This is to certify that the
dissertation entitled

RELATIONSHIP BETWEEN DEMOGRAPHICS, SERVICES AND EMPLOYMENT OUTCOME AMONG YOUTH WITH PSYCHIATRIC DISABILITIES IN THE STATE-FEDERAL REHABILITATION PROGRAM

presented by

Grace Chidinma Ugwuezi Ukasoanya

has been accepted towards fulfillment
of the requirements for the

Ph.D degree in CEPSE

Major Professor's Signature

December 14, 2006

Date

MSU is an Affirmative Action/Equal Opportunity Institution

RELATIONSHIP BETWEEN DEMOGRAPHICS, SERVICES AND EMPLOYMENT OUTCOME AMONG YOUTH WITH PSYCHIATRIC DISABILITIES IN THE STATE-FEDERAL REHABILITATION PROGRAM

By

Grace Chidinma Ugwuezi Ukasoanya

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Counseling, Educational Psychology,
and Special Education

2006

ABSTRACT

RELATIONSHIP BETWEEN DEMOGRAPHICS, SERVICES AND EMPLOYMENT OUTCOME AMONG YOUTH WITH PSYCHIATRIC DISABILITIES IN THE STATE-FEDERAL REHABILITATION PROGRAM

By

Grace Chidinma Ugwuezi Ukasoanya

There is limited information regarding the vocational rehabilitation (VR) services provided through the state-federal system to youth VR consumers with psychiatric disabilities, their personal background characteristics, and how these impact vocational rehabilitation outcomes. The purposes of this study were to: (1) examine personal background characteristics and types of VR services, (2) model the relationships of these factors to employment outcome, and (3) assess the influence of secondary psychiatric disability on employment outcomes among youth VR consumers in the state-federal VR system. The study sample was youth with primary and secondary disabilities whose cases were closed during the federal fiscal year 2004 (FY October, 2003 to September 30, 2004). These consumers were either closed successfully or unsuccessfully.

The dependent variable was employment outcome with two levels: (1) successful employment closure in status 26, and (2) unsuccessful employment closure in status 28. The findings indicated that numerous VR service variables were important in explaining differences in youth VR consumers' outcomes. In addition, with the exception of gender, the personal background characteristics of these youth were significant explanatory variables. Secondary psychiatric disability was found to have significant impacts on

employment outcomes. Future research may help to clarify the mechanisms through which these factors impact employment outcome, and identify additional factors that could account for differences in employment outcomes of youth VR consumers with psychiatric disabilities.

Dedicated with love to my husband Bernard, who has always believed in me. Thank you for your consistent support and encouragement through so much. To my children Nwanne, Nne, Kem, and Cindy for their consistent love and support through our long journey. David, you came to bring the laughter needed for the celebration!

ACKNOWLEDGEMENTS

I would like to thank my academic adviser, Dr. Michael Leahy, for his guidance, encouragement, and support in completing this research study. I will always be grateful for your firm support which motivated me to stand again after I discovered that I could not access the data needed to support my initial research. Studying under you has given me the opportunity to become a better scholar, researcher and professional.

I am also thankful to Dr. Kosciulek for his ideas, statistical insights and overall teaching through this study. Thank you Dr. Maiers for your patience, kind offer of your time and expertise as I worked through this study. Your statistical insights made the research process easier. I am grateful to Dr. Crewe for your willingness to work with me. Thank you for your gracious patience and consideration.

I want to acknowledge special people whose friendship held this work together through my roughest days. Thank you Ron and Anita for your untiring support and friendship. Thank you Ron for your willingness to switch roles from being a proof reader, an intercessor, to a counselor. Thank you Pastor John and Beth, Jeff and Nikky, and Scott for always supporting with Godly encouragement, laughter and prayers. Thank you Dr. Hussein for helping me to get to the final stage of this project. I appreciated your kind professional advice. Dr. Chinwe, you are an amazing friend. Thanks for your never-ending support.

Becky and Dave, I will ever remain grateful to you. You made our existence in East Lansing a big fun and we always felt like it was home with your family

Mama, you deserve a big thank you for this journey. But my tear drops today speak greater than my words would have. Mama, I will try to keep the ideals. Keep smiling in God's presence for I will not let you down. To my siblings Christie, Joan, Ech and Darlie who stood by me all the way, I say thank you. I owe a debt of gratitude to my husband Bernard and children who wondered when Mom will ever be done with schooling. Thank you for always communicating to me that you always knew that I will get there.

To my almighty God: You remain Supreme over all my life.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

In order to improve the state-federal vocational rehabilitation (VR) service program, there is need "to understand the individual, agency, and service variables that affect performance, as well as the potential interactions between these variables" (Bruyere et al. 2002 p. 62). Individuals with psychiatric disabilities have continued to experience higher unsuccessful employment outcomes than other disability groups in the state-federal VR system (Rutman, 1994; Rutman, 1992). Specifically, the vocational rehabilitation literature has observed that people with physical disabilities in the state-federal VR program experience three times more successful closures compared to individuals with psychiatric disabilities (Marshak, Bostic, & Turton, 1990). This situation draws attention to a need to expand opportunities that will enhance successful employment outcomes among this population within the state-federal VR program.

Rehabilitation professionals, practitioners and consumers are in agreement regarding the need to understand the specific factors which could account for the high unsuccessful closure trend among people with psychiatric disabilities (Rutman, 1994; Buell & Anthony, 1975). An important step to understanding these factors will involve simultaneously exploring the relationships among specific rehabilitation services, personal background characteristics, and employment outcomes.

The importance of focusing such a study on youth populations with psychiatric disabilities is highlighted by research reports which have noted that the rates of disability among these youth is increasing (Secondary Conditions Proceedings, 1999). Youth has been defined in various ways in rehabilitation programs and research depending on the

purpose of programs and/or research. In the Transition-Post School Outcomes research funded by the Social Security Administration (2000), youth was defined as individuals between the ages of 12 and 24. The Office of Special Education and Rehabilitative Services (OSERS) defined transition age youth as individuals between the ages of 18 and 25. The VR Longitudinal Study (1999) defined transition youth to include individuals who are 25 years old or younger. However, for the purpose of this study, the definition of youth will be consistent with the RSA-911 definition and will consist of individuals between the ages of 12.99 to 25.99.

Research reports observe that youth comprise 13.5% of the total state-federal VR case-load (Hayward & Schmidt-Davis, 2000). Kosciulek and Perkins (2005) observed that the post-school outcomes for youth with disabilities remain poor despite advances in education, disability rights policy and increased funding of programs that impact youth. They indicate that the poor post-school outcomes are reflected in continuing dependence on federal income assistance, high unemployment, and poor community integration.

Despite disability rights policies aimed at enhancing independence and community integration for youth with disabilities, research indicates that an increasing number of individuals in this population apply for and stay in the federal income assistance program such as Supplemental Security Income (SSI) and Social Security Disability Insurance (SSDI) each year. Social Security Administration (1999) has noted more than a hundred percent increase in the proportion of youth recipients of federal income assistance between 1999 and 2000. Only a minute percentage of this population leaves the program to return to work (Ross, 1996). Hennesy (1997) noted that almost half of the individuals on these income assistance programs stop working and depend

completely on the assistance. Regardless of these numbers, studies have observed that vocational training increases the likelihood that youth with disabilities will not stop work or remain in the income assistance rolls (Dykacz, 1998).

The rehabilitation literature is consistent regarding the high unemployment rate among youth with psychiatric disabilities. Compared with youth with other disabilities, youth with psychiatric disabilities have four times as high an unemployment rate (Vander-Stoep, Beresford, Weiss, McKnight, Cauce, & Cohen, 2000; Vander Stoep, 1997; Ireys, Salkever, Kolodner, & Bijur, 1996; Vander-Stoep, Taub, Holcomb, 1993; Se, Duchnowski, Kutash, 1992). Connected to this high risk of unemployment outcomes among these youth, both community and treatment-based studies have observed that these youth also have a higher risk of adjudicated delinquency, reliance on public assistance, and a lack of community support (Stoep et al., 2000). At the same time, the literature is consistent regarding the fact that youth with psychiatric disabilities share a similar preference for satisfying work at a liveable wage. In addition, researchers have observed that employment is a critical determinant of recovery, empowerment and mitigation of crime among this population (Gioia & Brekke, 2003; Baron & Salzer, 2000; Becker, Drake, & Farabaugh, 1996).

However, despite the significance of poor post-school outcomes among youth with disabilities, there are few studies documenting the factors which account for these persistent poor outcomes. More specifically, there is minimal research, which has focused on the interrelationships among psychiatric disabilities, vocational rehabilitation services, personal background factors, and employment outcomes among youth. Irrespective of the increased emphasis on enhancing improved employment outcomes

among people with psychiatric disabilities, rehabilitation research using the RSA-911 data has not focused on determining the specific factors that could predict employment outcomes among youth with psychiatric disabilities (Lehman, Clark, Bullis, Rinkin, & Castellanos, 2002; Halpern, 1985; Wills, 1984).

Current rehabilitation literature has noted the need for research direction regarding the provision of appropriate services, supports, and post-high school assistance to meet the educational and career development needs of youth with disabilities. Specifically, there is need for research that will contribute information regarding what combination of educational and vocational services could promote successful employment outcomes for youth with disabilities (Kosciulek & Perkins, 2005; Simon, 2002). Conducting a study targeted in these areas will contribute to the identification of: (1) the most cost effective vocational rehabilitation methods for serving people with psychiatric disabilities (Bruyere, Erickson, Vanloy et al. 2002), (2) factors that account for employment outcome differences among recipients of vocational rehabilitation services (Walker, 2002), and, (3) the influence of the interactions among service and person variables in determining the employment outcome among this population. This study is designed to contribute a unique and needed youth-with-psychiatric-disabilities-specific perspective to existing knowledge in each of these areas. To address the critical need for current and useful data on the transition to work of youth with disabilities, the purpose of this study is to identify factors that are useful in distinguishing between successful and unsuccessful employment outcomes among youth VR consumers with psychiatric disabilities.

Purpose of Study

The purpose of this study is to identify factors that differentiate successful and unsuccessful employment outcomes among youth VR consumers with psychiatric disabilities. Using data on youth VR consumers with psychiatric disabilities drawn from the fiscal year 2004 Rehabilitation Services Administration 911 data file, logistic regression will provide data regarding the relationships among psychiatric disabilities, vocational rehabilitation services, personal background factors, and employment outcomes among youth in the state-federal VR program. Findings from this study will provide data useful for guiding future VR research and practice related to the employment of youth with psychiatric disabilities.

Significance of the Problem

The persistent high rate of unemployment among individuals with psychiatric disabilities highlights the need to determine the factors that predict this trend. There is a research consensus that the majority of the populations with mental illness desire to work (Rumrill & Roessler, 1999; Marshak et al., 1990). Such individuals can recover significantly and hold meaningful work when provided with appropriate support. However, the pervasive negative influence of mental illness on the employment outcomes of people in the state-federal VR system has become well established in rehabilitation literature in the past two decades (Spence, 2000). Despite the acquisition of background work preparations in some instances, and having eligibility status in the state-federal VR program, rehabilitation literature is consistent regarding the persistent high rate of unsuccessful closures among people with psychiatric illness (Anthony, Cohen, & Farhas, 1990; Marshak, 1990). Overall, the employment rate among people with psychiatric

disabilities has remained below 30% in the past two decades (Mac-Donald-Wilson, Rogers, & Anthony, 2001).

When this trend is considered in terms of rehabilitation burden and cost, research has noted that people with psychiatric disabilities are the second most frequent category of people served by the state-federal VR system in every state (Garske, 2003; Stoddard, Jans, Ripples & Kraus, 1998). In addition, they comprise about 20% of the case-load (Mac-Donald-Wilson, Rogers, & Anthony, 2001); have the lowest successful closure rates compared to other groups with disabilities (Marshak, Bostick & Turton, 1990; Anthony, 1994); have a low recovery rate, and account for a large portion of private disability claims and costs (Salkever, Goldman, Purushothaman et al., 2000).

Most of these data represent the trend among the general population of people with psychiatric disabilities. Limited research has been focused on the unique experiences of youth populations with psychiatric disabilities who are VR service recipients. The few studies that have focused on youth have noted a high unemployment rate, which tends to keep them in the social security assistance system for as long as 27 years after high school (Davis & Vander Stoep, 1997). In these studies, this high unemployment trend has mostly been accounted for by the linear influence of specific demographic factors or rehabilitation service programs on the employment outcomes of youth (Davis & Vander-Stoep, 1997).

There is a strong research suggestion that addressing the influence of background factors would maximize the potential of VR programs in improving employment outcomes among people with psychiatric disabilities. In addition, rehabilitation policy, research and practice will be improved if more attention is given to the personal

background contexts of rehabilitation service recipients (Wentling, Waight, 1999; Yelin& Cisternas, 1997; Rogers, Anthony, Cohen, & Davies, 1997; Anthony, 1994). The importance of these background factors is highlighted by the significant influence which they exert on employment outcome in general populations of people with and/or without disabilities (Baron & Salzer, 2002). In addition, investigating the influence of these factors is capable of contributing meaningful information to rehabilitation research and practice regarding the most appropriate VR interventions for various subgroups of people with psychiatric disabilities (Wewiorski & Fabian, 2004).

Currently, there is sparse literature regarding the extent to which VR services influence the employment outcomes of youth with psychiatric disabilities. To date, little empirical research has been conducted which describes how youth with psychiatric disabilities fare in the VR system. Very little research attention has been focused on the VR service factors and processes that predict employment outcomes among these youth. In the absence of such information, VR service delivery system may run the risk of continuing with services that only add to the cost of vocational rehabilitation, without contributing to positive employment outcomes for youth with psychiatric disabilities. Studies will make stronger contributions to rehabilitation research and practice when they are designed to simultaneously explore how the interactions among personal background factors, and VR services, influence employment outcome among youth recipients of VR services with primary and secondary psychiatric disabilities.

Research has noted the prevalence of secondary mental disabilities among people with physical disabilities (Hoffman, Manela, & Schiff, 2003; Moore, Fiest-Price & Alston, 2002; Frey, Szalda-Petree & Traci, 2001; Thurer & Rogers, 1984; & Lipowski,

1975). Research studies, which have investigated the prevalence of secondary conditions among individuals with physical disabilities, have come up with alarming findings of high incidence of secondary psychiatric illness among people disabilities (Mitra, Wilber, Allen & Walker, 2005; Simeonson, McMillen & Huttington, 2002). It has been observed that secondary psychiatric disabilities hinder successful employment outcomes among youth with disabilities (Irey, Salkaver, Kldne, Sci, & Bijur, 1996). Rehabilitation research from the past two decades is consistent about a 40% occurrence of secondary psychiatric disabilities among individuals with physical disabilities (Kinney & Coyle, 1992; Turner et al. 1985; Turner & Rogers, 1984). Based on a longitudinal data collected between 1996 and 2000, Mitra et al. (2005), found high prevalence of secondary psychiatric disabilities across the three phases of a study of adults recruited mainly from independent living centers. The implication of these finding for rehabilitation practice includes a need for rehabilitation professionals to design and deliver services, which target specific mental health issues among individuals with disabilities.

At present, there is limited information regarding the prevalence and influence of secondary mental illness among youth with disabilities. The nature and scope of secondary psychiatric disabilities among youth with disabilities has not been adequately investigated (Ravesloot, Seekins, & Walsh, 1997). Given the pervasive negative influence of psychiatric disabilities on employment outcomes of people in the VR system, it could be assumed that youth with secondary psychiatric disabilities could experience less successful employment outcomes than those with only physical disabilities. This gap in our understanding could be filled by an empirical study, which emphasizes the nature, distribution and influence of secondary mental disability on

employment outcomes (White, Bransteter, & Seekins, 2000). This study is designed is to fill this gap by exploring the extent to which secondary psychiatric disabilities could impact vocational rehabilitation outcomes among youth VR consumers in the state-federal VR system.

Research Questions

The following research questions will be examined in this study:

1. How are the employment outcomes obtained by youth VR consumers with psychiatric disabilities associated with the vocational rehabilitation services they receive while controlling for demographic characteristics?

The types of vocational rehabilitation services received are independent/predictor variables. These services are dichotomously coded as received or not received. The dependent/criterion variables are employment outcomes. These were treated as categorical variables with two levels representing closure with an employment and closure without an employment.

2. How do personal background characteristics of youth VR consumers with psychiatric disabilities relate to their employment outcomes?

The predictor variables are personal background characteristics including gender, race/ethnicity, source of impairment and public assistance at application. The criterion variable is employment outcome. This was treated as a categorical variable with two levels representing closure with an employment and closure without an employment.

3. How do the employment outcomes obtained by youth VR consumers with secondary psychiatric disabilities compare to those of youth rehabilitants with no psychiatric disabilities?

The predictor variable is secondary psychiatric disability while the criterion variable is employment outcome.

Assumption

A major assumption of this study was that the category of psychiatric disabilities (mental illness) in the RSA-911 data adequately represents the DSM-IV category for psychiatric and psychological disorders. This assumption was tenable given that research (Arondel & Depoutot, 1998, as cited in Matrone, 2003) has noted that the "RSA-911 data possess the three characteristics of quality data: comparability of statistics, coherence, and completeness" (p.10). Consistent with extant rehabilitation research (Wheaton, 2002), this study also assumed that the variables under study (vocational rehabilitation services, personal background characteristics, and employment outcomes) were comprehensively and appropriately measured in the RSA-911 database.

Limitations and Delimitations

This present research was limited by the research characteristics typical of archival data. First, the choice of variables will be limited by what is available in the dataset (Borg, Gall, & Gall, 1993). Second, the operational definitions of the variables under study may not be representative of the wider theoretical or clinical definitions. The variables were operationalized consistent with the definitions obtained in the database. For instance, the definition of the categories of psychiatric disability used in this study was broad and encompassing. The variable 'depression' was treated as a homogenous condition in the database. In the future, researchers may need to consider using a more limited definition, perhaps one that distinguishes between different classifications of psychiatric disabilities and recognizes different characteristics of these disabilities.

Third, generalizing the findings of this study may be limited by inherent coding errors, omissions, and human factor limitations in the recording of data. This study did not consider the backgrounds of the counselors who recorded the data. It did not account for the impact of the quality of VR services provided on employment outcomes or the quality of VR service providers. In addition, it will not attempt any explanations on how the variables under study are causally linked.

Fourth, this study did not account for the influence of a number of factors which could possibly predict successful employment outcomes among youth with psychiatric disabilities. For example, investigating the influence of factors such as duration and intensity of services, access to medical and psychological services, consumer motivational factors, and the working alliance between consumer and the service providers will provide a more comprehensive view of the factors that may predict vocational outcome in the state-federal VR program. These potential predicting factors were not accounted for in this study. In addition, this study delimits the definition of employment outcomes to successful or unsuccessful. Other measures of employment outcomes were not accounted for. Although the source of referral for youth with disabilities in the VR program may explain the types of services they receive, this factor was outside the scope of this study. In addition, the investigation of the influence of secondary psychiatric disability on the employment outcomes of youth with disabilities in the state-federal VR program was exploratory. The sample size of youth with secondary psychiatric disabilities was 4,006. Although small sample sizes increase standard errors and negatively impact significance testing, this sample size was moderate and therefore should not be a concern.

Definition of Terms

To avoid possible misunderstanding or misinterpretation, the following definitions were used in this study:

Youth: Youth has been defined in various ways depending on the purpose of programs and/or research. In the Transition-Post School Outcomes research funded by the Social Security Administration (2000), youth was defined as individuals between the ages of 12 and 24. The Office of Special Education and rehabilitative Services (OSERS) defined transition age youth as individuals between the ages of 18 and 25. The VR Longitudinal Study (1999) defined transition youth to include individuals who are 25 years old or younger. However, for the purpose of this study, the definition of youth was consistent with the RSA-911 definition and comprised individuals between the ages of 12.99 to 25.99.

Psychiatric Disabilities: This refers to a health condition characterized by alterations in thinking, mood, or behavior, or a combination of all three linked to distress and/or impaired functioning in a person (US Surgeon General, 1999). According to the American Psychological Association (APA, 1994), the three major categories of psychiatric disability are schizophrenia, mood disorders, and anxiety disorders. For the purpose of this study, psychiatric disabilities included depression, schizophrenia, eating disorder, anxiety, personality disorders, and mental illness not listed elsewhere.

Vocational Rehabilitation Services: This refers to three categories of services funded by the state-federal vocational rehabilitation agencies for the purpose of promoting consumer employment at closure (RSA, 1988). The services included: assessments,

diagnosis/treatment of impairments, vocational rehabilitation counseling and guidance, college/university training, occupational/vocational training, on-the-job training, job readiness training, disability related augmentative skills training, miscellaneous training, job search assistance, job placement assistance, on-the-job supports, transportation services, maintenance, technical assistance, and 'other' services.

Personal background variables: These refer to consumer demographic characteristics which were recorded at intake. In this study, this included variables that have been found to have the probability of making significant impact on employment outcome of people with mental illness. These will include race, gender, and public assistance and education at application.

Public Assistance: In the state-federal VR program, this could encompass different cash assistance determined by individual's age, disability, employment or post employment status. In this study this was defined as Supplemental Security Income (SSI), Social Security Disability Insurance (SSDI) and Temporary Assistance for Needy Families (TANF) at application.

Employment Outcome: Although this has many categories in the state-federal VR program, in this study, this was defined as successful employment or unsuccessful employment outcome. Successful employment outcome was defined as the outcome which is achieved when an individual has developed vocational plan, received necessary goods and services and has been able to maintain employment for at least 90 (Jans, Stoddard, Kraus, 2004). Unsuccessful employment outcome will denote the outcome that is achieved when an individual has developed a vocational plan, but has been unable to complete vocational plan, achieve employment or maintain employment for up to at least

90 days.

Physical Disabilities: This included a range of disabilities listed in the RSA-911 database such as deafness, hearing loss, general physical debilitation, other physical, mobility and orthopedic, manipulation dexterity, both mobility and manipulation dexterity, and other orthopedic.

Summary

This study was designed to investigate the inter-relationships among mental illness, VR services, personal background factors, and employment outcomes among youth consumers in the state-federal VR system. The central objective was to determine how the employment outcomes of youth VR consumers with psychiatric disabilities, as measured by successfully or unsuccessfully employed at closure, are influenced by their personal background characteristics and the VR services they receive.

CHAPTER 2

REVIEW OF THE LITERATURE

The purpose of this study is to identify factors that differentiate successful and unsuccessful employment outcomes among youth vocational rehabilitation (VR) consumers with psychiatric disabilities. Specifically, the study evaluated the relationships between the types of VR services provided to youth with psychiatric disabilities in the state-federal VR program and their employment outcomes. In addition, it evaluated what socio-demographic characteristics of these youth are associated with their employment outcomes. Findings from this study will provide data useful for guiding future VR research and practice related to the employment of youth with psychiatric disabilities.

This chapter describes literature relevant to the research purposes of this study. This review of literature is presented in three sections: (1) Youth with disabilities, (2) Mental illness, vocational rehabilitation and employment outcomes among people with psychiatric disabilities and (3) Secondary disability and employment outcomes among people with disabilities. At the end of each section, the relevance of the literature to the current research was discussed.

Youth and Disabilities

According to the Research Triangle Institute (2000), youth with disabilities represent about 13.5% of all VR consumers and approximately 135,391 persons. Recent research is in agreement regarding the persistent poor post school outcome for the majority of youth with disabilities despite advances in education, disability rights policy, the support of federal mandates and increased funding of programs and initiatives that impact all youth (Kosciulek & Perkins, 2005, p.3; Gerry, 2002). A 1989 National Longitudinal Transition

Study (NLTS) which investigated the post school outcome of youth with disabilities observed that apart from youth with learning disabilities and speech impairments, youth with visual, orthopedic, and multiple disabilities had poor employment outcomes compared to youth without disabilities. Blackorby and Wagner (1996) carried out a research study on the trends in employment, wages, post secondary education and residential independence among youth with disabilities during the first five years after high school. The findings indicated that the employment outcomes of youth with disabilities lagged significantly behind those of youth in the general population. This is consistent with prior research which has noted persistent low employment rates for youth with disabilities after high school (Affleck et al., 1990; D'Amico, 1991).

