
<td>.507</td>
<td>54.5</td>
<td>54.2</td>
</tr>
<tr>
<td>Diagnostic</td>
<td>9,886</td>
<td>8,110</td>
<td>.022</td>
<td>26.090</td>
<td>1</td>
<td>.000</td>
<td>33.7</td>
<td>31.7</td>
</tr>
<tr>
<td>Counseling</td>
<td>13,710</td>
<td>11,542</td>
<td>.017</td>
<td>15.733</td>
<td>1</td>
<td>.000</td>
<td>46.8</td>
<td>45.1</td>
</tr>
<tr>
<td>College/Univ Training</td>
<td>2,068</td>
<td>883</td>
<td>.080</td>
<td>361.457</td>
<td>1</td>
<td>.000</td>
<td>7.1</td>
<td>3.4</td>
</tr>
<tr>
<td>Occ/Vocational Training</td>
<td>2,504</td>
<td>2,366</td>
<td>-.012</td>
<td>8.243</td>
<td>1</td>
<td>.004</td>
<td>8.5</td>
<td>9.2</td>
</tr>
<tr>
<td>Job Placement</td>
<td>4202</td>
<td>5161</td>
<td>-.077</td>
<td>326.907</td>
<td>1</td>
<td>.000</td>
<td>14.3</td>
<td>20.1</td>
</tr>
<tr>
<td>Transportation</td>
<td>5972</td>
<td>8318</td>
<td>-.138</td>
<td>1041.977</td>
<td>1</td>
<td>.000</td>
<td>20.4</td>
<td>32.5</td>
</tr>
<tr>
<td>Maintenance</td>
<td>3524</td>
<td>4202</td>
<td>-.063</td>
<td>217.321</td>
<td>1</td>
<td>.000</td>
<td>12.0</td>
<td>16.4</td>
</tr>
</tbody>
</table>

Table 4.21 Cramer’s phi for Services Received

Cramer’s phi was performed as follow up test in chi-square to test the importance of differences found in the chi square analysis since chi-square tends to be sensitive to large sample size. Phi values should be between 0 and 1. If the value is closer to 0, then there is a weak relationship between race and whether the client received services. If the value is closer to 1, then the association is very strong. Of the 8 services provided, Occ/Vocational Training, Job Placement, Transportation, and Maintenance had values closer to 0 which are suggestive of a weak relationship. However, College/Univ Training had a value of .80 which is closer to 1. Therefore, a stronger relationship is shown. The likelihood–ratio chi-square is the most fundamental measure of overall fit and is the only
statistically based measure of goodness-of-fit available in SEM. A large value of chi-square relative to the degrees of freedom signifies that the observed and estimated matrices differ considerably. Statistical significance levels indicate the probability that these differences are due solely to sampling variations. Low chi-square values (significance values greater than .05 or .01) indicated that the actual and predicted input matrices are not statistically different (Hair et al., 1998, p. 654). Small p values indicate that the tests were rejected. The values do not represent significance as the likelihood is not a test of significance, but rather a test to assess the strength of the relationship. Specifically, is the difference found in the analysis practical? Statistical significance determines whether the results can be attributed to chance, while practical significance assesses whether the results are useful or substantial enough to warrant action (Hair et al., 1998, p. 3).
CHAPTER 5

DISCUSSION

This chapter will discuss the results of this research that will include a review of
the significant findings. Limitations of the study will be discussed as well as implications
for future research.

This study examined the differences in program outcomes of persons with dual
diagnosis in relation to their racial/ethnic status. In order to complete this mission, the
following research questions were considered in this study:

Research Question 1. Is there a significant difference in the hours worked per
week for minority vs. non-minority consumers with a dual diagnosis who were
closed successfully (status 26)?

Research Question 2. Is there a significant difference in the earnings per hour for
minority vs. non-minority consumers with a dual diagnosis who were closed
successfully (status 26)?

Research Question 3. Is there a significant difference in the number of services
provided to minority vs. non-minority consumers with a dual diagnosis who were
closed successfully (status 26)?
Research Question 4. Is there a significant difference in the number of services provided to minority vs. non-minority consumers with a dual diagnosis who were closed unsuccessfully (status 28)?

