THE CATHOLIC UNIVERSITY OF AMERICA

Factors that Influence Mental Health Services Utilization
By Young Adults with a Past Year Major Depressive Episode

A DISSERTATION

Submitted to the Faculty of the
Department of Social Work
National Catholic School of Social Services
Of The Catholic University of America
In Partial Fulfillment of the Requirements
For the Degree
Doctor of Philosophy

©
Copyright
All Rights Reserved
By
Kelley Smith

Washington, D.C.
2010
Abstract

Factors that Influence Mental Health Services Utilization
By Young Adults with a Past Year Major Depressive Episode

Kelley Smith, Ph.D.

Director: Joseph Shields, Ph.D.

Young adults are America’s future leaders, workers, and parents who face undue burden and stress due to a lack of treatment for behavioral health problems such as depression. Depression during young adulthood increases vulnerability and can impact healthy adult development (Reinherz, Gaiconia, Hauf, Wasserman, and Silverman, 1999). Effective mental health treatment may be used as a tool to intervene, facilitate healing, and prevent further negative consequences, but, young adults must first have access to treatment and utilize mental health treatment services.

The purpose of the study was to identify the factors that determine mental health services utilization (MHSU) by young adults, aged 18-25, with a past year Major Depressive Episode (MDE), and seeks to answer the following research question: “What are the facilitating factors and barriers to mental health services utilization among young adults aged 18 to 24 who experienced a major depressive episode in the past year?” The study used an adapted version of The Behavioral Model of Health Services Utilization (Andersen, 1995) to test the hypothesis that predisposing, enabling, and need factors would influence the extent to which mental health services were utilized by young adults, aged 18 to 25, with a major depressive episode in the past year.
The 2007 National Study on Drug Use and Health (NSDUH) was used in the study to explore barriers and facilitating factors to MHSU by young adults. A series of hierarchical logistic regression analyses was used to compute the influence of each independent variable on the likelihood that young adults would utilize mental health services. Findings from this logistic regression analysis indicate that being white, being female, having more education, having concerns about the stigma associated with mental health treatment, having health insurance coverage, having more MDE severity, having a substance dependence problem, and having poor perceptions of self-health increased the odds of mental health services utilization among young adults with a past year MDE.
This dissertation by Kelley Smith fulfills the dissertation requirement for the doctoral degree in Social Work approved by Joseph Shields, PhD, as Director and by Fredrick Ahearn, Jr., PhD, and Charlene Lewis, PhD as Readers.

Joseph Shields, Ph.D., Director

Frederick Ahearn, Jr., Ph.D., Reader

Charlene Lewis, Ph.D., Reader
Epigraph

“Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control”.

United Nations December 10, 1948
Universal Declaration of Human Rights: Article 25(1)

“It is these inequalities, presumably inevitable in the basic structure of any society, to which the principles of social justice must in the first instance apply. These principles, then, regulate the choice of a political constitution and the main elements of the economic and social system. The justice of a social scheme depends essentially on how fundamental rights and duties are assigned and on the economic opportunities and social conditions in the various sectors of society”.


“Social workers pursue social change, particularly with and on behalf of vulnerable and oppressed individuals and groups of people. Social workers’ social change efforts are focused primarily on issues of poverty, unemployment, discrimination, and other forms of social injustice. These activities seek to promote sensitivity to and knowledge about oppression and cultural and ethnic diversity. Social workers strive to ensure access to needed information, services, and resources; equality of opportunity; and meaningful participation in decision making for all people”.

National Association of Social Workers, 1999
Table of Contents

Chapter One: Introduction to Study ........................................ 1
  Statement of Problem .................................................. 1
  Statement of Purpose .................................................. 3
  Conceptual Definitions ................................................. 4
  Background .................................................................... 6
  Young Adult Development .............................................. 6
  Depression ..................................................................... 8
  U.S. Mental Health Policy .............................................. 11
  U.S. Mental Health Treatment ......................................... 14
  Contributing Factors to Services Use ............................. 15
  Social Work Implications .............................................. 17
  Chapter Summary .......................................................... 21

Chapter Two: Theoretical Foundations and Literature Review .... 24
  Chapter Introduction ....................................................... 24
  Conceptual Definitions ................................................... 24
  The Behavioral Model and Framework Of Health Services Use 25
  Framework Components .................................................. 27
  Model Components ......................................................... 31
  Model of Present Study ................................................... 34
  Review of Literature ........................................................ 35
  Additional Theoretical Interpretations ............................... 42
  Chapter Summary ........................................................... 45

Chapter Three: Methodology ................................................. 48
  Chapter Introduction ....................................................... 48
  Research Design, Research Question, And Hypothesis ......... 48
  Data Collection .............................................................. 50
  Data Collection Procedures ............................................ 50
  Data Collection Instruments ............................................ 50
  Sampling ...................................................................... 53
  NSDUH 2007 Sampling Procedures .................................... 53
  Present Study Sample ...................................................... 55
  Variables and Measurement ............................................. 56
  Data Analysis Plan .......................................................... 66
  Human Subjects Concern ................................................ 67
# Table of Contents Continued