These comparisons between the employment outcomes of youth with disabilities and youth in the general population indicate the challenges facing young people with disabilities. The need to be responsive to these challenges is highlighted by research observation that employment remains the transition goal most often chosen by youth with disabilities (Kosciulek & Perkins, 2005). Consequently, this highlights the need for rehabilitation researchers and practitioners alike to be responsive to the vocational rehabilitation needs of youth with disabilities. However, current studies which have studied post-school outcome trends among youth with disabilities have not made any specific observations regarding youth with psychiatric disabilities.

Kosciulek and Perkins (2005) have described the post-school adjustment outcomes of youth with disabilities as characterized by limited salable work skills, low income, underemployment, and unemployment. Generally, research has attributed this trend to poor preparation of these youth for life beyond school. Specifically, research has

observed that majority of these youth exhibit poor decision making and self advocacy skills (Chadsky-Ruisch & O'Reilly, 1991; Mithuag, Martin, Agran, & Rusch, 1988). The result is that these youth are unable to pursue successful transition goals and thereby continue to be dependent on their families, parents, and public financial assistance. This is in contrast with various legislative mandates affecting youth with disabilities. The majority of these pieces of legislation were enacted with the purpose of providing easier access to rehabilitation services thereby enhancing successful post-school outcomes for youth with disabilities.

Several pieces of legislation have been enacted over the past 25 years to exact changes in how children and youth with disabilities are educated, prepared for and involved in meaningful employment. Such legislation includes Education for all Handicapped Children Act (P.L. 94-142), the Carl D. Perkins Vocational Education Amendments of 1984 (P.L. 98-524), Americans with Disabilities Act of 1990 (P.L. 101-476), the Individuals with Disabilities Education Act(IDEA) Amendments of 1992 (P.L. 101-239), the School-to-Work Opportunities Act of 1994 (P.L. 103-239), the 1998 Rehabilitation Act Amendments (P.L. 105-166), the Workforce Investment Act of 1998 (P.L. 105-220), and the Ticket to Work and Work Incentives Improvement Act(P.L. 106-170) (Social Security Administration, 2000,p.3). Among these pieces of federal legislation, the IDEA and the Rehabilitation Amendments of 1992 have mostly targeted the improvement of educational and vocational opportunities for youth with disabilities.

The IDEA requires the development of an Individualized Education Program (IEP) which details long term vocational goals and the specific services needed to achieve these goals. These goals are carried over to transition service planning, when the

individual turns 16 (SSA, 2000). The Rehabilitation Amendments of 1992 were intended to provide easy access to rehabilitation services by bringing together rehabilitation and education services. The mandate includes the development of an Individualized Written Rehabilitation Plan (IWRP) for students with disabilities. The goal is to ensure that youth with disabilities who need help entering the rehabilitation system receive those services in a timely manner (Senate report 102-357, pp.34).

Vocational Challenges Experienced by Youth with Psychiatric Disabilities

Employment remains a fundamental objective for the majority of individuals with psychiatric disabilities (Rogers, Walsh, Masotta, & Danley, 1991). Specifically, Kosciulek and Perkins (2005) observed that employment is the most often chosen transition goal among youth with disabilities. In addition to financial incentives, researchers have asserted that the importance of work for individuals with psychiatric disabilities include assisting in recovery by proving opportunity for social contacts (Noble, et al. 2001), prevention of recurring hospitalization and reduction of dependence on public income assistance (Noble, 1998).

Research in the area of employment outcomes among individuals with psychiatric disabilities has mostly focused on identifying the predictors of employment for this population. This current focus may be informed by the fact that there is presently a consensus that psychiatric disabilities compromise employment outcomes for individuals with psychiatric disabilities. Tsang et al. (2000), in their meta-study on employment outcomes for individuals with psychiatric disabilities since the '80's identified social skills, prior functioning and, work history as valid predictors. Moreover, psychiatric symptomatology was found to be a significant predictor of employment

outcome. Ten studies out of the 35 studies reviewed identified psychiatric symptomatology as significant predictors of employment outcome among individuals with psychiatric disabilities. The findings of this study did not explain the typicality or uniqueness of outcomes among individuals with specific psychiatric diagnoses such as anxiety disorders, depressive and other mood disorders, schizophrenia and psychotic disorders.

Among youth with psychiatric disabilities, presenting a review on how depression could impact vocational outcome would provide a representative overview of the typical challenges experienced by youth with psychiatric disabilities in the VR program. Sammons and Schmidt (2001) have asserted that depression is a common co-existing disability among individuals diagnosed with other mental disorder. In addition current rehabilitation research has observed that not less than 30% of individuals who acquire physical disabilities experience post-injury depression (Heinraich & Tate, 1996; Kosciulek & Perkins, 2005).

Clinical Descriptions of Depression

Depression has been categorized in different ways to include depressed mood, depressive syndromes, and depressive disorders. Depressive disorders have been grouped into two, including major depressive disorder (MDD) and Dysthymia (DD). While MDD refers to single or recurrent episodes of depression, DD refer to chronic mood disturbance (McCullough, 2000). According to the Canadian Community Health perspective, based on the DSM-IV criteria, depressive disorder diagnosis criteria include: a) two weeks or longer of depressed mood or loss of interest or pleasure and at least five symptoms associated with depression which represent a change in function; b) symptoms which

cause clinically significant distress or impairment in social, occupational or other important areas of functioning; c) occupational or other symptoms that are not due to the direct physiological effects of a substance or to a general medical condition; and, d) symptoms that are not better accounted for by bereavement, symptoms that last more than two months or symptoms which are characterized by a marked functional impairment, preoccupation with worthlessness, suicidal ideation or psychomotor retardation. These conditions are consistent with the World Mental health (WMH) 2000 version of the Composite International Diagnostic Interview (CID). Generally, these challenges associated with depressive disorders are pervasive, affecting many domains of daily functioning.

Socially, research evidence is consistent regarding social skills deficits among individuals with depression. Social skills often encompass development in three essential domains of behavior: perceptual, cognitive, and performance (Anthony, Ledley & Heimberg, 2005). Perceptually, due to the poor concentration, withdrawing and negative oriented behavior associated with depressive symptom, individuals with depressive symptoms exhibit poor skills in selecting appropriate cues within a social interaction situation (Anthony et al., 2005). In addition, they also demonstrate difficulties in processing and interpreting these cues outside of their frame of persistent negative reference. Consequently, the individuals usually develop cyclical negative schema, which reinforce repeated social negative responses. With this frame of mind, the individual with depressive disorder continues to focus on himself, while avoiding any social interaction. It could therefore be justified to expect that such persistent social negative responses at a work environment could impede adjustment and job retention.

Closely related to this, individuals with depressive disorders tend to have negative attributions due to the negative schema activated during depression. Flory et al. (2000) asserted that this activated negative schema, in addition to associated self-focused tendencies mediate social skill outcomes for this population. Specifically, research evidence indicates that individuals with depressive disorders experience threat to self-worth, lack the capacity to feel enjoyment, exhibit less initiation and less responsiveness in social interaction, and general difficulties in psychosocial functioning (Letters: Dual Diagnosis, 2001, pp. 7 & 8).These attributes influence the social behavior of individuals with DD and to a large extent reduce the social support network available to them.

Understanding the implications of compromised social skills to vocational rehabilitation outcome is critical. Social skills in vocational rehabilitation for instance have been categorized into job securing and job-retaining social skills. These categories of social skills have been associated with overall employability traits, such as development of supportive social networks, coping with day to day stress, finding and holding a job, manifest adjustment and ability to communicate. Studies in this area indicate that consumers with psychiatric disabilities as well as rehabilitation service providers are in agreement regarding the importance of social competence for successful employment (Tsang, 1996 p.24).

More research is currently associating cognitive functioning with different rehabilitation outcomes (Tsang, 1996). For instance, while social cognition is increasingly being associated with vocational rehabilitation outcome, research remains in agreement regarding the impact of neuropsychological impairment on academic and vocational rehabilitation. There seems to be a consensus regarding the pervasive impact

of cognitive impairment caused by either depressive disorder and or other psychiatric disabilities associated with them. However, generalizations based on some of these findings are limited by lack of uniformity in the definition and measurement of cognitive functioning. Moreover, most of the measures have been designed for measuring 'general' psychiatric disabilities. Given the unique manifestations of associated disabilities among different disability populations, it may be more beneficial to focus on understanding the factors associated with outcomes among subgroups of populations such as youth with depression, anxiety disorders, and other mood disorders, schizophrenia and psychotic disorders in the VR system.

Airaksinen et al. (2004) have observed that different types of depression exert different effects on memory functioning. In a study investigating cognitive functioning in younger adults diagnosed with depression, the researchers found that depressive disorders are associated with episodic memory impairments. Specifically, their findings indicate that major depression and mixed anxiety depressive disorders were associated with significant memory dysfunction in memory tests. Dysthymia was associated with speed in accomplishing tasks. Although the tests used in the study were not very sensitive, the study found that individuals with minor depression did not experience any memory impairments. Moreover, their study did not indicate any verbal fluency impairments. However, the psychometric properties of the instrument used (too long for individuals with DD), the demographic characteristics of the sample used (high income, highly educated females), small sample size and high drop out rate of the subjects suggest caution when making inferences to general populations. Given the place of memory in

vocational functioning, there is need for a study which will investigate the impacts of specific psychiatric disorders among individuals in the VR program.

Mental Illness, Vocational Rehabilitation and Employment Outcome

This section describes literature relevant to the first purpose of this study: the association between vocational rehabilitation services and employment outcomes among youth with mental illness. To accomplish this, this section was organized into three sub-sections: (1) mental health and employment, (2) trends in the associations between VR services and employment outcomes among people with mental illness, and (3) factors associated with employment outcomes among people with mental illness in VR. This section was concluded with a summary of the major findings and gaps, which suggest needs for further empirical inquiry. At the end of each sub-section, the relevance of the literature to the proposed study is discussed.

Mental Health and Employment

Rehabilitation research has consistently acknowledged the relationship between mental health and work. Work has been observed as a critical component of mental health (Hoffman, Manela, & Schiff, 2003; Hoge, Toboni, Messer, Bell, Amoroso, & Orman, 2005), even as mental health has been noted as a critical determinant of work (Anthony, 1994). This literature was reviewed first in order to establish the importance of the intersections of mental health and employment outcomes. The discussion was centered on the philosophies of: a) recovery, and, (b) empowerment.

Recovery

The increasing significance of recovery in psychiatric rehabilitation research and practice has resulted in numerous studies reporting claims about its crucial influence on

vocational outcome. The predominant belief that people with psychiatric disabilities could not recover and lead normal lives has been challenged. Currently, it is believed that people with psychiatric disabilities have good chances of recovery, accompanied by indicators such as finding and retaining meaningful work, maintaining positive social relationships and participating fully in the community (US Department of Health and Human Services, 1999). Among all these indicators, work has been noted as a critical component of recovery (Moxley & Finch, 2003). Research has observed that work enhances recovery through improved opportunities for positive relationship, decrease of symptoms and increased well being (Baron, 1995).

The recovery-oriented philosophy of VR service delivery is evident in the 1992 Amendments to the Rehabilitation Act. Based on this piece of legislation, 'employability' was changed to 'employment'. Rehabilitation counselors were mandated to remove selectivity on eligibility based on type and severity of disability. Thus, people with severe disabilities became a priority for rehabilitation service (Rubin & Roessler, 2001). In order to accomplish this, there was need for constant 're-engineering' of the service delivery system in order to accommodate more people with severe disabilities (Young, 2001).

Vocational rehabilitation effectiveness has been associated with stable mental health of people with psychiatric disabilities (Anthony et al.1993; Rutman, 1994). The vocational outcomes, which consumers achieve in VR, are typically related to their 'clinical gains' (Arns & Linney, 1993, p.64). Furthermore, within the recovery-service-delivery paradigm, a major expected outcome is the improvement of the over all well-being of the individual. Focusing on the unique needs of the individual is central to the success of this process. Thus, achieving positive employment outcome requires a

'coalescence of mental health and vocational rehabilitation services'. Recent research has acknowledged the increase in the coalescence of mental health and vocational rehabilitation in VR service provision to people with psychiatric disabilities in recent years (Moxley & Finch, 2003).

In short, the individual with mental illness is supported through the process of getting and retaining a job by a combination of vocational rehabilitation and mental health supports. Within this model, the rehabilitation service process is more person-centered than system centered. Therefore, the recovery paradigm of disability suggests a need to look beyond the physical characteristics of disability to the complex interplay among physical, psychological, and environmental factors' (Crimando,2003), in order to empower the consumer with disabilities in the VR process.

Although the time-limited nature and limited funding for VR may hinder the full implementation of a recovery-oriented philosophy of service delivery, it is clear that the current VR system is giving increased attention to the centrality of mental health in determining the employment outcomes for people with disabilities in the VR system (Moxley & Finch, 2003). However, the lack of empirical evidence regarding the extent to which this model of service delivery has enhanced the employment outcomes for people with psychiatric disabilities precludes this needed conclusion. Yet, there is a consensus among rehabilitation researchers, practitioners and consumers that mental health support should be an integral component of vocational rehabilitation.

Empowerment

For the individual with mental illness, the concept of 'recovery' is embedded within the philosophy of empowerment. Empowerment for the consumer with disability

has been defined as a psychological sense of personal control, involvement, influence, and awareness of options in one's life (Anthony, 2004). An empowered consumer with mental illness takes active part in matters that affect his or her life through developed mastery over his/her symptoms, internal drives and demands of the environment (Spence, 2000; Bolton & Brookings, 1996). Literature is consistent regarding the role of work in the empowerment of individuals with mental illness. Research has described the domains of empowerment achieved through employment to include: integration into the community, provision of social support, and increase in self worth (O'Day & Killen, 2002), thereby enhancing the self-esteem and personal purpose of the individuals (US Dept of Human Services, 1999; Bell & Lysakrr, 1997).

For youths with psychiatric disability, empowerment and recovery will include: (1) learning new skills; (2) developing social relationships; (3) making meaningful contributions to the community; (4) and making economic gains which could directly or indirectly impact other positive life outcomes (Carter & Lunsford, 2005; Blackorby & Wagner 2000p.63). In order to enhance their recovery and promote employment outcomes among youth with psychiatric disabilities, there is a need to design a comprehensive transition package with a focus on providing an ongoing array of mental health and vocational rehabilitation services and supports for them (Hughes & Carter, 2000 p.64). The design and delivery of such comprehensive package need to be informed by research which identifies how specific mental disabilities are related to employment outcomes among people with disabilities.

Factors Associated with Employment Outcomes among People with Psychiatric Disabilities in the VR system

The relationships between mental illness and employment outcomes have attracted a vast empirical attention in the past two decades. Most of the studies have focused on identifying the major factors, which are considered significant for the employment outcomes of people with mental illness in the VR system. However, understanding how these factors interact with VR and employment outcomes among people with psychiatric disabilities is critical to the design and delivery of effective VR services. This section will present only literature that is related to the factors that have consistently been associated with employment outcomes in state-federal VR program research, especially, using the RSA-911 data. These will include: (a) clinical symptoms, (b) VR services, (c) Background factors, and (d) public assistance received.

Clinical Symptoms

The impact of clinical symptoms on the rehabilitation outcome of people with psychiatric disabilities has been widely explored. Research findings identify complications associated with psychiatric disability symptoms to include limitations in social competence, personal and symptom management (Corrigan, Rao & Lam, 1999); challenging emotional, behavioral, cognitive functioning (Fischler & Bond, 1999); low motivation (Braitman et al. 1995); lack of self awareness (Fabian 1999); and inappropriate values, attitudes and aspirations regarding work (Rutman, 1994). These could have negative impacts on the employment outcomes of people with psychiatric disabilities, even when they possess the basic competencies required for specific work (Garske, 1999).

Garske (2003) observed that work functions within the overall well-being of the individual. Consistent with this, Moxley & Finch (2003), observed that 'employment as an outcome cannot stand apart from the psychosocial functioning of the individual. Therefore, rehabilitation counselors need to be conversant in ancillary services such as health, mental health, and social services, while mental health professionals need to take the employment needs of recipients seriously' (p.6). Although some studies have concluded that clinical symptoms have predictive influence on employment outcomes among people with psychiatric disabilities, the bulk of the research data (Mac-Donald-Wilson, Rogers & Anthony, 2001; Anthony, 1994; Anthony et al., 1990), suggest that symptoms alone do not predict employment outcomes among this population.

In a review of indicators of vocational outcome among people with mental illness, Anthony (1994) found no associations between patterns of psychiatric symptoms and vocational outcome. This is consistent with previous research, which found no significant relationship between psychiatric clinical symptoms and future vocational outcome (Anthony, Cohen, & Farkas, 1990). These researchers assert that rather than direct influence, the complications associated with clinical symptoms have higher probabilities of impacting employment outcome.

Although, some studies have found a significant relationship between symptoms and employment outcomes among people with psychiatric disabilities, there is an empirical consensus that these associations are mediated by other personal factors. For example, in a study of 90 persons in Supported Employment (SE) programs, Fabian (1992) found that race mediated the relationship between clinical symptoms and outcome in the VR system. Another study which examined the relationships between psychiatric

symptoms and work performance found a minimal association between race and vocational outcome, mediated by poor role functioning (Massel et al. 1990). Care needs to be taken while generalizing these findings given that the subjects for the study were 'vocationally ready' clients with clear vocational goals.

Overall, the pattern of findings from symptom-outcome studies have concluded: (a) no relationship (e.g MacDonald-Wilson, Rogers, & Anthony, 2001); (b) modest relationships (Anthony, 1994); and (c) significant relationship between symptoms and outcome (Tsang, Lam & Leung, 2000). Based on a review of literature on psychiatric symptoms and vocational outcome since the 80's, (Tsang et al, 2000), there is evidence that this lack of agreement is accounted for by the unpredictable course of psychiatric symptoms due to exacerbations, remissions and recurrence (Bell & Lysker, 1995); hidden heterogeneity of psychiatric symptoms which challenge the reliability of assessment measures (Harding 1994;); and few instruments which focus on emotional functioning related to quality of work (MacDonald-Wilson et al., 2001). Apart from these clinically related explanations, there is evidence that most of the study designs were correlational and used only small samples. There is therefore need for research which will investigate larger samples for greater power and evaluate effect sizes.

Vocational Rehabilitation Services

There is a significant amount of literature on the influence of VR services on the employment outcomes of people with disabilities, which have implications for the VR of people with mental illness. Most of these works have emphasized the influence of the structure of the VR services, the differential impacts of different clusters of VR services,

attitude of the VR service providers, the characteristics of people with mental illness and the design and delivery of VR services in determining employment outcome.

A recent study (Fabian, 1999) observed that the low employment trend among people with psychiatric disabilities could be accounted for by the deficiencies inherent in the VR services provided for them. There is an indication that the structure of the VR service delivery may not be suitable for the unique conditions of people with psychiatric disabilities. For example, the time limited nature of VR service provision is not suitable for the long-term nature of psychiatric illness. Individuals who come into the VR are judged 'rehabilitated' and their functions are judged 'restored' if they are able to keep a job for 90 days from the date of closure. While the conditions of this population are long term and recurrent due to the episodic nature of the disability, the VR service design is inflexible, rigidly goal oriented and time limited based on statuses and steps (Garske, 2003). This makes it difficult to respond effectively to the cyclical nature of psychiatric disability. In response to this, research has recommended: (a) the provision of individualized services tailored to the unique needs of people with psychiatric disabilities (Schalock, 2004); (b) re-evaluation of VR service design and outcome expectation to accommodate the ongoing nature of their needs (Garske, 20003; Hu & Jerrel ,1998); (c) long term services that will accommodate relapses and slow progress (Bond & Boyer, 1990); and, (d) access to comprehensive, ongoing services and supports which will enhance their chances in the job market.

The influences of different combinations of VR services have been well noted. Finch and Wheaton (1999) investigated the relationship between VR services and employment outcomes among people with psychiatric disabilities. The findings from

their study indicated five major VR service clusters including: (a) counseling, (b) diagnostic services, (c) direct placement, (d) total job assistance, and (e) comprehensive services. Using a chi-square analysis, their study found a moderate relationship between the VR service clusters and employment outcomes among people with psychiatric disabilities. Psychosocial services such as counseling and diagnostic services had significant positive effects on wages.

Availability of psychosocial services and supports has been identified as a crucial factor in the entry and retention of employment among people with psychiatric disability (Rosenthal and Olsheki, 1999). From a recovery oriented service perspective, psychosocial supports are needed in order to provide consumers with skills and knowledge needed to manage their symptoms and control the effects from associated complications. Psychiatric rehabilitation research is in agreement regarding the need to provide appropriate and comprehensive psychosocial support and services in order to take care of some of the major consequences of psychiatric illness including: (1) impairment, (2) dysfunction, (3) disability, and (4) disadvantage (Blackorby & Wagner 2000; Carter & Lunsford, 2005). From a psychiatric rehabilitation perspective, the goal of psychosocial support is to ensure that the individual with psychiatric disability can accomplish the physical, emotional, social, and intellectual skills necessary to live, learn, and work in a community (Brommet, 2005, p.20).

Other studies have emphasized the influence of specific models of vocational rehabilitation in predicting vocational outcome among people with psychiatric disabilities. Rehabilitation research has consistently attested to the superior efficacy of Supported Employment (SE) in enhancing the employment outcomes of people with

psychiatric disabilities (Boardman, Grove, Perkins, & Shepherd, 2003; Corrigan & Boyle, 2003; Quimby, Drake, & Becker, 2001; Bond, Becker, Drake & Vogler, 1997). The supported employment (SE) model reflects the shift from the traditional 'train-place' to the contemporary 'place train' rehabilitation philosophy, in which the consumer is directly placed in a competitive job, with a provision of ongoing support and supervision (Rubin & Roessler, 2001). Empirical research has variously investigated the efficacy of the SE among people with psychiatric disabilities.

Crowther, Marshall and Bond (2001) examined 11 randomized controlled rehabilitation trials. The findings from their study indicated that supported employment (SE) was more effective than the pre-vocational practice of 'train-place' in enhancing the chances of people with psychiatric disabilities to get and keep competitive employment. This finding is consistent with Bond et al.'s (2001) assertion that SE is an evidence-based service, which enhances the vocational goals of people with mental illness to a great extent. Attributing the efficacy of SE to its structure, research has observed that SE moves people out of clinical set-ups to where they receive consistent ongoing supports which cover obtaining employment, meeting the demands of the employment, and resolving challenges which could otherwise act as barriers to work success (Drake, 1998; Corrigan & Boyle, 2003).

Although the demonstrated efficacy of supported employment (SE) has been acknowledged by disability advocates, policy makers, and rehabilitation providers, contemporary models of the SE seem to be more cumbersome than enhancing. An example of this contemporary model is the Individualized Placement Support (IPS), which demands a rapid job search, matching on the job skill development, clinical

treatment and vocational services. Quimby et al. (2001) used an ethnographic research design to evaluate approaches to vocational services for persons with severe psychiatric disabilities who could be described as 'vocationally not-ready'. The study compared the traditional VR service with the IPS model of SE. The findings from this study indicate that the IPS produced more results in terms of achieving successful employment outcomes, at a big cost. This cost include: (a) the complexity of implementing it, (b) confusion of roles (e.g. the risk of viewing employers as quasi mental health professionals), (c) balancing employment with clinical treatment consecutively, (d) skill deficits for both clinical and technical team, and (e) challenges related to achieving collaboration between VR staff and clinical team. Based on this, it could be expected that people who receive the SE services stand better chances of achieving successful employment outcome, although at a higher financial cost.

Other studies have investigated the influences of VR services on employment outcomes in terms of the professional characteristics of VR providers. Given that the unique needs of people with psychiatric disabilities may make the traditional VR service provision method non-effective, it is logical to assume that the people with psychiatric disabilities will achieve successful employment outcome in VR to the extent that the VR provider is knowledgeable about their needs and the demands of their conditions. Vash (1981) observed that the unique needs of people with psychiatric disabilities are not being met as a result of inadequate mental health training among VR counselors. Consistent with this Chan, Leahy, Chan, Hillburger, et al. (1998) found a need for the extension of rehabilitation counselor training to include training on the unique needs, demands and management procedures for people with mental illness.