Research Question 5. Is there a significant difference in the time the case was open to provide services to minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)?

Research Question 6. Is there a significant difference in the time the case was open to provide services to minority vs. non-minority consumers with a dual diagnosis who were closed unsuccessfully (status 28)?

Research Question 7. Is there a significant difference in the case expenditures for services provided to minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)?

Research Question 8. Is there a significant difference in the case expenditures for services provided to minority vs. non-minority consumers with a dual diagnosis who were closed unsuccessfully (status 28)?

Research Question 9. Is there a significant difference in the types of services provided to minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)?

Research Question 10. Is there a significant difference in the types of services provided to minority vs. non-minority consumers with a dual diagnosis who were closed unsuccessfully (status 28)?
Purpose of the Study

The purpose of this study was to contribute to the understanding of the impact of multicultural issues on vocational rehabilitation program outcomes for consumers with a dual diagnosis (mental illness and substance abuse). The study examined whether there were differences in program outcomes for minority consumers with a dual diagnosis as compared to their non-minority counterparts. Ever since the 1960’s counseling and psychotherapy have been challenged as lacking in the appropriateness of the services offered to minority clients (Sue, 1981; Sue et al., 1982; Vontress & Epp, 1997; Paugh, 2003; NIMH, 2001). Capuzzi & Gross (2003) posited that traditional counseling and psychotherapy is based on the dominate culture and often fails to meet the needs of culturally diverse populations.

The subjects used in this study were obtained from the Rehabilitation Services Administration (RSA) 911 database. The subjects received services from the state-federal rehabilitation agency throughout the United States during federal fiscal year 2002. The original database consisted of 630,205. The population of individuals diagnosed with mental illness and substance abuse (dual diagnosis) consisted of 54,937 consumers. Consumers who were coded as having a diagnosis of mental illness and substance abuse were compared to determine if there were differences in the number of hours worked, earnings per hour, number of services provided, type of services provided, average time the case was open, and average case expenditures at the time of closure.

Multivariate analysis of variance (MANOVA) and Chi-square analysis was used to compare groups and to determine if interactions were statistically significant and to compare the mean differences between racial/ethnic status (minority vs. non-minority) of
consumers with a dual diagnosis as it relates to the following program outcomes: hours worked per week, earnings per hour, number of services provided, average time the case was open and average case expenditures at time of closure. In most instances, statistical significance was found.

Significant Findings

There were two significant findings in the study. Of particular interest are the significant differences found in the earnings at closure of minority and non-minority clients. Minority clients who are dual diagnosed with mental illness and substance abuse earned approximately $1.00 less per hour than their non-minority counterparts. The disparities in earnings at closure have been the subject of other studies.

Paugh (2003) examined 13 vocational rehabilitation services provided to consumers with a dual diagnosis by utilizing the RSA -911 dataset. The database consisted of national case service reports that were provided to state and local rehabilitation agencies in 1998. The intent of the study was to determine which of the services provided produced successful outcomes that led to increased earnings at closure. Additionally, the study sought to examine whether there was a relationship between the specific classification of dual diagnosis and the services received. The study also examined whether or not race of the consumer affected the type of services received. A change in income was the predictor that was used to determine if there was a relationship between race and services received. The results of the study dispelled the myth that those with a dual diagnosis can’t be successful in vocational rehabilitation programs (Paugh, 2003). Thus, continued effort should be directed toward providing specific services that lead to increased earnings for minorities.
The other point of interest is in regards to case expenditures. Previous studies reported that minorities received consistently less appropriated case service dollars than did their non-minority counterparts. However, this study showed that minorities received more money in case expenditures when we examined unsuccessful closures. The amount however, was trivial, in that the data concluded that minorities received $35.00 more than non-minority clients. When we examined successful closures, minorities received $43.00 less than their non-minority counterparts.