Race

Although much rehabilitation research has investigated the relationships between background characteristics of people with psychiatric disabilities and their vocational outcomes, most of the attention has been given to the predictive role of race/ethnicity. Racial disparities in VR program acceptance and outcome among VR consumers have been widely noted. A pioneer research on the influence of race on VR outcome found a racial disparity in VR outcome (Atkins &Wright, 1980). Consistent with this most of the research on this issue from the 80's through early 90's (Feist Price, 1995; Dziekan & Okocha, 1993; Herbert & Marinez, 1992;) confirmed the trend regarding the fact that European Americans were more likely to be accepted into VR and achieve successful competitive employment outcome than other minority races. However, research from the past decade has provided mixed empirical evidence regarding racial disparities in acceptance and successful outcome in VR. This current body of research has produced two major categories of evidence: (a) No difference by race, and (b) difference by race, mediated by other factors. Both of these categories of evidence have been accounted for by differences in research methodology.

Research from the mid 90's is consistent regarding the role of research method and statistical design in accounting for most of racial disparities in VR service receipt and outcome of the early 80's. While most of the studies have focused only on two groups (European Americans and African Americans), others have used statistical methods that are vulnerable to Type II error. For example, most of the studies used chi-square statistical tool to analyze very large samples. According to Glass and Hopkins (1996), this could result in finding significance in the absence of any practical significance.

Moreover, chi-square would not allow for the controlling of other possible confounding factors.

The difference that statistical methods could make in rehabilitation outcome trends has been demonstrated by research. Using a symmetrical hypothesis of homogeneity, Wheaton (1995) found no racial disparities in acceptance rates between African Americans and European Americans. In a related study, Peterson's (1996) findings indicated a similar result. His findings indicated that compared with other races, both African Americans and European Americans were over-represented in the VR system. The difference in this result could have been accounted for by different data analysis methods. Unlike earlier research studies on this topic, Peterson used a within group approach instead of a between group approach in his data analysis.

Other studies have found that race influence VR outcome through other factors. In a study designed to investigate the relationships between race, service factors and rehabilitation outcomes among people with severe mental retardation in the VR system, Moore, Feist-Price and Alston (2002) found that race and job placement are significantly related to closure status. European Americans were more likely to achieve successful closure success compared to African Americans. This finding is consistent with those from other recent studies (e.g Moore, 2001a, Moore 2001b). However, the explanations given for this trend makes this finding important to rehabilitation research and practice. Based on the findings, Moore et al. (2002) propounded a 'severity-race correlative theory', which states that: "As disability status becomes more severe, the counselor's level of cultural sensitivity and lack of cultural competencies have a greater possibility of negatively influencing the quality of services to consumers who are racial and ethnic

members of underrepresented groups"(P.165). However, no causal explanations should be attempted, given that most of these studies used retrospective data, since they were based on the RSA-911 archival data. In summary, there is need to investigate race beyond ethnicity (Warren, Cavenaugh, Giesen, 2004). For the purpose of producing valid evidence, a study on the influence of race on VR outcome would need to control for other influential background factors, which include gender, source of impairment, race, and public assistance received (Rogers, Anthony, Cohen, & Davies, 1997; Anthony, 1994).

Public Assistance Services

The trends of poor employment outcomes for people with psychiatric disabilities have been attributed to the disincentives inherent in the state-federal income assistance program. Contrary to the expectations from recent rehabilitation legislation, disincentives inherent in the state-federal rehabilitation system have been identified as one of the reasons for low employment trends among people with psychiatric disabilities. The Americans with Disabilities Act –ADA (1990) mandates non-discrimination, equal rights and barrier removal in order to promote productivity and integration of people with disabilities (Rubin & Roessler, 2001). Related to this, the Rehabilitation Services Administration passed the Workforce Investment Act (WIA, 1998), to enhance the opportunities of people with disabilities to obtain, maintain, and re-enter the job market, through the elimination of barriers (Rubin & Roessler, 2001).

The Workforce Investment Act (WIA) mandates " the empowerment of individuals with disabilities to maximize employment, economic self sufficiency, independence and inclusion into the society...through...respect for the individual dignity, personal responsibility, self determination and pursuit of meaningful careers based on

informed choice of individuals with disabilities.....and assisting individuals with disabilities to obtain employment that is consistent with strengths, resources, priorities, concerns, abilities and capabilities" (RSA-PD 97-04). This legislation provides funding for individual training, educational and employment services through the state-federal VR agencies. In addition, cash incentives are provided through social security programs (SSI & SSDI) for people with psychiatric disabilities to encourage their employment (O'Day & Killen, 2002; SSA, 2001). Yet, the disincentives inherent in these services have attracted considerable research attention.

The SSDI restrict beneficiaries from earning beyond a certain dollar amount ($810 at the time of this study), in order to retain their benefits (SSA, 2001). The SSI, require beneficiaries to lose double amount of dollars for each dollar they make beyond their maximum allowed earning. As a result people with psychiatric disabilities risk the loss of opportunities for career advancement, productivity and experience constant anxiety over the possibility of losing money, sustenance and medical benefits. In some instances, applying the guidelines of the income assistance could imply a high risk of losing the services and supports needed for the management of psychiatric symptoms, if the individual has to retain a competitive employment (Baron, 1995). However, more support for re-entry into employment has been provided by the recent passage of the Ticket to Work legislation. Yet, overall most of the people with psychiatric disabilities in the VR system continue to receive only minimum entry-level employment below their potential, and without any career advancement prospects.

Secondary Disability and Outcomes among People with Disabilities

Rehabilitation literature has consistently demonstrated that secondary disabilities

complicate the severity and life outcomes associated with primary disabilities, especially when they are related to mental health (see, Institute of Medicine, 1991; Gallagher & Stewart, 1987). It is not surprising that efforts to reduce or prevent the occurrence of secondary disabilities have intensified both in health policy and rehabilitation practice in recent years. The need to investigate the implications of secondary disability on the disability and rehabilitation process is important because (a) the incidence of secondary disabilities are increasing; (b) Secondary disabilities tend to affect domains of functioning needed for attaining successful rehabilitation outcomes; and (c) attention and information on secondary disabilities is emerging at a rapid rate in various health-related fields, creating the need for more awareness of this possible 'silent barrier' to successful vocational rehabilitation.

As part of this review, extant literature on the trends and impacts of secondary mental disability on the rehabilitation process and outcome will be included. This section will present review on the: (a) conceptual descriptions of secondary disability (definitions, components and progression); (b) challenges associated with secondary disability (general disability and rehabilitation burden); (c) secondary disabilities within changing paradigms of disability (looking beyond the premise of 'cure' and 'closure status;); (d) current awareness about the impact of secondary disability; and (e) conclusions related to major research findings about secondary conditions that suggest research attention.

This review will not go into etiology, causes or prevention of secondary disability. Discussions will be focused on aspects of research that is significant to disability rehabilitation. Given that there is still very limited research on the impact of secondary

psychiatric disabilities on vocational rehabilitation outcomes, the discussions will draw from the broad literature from other health-related disciplines and apply them in relevant ways within a disability rehabilitation context. Consistent with rehabilitation literature on this topic, this review will use the terms 'secondary conditions' and 'secondary disabilities' interchangeably (Wallace et al. 1997).

Conceptual Descriptions of Secondary Disability

Secondary disability is viewed as a condition that is causally related to a disabling condition and could be pathology, impairment, a functional limitation or an additional disability (Pope & Tarlov, 1991). Specifically, secondary disability could be a physical, mental, or psychosocial (Brandt & Pope, 1997; Pope, 1992; Marge, 1988) condition associated directly or indirectly with a primary disability. There is an agreement in literature that categorizing a disability as 'primary' or 'secondary' refers more to the sequence of occurrence than the magnitude or severity. In some cases, a secondary disability may become more debilitating than primary disability (Marge, 1988 p.).

A major conceptual proposition is that secondary disability is not necessarily symptomatic of other primary disabilities. For example, researchers have described secondary disability as any preventable physical, mental, and/or social disorders resulting directly or indirectly from initial disabling conditions, from a health promotion perspective (Kinne, Patrick, & Lochner, 2004; Krause & Bell, 1999; Lollar, 2002; Wilber, Mitra, Walker, & Allen 2002; Simeonsson, Bailey, Scandling et al. 1999). Further within the frame of rehabilitation of children with disabilities, Wallace et al. (1997) asserted that secondary disability may either manifest at the same time with the primary condition, or later as the physical or mental sequelae of primary disability

condition. Generally, secondary conditions across empirical rehabilitation literature presuppose the existence of a primary disability, without necessarily being a consequence of it. Yet, irrespective of the pattern of occurrence, recognizing the specific level in the disability process where secondary conditions could complicate the rehabilitation process will demand the knowledge of the basic components of secondary disability.

From a psychosocial perspective, secondary mental conditions have been described as including deficits in self-concept, social skills, and emotional problems that an individual with a primary disability is likely to experience (Wilber, Mitra, Walker, & Allen 2002p.394; HP 2010). These conditions could predispose the individual to develop more complicating mental health disorders. Consistent with this view, research (Spence, 2000) has also observed that life-changing primary disabilities are vulnerability factors for the development of mental disorders. Often, these mental disorders hinder positive adaptation and successful rehabilitation outcome. In corroboration, other research has directly identified domains of mental illness including depression, anxiety, insomnia and substance abuse as secondary conditions experienced by individuals with physical disabilities (Kinney & Coyle, 1989; Turner & Wood, 1985). These are psychological risk factors which could make the individual with disability inactive (Castelnuovo-Tedesco, 1981) or limited in needed interpersonal skills, cognition, and coping skills (Garske, 2003). In addition, these individuals could experience deficits in self awareness and understanding needed in making vocational choices (Fabian, 1999), and demonstrate poor vocational role functioning (Spence, 2000; Anthony & Blanch, 1987).

From a community integration perspective, components of secondary conditions have been described to include health-related economic consequences associated with

primary disability, limitations in work and social participation, family or community problems (HP2010; Wilber, Mitra, Walker, & Allen 2002p. 394). Research has categorized these mental-health related deficits in terms of community functioning, such as family, peer and school disabilities (Ezpleta, Keeler, Alaatin, Costello & Adrian, 2001). From a youth-specific perspective, the components of these secondary mental disabilities have been described to include lowered self-esteem, problems in adjustment to life altering conditions, and heightened sense of dependence on family (Simoensson, Sturz, McMillen & Huntington, 2002; Kokkonen, 1995).

Although some of these secondary mental health issues may not be directly related to primary disabilities, they have the propensity to increase the disability burden, make the youth vulnerable to poor coping choices like substance abuse, and immobilize them in the vocational rehabilitation process. Yet, the extent to which secondary mental disabilities could make a difference in the rehabilitation outcomes of youth with disabilities in the VR program has not been researched. A specific question needs to be answered: To what extent will secondary mental disabilities influence vocational rehabilitation outcomes measured by employment status at closure among youth with disabilities in the VR program?

It is important to note that limited empirical attention has been given to the relationships among primary disability, secondary conditions and rehabilitation outcome. The interactions between secondary mental disabilities, vocational rehabilitation (VR), and rehabilitation outcomes among VR consumers have not been specifically investigated. There is no known study, which has focused primarily on the associations among secondary psychiatric disabilities and rehabilitation outcomes among youth in the

VR system. In short, the influence of secondary conditions on VR outcomes among people with disabilities has been understudied in rehabilitation research. Although there is an agreement regarding the occurrence of mental health conditions as complications associated with various disabilities (Mitra, Wilber, Allen, & Walker, 2005), the few studies, which have investigated these associations among VR consumers, have only treated secondary mental illness as an incidental research component (Moore, Feist-Price & Alston 2002). As a result, this research proposes to address these gaps.

Secondary Conditions within Changing Paradigms of Disability

Emerging rehabilitation and health promotion trends in disability research and practice have highlighted the need to pay closer attention to secondary conditions. Changing paradigms of disability, which highlight 'disablement', 'ablement' and wellness processes rather than 'disease' and 'cure' processes, underlie these trends. This section will present an overview of the relevance of the bio-psychosocial and socio-ecological perspectives to the secondary disability discourse.

The bio-psycho-social model conceptualizes disability as the function of the interaction between the individual with disabilities and his or her biological, ecological, social, and/or cultural environment (Dodge & Pettit, 2003; NIDDR, 1999). Within this framework, the individual has limitations as well as impairments, which may not be directly related to the disability. The unit of assessment will be the individual's medical condition, as well as his or her functioning in his environment. The implication for vocational rehabilitation includes the need for holistic interventions guided by over all quality of life and not merely physical functioning. Such holistic intervention would need to embrace all determinants of individual well-being, and target the prevention of

needless impairment and disability (Rimmer, 1999).

This shift is aimed at enhancing successful rehabilitation outcomes through the promotion of over-all well-being, recovery, empowerment and ongoing functioning of the individual with disability. It recognizes secondary psychiatric disabilities as possible barriers to successful rehabilitation outcome. Integrating this into the rehabilitation process implies a contextual approach to disability with emphasis on the provision of ongoing individualized support in order to reduce or remove secondary disabilities (Thompson, Craig, Schalock, Tasse, Bryant, Hughes et al., 2003; Luckason, Bothwick-Duffy, Buntnix, Coultier, Craig et al., 2002).

Although vocational rehabilitation has recorded great success in the area of community-focused intervention, the consistent neglect of secondary mental health needs of individuals with physical disabilities and the lack of adequate mental health services for individuals with primary physical disabilities, have been noted (Rimmer, 1999). Mechanic and Aiken (1987) provided empirical evidence which supports this observation. In their study of mental needs of individuals with disabilities, they noted that mild symptoms of depression and schizophrenia often go unrecognized in the rehabilitation system. This raises a crucial concern that any neglect of the interference of associated mental illness in physical disability may be increasing the disability burden, in terms of high rehabilitation cost and poor rehabilitation outcome.

For instance, failure to recognize the influence of associated depression on the vocational outcomes of people with disabilities could increase the probability of unsuccessful employment outcome. It could also increase the individuals' vulnerability to substance abuse and negative coping choices. Neglecting this secondary mental illness

will be contrary to the holistic focus of the bio-psychosocial model. The Institute of Medicine (1991) asserts that such neglect could lead to non-comprehensibility in service provision. The biopsychosocial model therefore advocates comprehensibility in VR service provision, reflected in continuous, coordinated services which will promote personal well-being, and enhance the psychological functioning of individuals with disabilities (Milkowitz, 2004).

The socio-ecological framework of disability sees disability as a social construct which is largely shaped by the environment and focuses on the interaction between people and their environment. This framework is tied mostly to the enhancement of equity in public health delivery. Under a socio-ecological model, disability is conceptualized as a social issue reflected as the product of an ongoing person-environment interaction, and manifested in the dimensions of body functions, performance activities, and participation over time (Rune, 2002, p.6). Within this framework, environment is categorized to include products and technology, natural environment, supports and relationships, attitudes, and services, systems and policies.

According to (Sameroff & Fiense, 2000; Tate & Pledger, 2003) the emphasis of this framework consists of enhancing the creation of quality rehabilitation interventions aimed at improving equal opportunity, economic self-sufficiency and full integration for individuals with disabilities. This focus is consistent with Silverstein's (2000) four major goals of federal disability policy, which include (1) full participation; (2) independent living; (3) economic self-sufficiency; and (4) equality of opportunity. Meeting these goals demand embracing the emerging focus on functional limitations, personal well being, individualized supports, personal competence and recovery in rehabilitation (Schalock,

2004; Schalock, Baker, & Crosser, 2002; Simeonson et al, 2002; Block, Balcazaar & Keys, 2001). By implication, these require the recognition that reduction or removal of secondary mental disabilities and enhancing functional capabilities and personal well-being are major steps to enhancing successful outcomes in different domains of rehabilitation, especially vocational.

Irrespective of the holistic focus of these contemporary disability paradigms, and the improvements in intervention, planning, coordination of services, career planning and development, the rehabilitation field has not given adequate recognition to the prospect that an individual with disability has an ongoing vulnerability to develop secondary mental disabilities. For the most part, the major focus of rehabilitation has remained the reduction of the impact of primary disability and the restoration of as much function as possible (Marge, 1988). Individuals who come into vocational rehabilitation are provided services, for restoration of physical functions and community integration. Success in the VR program is often judged by outcome status. For example, while status 28 represents unsuccessful employment outcome, status 26 is the successful employment status, which reflects holding for at least 90 days after closure. Dropping out of the VR system without successful closure is often explained by demographic disparities or lack of individual motivation (Brodsky, 1987; Rimmer, 1999; Tucker, 1984). However, there is the question of whether there a possibility that the health- related factors of secondary mental illness could influence 'readiness' and 'motivation' to an extent that vocational outcome may be compromised.

The rehabilitation implications of these models include the need for holistic services, which provides support for the 'whole' individual. The benefit of these

emerging views is that intervention could now directly target multiple levels of disabilities in the same individual in order to enhance the rehabilitation of the individual. In order to devise holistic interventions that specifically address the complex needs of people in the VR system, there is need for research, which will specifically explore the roles of secondary mental disabilities in the rehabilitation outcomes of individuals with disabilities.

Further, there is need to move beyond identifying major markers or indicators of psychosocial adaptation, to investigating the intra-individual processes which could mediate or moderate the disability experience and the associated adaptation outcomes (Livneh, 2001). Changing the delivery system to match the needs of individuals will benefit from an in-depth understanding how secondary psychiatric disabilities could influence rehabilitation outcomes. Given the high vulnerability of youth to mental illness (HP2001), this research will explore the prevalence of secondary psychiatric disabilities and how they influence employment outcomes of youth with disabilities in the VR program.

Impact of Secondary Disability

The impact of secondary disabilities on the outcomes of individuals with disabilities has attracted a number of empirical attentions in recent years (Anderson, Lollar, & Meyers, 2000; Lollar, 1994; Pope, 1992; Seekins, White, Ravesloot et al., 1999). Most of the awareness regarding the impact of secondary disabilities has been propagated through public health promotion research, and disability policy. This section of the literature is reviewed first in order to establish the importance of secondary disabilities as reported from different practice and policy perspectives. The scope of the

review will be limited to issues that are relevant to disability rehabilitation. Throughout, the focus of the discourse will be an exploration of the question: Does secondary disability matter?

Health Promotion Perspective

The goal of preventing secondary conditions has recently emerged as a major item on the public health agenda (Craig et al, 1997) This emphasis is tied to the fulfillment of essential independent living objectives of full inclusion; participation in all aspects of society; and, maintenance of well-being for people with disabilities (Brooks, 1984). Within a health promotion perspective, researchers have recognized that secondary disabilities contribute most of the disability burden (Rimmer, 1999), overlap with primary disabilities (Wilber et al, 2002), reduce the quality of life among individuals with disabilities (Simeonsson et al. 2002), and, possibly account for most of the relapse and lack of motivation in the rehabilitation system . Specifically, there has been an increase in calls for research to prevent or reduce the frequency or severity of secondary conditions since the late 1980s (White & Seekins, 1999). Linking health promotion with policy, the Institute of Medicine (1991) argued that if the health conditions related to disability and its antecedents are not addressed coherently at the policy level, it should not be surprising that current approaches to rehabilitation could be lacking in comprehensibility, continuity, and coordination.

This public health perspective raises some questions for vocational rehabilitation research and practice: (1) do some of our consumers have inherent 'unrecognized' disabilities, which could hinder successful vocational outcome in the VR program? Apart from the traditionally identified VR service and socio-demographic predictors of

vocational rehabilitation outcome, what are some of the intra-individual factors that could make most of our consumers (especially youth) unresponsive to intervention? Some of these issues have been addressed in the broader rehabilitation literature in terms of increased disability burden associated with secondary disabilities, although with no specific reference to the federal and state VR context.

There is an emerging recognition that primary disability no longer constitutes the major primary barrier to inclusion and participation (WHO, 2001). A consensus remains that secondary conditions complicate both the primary disability experience and rehabilitation process. Secondary disabilities are known to increase the severity of an individual's disability (WHO, 2001). In agreement, Traci (2002) observed that secondary mental disabilities could impede on the individual's participation in essential life activities, even while receiving 'appropriate' rehabilitation intervention. Alluding to the importance of recognizing the impact of secondary disabilities, Wilber et al. (2002) asserted that the prevalence of these conditions and the stakes of compromised well being are always likely to be substantial, especially as more people survive traumas and chronic illness.

Secondary disabilities have been known to contribute to high cost of rehabilitation of primary disabilities (Rimmer, 1999). Relapse and poor engagement in the rehabilitation process are common in cases where the influence of secondary disability has not been recognized. Research has observed that a significant proportion of health problems and expenditures for people with disabilities could be accounted for by health complications associated with secondary conditions (Lollar, 1994; Marge, 1988; Pope & Tarlov, 1991). These conditions have been known to constitute barriers to engagement in

the disability rehabilitation process.

For instance, rehabilitation literature has demonstrated an association between depression and employment outcome (IOM, 1991). This association has been construed as both direct and indirect. Directly, depression and primary disability could produce a synergy, which could lead to vocational dysfunction of the individual. Indirectly, depression as a secondary condition could interfere with an individual's functioning and thereby lead to more negative psychological conditions and consequently, poor vocational outcomes (Krueger, 1981; Moore et al., 2001). In the same way, there is ample empirical evidence regarding the associations between substance abuse, rehabilitation engagement and outcome in the vocational rehabilitation process (Donat & Haverkamp, 2004; Drake, Brunette, & McHugo, 2004; Kelley & Benshoff, 1997). Often, the implications would be unresponsiveness to, and lack of motivation in the traditional vocational rehabilitation process, especially when services are solely targeted at restoration of vocational functions.

Research is in agreement regarding the high tolls of secondary conditions in the areas of functional limitations, and increase in the level of disability experience (Ravesloot, Seekins, & Walsh, 1997; Pope & Tavlov, 1991; Graitcer & Maynard, 1990). Kinne et al. (2004) demonstrated the importance of recognizing the rehabilitation barriers associated with secondary disabilities when they asserted that "the precision of the 'secondary' label is less important than the clear rehabilitation challenge which these substantial disability-related and preventable disparities pose" (P.445). These barriers could be more severe when the conditions are psychiatric. Following Rimmer's (1999) advocacy on health promotion activities, improving rehabilitation outcomes among

individuals with disabilities would entail furthering rehabilitation initiatives, to solely target the prevention or reduction of secondary mental disabilities. Based on the current review, it is clear that giving attention to secondary mental conditions will suggest some re-organizations in the disability rehabilitation system. However, this re-organization will be a justified application of the bio-psychosocial paradigm (Engel, 1983), which highlights the provision of holistic services to improve the well being of individuals with disabilities.

Secondary Disability Trends

Research studies, which have investigated the prevalence of secondary conditions among individuals with physical disabilities, have come up with alarming findings of high incidence of secondary conditions among people disabilities (Mitra et al., 2005; Simeonsson et al, 2002; Wilber et al, 2002; Seeking et al, 2001). A surveillance report by Seekins et al. (1990) indicates that people with disabilities experience as much as 14 secondary conditions associated with their primary disabilities. Consistent with this report, White, Gutierrez and Seekins (1996) noted that about 83% of Independent Living center (ILC) consumers reported experiencing one or more secondary conditions within the past few months. In a related study of adults recruited mainly from ILC, based on a longitudinal data collected between 1996 and 2000, Mitra et al. (2005), found high prevalence of secondary psychiatric disabilities across the three phases of the study. Although most of these studies have focused on physical secondary conditions, there have been frequent reports of the occurrence of secondary mental health conditions among individuals with disabilities.

Rehabilitation research from the past two decades is consistent about a 40%

occurrence of secondary psychiatric disabilities among individuals with physical disabilities (Kinney & Coyle, 1992; Turner & Rogers, 1988; Turner et al. 1985). Consistent with these findings, Kinne et al. (2004) investigated the prevalence and impact of secondary conditions among 98 adults with disabilities. However, the questionnaire items that measured the occurrence of secondary conditions were not specifically constructed as a secondary condition measure. They were part of a 2001 Washington State Behavior Risk Factor Surveillance Survey (BRFSS) of non-institutionalized people aged 18 years and older. Secondary conditions were operationalized as psychiatric secondary conditions of depression, and anxiety as well as other fourteen physical conditions.

The findings suggested that having a disability predicted having most secondary conditions. However, age and health status contributed more to psychiatric secondary disabilities than primary disability. Lack of access to needed service also contributed to the high occurrence of secondary conditions. Based on these findings, the researchers observed that prevention of secondary conditions would require intervening in the complex relationship among individual risk factors and environmental determinants of health and quality of life. One implication of these findings for rehabilitation research and practice is to understand how and to what extent secondary psychiatric conditions could influence outcomes among people with disabilities.

Reporting youth-specific trends (HP 2010) used the International Classification of Functioning (ICF) disablement framework to present the increased incidence of secondary disabilities among young people (HP2010: 3). Specifically, there were about a 33 % increase in activity limitation among girls and a 40% increase among boys with

disabilities. According to this report, these individuals who reported activity limitations reported more days of pain, depression, anxiety, and sleeplessness and fewer days of vitality than their counterparts who reported less activity limitations.

The rehabilitation implication of this trend is that it may be important to target activities and services that address all aspects of health and well-being including preventing secondary psychiatric disabilities (US Dept of State, 2000; Sowers et al, 1995). This is made more salient with the national baseline data indicating that 31% of all children and adolescents with disabilities were reported to be sad, unhappy and depressed in 1997 (HP2010) is considered. Consistent with the above discussed rehabilitation implication, the Healthy People 2010 report clearly mandates the improvement of the mental health status of young people with disabilities. This is viewed as a method of removing psychological barriers and enhancing full participation of young people with disabilities.

Disability Policy

A more important dimension of the secondary disability discourse is situated within the disability policy perspective. There has been an increased emphasis on access and support for people with disabilities. For instance, the Education for Handicapped Children (1975, 1986), the IDEA (1991. 97) and the Americans with Disabilities Act - ADA (1990) all mandate inclusion, participation and choice among individuals with disabilities. In line with this emphasis, disability policy, practice, research and advocates have consistently called for more attention towards the prevention of secondary conditions among individuals with disabilities, in the past decade (HP2010). Implementing these disability legislations with minimal attention to the removal of

rehabilitation barriers caused by secondary mental conditions may jeopardize the prospects of achieving full inclusion and participation among individuals with disabilities.

Although these pieces of legislation have contributed to the improvements in the quality of rehabilitation and accommodation services provided for children and youth with disabilities, research reports regarding the scarcity of baseline information on health maintenance of this population remain a source of concern (see, HP2000). Rimmer (1999) observed that health maintenance objectives for people with disabilities have been largely ignored. Consistent with this, research (Patrick, 1997; Stuifbergen & Becker, 1994; Brandon, 1985; Brooks, 1984) is in agreement that secondary health conditions for individuals with disabilities have been neglected. Incidentally, health maintenance among people with disabilities has come to be regarded as a key predictor of outcomes among this population.

Unfortunately, full inclusion, participation and improved general well-being for people with disabilities would not be attainable without addressing the relationships between the mental health complications associated with disabilities, and rehabilitation outcomes. In response to these trends, recent research has recommended the inclusion of the prevention of secondary conditions in rehabilitation service delivery, in order to improve the well-being and quality of life of people with disabilities (Simeonsson et al, 2002Fuhrer, 1995; Lollar, 1994).

Summary

This overview of literature has addressed extant literature on the associations between secondary disabilities and rehabilitation outcomes among people with

disabilities. From different theoretical and practice perspectives, literature remains consistent about the pervasive negative impact of secondary psychiatric disabilities in the lives of people with various physical disabilities. People with primary disabilities are often at risk of developing secondary disabilities, which can contribute to negative life outcomes more than the primary disabilities.

Irrespective of the rehabilitation barriers that are associated with secondary disabilities, information on secondary psychiatric disabilities among people with disabilities in the vocational rehabilitation (VR) system remains limited. Specifically, there is no study focused directly on the impact of secondary psychiatric disabilities (SPDs) among transition youth with disabilities in the vocational rehabilitation literature. Despite the increase in the prevalence of SPDs among people with disabilities, and continued negative influence on outcome (Simeonsson et al., 2002), rehabilitation literature has continued to consider it only as an incidental in research investigations (Moore et al, 2002).

This lack of attention is unfortunate as research of this type would allow policy makers and program planners to better understand who we are serving and identify the psychological barriers that need to be removed in order to enhance vocational rehabilitation outcomes among consumers. Focusing research attention on secondary psychiatric conditions may highlight the impact of a significant health-related intra-individual factor which could influence vocational rehabilitation outcome. In addition, it could contribute knowledge needed for removal of mental health barriers, which could impede the VR outcome of youth with disabilities.

As part of investigation of the relationships between mental illness, VR, and

employment outcomes among youth in the VR system, this study investigated the prevalence of secondary psychiatric disabilities among youth with disabilities within the RSA-911 dataset, and how secondary psychiatric disabilities influence their vocational outcomes.

CHAPTER 3

METHODOLOGY

This chapter includes the research questions, the research design, a description of the sample population, the source of data, the independent and dependent variables, and a discussion of the data analysis used in the study.

This study examined the relationships between the employment outcomes of youth VR consumers with psychiatric disabilities with the following factors: (1) VR services which they received and (2) personal background characteristics. To accomplish these goals, data were obtained from Rehabilitation Services Administration (RSA) 911 dataset on youth with primary and secondary psychiatric disabilities whose cases were closed during federal fiscal year 2004 (FY October, 2003 to September 30, 2004).

Information extracted from this dataset fell under three major categories: consumer personal background characteristics, VR services obtained, and employment outcomes. The personal background variables evaluated in this study were: (a) gender, (b) education level at application, (c) public support received at application, (d) diagnostic type, and (e) race. Sixteen service variables listed in the RSA 911 data were included in the analyses. Employment outcome was defined as successful or unsuccessful employment outcome.

Research Questions

1. How are the employment outcomes obtained by youth VR consumers with primary psychiatric disabilities associated with the vocational rehabilitation services they receive while controlling for demographic characteristics?

2. How do the personal background characteristics of youth VR consumers with primary psychiatric disabilities impact their employment outcomes?
3. How do the employment outcomes obtained by youth VR consumers with secondary psychiatric disabilities compare to those of youth rehabilitants with non-psychiatric disabilities?

Research Design

This study adopted a correlational research design. The use of this research design is justified because the primary intent of this study is to examine relationships between a set of predictor variables and employment outcomes. A correlational study examines the extent to which differences in one characteristic or variable are related to differences in one or more other characteristics or variables. The magnitude of the relationship, which is expressed in a correlation coefficient, provides the researcher with insights regarding the theory-based, hypothetical association of variables of interest (Leedy & Ormrod, 2001). Correlational design was appropriate as this study required making of predictions on multiple influences. It also allowed the analysis of how several background characteristics and VR services or combinations of VR services influence employment outcomes among youth with psychiatric disabilities (Borg, Gall,& Gall, 1993; Cohen & Cohen, 1983).

An exploratory design was employed to assess the influence of secondary psychiatric disability on employment outcomes among youth rehabilitants in the state-federal VR system. Although research (Campbell & Stanley, 1963) has described exploratory designs as weak, this design was appropriate given the need to better understand and measure the differences between the target population (youth with

secondary psychiatric disabilities) and the rest (youth without secondary psychiatric disabilities). This study considered making comparisons between the two groups an appropriate starting point in assessing the extent to which the VR system is meeting the needs of youth with psychiatric disabilities as a secondary diagnosis. Thus, as there is no prototype in exploratory research, the major goal was to become more familiar with this subject (Babbie, 1995; Rubbin & Babbie, 1993). This type of assessment can provide data that could be developed to identify new program and service possibilities. Findings from this type of empirical investigation may lay groundwork for additional research (Capella, 2003; Rubin & Barbie, 1993).

Subjects

The population of interest in this study included youth with disabilities who have received VR services through the state-federal VR program. More specifically, the participants in this study included youth VR consumers with psychiatric disabilities whose cases were closed during the 2004 fiscal year (October 1, 2003- September 30, 2004) in one of two following categories: (1) successful employment outcome(status 26) and (2) unsuccessful employment outcome (status 28). In the RSA-911 database, primary psychiatric disabilities include anxiety disorders, depression and mood disorders, eating disorders, personality disorders, mental illness not listed elsewhere, schizophrenia and other psychotic disorders.

The main criteria for inclusion in the study for the first two research questions included: a) having a primary classification of mental illness, (b) being between the ages of 12.99 and 25.99, (c) having received any VR service and (d) having been closed either successfully (status 26) or unsuccessfully (status 28). For research question three, the

sample included all youth with disabilities, but without primary mental illness, whose cases were closed during the 2004 fiscal year (October 1, 2003- September 30, 2004) in one of two following categories: (1) successful employment outcome(status 26) and (2) unsuccessful employment outcome (status 28).

For the purpose of identifying whether or not there are associations between employment outcome and several demographic and service variables among youth VR consumers with psychiatric disabilities, data containing youth who have primary psychiatric disabilities (n=8,419) were extracted from a larger RSA-911 database of all youth with disabilities in the state and federal VR system (n=74,457). For the purpose of examining whether or not there are associations between secondary psychiatric disabilities and employment outcome among youth VR service consumers, data was extracted from the larger database of all youth with disabilities containing 62,032 youth with non-mental disabilities, and 4,006 with secondary psychiatric disabilities (after those with primary psychiatric disabilities had been removed).

Variables

The predictor variables for this study included personal background characteristics and the VR services received. These variables include factors which had been identified by existing research as possible important predictors of employment outcomes among the general populations of people with disabilities (Capella, 2003; Moore 2001b; Moore and Scroedel, 2001a; Wilson, 1997). In addition, clinical judgment was applied in selecting the variables for this study. No significant differences in employment outcomes were found in relation to gender and, therefore, this variable was not included in the regression model. Levels of personal background variables with very

small frequencies were not collapsed together. This was based on psychiatric vocational rehabilitation research which has observed the need to recognize that "the complex process of obtaining and sustaining employment may not be uniform across various demographic and diagnostic subgroups or persons with psychiatric disabilities. As a result there is call for research which does not assume homogeneity, which explores subgroup differences, and identifies factors outside the VR service system that may be relevant in determining the employment success of various demographic subgroups" (Wewiorski, 2004, p. 19).

Predictor variables

Personal background variables: This consisted of gender, education at application, race/ethnicity, source of impairment (diagnosis) and public support received at application. Gender is a dichotomous variable coded as: 1 for male and 2 for females. Race/ethnicity is a nominal variable with seven levels. This information is recorded based on the individual's own identification of race and ethnicity from the following six categories: 1 for White, 2 for Black/African American, 3 for American Indian/Alaska Native, 4 for Asian, 5 for Native Hawaiian/ other Pacific Islander, 6 for Hispanic/Latino origin or 7 for multiracial.

Source of impairment included: anxiety disorders, personality disorders, eating disorders, depressive and other mood disorders, schizophrenia and psychotic disorders, and other mental illness not listed elsewhere.

Public support received was treated as a nominal variable with the following levels: Supplemental Security Income (SSI), Social Security Disability Income (SSDI) and Temporary Assistance for Needy Families (TANF).

For the purpose of this study, 'services provided' was represented as a categorical variable with 16 levels including: assessments, diagnosis/treatment of impairments, vocational rehabilitation counseling and guidance, college/university training, occupational/vocational training, on-the-job training, job readiness training, disability related augmentative skills training, miscellaneous training, job search assistance, job placement assistance, on-the-job supports, transportation services, maintenance, technical assistance, and 'other services'. All sixteen service variables were included in the evaluation of all the research questions, given that no prior research has documented the specific services which could most correctly predict employment outcomes among youth with psychiatric disabilities, using the RSA-911 database. In this sense, this aspect of the study was exploratory. Each of these services was dichotomously coded as received or not received.

Outcome or Criterion Variable

The outcome or criterion variable chosen for this study was the employment outcome achieved by youth with psychiatric disabilities in the RSA-911 database. This was represented as a categorical variable with two levels: successful or unsuccessful employment outcome. For the purpose of this study, successful employment outcome (status 26) was coded as 1, while unsuccessful employment outcome (status 28) was coded as 0.

Data Collection Procedure

This study used the archival data collected by the Rehabilitation Services Administration (RSA-911) for the federal fiscal year 2004. The RSA-911 database is a reporting system which follows federal guidelines established by the Rehabilitation

Services Administration (RSA) to keep comprehensive, standardized information on the rehabilitation process on all cases closed nationwide in the state-federal VR system, from first referral to final closure (Capella, 2003; Moore et al, 2002; Moore, 2002; RSA, 1995). This data is collected every year in all the states. The basic information contained in this database includes demographic, socioeconomic, and disability information at referral; information on all types of services received; and outcome information for all cases closed during the fiscal year (Warren et al., 2004). For the purpose of this study, the specific categories of information that were extracted from the database included: (a) VR services obtained; (b) personal background characteristics such as gender, race/ethnicity, source of impairment and public assistance received; and (c) employment outcomes achieved (successful or unsuccessful employment).

Based on existing literature, Matrone (2003) has asserted that this database is the single most reliable data on demographics, services, and outcomes of individuals with disabilities in the state-federal rehabilitation system. In addition, Wheaton (2002) has observed that the research utility of this database is increased by the fact that the consequences of random errors are reduced by the large sample size contained in the database.

However, this study recognized that the inherent unknown elements of miscoding or lack of coding that exists with collection and analysis of this type of archival data could limit the reliability and validity of information obtained from the RSA-911 database. Importantly, this study assumed that this error will be minimized as a result of RSA-devised cross checks of the data, which are aimed at promoting consistency, coherence, utility of the data elements, and the validity of measurements derived from

these data elements. This involves the use of 18 comparison checks at the time of data entry (RSA, 1995). In addition, this study anticipated problems related to missing data, which could affect the validity of the findings. However, the many advantages offered by the RSA-911 dataset increases its research value. First, the external validity of this study is increased because the data is collected quickly thus reducing the effect of subject mortality. Second, this dataset provides the researcher with access to a large representative sample of youth with disabilities across the nation.

Data Analysis

Data Analysis for Question One

Research Question 1. How are the employment outcomes obtained by youth VR consumers with psychiatric disabilities associated with the vocational rehabilitation services they receive?

Data Analysis.

The predictor variables in this question were VR services listed in the RSA-911 database. Vocational rehabilitation services was treated as a categorical variable with 16 levels including: assessments, diagnosis/treatment of impairments, vocational rehabilitation counseling and guidance, college/university training, occupational/vocational training, on-the-job training, job readiness training, disability related augmentative skills training, miscellaneous training, job search assistance, job placement assistance, on-the-job supports, transportation services, maintenance, technical assistance, and 'other' services. All the services were coded as received (1) or not received (0). The criterion variable for this question was employment outcome. This was coded as successfully employed (1) or not successfully employed (0).

This analysis was performed using all the youth with a primary diagnosis of mental illness (n=8419). However, nine cases were missing under the 'race' category. The analysis on race was therefore conducted using 8,140 youth with primary mental illness who received VR services during the 2004 fiscal year. Data analysis consisted of descriptive and logistic regression analyses. Descriptive analyses yielded data providing an overview of the population indicating the numbers and proportions of youth VR consumers with mental illness who were successfully employed or not employed after receiving VR services. Logistic regression analyses involved several steps including a selection of significant variables, model building, and assessment of the goodness-of-fit of the final model.

The second step involved the selection of significant variables for the logistic model. A stepwise method was used to enter variables into the logistic model. Given the fact that there is limited existing information on how specific VR services impact the employment outcomes of youth with psychiatric disabilities, and in this sense this research is exploratory, this method was considered most appropriate. Norusis (2000) considered the stepwise method the most commonly used method for model building, especially in exploratory research. For the purpose of this study, A stepwise variable selection is a variable selection method based entirely on the statistical significance of several competing models (Mertler & Vanatta, 2002). This involves a combination of forward and backward regressions in which the initial regression model contains no variables except an intercept. Variables are then entered to the model one at a time and are possibly removed from the model depending on whether or not they render a statistically significant model. These steps are necessary in identifying variables that

may not individually influence outcome but can become significant predictors in the presence of other variables. At the end, a model containing all the significant VR service variables was developed.

The third step involved the verification of the importance of the variables within the model. The criteria for judging significance for this study was a chi-square or more specifically, the likelihood ratio test (LRT) statistic. Cutoff significance levels for entering and removing variables from the model were set to alpha=0.35, 0.30, respectively. These high significance levels were safeguards against removal of variables that had marginal statistical significance. This procedure was necessary given that the current investigation was among the first studies of youth VR consumers with psychiatric disabilities using the RSA 911 data set. By using the LRT criteria, a model is refined and reduced by removing the most non-significant variables or interactions from the model.

Odds ratios and their 95% confidence intervals based on the final models were computed. Odds ratios are the ratios of the probability of outcome Y=1-successful employment, to the probability of outcome Y=2- unsuccessful employment (Mertler & Vannata, 2002). According to Wright (1995), the odds are one when both outcomes are equally likely; greater than one when the target event is more likely than the other event; and less than one when the target event is less likely than the other event.

Data Analysis for Question Two

Research Question 2. How do the personal background characteristics of youth VR consumers with primary psychiatric disabilities impact their employment outcomes?

The predictor variables for this research question were personal background characteristics of the youth VR consumers with psychiatric disabilities in the RSA-911

data base for the 2004 fiscal year. Personal background characteristics investigated were gender, education at application, race/ethnicity, source of impairment (diagnosis) and public assistance received at application. Gender was found to be insignificant and was therefore removed during the stepwise procedure. Based on clinical judgment, existing literature review and descriptive analysis conducted for this study, the race variable 'white' was coded as the reference group. Based on clinical recognition of cultural distinctiveness of different races and the need of the study to investigate the unique outcomes of different races in the state-federal VR system, this study did not merge any two different races. The education variable 'higher education' (7) was coded as reference group. The diagnostic variable 'schizophrenia' was also coded as reference group. The criterion variable for this research question was also employment outcome.

Logistic regression was again found appropriate for the investigation of this research question. A logistic regression model similar to the one constructed for research question one was considered for this second research objective: examining the relationships between the various categories of race/ethnicity, education levels, sources of impairments, public assistance received and employment among youth with psychiatric disabilities in the state-federal VR system.

Data Analysis for Question Three

Research Question 3. How do the employment outcomes obtained by youth VR consumers with secondary psychiatric disabilities compare to those of youth rehabilitants with non-psychiatric disabilities?

The predictor variable used to examine this research question was secondary psychiatric disabilities. The goal of this research question was to better understand the

possible impacts of secondary psychiatric disabilities on the employment outcomes of youth VR consumers. The outcome variable for this research question was employment outcome.

A logistic regression model similar to the one constructed in the previous sections was considered for this third research objective: examining the differences in successful employment outcome between youth with secondary psychiatric disability and the rest of the youth without mental illness after controlling for personal background and VR service variables. For this purpose, a new variable named SD was defined with 7 levels: 1=anxiety, 2=depressive and other mood disorders, 3=Eating disorder, 4=Mental Illness not listed elsewhere, 5=Personality Disorder, 6=Schizophrenia, 7=no mental disability. A model was finally fitted containing SD variable and all demographic and service variables that were included in the models of the previous sections.

Summary

This chapter provided an overview of the research questions, the research design, a description of the sample population, the source of data, the independent and dependent variables, and a discussion of the procedure of data analysis used in the study.

At present, there is a dearth of literature regarding the employment outcomes of youth with psychiatric disabilities in the state-federal VR system. The current study is among the first to investigate the factors that predict employment outcomes among youth with psychiatric disabilities using the RSA-911 data. The findings from this study will have both substantive and methodological contributions. The literature on employment outcomes among people with psychiatric disabilities mainly has investigated either adult populations in the VR system or youth in the general rehabilitation system. There is

limited research that has specifically examined the issues of youth with psychiatric disabilities in the state-federal VR system. Findings from this study will provide evidence that explains whether employment outcome among youth with psychiatric disabilities is a function of the absence or presence of needed VR services or personal background factors. By means of this clarification, this study hopes to contribute to existing knowledge which could help policy makers to target VR interventions appropriately, thereby enhancing employment outcomes for this population. Related outcomes can then be monitored and measured. In addition, concrete and evidence driven objectives can be achieved and the overall goals of disability advocacy will be furthered (Institute Of Medicine, 1991, p.16).

This study also expects to contribute to existing knowledge regarding the process and outcome of vocational rehabilitation among youth with psychiatric disabilities (primary and secondary) while controlling for unique personal background characteristics and VR services received. This will help VR service providers to design and deliver services, which will be effective in increasing employment outcomes among this population. In this way, achieving successful employment outcomes and retaining jobs among youth with psychiatric disabilities would increase, while dropout rates from the VR system and poor employment outcomes would decrease.

This chapter recognizes the methodological limitations related to the statistical procedures chosen. For example, research has observed that the stepwise method of variable selection tend to create 'noise' in the data. Although it is regarded as the most commonly used method for model building in both linear and logistic regression, other methods of variable entry may prove stronger when all statistical requirements are met

(Norusis, 2000). In addition, this chapter acknowledges the limitations associated with the use of secondary data such as miscoding, missing data, and the possible inaccuracy in data collection.

Chapter 4

RESULTS

The purposes of this study were (1) to examine personal background characteristics, types of vocational rehabilitation (VR) services provided through the state-federal VR system to youth with psychiatric disabilities, (2) to model the relationship of these factors to employment outcome, and (3) to assess the influence of secondary psychiatric disability on employment outcomes among youth rehabilitants in the state-federal VR system. The third purpose was addressed because it was hypothesized that employment outcomes will differ between youth who had secondary psychiatric disabilities in addition to their primary disabilities and youth without secondary psychiatric disabilities when controlling for personal background and VR services factors.

To accomplish these goals, data were obtained from the Rehabilitation Services Administration (RSA) 911 dataset on youth with primary and secondary psychiatric disabilities whose cases were closed during federal fiscal year 2004 (FY October, 2003 to September 30, 2004). Descriptive analyses were used to address the first goal of the study and logistic regression was used to address goals two and three.

The dataset analyzed for the first two research questions was extracted from a larger database of all youth who received VR services during FY 2004 and it contains 8,419 youths who have primary mental illness diagnoses of various classifications. The objective was to examine whether statistically significant relationships existed between employment outcome, demographic and service variables among youth VR service consumers with psychiatric disabilities. The dataset analyzed for the third research

question was extracted from the larger database of all youth VR consumers (N=74,457) containing 62,032 youth with non-mental diagnoses and 4,006 with secondary psychiatric disabilities. The objective was to examine whether or not relationships exist between secondary psychiatric disabilities and employment outcomes among youth VR service consumers.

Review of Methodology

A correlational design was adopted for the purpose of investigating the relationships between personal background characteristics, VR services and employment outcomes among youth with psychiatric disabilities. This design was appropriate given the flexibility and capacity to evaluate multiple relationships which it offers (Cohen and Cohen, 1983). Given the exploratory nature of this study, this research design is most appropriate due to its goal to measure complexities of relationships related to personal background and VR service factors among youth with psychiatric disabilities. Descriptive and logistic regression analyses were employed as the statistical means with which to assess the relationships between the predictors (gender, race/ethnicity, source of impairment, education, public assistance received and VR services) and criterion variable (employment outcome).

Logistic regression analyses involved selection of significant variables, model building, and assessment of goodness of fit for the final model. Correlation coefficients were first computed. This assisted in determining which variables were entered into the logistic regression model. A stepwise method was employed to enter all variables of interest into the regression equation. As there were no a priori hypotheses regarding which variables would have significant associations with the outcome, there was need to

use a stepwise variable selection procedure to discriminate between models. The stepwise method enabled the reduction of the number of variables in an effort to identify a final parsimonious model which is most consistent with the sample data. Based on the results of a likelihood ratio test (LRT) which is also known as the -2log-likelihood statistic, any variable with an alpha =0.35, 0.30 was judged significant enough for entry into the logistic equation for this study. This criterion facilitated the reduction and refining of the regression model by removing the most non-significant service variables and interactions.

The variables that were entered into the logistic regression equation based on the likelihood ratio test were race (seven levels), source of mental illness (six levels), public support received at application (three levels), education at application (seven levels), and VR services (16 levels). The VR services included were assessment, diagnosis/treatment, vocational rehabilitation, college/university training, occupational/vocational training, on-the-job training, job readiness training, miscellaneous training, job search assistance, job placement assistance, on-the-job supports, transportation, maintenance services, technical assistance and 'other' services. Employment outcome was defined as successful or unsuccessful employment resulting in a binary variable. The final model contained 70 variables including intercept, 16 VR service variables, 23 levels of personal background variables and two-way interaction variables.

Two-way interactions were included to explore the extent to which employment outcomes were impacted when two services were combined. The choice of two-way interactions between services as opposed to three or higher order of interactions kept the model simpler and more parsimonious. These variables along with their estimated

coefficients, standard errors, chi-square test statistics, and p-values are reported in Appendix 1.