Wheaton, Wilson, & Brown (1996) conducted a study using the RSA-911 dataset to investigate the number and type of vocational rehabilitation services that consumers received by examining sex, race, and closure status. The sampling frame consisted of 42,742 consumers who received VR services during federal fiscal year 1994. A final sub-sample consisted of 6,156 consumers in large Midwestern state. A three-way analysis of variance was used to compare the groups and to determine if interactions were statistically significant. Multivariate analysis of variance (MANOVA) and analysis of variance (ANOVA) were used for the data analysis (Wheaton et al., 1996). The results of the binomial tests revealed no differences were found between sex, race, and closure status. The ANOVA results showed that African Americans and persons closed successfully received more VR services. At an alpha level of .01, the study showed that the number of services a person received was related to their race and closure status, specifically, African Americans received more services than European American consumers. Additionally, persons who were closed successfully (status 26) received more services than those who were closed unsuccessfully (status 28).
Wheaton et al. (1996) concluded that “because of large sample sizes typically found in state agency RSA-911 data banks, high statistical power may be achieved even with small effect sizes. The issue of small effect size should be of particular interest to persons conducting training and program effectiveness research. Given the low effect sizes for race and sex, training evaluators will need large sample sizes, highly sensitive measure, or both to detect change” (p. 130-131).

Summary of Research Questions

*Research Question 1.* Is there a significant difference in the hours worked per week for minority vs. non minority consumers with a dual diagnosis who were closed successfully (status 26)? MANOVA was utilized for data analysis. Box’s M Test of Equality of Covariance Matrices and Levene Test of Equality of Error Variances were utilized to test the assumptions of MANOVA. MANOVA assumes that the covariance matrix is similar for each response variable. Box’s M tests this assumption. The p-value is less than 0.05 (small value of .000), so the assumption is not satisfied. That is, the dependent variables (hours worked per week and earning per hour) differ in their covariance matrices. Box’s M and the Levene test were used to test the assumptions of MANOVA. Box’s M is a statistical test used for assessing the equality of group covariances of the independent variables across the groups of the dependent variable. If the statistical level is greater than the critical level (e.g., .01), then the equality of the covariance matrices is supported. If the test shows statistical significance, then the groups are deemed different and the assumption is violated (Hair et al., 1998, p. 240). Levene test is used to assess whether the variances of a single metric variable is equal across groups. However, the F test in MANOVA is quite robust even when there are departures
from this assumption. Similar to t-tests the, F statistic was used to estimate variance between groups. Large values of the F statistic lead to rejection of the null hypothesis of no difference in means across groups (Hair et al., 1998, p. 333). If the analysis has several different treatments (independent variables) such as race/ethnic status and whether the case was closed successfully or unsuccessfully), then F statistics are calculated for each treatment. This allows for separate assessments for each independent variable.

Of the 20,307 subjects who were closed successfully (status 26) in 2002, 10,530 were non-minority and 9,777 were minority. Which represents whites being closed successfully at a higher than non-whites. Both minority and non-minority subjects worked an average of 37.53 hours per week. Hence, no statistical significance was found between the hours of work per week.

**Research Question 2.** Is there a significant difference in the earnings per hour for minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)? Statistical significance was found in earnings per hour as the minority group earned $8.82 per hour while the non-minority group earned approximately $.00 more per hour at $9.79 per hour. The standard deviation for the minority group was 6.6, while the standard deviation for the non-minority group was 7.0. MANOVA was computed using an exact F statistic. The alpha level was set at .05 and when calculating the power to reduce Type I error. For each main effect and each intercept, there are four multivariate significance tests. The results of all the tests, namely Pillai’s Trace (.000), Wilks’ lambda (.000), Hotelling’s Trace (.000), and Roy’s Largest Root (.000) are the same. That is, they all show that the effect of independent variable white/non-white (non-
minority and minority) is significant.

Research Question 3. Is there a significant difference in the number of services provided to minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)? Of the total population of 54,937 subjects, 21,005 were closed successfully (status 26) in 2002. 25,613 subjects were not white (minority) and 29,324 subjects were white (non-minority). With regard to successful closures (status 26), the not white (minority group) had a mean of 8.38, while the white (non minority group) had a mean of 7.66. Both groups, minority and non-minority received all services. Non-minorities received more occupational/vocational training, college, counseling, assessment, and diagnosis and treatment than did minorities. Minorities received more maintenance, transportation, and placement services than did non-minorities. It should be noted that the difference in earnings at closure could be attributed to the fact that more college training is given to non-minorities.

Research Question 4. Is there a significant difference in the number of services provided to minority vs. non-minority consumers with a dual diagnosis who were closed unsuccessfully (status 28)? Of the total population of 54,937 subjects, 33,932 were closed unsuccessfully (status 28) in 2002. 25,613 subjects were not white (minority) and 29,324 subjects were white (non-minority). With regard to unsuccessful closures (status 28), the not white (minority group) had a mean of 4.07 and whites had a mean of 3.85 for the total number of services provided. Statistical significance was found in the total number of services provided. Unsuccessful closures tended to receive more services than successful closures. Perhaps this phenomenon occurred in an attempt to reach successful closure.


Research Question 5. Is there a significant difference in the time the case was open to provide services to minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)? The white (non minority group) had a mean of 518.99 for the duration that the case was open. The minority group had a mean of 439.89 for the duration that the case was open. Minorities tended to have their case open for shorter time periods than non-minorities. Statistical significance was found in the duration of the time the case was open.

Research Question 6. Is there a significant difference in the time the case was open to provide services to minority vs. non-minority consumers with a dual diagnosis who were closed unsuccessfully (status 28)? With regard to unsuccessful closures (status 28), the not white (minority group) had a mean of 385.78. While the white group (non-minority) had a mean of 420.9 for the duration that the case was open. Minorities tended to have their case open for shorter time periods than non-minorities. Statistical significance was found in the duration of the time the case was open.

Research Question 7. Is there a significant difference in the case expenditures for services provided to minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)? While the standard deviation for the non-minority group of successful closures for cost expenditures was 4.084 which represented N=10,896. The standard deviation for the minority group of successful closures for cost expenditures was 4.365 which represented N=10,109. With regard to successful closures (status 26), the not white (minority group) had a mean of 2381.00 for case expenditures. For case expenditures, only the effect of status 26/28 is significant (P-Value=.000). The effect of white/non-white on the case expenditures is insignificant.
Research Question 8. Is there a significant difference in the case expenditures for services provided to minority vs. non-minority consumers with a dual diagnosis who were closed unsuccessfully (status 28)? The standard deviation for the non-minority group of unsuccessful closures for cost expenditures was 3.825 which represented N=18,428. The standard deviation for the minority group of unsuccessful closures for cost expenditures was 4.023 which represented N=15,504. With regard to unsuccessful closures (status 28), the not white (minority group) had a mean of 847.46.

It is important to note that with regards to the cost of services, minorities were found to receive more dollars spent on case services than their non-white counterparts when we examined unsuccessful closures. However, since the amount of difference was only $35.00, it was deemed to be insignificant by this researcher in terms of the overall picture. When we examined successful closures, minorities received $43.00 less than their non-minority counterparts. Moreover, results of the study indicated that minorities generally tended to receive fewer dollars by and large than their non-minority counterparts.

Research Question 9. Is there a significant difference in the types of services provided to minority vs. non-minority consumers with a dual diagnosis who were closed successfully (status 26)? Wilson et al. (2002) concluded that race and VR services were found to be statistically significant. “The most frequent service received for both groups were diagnostic, job placement, and counseling. However, differences in patterns of services by race were noted” (p. 29). The study suggested that there are patterns of discrepancies in VR services received by African American and White Americans who are closed successfully (Wilson et al. 2002). Implications for the future include a closer
examination of cultural bias by White rehabilitation counselors in that they tend to provide fewer services (i.e. college training) to African Americans than to their White American counterparts (Wilson et al., 2002).

Consumers with a dual diagnosis who received college and training services showed an increase in earnings. Additionally (Paugh, 2003) noted that job development/placement and transportation services were effective in increasing earnings for the person with a dual diagnosis and should be encouraged.