Odds ratios and their 95% confidence intervals based on the final models were computed. The reporting of confidence intervals has been noted as an effective way of reporting results. "They are considered the best reporting strategy because they combine information on location, precision and can often be directly used to infer significance levels" (APA Manual, 2003, p. 22). Only the odds ratios whose 95% confidence interval did not include 1 were reported. When confidence intervals around the odds ratio include the value of 1.0, this finding indicates that a change in the value of the predictor variable is not associated with a change in the odds ratio of the criterion variable. This variable is then not considered a useful predictor in the logistic regression model.

Assessing the Goodness-of-fit of the Final Model

The final model had a Hosmer-Lemeshow goodness-of-fit chi-square test statistic of 11.37 with 8 degrees of freedom and p-value=0.18 (Somers'D=0.47). According to Hosmer and Lemeshow (2000), a p-value that is larger than .05 suggests that the model is consistent with the data. Therefore, the final model was satisfactory and it can be used for predictive purposes. This conclusion was also supported by using various diagnostic residual plots. In particular, standardized deviance residuals, plotted against subject index and against predicted probabilities of successful employment (See Figure 1 in appendix), did not indicate a lack-of-fit for the final model. In fact, these residuals are well between +-3 and very few of them are beyond +-2. This rule of thumb is deduced from the fact that standardized residuals based on large sample sizes would follow standard normal

distribution whose numbers would be contained between +3 and -3 with probability 99.7%.

Influence statistics were examined to determine if there were any highly influential observations whose removal from the sample would result in a substantial change in the estimated coefficients. In particular, the dfbeta statistic (which is essentially a standardized distance between parameters estimated with and without a particular observation) were plotted and visually examined. These plots (not reported in this dissertation as there are 70 of them) did not reveal any influential observations.

For research question 3, a deviance residual was employed in checking the model. The Hosmer Lemeshow test is not very reliable when the sample size is large and so this was considered inappropriate for this research question. The deviance residual did not indicate outlying observations and therefore suggested that the model is good. The deviance residual graph is presented in Figure 2 in the appendix.

2

20

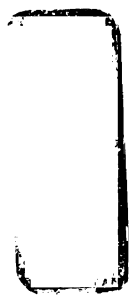


Table 1: Hosmer-Lemeshow Goodness-of-fit Statistic

Group	Total	Employed		Not Employed		Chi-
		Observed	Expected	Observed	Expected	Square
1	841	115	123.17	726	717.83	11.3707
2	843	168	186.07	675	656.93	
3	841	227	233.58	614	607.42	
4	842	308	284.95	534	557.05	
5	839	370	344.50	469	494.50	
6	842	398	405.59	444	436.41	
7	842	467	459.34	375	382.66	
8	841	513	510.38	328	330.62	
9	841	566	570.46	275	270.54	
10	838	669	682.81	169	155.19	

Association of predicted probabilities and observed responses

	Value
Percent Concordant	73.3
Percent Discordant	26.4
Somers' D	0.469
Gamma	0.470
Degree of Freedom	8.0
Chi- Square	0.1816

Presentation of Results

This section presents overall descriptive statistics of significant personal background characteristics and VR service variables including gender, source of impairment, race/ethnicity, public assistance received, education at application, 16 VR services and employment outcome. Eight thousand, four hundred and nineteen males (n=4,756, 56.5%) and females (n=3,663, 43.5%) with primary psychiatric disabilities participated in this study. About half of the sample (n=3,809, 45.2%) were closed with a successful employment, and 4,617 (54.8%) were closed without achieving successful employment outcome.

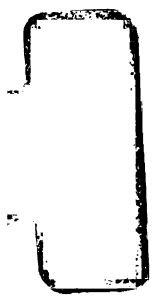
Research Question 1: How are the employment outcomes obtained by youth VR consumers with psychiatric disabilities associated with the vocational rehabilitation services they receive, while controlling for demographic characteristics?

The analysis revealed that there are associations between VR services and employment outcome. Table 2 presents the distribution of services provided and the employment outcomes achieved by the youth VR consumers with primary mental illness. The most frequently received VR services were assessment (66%) and vocational rehabilitation services (61%). Higher percentages of successful employment outcome (status 26) were achieved among youth who received on-the-job training (63%) and job placement services (62%). Lower percentages of successful employment outcome were achieved among youth who received diagnosis and treatment services (44%) and technical assistance (34%). Information on the services and distribution of employment outcomes are summarized in Table 2.

Chi-square results revealed statistically significant associations between employment outcome and numerous VR service variables. For example, job placement services χ^2 (1, n=8419)= 362.19, p<.05; Cramer's V=.20); Job support services, χ^2 (1, N=8419)=62.48, p<.05; Cramer's V=.08); and 'other services', χ^2 (1, N=8419)=39.83, p<.05; Cramer's V= .06) demonstrated significant relationships with employment outcome. Since the calculated values are greater than the critical values both at p<.05 and p<.01, it was concluded that these predictor and criterion variables were significantly related. However, the low values of Cramer's V (below 1) signify that the associations between VR services and employment outcome among youth with psychiatric disabilities were weak. Assessment services, χ^2 (1, N=8419)=1.72; p<.05; Cramer's V=.01), and diagnoses and treatment services, χ^2 (1,N=8419)=1.17; p=.05; Cramer's V=.01) showed weak relationships with employment outcome, suggesting that these predictor variables and employment outcome are independent. Given that these variables are nominal, reporting the direction of the relationships was considered irrelevant and therefore only absolute values were reported (Capella, 2003). Further details on this chi square analysis are presented on Table 3.

Table 4 presents the regression model with the beta, standard error, Wald statistic, degrees of freedom, significance level, odds ratio and 95% confidence intervals. Numerous variables were significant at the p<.05 level. The odds of successful employment for those receiving placement services were four times higher than the odds for those not receiving placement services (OR=4.22; 95% CI= 3.25-5.45). The other odds ratios can be similarly interpreted for odds ratio and 95% confidence interval values from Table 4. Most of the results revealed a strong relationship to employment outcome,

2
20



suggesting that individuals who received these services had several times more odds of successful employment outcome than counterparts who did not receive the services. In contrast, diagnosis and treatment services demonstrated a negative relationship with employment outcome (OR=0.75; 95% CI=0.66-0.86).

It is important to note that interaction effects found in this study among service variables were weak and inconsistent with any clinical or theoretical framework. For example, whereas individuals who received college services had about six times the odds of successful employment, the odds dropped substantially (0.74) when these individuals also received vocational training services. The effect of placement services was somehow delimited for individuals who received 'other services' in addition to placement services. In fact, odds of successful employment after receiving placement services dropped from 4.22 to 2.82 with a confidence interval of (2.1-3.88) when 'other services' were included in the analysis. Except for the combination of SSI and maintenance services which increased the odds of successful employment (OR=8.52; 95% CI =5.89-12.31), none of the interactions between the 16 VR services evaluated indicated an increase in the odds of successful employment. Overall, the interaction analysis results did not present enough clear patterns regarding the relationships between VR services and employment outcomes. The interaction results were therefore not reported. They are presented in Appendix 1.

Table 2: Frequency, percent of Services Provided and Employment Outcome

Services Provided	Number Receiving	Percent Receiving	Employment Outcome % Successful	% Unsuccessful
Assessment	5555	66%	46	54
Diagnosis and Treatment	2913	34.6%	44	56
Vocational Rehabilitation	5194	61.4%	46	54
College Training	2038	24.2%	59	41
Occupational/Vocational Training	1428	17%	54	46
On-the-Job Training	362	4.3%	63	37
Job Readiness Training	1243	14.8%		
Miscellaneous Training	1027	12.2%	51	49
Job Search Assistance	2047	24.3%	57	43
Job Placement	2326	27.6%	62	38
On-the-Job Supports	1222	14.5%	56	44
Transportation	1963	23.3%	47	53
Maintenance	1093	13%	57	43
Technical Assistance	209	2.5%	34	66
Other	2102	25%	51	49

Table 3: Receipt of VR Services and Employment Outcomes

Variable	Df	N	Percent Receiving	Chi Square	Cramer V
Assessment	1	8419	66%	1.72	.01
Diagnosis and treatment	1	8419	34.6%	1.17	-.01
Vocational rehabilitation	1	8419	61.4%	4.95	.02
College/ University Training	1	8419	24.2%	204.42	.15
Occupational/Vocational	1	8419	17%	59.43	.84
On-the-Job Training	1	8419	4.3%	50.03	.07
Job Readiness Training	1	8419	14.8%	13.56	.04
Miscellaneous	1	8419	12.2%	14.65	.04
Job Placement	1	8419	27.6%	362.19	.20
On-the-job-support	1	8419	14.5%	62.48	.08
'Other Services'	1	8419	25%	39.83	.06

Table 4: Summary of Logistic Regression Analysis for Services Predicting Employment Outcomes Controlling for Demographics

Variable	B	S.E	Wald	Df	Sig.	Odds Ratio	95% CI	
Intercept	-0.945	0.216	19.0147	1	.0001	0.388	0.254	0.594
Job Placement Assistance	-0.945	0.216	19.014	1	.0001	4.2	3.25	5.47
College University TR	1.788	0.111	257.072	1	.0001	5.98	4.81	7.44
Occupational/ Vocational TR	1.023	0.123	69.311	1	.0001	2.78	2.16	3.54
On-the-Job Support	0.696	0.134	26.718	1	.0001	2.01	1.54	2.61
Maintenance	0.467	0.123	14.302	1	.0001	1.59	1.25	2.03
Job Search Assistance	0.784	0.151	26.756	1	.0001	2.19	1.63	2.95
Diagnosis/Tx	-0.283	0.066	18.413	1	.0001	0.75	0.66	0.86
On-the-Job TR	0.602	0.166	13.075	1	.0001	1.83	1.32	2.53
'Other Services'	0.617	0.089	48.112	1	.0001	1.85	1.56	2.21
Miscellaneous TR	0.078	0.165	0.228	1	0.638	2.82	2.05	3.86

2
20

Research Question 2: Employment Outcomes Obtained by Youth with Psychiatric Disabilities and Personal Background Factors

The results indicated that personal background factors were associated with the employment outcome of youth VR consumers with primary psychiatric disabilities.

Source of Impairment

Table 5 displays the frequency and percent of 'source of impairment' and employment outcome. Most youth with primary psychiatric disabilities were diagnosed with depressive disorders (n=3,195, 38%) and mental illness not listed elsewhere (n=2,058, 24%). Eating disorder was the least diagnosed (n=25, .30%). Significant differences in employment outcomes were found between groups based on diagnosis. Higher percentages of unsuccessful employment outcome were found among individuals with schizophrenia/other psychotic disorders and depressive/mood disorder. On the other hand, individuals with anxiety disorders and eating disorders obtained the highest percentages of successful employment outcome.

The logistic regression results indicated that diagnoses impacted the employment outcome of youth VR consumers. For the purpose of this study, the variable 'sources of impairment or diagnosis' was restricted to anxiety disorders, depressive disorders, mental illness not listed elsewhere, personality disorders, eating disorders and schizophrenia. Based on clinical and theoretical judgments, differences were assessed by comparing the employment outcomes of youth with schizophrenia (reference group) with the other diagnostic groups. Compared with youth with schizophrenia, youth with anxiety disorders had 37% more odds of successful employment outcome. In the same way, youth with personality disorders (OR=1.32; 95% C.I.=1.09-1.59) and eating disorders

(OR=1.27; 95% C.I.=.52-3.11) had substantially more odds of successful employment outcome compared to youth with schizophrenia. Youth with depressive disorders (OR= 1.09; 95% C.I.= .93-1.30) and mental illness not listed elsewhere (OR=1.05; 95% C.I.=.88-1.26) had the least odds of successful employment outcome.

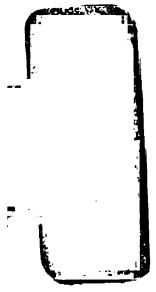


Table 5: Frequency and Percent of Source of Primary Psychiatric Disability(PPD)

Source of Disability	Frequency	Percent	Employment Outcome	
			% Successful	% Unsuccessful
Anxiety	757	9%	50	49
Depression	3195	37.9%	44	56
Eating Disorder	25	.3%	56	44
Mental Illness listed elsewhere	2058	24%	44	56
Personality Disorder	1489	18%	49	51
Schizophrenia	895	11%	43	57
Total	8419	100%		

Race

Information on race is provided in Table 6. While there were statistically significant differences between the groups in terms of race, these differences were small. Compared to the race category 'white', the odds of successful employment outcome were less for the youth from the minority races. Compared with the odds of successful employment outcome for the youth from the white race, the odds of successful employment outcomes for: a) African American youth were 37% less (OR=.63), b) Hispanic /Latino were 29% less (OR= .71), c) Native Americans were 54% less (OR=.46), d) Asians were 51% less (OR=.49), e) Native Hawaiian were 26% less (OR= .74), and f) multiracial youth were two percent less (OR=.98). This study did not explore the interface of poverty with race.

Table 6: Frequency, Percent of Subject's Race and Employment Outcome

Race	Frequency	Percent	Employment Outcome	
			%Successful	%Unsuccessful
White	5751	68%	49	51
Black/African American	1525	18%	35	65
Native American	64	.76%	36	64
Asian	77	.92%	43	57
Native Hawaiian	28	.3%	36	64
Hispanic	873	10.4%	36	64
Multiracial	92	1.1%	47	53
Total	8410	100%		

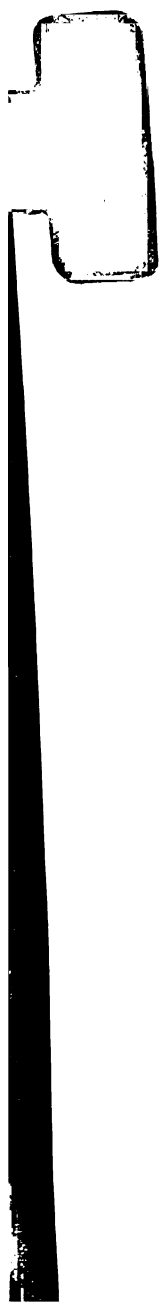
Type of Public Support

Significant differences in employment outcome were found in terms of receipt of public assistance. Youth who received SSI and TANF had less odds of successful employment outcome than youth who did not receive these public income supports. Detailed information (including frequency, percent and employment outcomes) for the types of public assistance received is provided in Table 7.

The youth rehabilitants receiving SSDI had only slightly more odds of successful employment outcome as compared to the youth who did not receive this income support (OR=1.21; 95% C.I. = .79-1.87). In contrast, receipt of SSI and TANF had a substantial negative relationship with employment outcome. The results indicated that individuals who received SSI had 36% less odds of successful employment outcome (OR=0.64; 95% CI=0.52-0.79). Those who received TANF at application had 58% less odds of successful employment outcome (OR=0.420; 95% CI =0.22-0.81). Again, this study did not explore the interface of race and source of public support.

Table 7: Frequency, Percent of Public Support and Employment Outcome

Public Support	Number Receiving	Percent Receiving	Employment Outcome % Successful	% Unsuccessful
SSI	987	12%	33	67
SSDI	213	2.5%	39	62
TANF	121	1.4%	26	74
Total Receiving Support	1321	15.9%		



Education Level at Application

Significant differences in employment outcome were found based on education level. Of all the education levels attained at application, associate degree/vocational certificate, and bachelor's degree and master's degree (coded as 'higher education') indicated substantially more positive influence on employment outcome than the others. Overall, the higher the education levels at application, the greater the odds of successful employment outcome. Descriptive information on education level at application (frequency and percentage) and employment outcome is provided in Table 8.

The logistic analyses revealed that education level at application was associated with employment outcome among youth with psychiatric disabilities in the state-federal VR system. Detailed results of the logistic regression analyses are described in Table 9. The results indicated that compared to youth with 'higher education' qualifications, the odds of successful employment outcome were less for youth with lower level education qualifications. Compared with the odds of successful employment outcomes for the youth with higher education, the odds of successful employment outcome for youth with: (a) no formal education were 96% less(OR=.04), b) elementary education were 97% less(OR=.03), c) secondary education were 95% less(OR=.05), d) special education certificate were 94% less(OR= .06), e) high school graduate equivalent were 97% less (OR= .07), f) post secondary education, no degree were 90% less(OR= .10), and g) associate degree/vocational certificate 40% less (OR=.59) times.

Table 8: Frequency, Percent of Education Level and Employment Outcome

Education Level	Frequency	Percent	Employment Outcome	
			% Successful	% Unsuccessful
Elementary	358	4.3%	31	69
Secondary	4913	58.3%	44	56
Special Ed. Certification	759	9%	41	59
High School Equivalence	2163	25.7%	49	51
Post-Secondary	168	2%	61	39
Associate Degree	20	.24%	90	10
Higher Education	19	.23%	100	
Total	8419	100%		

Table 9

Summary of Logistic Regression Analysis for Personal Background Characteristics Impacting Employment Outcome

Variable	B	S.E.	Wald	Df	Sig.	Odds Ratio	95% C.I	
Intercept	-.945	.216	19.0147	1	.000	.388	.254	.594
African American Vs White	.322	.093	11.834	1	.000	.63	.55	.72
Native American Vs White	-.135	.103	1.698	1	.192	.46	.26	.80
Asian Vs White	-.448	.253	3.140	1	.076	.49	.41	1.15
Native Hawaiian Vs White	-.044	.234	.036	1	.084	.74	.31	1.74
Hispanic Vs White	.020	.379	.002	1	.957	.71	.60	.84

Table 9 Cont'd

Variable	B	S.E.	Wald	Df	Sig.	Odds Ratio	95% C.I. Lower	Upper
Intercept	-.945	.216	19.0147	1	.000	.388	.254	.594
No Formal Sch. Vs HE	-.974	.467	4.337	1	.037	.04	.00	.39
Elementary VS HE	-1.157	.207	31.244	1	.000	.03	.00	.27
Secondary Educ Vs HE	-.626	.178	12.256	1	.000	.05	.00	.45
Special Educ Vs HE	-.561	.190	8.655	1	.003	.06	.01	.48
High School Equivalence Vs White	-.499	.181	7.596	1	.005	.07	.01	.51
Post Sec. Educ Vs HE	-.031	.232	.018	1	.892	.10	.01	.83
Associate Degree Vs HE	1.609	.686	5.502	1	.019	.53	.04	6.81

Table 9 Cont'd

Variable	B	S.E.	Wald	Df	Sig.	Odds Ratio	95% C.I Lower	Upper
Intercept	-.945	.216	19.0147	1	.000	.388	.254	.594
Anxiety Vs Schizophrenia	.152	.102	2.219	1	.136	1.37	1.10	1.70
Depression Vs Schizophrenia	-.068	.085	.646	1	.421	1.09	.93	1.30
Eating Disorder Vs Schizophrenia	.074	.377	.039	1	.842	1.27	.52	3.11
Mental illness not listed elsewhere Vs Schizophrenia	-.109	.089	1.508	1	.219	1.05	.88	1.26
Personality Disorder Vs Schizophrenia	.112	.092	1.490	1	.222	1.32	1.09	1.59
SSI	-.443	.103	18.593	1	.000	.64	.52	.79
SSDI	.192	.220	.761	1	.382	1.21	.79	1.87
TANF	-.868	.332	6.810	1	.009	.42	.56	3.10

Research Question 3: Employment outcomes obtained by youth with secondary psychiatric disabilities compared to those of youth rehabilitants with non-psychiatric disabilities.

Research question 3 addressed differences in employment outcomes for youth with secondary psychiatric disabilities and the remainder of the youth without mental disability in the RSA 911 FY 2004 database. Outcomes of the target population (n=4,006) were compared with the general population of youth rehabilitants with no psychiatric diagnoses (n= 62,032). The summary statistics of this group describing numbers and proportions with/without successful employment are reported in Table 10. Differences were found based on diagnosis. The major difference was that youth rehabilitants with no secondary psychiatric disabilities were more likely to achieve successful employment outcome than those with secondary psychiatric disabilities, with the exception of youth with eating disorders. Although there were statistically significant differences between the diagnostic groups on employment outcomes, the differences in percentages were small.

Based on the logistic regression analysis, most of the secondary psychiatric diagnostic categories demonstrated negative relationships with employment outcome. The diagnoses of schizophrenia (OR=.45; 95% C.I. =.33-.61), depression (OR=.59; 95% C.I.= .52-.65), and mental illness not listed elsewhere (OR=.65; 95% C.I.=.56-.75) demonstrated negative association with employment outcome. The findings indicated that youth with schizophrenia as a secondary disability had 55% less odds of successful employment outcome as compared to the youth without secondary mental illness. In the same way, youth with depression (40% less) and mental illness not listed elsewhere (35

% less) had less odds of successful employment outcome as compared to the youth without secondary mental illness. Additionally, the findings suggested that personality disorders (OR=.72; 95% C.I.=.61-84), and anxiety disorders (OR=.87; 95% C.I.=.72-1.05) were not significant covariates of employment outcome. In contrast youth with eating disorders (OR=1.25; 95% C.I.=.41-.3.77) as secondary disability demonstrated 25% more odds of successful employment outcome.

Table 10: Secondary Psychiatric Disability and Employment Outcomes

Variable	Frequency	Percent	Employment Outcomes	
			% unsuccessful	% successful
Anxiety	507	12.7	46	54
Depression	1568	39.1	57	43
Eating disorder	16	.4%	38	62
MI Not Listed	924	23.1%	51	49
Personality Dis	766	19.1%	51	49
Schizophrenia	225	5.6%	63	37
Total	4006	100%	43	46
SD youth	62032		43	56
Total	66038			

Table 11

Summary of Logistic Regression Analysis for Differences in Employment Outcome for Youth With and Without Secondary Psychiatric Disabilities

Variable	B	S.E.	Wald	Df	Sig.	Exp(B)	95% C.I	
							Lower	Upper
Intercept	-.677	.107	39.894	1	.000			
Anxiety/SD	.148	.119	1.540	1	.214	.873	.720	1.058
Depression/SD	-.251	.098	6.576	1	.010	.585	.523	.653
Eating D./SD	.508	.483	1.107	1	.292	1.251	.415	3.770
MI Not/SD	.145	.105	1.895	1	.168	.650	.564	.751
Persona.Di./SD	-.042	.108	.149	1	.699	.721	.618	.842
Schizo./SD	-.502	.154	10.583	1	.001	.455	.338	.613

CHAPTER 5

DISCUSSION

The purpose of this study was to examine the various vocational rehabilitation services provided through the state-federal Vocational rehabilitation (VR) system to youth with psychiatric disabilities and the relationships of these services to employment outcome. In addition, this study examined the impact of personal background characteristics on the employment outcomes of youth VR consumers with psychiatric disabilities. Finally this study also evaluated the relationship of secondary psychiatric disabilities to the employment outcomes of youth VR consumers.

This study addressed the following three research questions:

1. How are the employment outcomes obtained by youth VR consumers with psychiatric disabilities associated with the vocational rehabilitation services they receive while controlling for demographic characteristics?
2. How do the personal background characteristics of youth VR consumer with primary psychiatric disabilities impact their employment outcomes?
3. How do the employment outcomes obtained by youth VR consumers with secondary psychiatric disabilities compare to those of youth rehabilitants with non-psychiatric disabilities?

Subjects for this study were obtained from the Rehabilitation Services Administration (RSA) 911 dataset on youth with primary and secondary psychiatric disabilities whose cases were closed during federal fiscal year 2004 (FY October 2003 to September, 30, 2004). The predictor variables in this study were the VR services provided through the state-federal VR system to youth with psychiatric disabilities and

their personal background characteristics. The personal background variables evaluated in this study were: (a) gender, (b) education at application, (c) public support received at application, (d) source of impairment, and (e) race. Sixteen VR service variables listed in the RSA 911 data were included in the analyses. The criterion variable employment outcome was defined as achieved employment or no employment resulting in a binary variable.

This study employed correlation as the primary design to evaluate the relationships between VR services, personal background characteristics, psychiatric disabilities and employment outcomes. The main criteria for inclusion in the study for the first two research questions included: a) having a primary classification of mental illness, (b) being between the ages of 12.99 and 25.99, (c) having received any VR service and (d) having been closed either successfully (status 26) or unsuccessfully (status 28). For research question three, the sample included all youth with disabilities, but without primary mental illness, whose cases were closed during the 2004 fiscal year (October 1, 2003- September 30, 2004) in one of two following categories: (1) successful employment outcome (status 26) and (2) unsuccessful employment outcome (status 28). In total, eight thousand, four hundred and nineteen males (n= 4, 756, 56.5%) and females (n=3, 663, 43.5%) with primary psychiatric disabilities participated in the first two objectives of this study.