Research Question 10. Is there a significant difference in the types of service provided to minority vs. non-minority consumers with a dual diagnosis who were closed unsuccessfully (status 28)? Chi-square analysis was performed to examine any differences that might exist between minority and non-minority client in regards to the type of services provided. Chi-square analysis is sensitive to large sample sizes, such as found in the RSA-911 dataset. Therefore, Cramer’s phi was run as a follow up to test the importance of significance. Specifically, the purpose of the follow up tests was to assist in assessing the strength of the relationship between the differences in the means of both groups. The likelihood-ratio chi-square is the most fundamental measure of overall fit and is the only statistically based measure of goodness-of-fit available in SEM. A large value of chi-square relative to the degrees of freedom signifies that the observed and estimated matrices differ considerably. Statistical significance levels indicate the probability that these differences are due solely to sampling variations. Low chi-square values (significance values greater than .05 or .01) indicated that the actual and predicted input matrices are not statistically different (Hair et al., 1998, p. 654).
The data from this study concluded that there were statistically significant differences found in the type of services provided to minority vs. non-minority clients with the exception of assessment services. Minorities received less college/university and occupational/vocational services than non-minorities. 2,068 non-minority clients received college training while only 883 minority clients received college training. 2,504 non-minority clients received occ/vocational training while only 2,366 minority clients received occ/vocational training. This could account for why non-minorities earned a higher wage at closure as higher education levels tend to garner higher wages. The lack of multicultural competencies on the part of the counselor may be the reason that fewer minorities are provided services that lead to higher education. 5,161 minority clients received job placement services compared to 4,202 non-minority clients who received the same service. These findings would indicate that more minorities are placed directly into employment as opposed to college and vocational training to increase earnings potential. Lastly, 4,202 and 8,318 minority clients respectively received maintenance and transportation services as compared to 3,524 and 5,972 non-minority clients respectively. The fact that minorities received more transportation and maintenance services could be a result of them having less income than non-minorities. Maintenance and transportation services are typically provided by the counselor when the client has a financial need and is unable to pay for these services.

Wilson, Turner, & Jackson (2002) conducted an investigation utilizing the RSA-911 database for federal fiscal year 1996. The sampling frame (with no missing data) consisted of 42,574 consumers in a large Midwestern state who received vocational rehabilitation services. The final sub-sample consisted of 10,188. The purpose of the
study was to investigate whether African Americans who were successfully closed (status 26) differed in the type of vocational rehabilitation services received by their White American counterparts. The chi-square and phi coefficient was employed to ascertain the association and significance between the independent and dependent variables.

Data from this study tended to agree with the Wilson (2002) study. Minorities received more maintenance, transportation, and placement services than non-minorities. Non-minorities tended to receive more college, occupational/vocational training, counseling, diagnosis and treatment, and assessment services than minorities. Many of the studies reviewed in chapter 2 where researchers have utilized the RSA-911 database have consistently documented findings that suggest that counselor competencies play an important role in decreasing disparities between minority and non-minority consumers. The aforementioned studies point out the need for cultural competencies in counselors who are working with an ever increasing diverse population.

Limitations of the Study

The limitations in this study are due to the use of an ex-post facto research design as opposed to a true experimental design. True random sampling does not occur in this study since the study is limited to minority consumers with a dual diagnosis who have elected to participate in the state-federal vocational rehabilitation system and is not representative of all minority consumers with a dual diagnosis. The essential elements of true experimental research are typically not feasible for this study and social science research in general as the assignment of subjects to different treatments and manipulation of the independent variable cannot occur (Campbell & Stanley, 1963; Ary, Jacobs, & Razavieh, 1996). Although, RSA has a system in place to verify the accuracy of
information, there may undoubtedly be some coding errors that occur during the archival process. Therefore, coding errors can be identified as a limitation to this study. This study utilized data from federal fiscal year 2002 and therefore the findings from this study cannot be generalized to other federal fiscal years. While comparisons can be made, one must take care not to extrapolate data since some of the studies in previous years have utilized state data as opposed to national data as was used in this study. Lastly, this study utilized the RSA database which typically yields a very large sample. Chi-square analysis, which was used to answer research questions 9 and 10, is often sensitive to large sample size and therefore high statistical power may be achieved even with small effect sizes. Thus, Cramer’s phi was run as a follow up to test the importance of significance. The purpose of the follow up tests was to assist in determining both practical and theoretical significance. A disadvantage of using the chi-square analysis is that while it is appropriate for analyzing categorical data, it provides the researcher with very little information. The researcher is unable to control for other relevant variables that may contribute to acceptance for and outcomes of VR services. However, in this particular study, two control variables were added; namely, educational level and age as both could conceivably affect the quality of the closure. The quality of the closure would address the issue of earnings per hour and hours work per week (Capella, 2002).

Another disadvantage is that the value of chi-square is greatly influenced by the size of the sample. Subsequently, using large samples (such as the RSA-911 dataset) greatly increases the probability that statistical significance will be found, and it is not dependent upon whether or not practically significance differences exist (Capella, 2002). This study utilized the entire population of dually diagnosed individuals who received
services from the state-federal VR agency in 2002. Therefore, it was not necessary to reduce the sample size. However, an analysis was performed to assess the strength of the relationship between the groups. MANOVA is a very robust tool and this researcher was able to use point estimates and confidence intervals to aid in determining practical relevance which is often much more important than statistical significance.

Since the entire population was used, data derived from the study is representative of the entire group, whereas sampling would only allow the researcher to make inferences to the population.

Implications for Practice

During the course of practice of this researcher several issues have come to the forefront that I believe are worthy of mention at this juncture. First, attention should be given to increasing multicultural competencies for counselors and other practitioners who are working with an ever increasing diverse population. Since employment is the marker for successful closure in vocational rehabilitation, it is imperative that practitioners improve service delivery to underrepresented populations in effort to improve the overall goal attainment level. Secondly, this researcher has discovered during the course of practice that many practitioners welcome training opportunities that provide them with alternative methods for working with diverse populations to achieve successful closure. Lastly, it should be noted that this researcher who has many years of experience working with diverse populations and achieving successful outcomes avails themselves to providing such training to assist counselors and other practitioners in providing multicultural service delivery to diverse population.
Implications for Future Research

Some of the lessons learned from the research findings when conducting studies that involved looking at race and ethnicity showed that they these studies often invoke conflict and emotional reactions. Many of the findings have implications for policy and practices that involve challenging societal values and beliefs. Racial and ethnic research is different from cross cultural research because it examines forces within that take in account the history of the race which includes ethnic relations, prejudice, stereotypes, discrimination and often evokes emotional responses and can be a volatile area of research. These reasons alone could speak to why there is paucity of research on treatment outcomes for ethnic populations who are dually diagnosed with substance abuse and mental illness (Tatum, 1997; Vontress & Epp, 1997; Sue & Sue, 2003; Robinson, 1999; Cose, 2002; Neath & Reed, 1998; Paugh, 2003; Locke & Kiselica, 1999; NIMH, 2001). Thus, this researcher hopes that this study will illuminate some of the issues in counseling surrounding multiculturalism and its relation to discrimination and oppression.

The 1992 Rehabilitation Act specifically acknowledged that disparities exist between minority and non-minority consumers within the state-federal rehabilitation system. As such the Rehabilitation Cultural Diversity Initiative was established to address the issues of inequities in the state-federal VR system and to enhance the provision of culturally competent services to minorities (Bellini, 2002; Granello & Wheaton, 1998; NIMH, 2001) reported that efforts should be undertaken to increase the number of minority researchers and practitioners in the field to address some of the disparities that occur between African American and White consumers of services. This researchers also
found that that there is a paucity of empirical data on minorities with dual diagnosis while minorities contribute significantly to the disproportionately large number of mental health cases found in the population. It is the hope of this researcher that information contained herein will bring attention to the plight of individuals with dual diagnosis, particularly minorities.

Certainly, another desired result of this study is that future researchers add to the literature on the subject of dual diagnosis and multicultural competencies. While this study could not conclusively conclude that increasing multicultural competencies would in effect improve vocational rehabilitation outcomes for minorities, various studies which were reviewed in chapter 2, have been conducted that support the notion that improving counselor multicultural competencies will improve vocational rehabilitation outcomes for minorities.