Findings

The findings of the study indicated that vocational rehabilitation services received by youth VR consumers are associated with their employment outcome. To the extent that youth received particular VR services, employment outcome was likely to be

successful. In addition, the present study's results indicated that some personal background factors outside the VR service system contribute to employment outcomes among youth VR consumers. Overall, the present study's findings raise the important possibility that some youth VR consumers may not achieve employment outcome (status 26) not only because of the absence of certain VR services, but also due to peculiarities in their personal background characteristics. The results indicated that there are significant relationships between VR services, personal background characteristics, and employment outcomes among youth clients. Based on the descriptive analyses, a higher percentage of youth were closed without an employment outcome (n=4617, 55%) and the rest (n=3802, 45%) were closed with a 'successful' employment outcome.

These results are mirrored in literature which has observed persistent high unemployment outcomes among the general populations of youth with disabilities (Kosciulek & Perkins, 2005). Specifically, research has observed that compared with youth with other disabilities, youth with psychiatric disabilities have four times as high an unemployment rate (Vander-Stoep, Beresford, Weiss, McKnight, Cauce, & Cohen, 2000; vander-Stope , 1997; Salkever, Kolodner, & Bijur, 1996; Vander-Stoep, Taup, Holcomb, 1993; & Se, Duchnowski, Kutah, 1992). However, the results from this study provided slightly more positive evidence regarding the employment outcomes of people with psychiatric disabilities. In contrast to research projections of below 30% successful employment outcome among individuals with psychiatric disabilities, about forty-five percent of the subjects in this study achieved a successful employment outcome.

In relation to research question one, findings revealed that there are associations between some particular VR services and employment outcomes. The findings indicated

statistically significant associations between employment outcomes and numerous VR services received by youth VR consumers with primary psychiatric disabilities. A substantially higher percentage of youth VR consumers with psychiatric disabilities were provided assessment (66%) and vocational rehabilitation (61.4%) services. However, more successful employment outcomes were recorded among youth who received on-the-job training (63%) job placement (62%), job-search (57%) and maintenance (57%) services.

As would be expected, this finding indicates that services which were provided as prerequisites for entry into the VR case-load were received more frequently. In this study, they were related to lower probabilities of successful employment outcome. On the other hand, VR services which targeted specific preparations for obtaining and sustaining employment such as on-the-job training, job placement, and maintenance services were provided less frequently and were related to higher probabilities of successful employment outcome. These findings reflect existing research observations that the low employment trend among people with psychiatric disabilities could be accounted for by the unavailability of the certain VR services and support required to facilitate successful employment outcome (Fabian, 1998). These findings raise a question whether the VR system is meeting the needs of the youth VR consumers with psychiatric disabilities. However, caution needs to be exercised in generalizing this finding. This is because the methodology of this study can not determine whether receiving a particular VR service produces a more successful employment outcome or whether youth who already have certain characteristics are more likely to access specific services.

In relation to research question two, the findings indicated that the trend of employment outcome was not uniform across various demographic and diagnostic subgroups within the population of youth VR consumers with psychiatric disabilities. Findings revealed that race impacted employment outcomes among youth. Minority youth with primary psychiatric disabilities had less odds of successful employment outcome compared to the youth who are whites. This finding is consistent with extant research which has suggested that whites achieve more favorable employment outcomes in the VR system than consumers from minority races (Capella, 2002; Feist-Price, 1995). However, in this study, other interpretations concerning direction of impact are possible. Sample size distribution could account for the difference in employment outcome. A substantial majority of the sample consisted of white youth (68%) followed by African Americans (18%). With large sample size, most test of significance are expected to be statistically significant. This result might be expected as higher frequency in receipt of service may be associated with higher frequency in employment outcome. However, based on the descriptive results, the differences in outcome were minimal, with whites and Asians achieving more. In addition, the direction of association between race and employment outcome may become different when poverty factors are considered. This would be a good agenda for further research on youth in the VR system.

Gender was not a significant predictor of employment outcome among youth with psychiatric disabilities. Descriptive data indicated that a larger percentage of youth VR consumers were males (56.5%). In addition, the findings indicated that the employment outcomes were fairly equally split with males comprising 45% and females totaling 46% of participants who achieved successful employment outcomes. Based on existing

literature on populations with psychiatric disabilities, this trend might be unexpected as literature has been consistent regarding more representation of female consumers in the VR system (Bromet, 2005). However, regarding employment outcome, research has continued to provide confounding evidence regarding the association between gender and vocational rehabilitation outcome. While some studies have observed that males are more likely to achieve successful employment outcomes than females (Capella, 2002; Cook & Roussel, 1989), most studies have found no association between gender and employment outcome (Corrigan, Reedy, Thadani & Ganet, 1995; Razzano & Cook, 1994). The similarity in employment outcome in terms of gender evidenced by this study raises a question concerning the uniqueness of the youth VR population. It is important to investigate at what age gender becomes a discriminating factor in outcomes achieved in the state-federal VR system.

The findings revealed that youth clients receiving public income assistance had less odds of successful employment outcome than clients who did not receive these services. The results indicated that the receipt of some public support considerably reduced the odds of successful employment for youth who received SSI (36% less odds) and TANF (58% less odds). This is consistent with research which has noted the disincentives associated with the receipt of public income assistance. Contrary to policy projections that cash incentives would be provided for people with disabilities to encourage their employment, research has consistently noted that the policy surrounding income assistance has continued to act as a disincentive to competitive employment (Berkowitz, 1981; Rutman, 1994; Baron, 1995). However, an interesting finding from this study was that only sixteen percent of youth with primary psychiatric disabilities

received public income assistance. This is contrary to research assertions noting a high increase in the number of youth recipients of federal income assistance in recent years (Social Security Administration, 1999). This finding may suggest that the almost fifty percent unemployment trends among youth with psychiatric disabilities may not be substantially accounted for by the disincentives associated with the receipt of public income support. A possible explanation of this low frequency in the receipt of public support could be linked to eligibility criteria. Additional research is needed to clarify the reasons for low frequency in the receipt of public support for youth with primary psychiatric disorders in the sample studied.

The findings of this study suggested that source of impairment or diagnoses was associated with employment outcome among youth VR consumers with psychiatric disabilities. Given that there is empirical evidence regarding the associations between psychiatric symptoms and employment outcome in the state-federal VR system in rehabilitation literature, this study took the next step by providing information which describes the uniqueness and typicality of employment outcome among youth with specific sources of psychiatric disabilities. Based on descriptive analyses, youth with depressive disorders (38%), mental illness not listed elsewhere (24%) and schizophrenia (11%) represented the highest proportions of youth VR consumers having psychiatric diagnosis. Based on the descriptive analysis and logistic regression, the diagnostic categories of depression, schizophrenia and mental illness not listed elsewhere represented over seventy percent of the overall population and along with personality disorders had the most negative impacts on employment outcome. These data should be given serious consideration based on the fact that complications associated with clinical

symptoms of these diagnoses have high probabilities of impacting employment outcome. For example, research has noted that schizophrenia is one of the most disabling mental disorders. It has been identified both as an illness and a disability. Research indicates that vocational rehabilitation has not made any statistically significant impact on the competitive employment of individuals with schizophrenia (Lehman, 1995). Vocational employment outcome for this group has remained as low as below 25% (Anthony, 1978). Research has also observed the pervasive negative impact of depression on employment outcomes (Kosciulek & Perkins, 2005; Anthony, Ledley & Heimberg, 2005; Anthony et al, 2005).

In addition, based on clinical reasons, this study used statistical analyses to compare the outcomes of youth with various psychiatric diagnoses to those of youth with schizophrenia as reference group. Although numerical strength is often a key consideration when selecting a reference group, schizophrenia was chosen as a reference group based on clinical and practical reasons related to its recognition as the most debilitating psychiatric diagnosis in terms of work. According to Lehman (1995), vocational rehabilitation is yet to make substantial difference in the employment outcomes of people with schizophrenia.

Disparities were shown for individual diagnostic groups compared with the reference group. Based on logistic regression analyses, youth with depressive disorders and mental illness not listed elsewhere had the least odds of successful employment outcomes compared with those with schizophrenia. Youth with other psychiatric diagnostic categories of disability on the average had only minimal odds of achieving more successful employment outcomes as compared to youth with schizophrenia. This

study's finding may provide additional insight into the need to provide uniquely designed services and support for specific psychiatric diagnostic groups in the VR system.

In relation to education level at application, significant impacts on employment outcome were found. Contrary to research observations that about 46% of individuals with mental illness did not complete high school (Adler, 1996), over half of the youth in this study were recorded as having high school education. In comparing education categories, youth with higher education had the most odds of successful employment outcome. With the exception of youth with associate degrees, youth with all other education levels had on average 90% less odds of successful employment outcome. This is consistent with McNeil's (2001) observation that the probability of encountering a disability or limitation is higher for individuals with lower education. This finding becomes critical to vocational rehabilitation when considering the fact that while bachelors and master's degree holders comprised a mere .23% of the sample, the most prevalent groups (secondary education and high school equivalence) comprised 58.3% and 25% respectively. This is not unexpected as psychiatric symptoms have been noted to derail education goals or postpone education achievement (Bromet, 2005).This finding may suggest that the persistent poor post-school outcome for youth with disabilities observed by research could be accounted for by their educational attainment (Kosciulek & Perkins, 2005). From the findings of this study, one issue that is coming across is that it may be critical to focus more on understanding the diverse nature of youth with psychiatric disabilities and the factors that determine their education attainment, in order to design supports that are responsive to their need. In conclusion, although this research

question did not seek to evaluate direction of association, it appeared that education level at application was a critical determining factor in employment outcome.

In relation to research question 3, the findings revealed that secondary psychiatric disability was related to employment outcomes among youth VR consumers. Youth VR consumers without secondary psychiatric disabilities were more likely to achieve employment outcomes than those without secondary psychiatric disabilities, after controlling for services received.

The majority of the individuals with secondary psychiatric disabilities had depression (39%) and mental illness not listed elsewhere (23%). This was followed by anxiety (12%) and personality disorders (19%). Youth consumers with schizophrenia (37%) and depression (43%) were least likely to achieve successful employment outcome, followed by those with personality disorders (49%) and mental illness not listed elsewhere (49%). Thus, secondary psychiatric diagnosis appeared to play a role in employment outcome, particularly in groups with depression, schizophrenia and mental illness not listed elsewhere. It is important to note that most of the secondary psychiatric disability diagnoses demonstrated a similar pattern of impact on employment outcome as did primary psychiatric diagnoses in this study. For example, youth with schizophrenia (40% less likely) and depression (33% less likely) were the least likely to achieve employment outcomes. This information is critical to VR as research has observed likelihood to overlook the impact of secondary psychiatric disabilities on the vocational rehabilitation outcomes of individuals with physical disabilities. Research has continued to observe the neglect of secondary mental health needs of individuals with physical disabilities in the rehabilitation system (Rimmer, 1999; Mechanic & Aiken, 1987). This

possibility raises a crucial concern that neglecting the interference of secondary psychiatric disability may increase the disability burden and predispose VR consumers to unsuccessful employment outcomes. Responding to this concern would suggest a holistic approach to VR service provision which will target multiple levels of disabilities in the same individual in order to enhance successful rehabilitation outcomes.

Limitations

The first limitation in this study is the use of secondary data. Despite the obvious benefits of having a large dataset such as the RSA-911, inability to make causal inferences limited the conclusions that could be drawn from the findings. Second, the RSA-911 data set is limited by its retrospective nature. Third, correct coding of information given by the subjects depended on the expertise of the rehabilitation counselors. Fourth, the information used as research data were collected more as service tools than research tools. It is possible that factors not assessed in this study including personality dispositions, socio-cultural factors, service provider factors or other dimensions, could account for increased propensity to achieve successful employment outcome in the state-federal VR system.

The definitions in this study were broad and consistent with those used by the Rehabilitation Services Administration (RSA) but inconsistent with the diagnostic criteria described in the DSM-IV. Interpreting results regarding diagnostic criteria such as 'mental illness not listed elsewhere' and depression as a homogenous disorder is a concern. Analyses and interpretation of findings will be practically more meaningful when standardized tools such as DSM-IV are used for diagnoses of the psychiatric

conditions experienced by individuals in the VR case load. In the future, researchers should consider more specific definitions of psychiatric conditions and perhaps delineate how each symptomatology influence vocational rehabilitation outcomes.

The definition of 'youth' and the often complex eligibility criteria for different services may have created limitations in this study. The changing criteria for public income assistance eligibility determination when youth turn 18 years may have accounted for the low frequency in the receipt of income assistance. Therefore, many of the subjects who were supposed to be receiving services in the FY 2004 database may have been non eligible. This may limit the generalizability of the findings.

Implications

While numerous studies have investigated the factors that are associated with the employment outcomes of general populations of people with psychiatric disabilities, this study sought to ascertain these factors among youth populations. By understanding the factors that are related to their employment outcome in the state-federal VR system, insight is gained regarding possible service and/or support measures for reducing unsuccessful employment outcomes among them. Implications of these discovered relationships follow.

Implications for Practice

First, the association found between numerous VR services and employment outcomes among youth with disabilities may indicate a need for rehabilitation counselors to inform youth consumers of the availability of specific services which research has

identified as positive predictors of successful employment outcome. This is more critical given the finding that the services that were received most by youth in the VR system were not those that were associated with the highest percentage of successful employment outcome. The rehabilitation counselor may take the responsibility of guiding the youth consumers in making intelligent decisions by considering clients' strengths, weaknesses, and knowledge of services which 'work best' for their unique conditions. This situation highlights the role of the rehabilitation counselor as an advocate and a career educator. This is consistent with research which has called for vocational rehabilitation to move beyond providing employment support services to providing career development services (Roessler & Rumrill, 1999).

A second implication that can be drawn from this study involves the need to develop a range of VR services that will cover the spectrum of psychiatric disabilities. Since nearly all the psychiatric diagnostic categories examined impacted employment outcome, it follows that ignoring any of these might jeopardize the probabilities of successful outcome for state-federal VR service recipients. Although vocational rehabilitation counselors are not mandated to have mental health specializations, it has been suggested that there may be need for a stronger embedding of holistic VR service delivery with a range of clearly defined mental health partnerships (Boardman et al., 2003). This may suggest a need for a clear definition regarding responsibilities for providing ongoing mental health supports for individuals with psychiatric disabilities in the state-federal VR system. The minimum preparation required of vocational rehabilitation counselors in this context would be an understanding of clinical challenges and realities related to psychiatric disabilities (Chan et al., 1998).

The findings that suggested that the trend of employment outcome was not uniform across diagnostic and demographic subgroups are critical to VR service design and delivery. First, this implies that no one model of service is right for everyone. Research has noted the episodic and cyclical nature of psychiatric disabilities. In addition, it has been noted that symptomatology may differ among individuals having similar psychiatric diagnoses. In order to optimize benefits derivable from VR services, there may be need for consumers with psychiatric disabilities to have ready access to a range of work and mental health services and support which are relevant to their changing needs. The challenge for rehabilitation counselor lies in the need to effectively manage the ongoing range of partnerships with support services such as mental health, occupational health and primary care, to ensure that the needs of the consumers are met within the existing VR plan.

Implications for Training

The present findings have implications for counselor education and training. It may be important for rehabilitation counselor education to incorporate not only mental health issues, but also the peculiarities of different populations such as youth, into the curriculum. The importance of understanding the peculiarities of youth with psychiatric disabilities in the VR system underscores this training need. First, being 'unemployed youth with psychiatric disability' predisposes them to multiple barriers to successful outcome in the VR system. Often, they may bring a sense of loss of purpose and structure into the VR system. Unemployment exposes them to the loss of essential traits such as social identity status, opportunity for activity and involvement, sense of personal achievement, social contacts and supports, and means of structuring and occupying time,

needed for healthy life adjustment (Shepherd, 1989; Rowland & Perkin, 1988). Added to these are the peculiar challenges posed by clinical symptoms related to their disabilities. Vocational rehabilitation providers who understand the multiple challenges which youth with psychiatric disabilities bring into the system may be more likely to provide frameworks that facilitate and sustain successful employment outcome among this population. This understanding could be achieved through formal training.

Implications for Research

This study used quantitative method to analyze the archival RSA-911 dataset. Although the findings of this study were similar to most studies which had investigated the predictors of employment outcome in the state-federal VR system among general populations, the focus on youth highlighted the need for further research using qualitative method. For example, more meaningful information would be contributed to the VR system if the subjects were surveyed qualitatively. It would be easier to understand why only a little percentage (15%) of youth with psychiatric disabilities received public income assistance in the FY 2004 dataset despite research assertions that youth in the public income assistance program are increasing geometrically (SSA, 2000). A qualitative research design may better explain how the unique experiences of youth with psychiatric disabilities in the VR system relate with their employment outcome. A qualitative study may be needed to ascertain the perceptions of youth with psychiatric disabilities regarding access to services they need in order to have successful employment outcome.

Additional research is needed to examine the extent to which youth with secondary psychiatric disabilities receive supports and services in the VR system. The findings which suggest that secondary psychiatric disabilities impact employment outcome in similar ways as primary mental disabilities call for further investigations. There may be need for face-to-face interviews with consumers having primary and secondary psychiatric disabilities. A crucial question may address the duration and intensity of services provided to these youth as support for their disabilities.

Given the limitations related to the 'narrow' and specific nature of the information stored in the RSA-911, there is need for further exploration of how the background characteristics which youth with psychiatric disabilities bring into the VR system impact their vocational outcomes. For example, further research is needed to explain why only a negligible percentage of youth (.23%) attained 'higher education' despite the finding that support the positive contributions of further education on the employment outcome of youth in the VR system. In addition, further understanding regarding how the interface of poverty and race impact vocational outcomes is crucial.

Further research which will use more sophisticated statistical method such as structural equation modeling (SEM) to examine group and across time variations, causal and longitudinal changes related to employment outcomes among youth with psychiatric disabilities in the VR system is needed. A developmental approach to research on youth may be more informative regarding the underlying mechanisms involved in the interactions among psychiatric symptoms, VR services, demographic characteristics and employment outcomes among youth with psychiatric disabilities.

Conclusion

In summary, the results of this study have demonstrated that VR services received and personal background characteristics substantially relate to differences in employment outcomes among youth with psychiatric disabilities. Moreover, while the focus of this study was on determining the relationships between the predictor variables and employment outcome, there is every reason to believe that the findings would make valuable contributions to holistic service design and delivery. Such design would integrate VR services, mental health and psychosocial supports and services as standard state-federal VR intervention.

The findings of the present study have identified that some specific services such as job placement demonstrated positive relationships with employment outcome. A relevant finding of this study was that youth with psychiatric disabilities received less of the services which had positive association with employment outcomes. This may mean that this population of consumers may not be receiving the services that are most beneficial to their employment outcome. In terms of personal background characteristics, the findings of this study demonstrated that the employment outcomes of the youth with psychiatric disabilities are related to the background baggage which they bring into the VR system. Although research and practice may have little control over these, the findings may suggest a need to incorporate clearly defined psychosocial supports in the service plan. Overall, the findings indicate that to encourage successful employment outcomes among youth with psychiatric disabilities, the integration of mental health and VR service may need to be an ongoing standard intervention.

APPENDICES

Appendix 1: Estimated coefficients for the final model along with Wald statistics (chi-square) and their p-values for assessing significance of the coefficients for Employment Outcomes, Demographic Characteristics, and Services Received.

Analysis of Maximum Likelihood Estimates

Parameter		DF	Estimated Coefficients	Standard Error	Wald Chi-Square	P-value
Intercept		1	-0.9452	0.2167	19.0147	<.0001
PLACVERE		1	1.4389	0.1329	117.2326	<.0001
COLGVERE		1	1.7885	0.1116	257.0721	<.0001
OCCVERE		1	1.0237	0.1230	69.3116	<.0001
RACE	1	1	0.3221	0.0936	11.8342	0.0006
RACE	2	1	-0.1350	0.1036	1.6987	0.1925
RACE	3	1	-0.4483	0.2530	3.1403	0.0764
RACE	4	1	-0.0447	0.2349	0.0362	0.8491
RACE	5	1	0.0202	0.3792	0.0028	0.9576
RACE	6	1	-0.0176	0.1121	0.0248	0.8750
SSI		1	-0.4443	0.1030	18.5936	<.0001
JBSUVERE		1	0.6961	0.1347	26.7182	<.0001
EDUCAPP	0	1	-0.9742	0.4678	4.3376	0.0373
EDUCAPP	1	1	-1.1579	0.2072	31.2442	<.0001
EDUCAPP	2	1	-0.6264	0.1789	12.2562	0.0005
EDUCAPP	3	1	-0.5613	0.1908	8.6554	0.0033
EDUCAPP	4	1	-0.4997	0.1813	7.5964	0.0058
EDUCAPP	5	1	-0.0314	0.2320	0.0183	0.8924
EDUCAPP	6	1	1.6095	0.6861	5.5023	0.0190
MAINVERE		1	0.4672	0.1235	14.3022	0.0002
JSCHVERE		1	0.7846	0.1517	26.7561	<.0001
DIAGRE		1	-0.2836	0.0661	18.4136	<.0001
DIAGREPLACVERE		1	0.4240	0.1192	12.6549	0.0004
TANF		1	-0.8683	0.3327	6.8104	0.0091
MIDIS	1	1	0.1527	0.1025	2.2199	0.1362
MIDIS	2	1	-0.0685	0.0852	0.6463	0.4214
MIDIS	3	1	0.0749	0.3771	0.0395	0.8426
MIDIS	4	1	-0.1094	0.0891	1.5087	0.2193
MIDIS	5	1	0.1129	0.0925	1.4906	0.2221
OTJVERE		1	0.6022	0.1665	13.0757	0.0003
OTHRVERE		1	0.6174	0.0890	48.1128	<.0001
COLGVEREOTHRVERE		1	-0.8181	0.1383	34.9710	<.0001
PLACVEREOTHRVERE		1	-0.4015	0.1270	9.9976	0.0016
JSCHVEREPLACVERE		1	-0.4784	0.1391	11.8234	0.0006
JSCHVEREMAINVERE		1	-0.3736	0.1696	4.8521	0.0276
COLGVEREJBSUVERE		1	-0.3935	0.2076	3.5930	0.0580
MISCVERE		1	0.0789	0.1651	0.2283	0.6328
TRANVERE		1	-0.1079	0.1083	0.9919	0.3193
COLGVERETRANVERE		1	-0.4598	0.1439	10.2097	0.0014
MISCVERETRANVERE		1	0.5434	0.1726	9.9152	0.0016
SSIMISCVERE		1	-0.5704	0.2255	6.3999	0.0114
OTJVEREMAINVERE		1	-0.9163	0.3754	5.9566	0.0147
TECHVERE		1	-0.1554	0.2166	0.5150	0.4730
COLGVERETECHVERE		1	-0.7872	0.3802	4.2883	0.0384
JBSUVEREMAINVERE		1	-0.3645	0.1890	3.7194	0.0538
VOCVERE		1	0.4127	0.0878	22.1135	<.0001
VOCVERECOLGVERE		1	-0.7141	0.1287	30.7772	<.0001
VOCVEREPLACVERE		1	-0.3873	0.1393	7.7327	0.0054
VOCVEREOCCVERE		1	-0.2925	0.1447	4.0857	0.0432
PLACVEREJBSUVERE		1	-0.3735	0.1480	6.3716	0.0116
VOCVEREJBSUVERE		1	0.3361	0.1457	5.3251	0.0210
OCCVERETRANVERE		1	-0.3136	0.1433	4.7886	0.0286

Appendix 1 contd.