Future studies should also be directed toward using a logistic regression model to combine multiple covariates that are dummy coded for race to explore whether or not they lead to successful closure. Additionally, this researcher noted that there were a disproportionate number of males in this study (70%) who are dually diagnosed with substance abuse and mental illness. Therefore, future studies should be directed toward examining whether or not gender is a predictor of successful closure and to ascertain what specific services could be offered to males to increase their chances for successful closure. Lastly, future qualitative studies could be directed toward assessing multicultural competencies in counselors who work with the dual diagnosis population. The end result of this study would be to encourage the development of programs to provide quality, integrated treatment options for consumers who are dually diagnosed.
Conclusion

Two issues form the basis of this study. First, attention needs to be given to addressing the treatment needs of persons who are dually diagnosed with mental illness and substance abuse in an integrated setting. When services cannot be provided in an integrated setting, interagency communication is crucial. Persons with a dual diagnosis continue to receive services for discrete disorders of mental illness or substance abuse instead of getting treatment for both disorders simultaneously (Sciacca, 1996). Several problems exist that contribute to this lack of services including lack of proper funding, lack of training and expertise on the part of clinicians, negative connotations ascribed to individuals with dual diagnosis, and the inability of systems to develop integrated services targeted at providing comprehensive services in one setting. This problem will continue to cost society billions of dollars until adequate attention is given to the plight of individuals with a dual diagnosis (SAMHSA, 2002; NAMH, 2003).

Secondly, attention should be given to addressing the multicultural competency of counselors working with diverse populations including those with a dual diagnosis. Advocates of multicultural counseling concerns maintain that counselors are not provided the proper training to work with the increasingly diverse population, and thus, conclude that the disparities between minority and non-minority consumers will continue to exist unless training programs are mandated or vigorous actions are taken to encourage multicultural skill development (Bellini, 2002; Wilson, 2002; Moore et al., 2002; Pack-Brown, 1999; Locke & Kiselica, 1999; Ponterotto et al., 2000).

To date, many graduate training counselor education programs offer classes in multicultural counseling, substance abuse and mental health counseling. However for
most rehabilitation counseling programs, these courses are not required, but rather suggested course offerings. Thus, many rehabilitation counselors continue to lack the skills necessary to assist in eliminating the disparities between minority and non-minority consumers with a dual diagnosis. Needless, to say one course in each of these subject areas is not nearly enough to provide counselors with the competency necessary to work with such challenging populations (Bellini, 2002; McReynolds et al., 1999; Leahy et al., 2003; Granello & Wheaton, 1998; Pack-Brown, 1999; Fuertes et al., 2002; Ponterotto et al., 2000). Current Council on Rehabilitation Education (CORE) guidelines require that a multicultural diversity domain be offered as a part of all graduate training programs curriculum (Council on Rehabilitation Education, 2004). It should also be noted that rehabilitation counseling programs have historically been much more reluctant to offer mandatory multicultural course offerings than the traditional counseling program. To that end, graduate rehabilitation training programs are encouraged to expand their course offerings to include mandatory courses in multicultural counseling as well as offer specialized tracks that encompass multiculturalism, substance abuse, mental health and dual diagnosis (Bellini, 2002; Pack-Brown, 1999). Finally, this researcher opined that counselors who are already working in the field should be required to participate in formal course work or continuing education seminars that focus on multicultural counseling and dual diagnosis in order to ensure delivery of culturally competent services to this often underrepresented and underserved population.
REFERENCES


# APPENDIX A

Reporting Manual for the Case Service Report (RSA-911)

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APPENDIX B

DISCLAIMER FOR FY 2002 DATA

FY 2002 was the first year that State VR agencies reported RSA-911 data using the revised format transmitted via PD-00-06. The FY 2002 database on this CD is comprised of data cleared by RSA and may contain information not usually available. Some errors do remain. It was decided to accept these errors in FY2002 because they still remained despite extensive efforts to obtain the necessary corrections. All of the data in the file have been validated by State VR agencies.

Some agencies encountered problems reporting asterisks for data not available. Therefore, some fields report 0’s instead of asterisks for data not available where 0 is not a valid code. In addition some agencies reported valid codes for closure types that are not applicable for several elements. For example, valid employment at closure codes are reported for closure types other than Code 3 (achieved employment outcome). Please refer to the Edit Specification by Element section of PD-00-06 to identify these elements.