Parameter	DF	Estimated Coefficients	Standard Error	Chi-Square	P-Value
SSDI	1	0.1928	0.2209	0.7617	0.3828
TRANVEREMAINVERE	1	0.3533	0.1520	5.4047	0.0201
MISCVEREOTHRVERE	1	-0.3026	0.1694	3.1899	0.0741
TANFPLACVERE	1	1.1408	0.4981	5.2448	0.0220
JSCHVERETRANVERE	1	-0.4399	0.1596	7.5937	0.0059
PLACVERETRANVERE	1	0.3535	0.1546	5.2305	0.0222
DIAGREOTJVERE	1	0.5722	0.2743	4.3516	0.0370
SSIMAINVERE	1	0.4566	0.2365	3.7266	0.0536
SSIDIAGRE	1	-0.3038	0.1778	2.9177	0.0876
MISCVEREMAINVERE	1	-0.3274	0.2084	2.4688	0.1161
TANFOTHRVERE	1	-0.8324	0.5539	2.2581	0.1329
JBSUVEREOTHRVERE	1	-0.2672	0.1528	3.0582	0.0803
MISCVEREPLACVERE	1	-0.4336	0.1825	5.6451	0.0175
MISCVEREJSCHVERE	1	0.4294	0.1969	4.7537	0.0292
VOCVEREJSCHVERE	1	-0.2751	0.1522	3.2674	0.0707
COLGVEREJSCHVERE	1	0.2984	0.1774	2.8302	0.0925
INFOVERE	1	-0.3379	0.2393	1.9949	0.1578
OTJVEREINFOVERE	1	-0.8598	0.2954	8.4751	0.0036
SSDIINFOVERE	1	-1.5892	0.5859	7.3580	0.0067
PLACVEREINFOVERE	1	0.2035	0.1668	1.4879	0.2225
SSDICOLGVERE	1	-0.9400	0.4439	4.4849	0.0342
VOCVEREINFOVERE	1	0.4167	0.2310	3.2536	0.0713
OCCVEREINFOVERE	1	-0.3678	0.1811	4.1268	0.0422
MISCVEREINFOVERE	1	0.3274	0.2373	1.9038	0.1676
COLGVEREINFOVERE	1	-0.3391	0.1966	2.9769	0.0845
TANFMAINVERE	1	-0.9600	0.6430	2.2290	0.1354
MAINVERETECHVERE	1	2.1667	1.1745	3.4031	0.0651
TECHVEREOTHRVERE	1	-3.1593	1.2298	6.5999	0.0102
PLACVERETECHVERE	1	1.5155	0.8119	3.4841	0.0620
SSDIPLACVERE	1	-0.4805	0.3242	2.1971	0.1383

Appendix 2: Logistic regression model for the probability of successful employment Secondary Psychiatric Disability, personal background factors, Services and Employment Outcomes and their respective p-values based on Wald (chi-square) statistic.

Analysis of Maximum Likelihood Estimates

Parameter		DF	Standard Estimate	Error	Wald Chi-Square	Pr > ChiSq
Intercept		1	-0.6778	0.1073	39.8948	<.0001
sd	1	1	0.1483	0.1195	1.5408	0.2145
sd	2	1	-0.2519	0.0982	6.5767	0.0103
sd	3	1	0.5086	0.4833	1.1078	0.2926
sd	4	1	-0.1455	0.1057	1.8955	0.1686
sd	5	1	-0.0420	0.1088	0.1491	0.6994
sd	6	1	-0.5021	0.1543	10.5837	0.0011
EDUCAPP	0	1	-0.3352	0.1454	5.3163	0.0211
EDUCAPP	1	1	-0.5428	0.0667	66.3193	<.0001
EDUCAPP	2	1	-0.2174	0.0478	20.6992	<.0001
EDUCAPP	3	1	-0.2114	0.0506	17.4346	<.0001
EDUCAPP	4	1	-0.2221	0.0497	20.0107	<.0001
EDUCAPP	5	1	0.0530	0.0775	0.4685	0.4937
EDUCAPP	6	1	0.5395	0.1941	7.7227	0.0055
RACE	2	1	0.1008	0.0340	8.7763	0.0031
RACE	3	1	-0.3002	0.0810	13.7367	0.0002
RACE	4	1	-0.0487	0.0770	0.4012	0.5265
RACE	5	1	-0.5061	0.1259	16.1547	<.0001
RACE	6	1	0.0295	0.0373	0.6273	0.4283
RACE	7	1	0.2852	0.0797	12.8158	0.0003
SEX		1	-0.1545	0.0175	77.9455	<.0001
SSI		1	-0.7342	0.0249	867.1122	<.0001
TANF		1	-0.4237	0.0892	22.5490	<.0001
SSDI		1	-0.3535	0.0543	42.4095	<.0001
ASSESSRE		1	-0.0392	0.0188	4.3499	0.0370
DIAGRE		1	-0.2868	0.0216	176.6175	<.0001
VOCVERE		1	0.1851	0.0189	95.6070	<.0001
COLGVERE		1	0.7545	0.0232	1061.7450	<.0001
OCCVERE		1	0.5886	0.0262	504.4072	<.0001
OTJVERE		1	0.4243	0.0399	113.0495	<.0001
LITVERE		1	-0.2024	0.0550	13.5486	0.0002
REDYVERE		1	0.3065	0.0255	143.9634	<.0001
MISCVERE		1	0.3154	0.0250	159.6800	<.0001
JSCHVERE		1	0.4548	0.0243	351.1864	<.0001
PLACVERE		1	1.0653	0.0233	2083.2590	<.0001
JBSUVERE		1	0.5500	0.0269	418.0699	<.0001
TRANVERE		1	-0.1220	0.0236	26.7160	<.0001
MAINVERE		1	0.4248	0.0294	209.0479	<.0001
RHABVERE		1	0.0548	0.0490	1.2509	0.2634
READVERE		1	-0.4762	0.1253	14.4436	0.0001
ATNDVERE		1	-0.5551	0.1302	18.1727	<.0001
TECHVERE		1	-0.4334	0.0569	58.0958	<.0001
INFOVERE		1	-0.1077	0.0279	14.8852	0.0001
OTHRVERE		1	0.3432	0.0220	242.4383	<.0001

Odds Ratio Estimates

Effect		Point Estimate	95% Wald Confidence Limits	
sd	1 vs 7	0.873	0.720	1.058
sd	2 vs 7	0.585	0.523	0.653
sd	3 vs 7	1.251	0.415	3.770
sd	4 vs 7	0.650	0.564	0.751
sd	5 vs 7	0.721	0.618	0.842
sd	6 vs 7	0.455	0.338	0.613
EDUCAPP	0 vs 7	0.280	0.160	0.493
EDUCAPP	1 vs 7	0.228	0.141	0.369
EDUCAPP	2 vs 7	0.315	0.197	0.505
EDUCAPP	3 vs 7	0.317	0.198	0.509
EDUCAPP	4 vs 7	0.314	0.196	0.503
EDUCAPP	5 vs 7	0.413	0.253	0.675
EDUCAPP	6 vs 7	0.672	0.357	1.268
RACE	2 vs 8	0.713	0.683	0.744
RACE	3 vs 8	0.477	0.400	0.569
RACE	4 vs 8	0.614	0.520	0.724
RACE	5 vs 8	0.388	0.292	0.516
RACE	6 vs 8	0.664	0.628	0.702
RACE	7 vs 8	0.857	0.721	1.018
SEX		0.857	0.828	0.887
SSI		0.480	0.457	0.504
TANF		0.655	0.550	0.780
SSDI		0.702	0.631	0.781
ASSESSRE		0.962	0.927	0.998
DIAGRE		0.751	0.720	0.783
VOCVERE		1.203	1.160	1.249
COLGVERE		2.127	2.032	2.225
OCCVERE		1.801	1.711	1.896
OTJVERE		1.529	1.414	1.653
LITVERE		0.817	0.733	0.910
REDYVERE		1.359	1.292	1.428
MISCVERE		1.371	1.305	1.440
JSCHVERE		1.576	1.503	1.653
PLACVERE		2.902	2.772	3.037
JBSUVERE		1.733	1.644	1.827
TRANVERE		0.885	0.845	0.927
MAINVERE		1.529	1.444	1.620
RHABVERE		1.056	0.960	1.163
READVERE		0.621	0.486	0.794
ATNDVERE		0.574	0.445	0.741
TECHVERE		0.648	0.580	0.725
INFOVERE		0.898	0.850	0.948
OTHRVERE		1.409	1.350	1.472

Appendix 3: Full Names for Abbreviated Variables in Maximum Likelihood Ratio Tables

Abbreviated	**Full Names**
Placvere	Job placement assistance services
Colgvere	College or University training services
OCCvere	Occupational/Vocational training services
Race 1	White
Race2	African American/Black
	Native American/Alaska Natives
Race 3	
Race 4	Asian
Race 5	Native Hawaiian/ other pacific Islander
Race 6	Hispanic/ Latino
Race 7	Multiracial
SSI	SSI-aged, blind, disabled at application
SSDI	Social Security Disability Insurance at application
TANF	Temporary assistance for needy families at application
JBSUvere	On-the-job supports
Mainvere	Maintenance services
JSCHvere	Job search assistance services
DIAGRE	Diagnosis and treatment services
MIDIS 1	Anxiety(primary mental illness)
MIDIS 2	Depression(primary mental illness)
MIDIS 3	Eating Disorder(primary mental illness)
MIDIS 4	Mental illness not listed elsewhere(primary mental illness)
MIDIS 5	Personality disorder (primary mental illness)
MIDIS 6	Schizophrenia and primary mental illness)
SD	Youth with non-psychiatric disabilities
OTJver	On-the-job training
OTHRver	Other services
MISCvere	Miscellaneous training services
TRANvere	Transportation services
VOCvere	Voc rehabilitation counseling& Guid.
ASSESSre	Assessment services
Litvere	Basic remedial or literacy services
Redyvere	Job readiness training services

Augmere	Augmentative skills training services
Rhabvere	Rehabilitation technology services
MI Not	Mental illness not listed elsewhere

Figure 1

Deviance Residual for Checking Logistic Regression Models for Research Questions One and Two

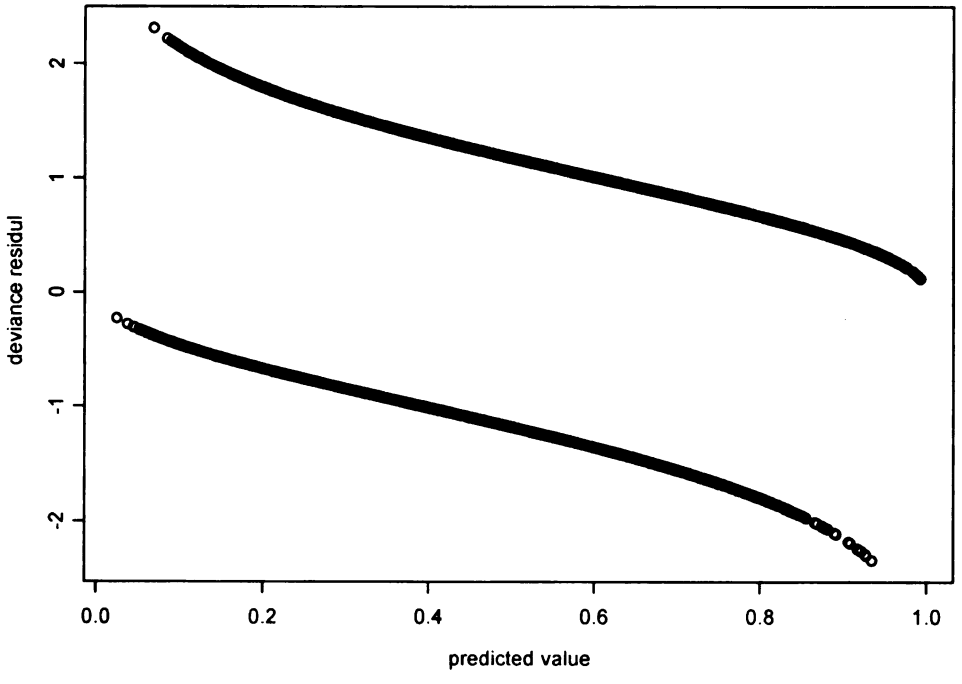
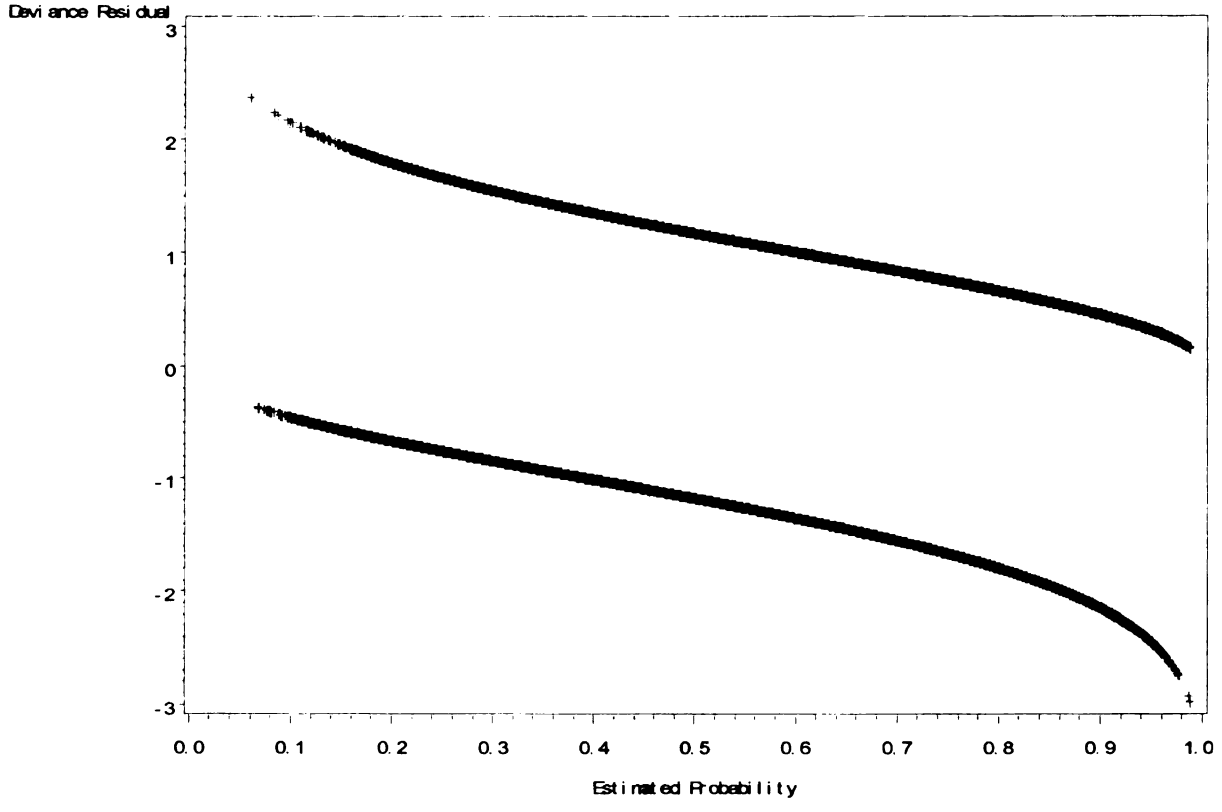


Figure 2

Deviance Residual for Checking the Logistic Regression Model for Research Question Three



References

Annie E. Cassey Foundation (2001). *Taking the initiative on jobs and race*. Baltimore, MD.

Annie E. Cassey Foundation (2002). Stronger links: *New ways to connect low-skilled workers to better jobs*. Baltimore, MD.

Anthony, W.A.(1994). Characteristics of people with psychiatric disabilities that are predictive of entry into the rehabilitation process and successful employment. *Psychosocial Rehabilitation Journal*, 17(3),3-13

Anthony, W.A., Cohen, M., and Farkas, M.(1990). *Psychiatric rehabilitation*. Boston, MA: Center for Psychiatric Rehabilitation.

Anthony, W.A. (1994). Characteristics of people with psychiatric disabilities that are predictive of entry into the rehabilitation process and successful employment. *Psychosocial Rehabilitation Journal*, 17(3), 3-13.

Anthony, W.A.(1990). *Psychiatric rehabilitation*. In R.P. Marinelli & A.E. Dell Orto (Eds.), The psychological Rehabilitaion.

Anthony, M.M., Ledley D.R., & Heimberg, R.G.(2005). *Improving Outcomes and preventing Relapse in Cognitive Behavioral Therapy*. NewYork:The Guilford Press.

McCullough, J.P. Jr.(2000). *Treatment for Chronic Depression: Cognitive Behavioral Analysis System of Psychotherapy*. New York: Guilford Press.

Arns, PG, & Linney, J.A. (1993). Work, self, and life satisfaction for persons with severe and persistent mental disorders. *Psychoscial Rehabilitation*, 17(2), 63-79.

Arns P., & Linney, J.A. (1995). Relating functional skills of severely mentally ill clients to subjective and societal benefits. *Psychiatric Services*, 46, 260-265.

Atkins, B.J., & Wright, G.N.(1980). Three views on the vocational rehabilitation of Blacks: The statement. *Journal of Rehabilitation*, 46 (2), 40, 42-46

Banks, B., Charleston, S., Grossi, T., & Mank, D. (2001). Workplace supports, job performance, and integration outcomes for people with psychiatric disabilities. *Psychiatric Rehabilitation Journal*, 24(4), 389-396.

Baron, R. (1995). Establishing employment services as a priority for persons with long mental illness. *American Rehabilitation*, Spring, 32-35.

Baron, R., & Salzer, M.S.(2002). Accounting for unemployment among people with mental illness. *Behavioral Science Law*, 20, 585-599.

Baron, R.C. (2000). The past and future career patterns of people with people with serious mental illness: A qualitative inquiry. *Monograph of the National Institute of Disability and Rehabilitation Research* (H133F980011).

Bell, M.D., & Lysaker, P.H., (1995). Psychiatric symptoms and work performance among persons with severe mental illness. *Psychiatric Services*, 46(5), 508-510.

Bell, M.D. & Lysaker, P.H. (1997). Psychiatric symptoms and work performance among persons with severe mental illness. *Psychiatric Services*, 46 (3), 508-510.

Blackorby, J.& Wagner, M.(1996). Longitudinal postschool outcomes of youth with disabilities: Findings from the national longitudinal transition study. *Exceptional Children*, 62 (5), 399-412

Block, P., Balcazar, E., & Keys, C. (2001). From pathology to power: Rethinking race, poverty, and disability. *Journal of Disability Policy Studies*, 12, 18-39.

Boardman, J.; Grove, B.; Perkins, R.; Shepherd, G.(2003). Work and employment for people with psychiatric disabilities. *British Journal of Psychiatry*, 182, 467-468.

Bolton, B. & Brookings , J. (1996). Development of a multifaceted definition of empowerment. *Rehabilitation Counseling Bulletin*, 39(4), 256-264.

Bond, G.R., Becker, D.R., Drake, R.E., & Vogler, K.M. (1997). A fidelity scale for the individual placement and support model of supported employment. *Rehabilitation Counseling Bulletin*, 40, 265-284.

Bond , G.R., Drake, R., Rapp, C.A., Meisler, N., Lehman, A.F., Bell, M.D., & Blyler, C.R. (2001). Implementaing supported employment as an evidence-based practice. *Psychiatric Services*, 52, 313-322

Bond, G.R. & McDonel, E.(1991). Vocational rehabilitation outcomes for persons with psychiatric disabilities: An update. *Journal of Vocational Rehabilitation*, 1, 9-20.

Braitman, A., Counts, P., Avenport, R., Zurlinden, B., Roger, M., Clauss, J., Kulkami, A., Kymla, J., and Montgomery, L. (1995). Comparison of barriers to employment for unemployed and employed clients in a case management program: An exploratory study. *Psychiatric Rehabilitation Journal*, 19(1) 3-8.

Brandt, E.N., & Pope, A.M. eds(1997). *Enabling America: Assessing the role of rehabilitation science and engineering.* Washington, D.C.: National Academy Press.

Brueyere, S.M., Erickson, W.A., VanLooy, S.A., Cook, J.A., Burke, J., Farah, L., & Morris, M.(2002). Employment and disability policy: Recommendations for a social sciences research agenda. Paper prepared for the NIDR and APA conference on Bridging Gaps: Refining the Disability Research Agenda for Rehabilitation and *Social Sciences*, May 29-31

Brooks, N.A.(1984). Opportunities for health promotion: Including the chronically ill and disabled. *Social Science &Medicine*, 17, 3-13.

Buell, G.J., & Anthony, W.A. (1975). The relationship between patient demographic characteristics and psychiatric rehabilitation outcome. *Community Mental Health Journal*, 11(2), 208-214.

Capella, M.E. (2002). Inequities in the VR system: Do they still exist? *Rehabilitation Counseling Bulletin*, 45, (3), 143-153.

Capella, M.E. (2003). Evaluating differences in demographics, services, and outcome for vocational rehabilitation consumers with hearing loss versus consumers with other disabilities. *Journal of Rehabilitation*, 69(3), 39-46.

Castelnuovo-Tedesco, P.(1981). Psyhcological consequences of physical defects: A psychoanalytic perspective. *International Review of Psychoanalysis*, 8, 145-154.

Chan, F., Leahy, M.J., Chan, C., Lam, C. Hillburger, J., Jones, J., & Kamnetz, B.(1998). Training needs of rehabilitation counselors in the emerging mental health/managed care environment, *Rehabilitation Education*, 12, 333-345.

Cho, S.Y.(1999). *Factors associated with weekly earnings at closure of males and females with psychiatric disabilities*. Unpublished doctoral dissertation Southern Illinois University at Carbondale

Cohen, J. & Cohen, P. (1983). *Apllied multiple regression/correlation analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum, Associates.

Collins, M.E., Mowbray, C.T., & Bybee, D. (2000). Characteristics predicting successful outcomes of participants with severe mental illness in supported education. *Psychiatric Services*, 51(6), 774-780.

Cook, J. and Jonikas, J. (2002). Self determination among mental health consumers/survivors: using lessons from the past to guide the future. Journal of *Disability Policy Studies*, 13(2), 87-95

Cook, J. A. and Burke, J. (2002). Public policy and employment of people with disabilities: Exploring new paradigms. *Behavioral Sciences and the Law*, 20, 541-557.

Corrigan, W.P., & Boyle, G.M. (2003). What works for mental health system change: Evolution or revolution? *Administration and Policy in Mental Health*, 30 (5), 379-395.

Corrigan, P.W., Rao, D., & Lam, C.(1999). Psyhiatric rehabilitation. In F.Chan & M.Leahy (Eds.), *Health care and disability case management* (pp.527-564). Lake Zurich, IL: Vocational Consultants Press.

Crimando, W. in Moxley, D.P. & Finch, J.R.(2003). *Source book of rehabilitation and mental health practice*. New York: Kluwer International: Plenum Publishers.

Crowther, R.E., Marhsall,M., Bond, G.R. et al.(2001). Helping people with severe mental illness to obtain work: systematic review. *British Mental Health Journal*, 322, 204-208.

Davis M. & Vander Stoep A. The transition to adulthood for youth who have serious emotional disturbance: developmental transition and young adult outcomes. *Journal of Mental Health Administration* 1997; 24:400–27

Dixon, L., Hoch, S.J., Clark, R., Bebout, R., Drake, R., McHugo, G., & Becker, (2002). Cost effectiveness of two vocational rehabilitation programs for persons with severe mental illness. *Psychiatric Services*, 53(9), 1118-1124

Drake, R.E. (1998). A brief history of the individual placement and support model. *Psychiatric Rehabilitation Journal*, 22(1), 3-7.

Dziekan, K.I., & Okocha, A,A. (1993). Accesibility of rehabilitation services: Comparison of racial-ethnic status. *Rehabilitation Counseling Bulletin*, 36, 183-189.

Engel, G.L.(1983). The biopsychosocial model and family medicine. *Journal of Family Practice*, 16, 409-413.

Ezpleta, L., Keeler, G., Alaatin, E., Costello, E.J., & Adrian, A. (2001). Epidemiology of psychiatric disability in childhood and adolescence. *Journal of Child Psychology and Psychiatry*, 42(7), 901-914.

Fabian, E.S. (1999). Rethinking work: The examples of consumers with serious mental health disorders. *Rehabilitation Counseling Bulletin*, 41(4), 302-316.

Fabien ES, Wiedefeld MF: Supported employment for severely psychiatrically disabled persons: a descriptive study. *Psychosocial Rehabilitation Journal* 13:53-60, 1989

Fabian, E. (1992). Longitudinal outcomes in supported employment: A survival analysis. *Rehabilitation Psychology*, 37 (1), 2

Feist-Price, S.(1995). African Americans with disabilities and equity in vocational rehabilitation services: One state's view. *Rehabilitation Counseling Bulletin*, 39, 119-129.

Finch, J.R. & Wheaton, J.E. (1999). Patterns of services to vocational rehabilitation consumers with serious mental illness. *Rehabilitation Counseling Bulletin*, 42, 214-227.

Frey, L., Szalda-Petree, A., Traci, M.A, et al. (2001). Prevention of secondary health conditions in adults with developmental disabilities: A review of the literature. *Disability Rehabilitation*, 23, 361-369.

Garske, G.G. in Moxley, D.P. & Finch, J.R.(2003). *Source book of rehabilitation and mental health practice*. New York: Kluwer International: Plenum Publishers.

Garske, G.G. (1992). Working with people who have severe psychiatric disabilities. *American Rehabilitation*, 18, 23-24, 36-37.

Garske, G. (1999). The challenge of rehabilitation counselors: Working with people with psychiatric disabilities. *The Journal of Rehabilitation*, 65.

Gioia, D. & Brekke, J.S. (2003). Knowledge and use of workplace accommodations and protections by young adults with schizophrenia: A mixed method study. *Psychiatric Rehabilitation Journal*, 27(1), 59-68.

Graitcer, P.L. & Maynard, F.M.(1990). *Proceedings on the first colloquim on preventing secondary disabilities among people with spinal cord injuries*. Atlanta, GA: Division of Injury Control and Disabilities Prevention Program, Centers for Disease Control.

Halpern, A. (1985). Transition: A look at the foundations. *Exceptional Children*, 51, 479-

Harrington, S.A. (1997). Transition programming for students with learning disabilities. *The Journal of Vocational Special Needs Education*, 20(1), 22-24.

Hayward, B., & Schmidt-Davis, H. (2000). *A longitudinal study of the VR Service program. Fourth Interim Report: Characteristics and outcomes of youth in VR research.* Triangle Park, NC: Research Triangle Institute.

Healthy People 2010: *Understanding and improving health.* Washington, DC: US Department of Health and Human Services: 2001.

Hennesssey, J.C. (1996). Job patterns of disabled beneficiaries. *Social Security Bulletin*, 59, 3-11

Hennessey, J.C. (1997). Factors affecting the work efforts of disabled-worker beneficiaries. *Social Security Bulletin*, 60, 3-19

Herbert, J.T. & Martinez, M. Y. (1992). Client ethnicity and vocational rehabilitation case service outcome. *Journal of Job Placement*, 8(1), 10-16.

Hoffman, L., Manela, W.R., & Schiff, S. in Moxley, D.P. & Finch, J.R.(2003). *Source book of rehabilitation and mental health practice*. New York: Kluwer International: Plenum Publishers.

Hoge, C.W., Toboni, H.E., Messer, S.C., Bell, Amoroso, P., & Orman, D.T. (2005). The occupational burden of mental disorders in the US military: Psychiatric hospitalizations, involuntary separations, and disability. *American Journal of Psychiatry*, 162 (3), 585-591.

Hughes, C., & Carter, E.W. (2000). *The transition handbook: Strategies high school teachers use that work.* Baltimore, MD: Brookes

Individuals with Disabilities Education Act (IDEA) 1991. *Public Law*, 105-199.

Institute of Medicine (1991). *Disability in America: Toward a national agenda for prevention.* Washington, D.C.: National Academu Press.

Institute of Medicine (1997). *Improving Health in the Community: A role of performance monitoring.* Washington, D.C.: National Academy Press.

Irey, H., Salkever, D.S., Koldner, K.B., Sci, D., & Bijur, P.E. (1996). Schooling employment, idleness in young adults with serious physical health conditions: Effects of age, disability status, and parental education. *Journal of Adolescent Health*, 19, 25-33.

Keith, A.Y. (2001). Working toward recovery in New Hamsphire: A study of modernized vocational rehabilitation from the viewpoint of the consumer. *Psychiatric Rehabilitation Journal*, 24 (4), 355-367.

Keller, E.(1998). *Testimony to US House of Representatives Committee on ways and means.* Subcommitte on social security, the ticket to work and self sufficiency Act of 1998 (H.R.3433). Washington DC, March 17, 1998

Kinne, S., Patrick, D.L., & Doyle, D.L. (2004). Prevalence of secondary conditions among people with disabilities. *American Journal of Public Health*, 94(3), 443-445.

Kokkonnen, J.(1995). The social effects in adult life of chronic illness since childhood. *European Journal of pediatrics*, 154, 676-681.

Krause, J.S. & Bell, R.B. (1999). Measuring quality of life and secondary conditions: Experiences with spinal cord injury. *In* Simoensson , R.J. & McDevitt, L.N (Ed.) *Issues in disability and health:The role of secondary conditions and quality of* life (129-43). Chapel Hill: University of North Carolina, FPG Child Development Center.

Kravetz, S., Dellario, D., Granger, B., & Salzer, M. (2003). A two-faceted work participation approach to employment as applied to persons with a psychiatric disability. *Psychiatric Rehabilitation Journal*, 26(3), 278-288.

Kosciulek J., & Perkins, A.(2005). Transition Case Management. In Leahy, M., Chan, F., & Saunders, J.L. *Case Management for Rehabilitation Health Professionals.* Osage Beach MO: Aspen Professional

Lehman, C.M., Clark, H.B., Catellanos, L.A. (2002). Transition from school to adult life: Empowering youth community ownership and accountability. *Journal of Child and Family Studies*, 11(1), 127-141.

Lipowski, Z. J.(1975). Psychiatry of somatic disease: Epidemiology, pathogenesis, classification. *Comprehensive psychiatry*, 4, 90.

Livneh, H. (2001). Psychosocial adaptation to chronic illness and disability: a conceptual framework. *Rehabilitation Counseling Bulletin*, 44(3), 151-160.

Livneh, H., & Antonak, F.R.(2005). Psychosocial adaptation to chronic illness and disability: A primer for counselors. *Journal of Counseling and Development*, 83(1), 12-30

Lollar, D.(1994). Preventing secondary conditions associated with spina bifida or cerebral palsy: proceedings and recommendations of a symposium. Washington, DC: Spina Bifida Association of America.

Lollar, D.(1999). Clinical Dimensions of Secondary Conditions. In Simeonsson , R.J. & McDevitt, L.N.(Ed.)*Issues in disability and health: The role of secondary conditions and quality of life* (pp. 41-50). Chapel Hill: University of North Carolina, FPG Child Development Center.

Lollar, D.(2002). Public health and disability:emerging trends. *Public Health Report.* 117, 131-136.

Luckasson, R., Bothwick-Duffy,S., Buntinx,W.H.E., Coulter, D.L., Craig, E.M., & Reeve et al. (2002). *Mental retardation: Definition, classification, and systems of support*. Washington, DC: American Association on Mental Retardation.

Lysaker, PH, Bell, MD, Zito, WS, Bioty, S.M. (1995).Social Skills: Deficits and predictors of improvement in schizophrenia. *Journal of Nervous Mental Disorder*, 183, 688-692.

MacDonald-Wilson, K.L.,Revell W.G. & Nguyen(1991). Supported employment outcomes for people with psychiatric disabilities: a comparative analysis. *Journal of Vocational Rehabilitation*, 1, 30-44

Mac-Donald-Wilson, K., Rogers, S.E. & Anthony, W.A. (2001). Unique issues in assessing work function among individuals with psychiatric disabilities. *Journal of Occupational Rehabilitation*, 11(3),217-232.

Macias, C., DeCarlo, T.L., Wang, Q., Frey, J, & Barreira, P. (2001). *Administration and Policy in Mental Health*, 28(4), 279-297.

Marge, M.(1988). Health promotion for persons with disabilities: Moving beyond rehabilitation. *American Journal of Health Promotion*, 2(4), 29-44.

Marshak, L.E., Bostick, D., & Turton, L.J. (1990). Closure outcomes for clients with psychiatric disabilities served by the vocational rehabilitation system. *Rehabilitation Counseling Bulletin*, 33, 247-250.

Massel, H.K., Liberman, R., Mintz, J., Jacobs, H., Rush, T., Gianini, C., & Zarate, R. (1990). Evaluating the capacity to work of the mentally ill. *Psychiatry*, 53, 3-43.

McCullough, J. (2000). Treatment for a chronic depression: Cognitive behavioral analysis system of psychotherapy (CBASP). New York: Guilford Press.

Mechanic, D. & Aiken, L.H. (1987). Improving the care of patients with chronic mental illness. *The New England Journal of Medicine*, 317(26) 1634-1638

Meyers, A.R., Mitra, M., Walker,D.K., Wilber, N. & Allen, D.(2000). Predictors of secondary conditions in a sample of independently living adults with high-level spinal cord injury. *Topics in Spinal Cord Injury rehabilitation*, 6, 1-8.

Milkowitz, D.J. (2004). The role of family systems in severe and recurrent psychiatric disorders:Adevelopmental psychopathology view.*Development and Psychopathology*, 16, 667-688.

Mithuang, D.E., Martin, J.E., Agran, M. Rusch, F.R. (1998).*Why special education graduates fail: How to teach them to succeed.* Colorado Springs, CO: Ascent.

Mitra, M., Wilber, N., Allen, D., & Walker, D.K. (2005). Prevalence and correlates of depression as a secondary condition among adults with disabilities. *American Journal of Orthopsychiatry*, 75(1), 76-85.

Moore, L.C. (2001 a). Disparities in closure success rates for African Americans with mental retardation: An ex-post-facto research design. *Journal of Applied Rehabilitation Counseling*, 32(2), 30-35.

Moore, L.C. (2001b). Racial and ethnic members of under-represented groups with hearing loss and VR services: Explaining the disparity in closure success rates. *Journal of Applied Rehabilitation Counseling*, 32(1), 15-20

Moore, L.C., Feist-Price, S., & Alston, R.J. (2002). Competitive employment and mental retardation: Interplay among gender, race, secondary psychiatry disability, and rehabilitation services. *Journal of Rehabilitation*, 68(1), 14-19.

Moore, L.C., Feist-Price, S., Alston, J.R. (2002). VR services for persons with severe/profound mental retardation: Does race matter? *Rehabilitation Counseling Bulletin*, 45(3), 162-167.

Moxley, D.P., Finch, J.R. in Moxley, D.P. & Finch, J.R.(2003). *Source book of rehabilitation and mental health practice*. New York: Kluwer International: Plenum Publishers.

Mullins, J., Roessler, R., Schriner, K., Brown, P. & Bellini, J. (1997). Improving employment outcomes through quality rehabilitation counseling (QRC). *The Journal of Rehabilitation*, 63, 21-32

Newacheck, P.W., & Halfon, N. (1998). Prevalence and impact of disabling chronic conditions in childhood. *American Journal of Public Health*, 88, 610-617.

Noble, J.R. (1998). Policy reform dilemmas in promoting employment of persons with severe mental illnesses. *Psychiatric Services*, 49, 775-781.

Nobel, J. H., Honberg, R. S., Hall, L. L., & Flynn, L. M. (2001, February). A legacy of failure: The inability of the federal-state vocational rehabilitation system to serve people with severe mental illnesses. *National Alliance for the Mentally Ill* [On-line]. Available: www.nami.org/update/legacy.htm retrieved 7th January 2006

O'Day, B. & Killen, M. (2002). Does U, S. federal policy support employment and recovery for people with psychiatric disabilities? *Behavioral Sciences and the law*, 20, 559-583.

Patrick, D.L. (1997). Rethinking prevention for people with disabilities. Part I: A conceptual model for promoting health. *American Journal of Health Promotion*, 11, 257-260.

Patrick D.L., Richardson, M.L., Starks, H.E., Rose, M.A. & Kinne, S.(1997). Rethinking prevention for people with disabilities: Part II: A framework for designing interventions. *American Journal of Health Promotion*, 11, 261-263.

Pechansky, R. & Thomas, C.(1981). The concept of access: Relationship to consumer satisfaction. *Med Care*, 19:127-140.

Perrin, J.M. (2002). Health services research for children with disabilities. *Milibank Quaterly*, 80(2), 303

Peterson, G.E.(1995). An analysis of participation, progress, and outcome of individuals from diverse racial and ethnic backgrounds in the public vocational rehabilitation program in Nevada. Unpublished doctoral dissertation, University of Northern Colorado.

Pope, A.M. (1992). Preventing secondary conditions. *Mental Retardation*, 30, 347-354.

Pope, A.M. & Tarlov, A.R. (1991). *Summary and recommendations from disability in America: Toward a national agenda for prevention.* Washington, D.C.: National Academy Press.

Pope, A.M.. & Tarlov, A.V. (1991). *Disability in America: Toward a national agenda for prevention.* Washington, DC: National Academy Press.

Quimby, E., Drake, E.R., Becker,R.D. (201). Ethnographic findings from the Washington, D.C vocational services study. *Psychiatric Rehabilitation Journal*, 24 (4), 368-374.

Ravesloot, C., Seekins, T., & Walsh, J.(1997). A structural analysis of secondary conditions experienced by people with physical disabilities. *Rehabilitation Psychology*, 42(1), 3-16.

Rehabilitation Service Administration (1988). *Reporting manual for the case service report system:RSA-911.* Washington, DC: Author.

Rehabilitation Services Administartion(2000). *A Longitudinal Study of the Vocational Rehabilitation Service Program. Fourth Interim Report: Characteristics and outcomes of transitional youth in VR.* Prepared by Research Triangle Institute.

Rimmer, J.H. (1999). Health promotion for people with disabilities: The emerging paradigm shift from disability prevention to prevention of secondary conditions. *Phyiscal Therapy*, 79, 495-502.

Roessler, R.T., & Rumrill, P.D. jr. (1999). New directions in vocational rehabilitation: A "career development" perspective on "closure". The Journal of Rehabilitation, 65.

Rogers, E.S., Anthony, W.A., Cohen, M., & Davies, R.R. (1997). Prediction of vocational outcome based on clinical and demographic indicators among vocationally ready clients. *Community Mental Health Journal*, 33(2), 99-112.

Rogers,E. S., Walsh,D., Masotta,L. & Danley,K. (1991). *Massachusetts survey of client preferences for community support services (Final report).* Boston: Center for Psychiatric Rehabilitation

Ross J.K. (1996). Social security: Disability programs lag in promoting return-to-work: testimony before the special committee on aging, U.S Senate (GAO/T-HEHs-96-147) Washington DC: US General accounting office.

Rowland, L.A.; Perkins, R.E.(1988). 'You can't eat, drink or make love eight hours a day'. The value of work in psychiatry. Health Trends, 20, 75-79

Rubin, S.E. & Roessler, R.T. (2001). Foundations of vocational rehabilitation process (5^{th} ed.). Austin, TX: Pro-ed

Rutman, I.D. (1992). *Comparative analysis of persons disabled by mental illness, hearing impairment, cardiac and circulatory disorders and mental retardation whose cases were closed by the Rehabilitation Services Administration during the fiscal years 1984-1988.* Report prepared for the Division of Applied and Services research, National Institute of Mental Health. Philadephia: Matrix research Institute.

Rutman, I.D.(1994). How psychiatric disability expresses itself as a barrier to employment. *Psychosocial Rehabilitation Journal*, 31: 163-176

Sammons, M. T., & Schmidt, N. B. (Eds.). (2001). *Combined treatments for mental disorders: A guide to psychological and pharmacological interventions.* Washington, DC: American Psychological Association.

Sameroff, A.J., Fiese, B.H. (2000) Transactional Regulation: the Developmental Ecology of Early Intervention. In Shonkoff, J. P., Meisels, S.J., *Handbook of Early Childhood Intervention.* Cambridge: Cambridge University Press.

Social Security Administration (2000). *Transition and post school outcomes for youth with disabilities: Closing the gaps to post secondary education and employment.* National council on Disabilities

Simeonsson, R.J., McMillen, J.S.; Huntington, G.S.(2002). Secondary conditions in children with disabilities: Spina bifida as a case example. *Mental Retardation and Developmental Disabilities Research Reviews*, 8, 198-205.

Salkever, D., Goldman, H.H., Purushothaman, M., & & Shonogle, J.(2000). Disability management, employee health and fringe benefits, and long term disability claims for mental disorders: An empirical exploration. *Milibank Quaterly*, 78, 79-113.

Schalock, R.L. (2004). The emerging disability paradigm and its implication for policy and practice. *Journal of Disability Policy Studies*, 14(4), 204-215.
Schalock, R.L., Baker, P.C., & Crosser, D.M. (Eds.). (2002). *Embarking on a new century: Mental retardation at the end of the 20th century.* Washington, DC: American Association on Mental Retardation.

Scott, C.G. (1992). Disabled SSI recipients who work. *Social Security Bulletin*, 55, 26-36.

Seekins, T., Clay, J., & Ravesloot, C.H.(1994). A descriptive study of secondary conditions reported by adults with physical disabilities served by 3 Independent Living Centers in a rural state. *Journal of Rehabilitation*, 47-51.

Seekins, T., White G.W., Ravesloot, C., et al. (1999). Developing and evaluating community-based health promotion programs for people with disabilities. In Simoensson , R.J. & McDevitt, L.N(Ed.).Issues in disability and health: The role of secondary conditions and quality of life ., 221-38. Chapel Hill: University of North Carolina, FPG Child Development Center.

Seekins, T., Smith, N., McLeary, T., Clay, J., & Walsh, J. (1990). Secondary disability prevention: Involving consumers in the development of a public health surveillance instrument. *Journal of Disability Policy Studies*, 1(3), 21-36.

Shafer, M.S. & Huang, H.W. (1995). The utilization of survival analysis to evaluate supported employment services. *Journal of Vocational Rehabilitation,* 5:103-113.

Shepherd, G. (1989). The value of work in the 1980's. Psychiatric Bulletin, 13, 231-233.

Silver, SE, Duchnowski, A., & Kutash. P. (1992). A comparism of children with serious emotional disturbance served in residential and school settings. *Journal of Child and Family Studies*, 1, 43-52

Silverstein, R. (2000). Emerging disability framework: A guidepost for analyzing public policy. *Iowa Law Review*, 85, 1691-1806

Simeonsson, RJ, Bailey DB, Scandling D. Huntington, GS, Roth,M (1999). *Disability, health, secondary conditions and quality of life:emerging issues in public health.* In: Simeonsson RJ& McDevitt LN,(Ed.): Issues in Disability and Health: The Role of Secondary Conditions and Quality of Life, Chapel Hill: University of North Carolina Press; 1999:51-72

Simoensson, R.J., McMillen,J.S., Huntington, G.S.(2002). Secondary conditions in

2
20

children with disabilities: Spina Bifida as a case example. *Mental Retardation and Developmental Disabilities research Reviews*, 8, 198-205.

Simeonsson R.J., McDevitt, L.N.,eds(1999). *Issues in disability and health: The role of secondary conditions and quality of life*. Chapel Hill: University of North Carolina, FPG Child Development Center.

Simeonsson, R.J. , Lollar, D., Hollowel, J. (2000). Revision of the international classification of impairments, disabilities, and handicaps: Developmental issues. *Journal of Clinical Epidemiology*, 53, 113-124.

Social Security Administration (SSA). (2001). *Red book on work incentives: A summary guide to social security and supplemental security work incentives for people with disabilities*. Washington, DC: Author.

Social Security Administration (2002*). Transition and post-school outcomes for youth with disabilities: Closing the gaps to postsecondary education and employment.* Retrieved January 13, 2006 from http://www.ncd.gov.

Spence, M.A.S. (2000). *Successful vocational rehabilitation for persons with significant mental disabilities: A logistic regression.* Unpublished dissertation, Ohio State University.

Stoddard, S., Jans, L., Ripple, J., & Kraus, L (1998). *Chartbook on work and disability in the United States: An inhouse report*. Washinton DC: US National Institute in Disability and Research

Stuifbergen, A.K. & Becker, H.A. (1994). Predictors of health-promoting lifestyles in persons with disabilities. *Research on Nursing Health*, 17, 3-13.

Substance Abuse and Mental Health Services Administration (2003). Working with the state vocational rehabilitation agency in Work as a priority: A resource for employing people with mental illness and who are homeless. US Department of Health and Human Services www.samhsa.gov retrieved July 25th, 2005

Thompson, J.R., Craig, E.M., Schalock, R.I., Tasse, M., Bryant, B., Hughes, C., et al. (2003). *Support intensity scale*. Washington, DC: American Association on Mental Retardation.

Thurer, S. & Rogers, S.E. (1984). The mental health needs of physically disabled persons: Their perspective. *Rehabilitation Psychology*, 29(4), 239-249

Traci, M.A. (2000). *Life changes as possible predictors of secondary conditions*. Unpublished dissertation, University of Montana.

Tsang, H., Lam, P., Ng,B., Leung, O. (2000). Predictor of employment for people with psychiatric disabilities: A review of literature since the mid-80's. *Journal of Rehabilitation*, 66, 19-31.

Turner, R.J., & Wood, D.W. (1985). Depression and disability: The stress process in a chronically strained population. *Research in Community and Mental Health*, 5, 77-109.

U.S. Department of Health and Human Services (2000). *Healthy People 2010: Understanding and improving health*. 2nd ed. Washington, D.C.: U.S. Government Printing Office.

Vander-Stoep, A., Beresford, S.A.A., Weiss, N.S., McKnight, B., Cause, A.M., & Cohen. P. (2000). Community-based study of the transition to adulthood for adolescents with psychiatric disorder, *American Journal of Epidemiology*, 152 (4), 352-362.

Vander Stoep A.(1994). *Transition to adulthood: issues of youth with mental illness*. Presented at the American Public Health Association Annual Meeting, New York, New York, November.

Vander Stoep, A., Taub, J., & Holcomb, L. (1993). Follow-up of adolescents with severe psychiatric impairment into young adulthood. In: Liberton C, Kutash K, Friedman R,(Ed.). *Sixth Annual Research Conference Proceedings. A system of care for children's mental health: expanding the research base* (pp.373-380). Tampa, FL:

Research and Training Center for Children's Mental Health, University of South Florida.

Verbrugge, L.M. & Jette, A.M.(1994). The disablement process. *Social Science & Medicine*, 38, 1-14.

Wallace, C.J.; Tauber, R.; Wilde, J. (1999). Teaching fundamental workplace skills to persons with serious mental illness. *Psychiatric Services*, 50, 114701153.

Walker, S.(2002). *Diversity matters: Infusing issues of people with disabilities from underserved communities into a trans-disciplinary research agenda in the behavioral and social sciences*. Paper prepared for the Bridging the Gap Conference, May. Washington, DC: Howard University Research and Training Center for Access to Rehabilitation and Empowerment Opportunities.

Warren, R.P., Cavenaugh, S.B., & Giesen, M.J. (2004). Effects of race, gender, and other characteristics of legally blind consumers on homemaker closure. *Journal of Rehabilitation*, 70(4), 16-21.

Wentling, R.M., & Waight, C.L. (1999). Barriers that hinder the successful transition of minority youth into the workplace. *Journal of Vocational Education Research*, 24(4), 165-83

Wewiorski, N.J., Fabian, E.S.(2004). Association between demographic and diagnostic factors and employment outcomes for people with psychiatric disabilities: A synthesis of recent research. *Mental health Services Research*, 6(1), 9

Wheaton, J.E. (1995). Vocational rehabilitation acceptance rate for European Americans and African Americans: Another look. *Rehabilitation Counseling Bulletin*, 38, 224-231.

White, G.W., Branstetter, A.D., Seekins, T.eds.(2000).*Secondary conditions among people with disabilities from minority cultures: Proceedings and recommendations of a working conference*. Lawrence, KS: University of Kansas, Research and Training Center on Independent Living.

White, G. W.; Branstetter, A.D., Seekings, T. & Lawrence, K.S. (2000).*Secondary conditions among people with disabilities from minority cultures: Proceedings*

and recommendations of a working conference March 12-14 1999, Chicago, Illinois. Research and Training center on Independent Living, University of Kansas.

World Health Organization (2001). *International Classification of functioning, disability and health.* Geneva: World health Organization.

Wilber, N., Mitra, M., Walker, D.K., Allen, D., Meyers, A.R., & Tupper, P.(2002). Disability as public health issue: Findings and reflections from the Massachussetts Survey of Secondary Conditions. *Milbank Quaterly*, 80, 393-421.

Will, M. (1984). *OSERS program for the transition of youth with disabilities: Bridges from school to working life.* Washington, DC: Office of Special Education and Rehabilitative Services.

Workforce Investment Act of 1998. PL 105-220.112 STAT 936 (1998, August).

Yelin, E.H, Cisternas MG (1997). Employment patterns among persons with and without mental conditions, in Mental Disorder, Work Disability, and the Law. Edited by Bonnie RJ, Monahan J. Chicago, University of Chicago Press

Young, A.K.(2001). Working toward recovery in New Hampshire: A study of modernized vocational rehabilitation from the viewpoint of the consumer. *Psychiatric Rehabilitation Journal*, 24(4), 355-367.