Limitations of Secondary Data Analysis 67  
Chapter Summary 70  

**Chapter Four: Results** 72  
Chapter Introduction 72  
Sample Characteristics 72  
Bivariate Relationships 77  
Multivariate Results 83  
Discussion 93  
Chapter Summary 93  

**Chapter Five: Summary of Study** 97  
Chapter Introduction 97  
Young Adults’ Mental Health Services Use 97  
Purpose of Study 99  
Theoretical Foundations Summary 99  
Overview of Model 100  
Additional Theoretical Interpretations 101  
Literature Review Summary 102  
Overview of Methodology 103  
Summary of Data Analyses Results 110  
Conclusions of Present Study 111  
Limitations of Study 115  
Study Contributions 117  
Recommendations 121  

**References** 125
List of Tables

Table 3.1   Final Factor Analysis Solution of Belief Items 61
Table 3.2   Reliability Analysis of Factor Solution 62
Table 4.1   Socio-demographic Data of Sample 73
Table 4.2   Descriptive Data of Beliefs of Sample 75
Table 4.3   Enabling Resources Data of Sample 76
Table 4.4   Need Data of Sample 76
Table 4.5   Mental Health Services Utilization Data 77
Table 4.6   Pearson’s $r$ Correlation Analysis Results 82
Table 4.7   Saturated Logistic Regression Model Results 90
Table 4.8   Final Logistic Regression Model Results 92
# List of Figures

<table>
<thead>
<tr>
<th>Figure 2.1</th>
<th>Framework for Viewing Health Services Use</th>
<th>29</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 2.2</td>
<td>Individual Determinants to Health Services Use</td>
<td>31</td>
</tr>
<tr>
<td>Figure 2.3</td>
<td>Examples of Variables that Measure Individual Determinant</td>
<td>33</td>
</tr>
<tr>
<td>Figure 2.4</td>
<td>Model of Present Study</td>
<td>34</td>
</tr>
<tr>
<td>Figure 2.5</td>
<td>Theory of Reasoned Action</td>
<td>44</td>
</tr>
<tr>
<td>Figure 3.1</td>
<td>Model of Present Study</td>
<td>57</td>
</tr>
</tbody>
</table>
Acknowledgements

It takes a village…I definitely would not be where I am today without the love, support, and prayers of so many caring people. Thank you to all of you who have offered your support, encouragement, motivation, and love. Thank you for keeping me sane, grounded, persistent, and for believing in me!!!

First, I would like to thank say thank you to my family. Thank you to my wonderful mom, Katherine, for believing in me, sacrificing for me, supporting me and raising me with so much prayer and love throughout my lifetime and throughout this doctoral program. I definitely would not be where I am today without you and the Brantley crew. Thank you to the loving, caring, Brantley crew, for being my family, for motivating me, and for supporting my growth and accomplishments.

Thank you to my dissertation committee!! Dr. Shields, my chair, you have been a presence of calm in the midst of the storm, moving me forward, guiding my career and doctoral work. You have been a wonderful chair! Thank you for all your time, patience, persistence, and hard work with me! Thank you to my dissertation readers, Dr. Charlene Lewis and Dr. Frederick Ahearn, Jr. Dr. Lewis, thank you for consistently offering your time, detailed feedback, uninhibited opinions (the lack of which I would not be where I am today), and your guidance. Thank you for allowing me to constantly interrupt your work and for all the motivational speeches that kept me moving forward!! Dr. Ahearn, thank you for offering your guidance and direction both at the beginning of my doctoral studies and now at the end. It has been a pleasure working with you and learning from you. Thank you for your support and encouragement!

Thank you to my friends and loved ones that have kept me sane!! To Derek, thank you for your patience and love during this trying dissertation process. Thank you in general for keeping me grounded, for your support, encouragement, and spurring me on to do work when I did not want to!! Theda, Debbie, and Janelle, well, what shall I say. You have become lifelong, cherished friends. Theda, the millions of phone calls shared between the two of us throughout this dissertation process have been invaluable!! Knowing that we both understood what the other was experiencing during our dissertation journey was a comfort and saving grace!! Janelle and Debbie, what a God send and blessing you both are to me! What would we have done without each other through this program!! Thank you for all your love, support, friendship, and constant availability!!

Last but not least, thank you to my supervisors and colleagues at the Office of Applied Studies. Thank you RADM Peter Delany for mentoring me and helping to keep me balanced, for supporting my education and work, for providing recommendations on life’s important lessons, and for being a wonderful director!! To Deborah Trunzo and the DASIS team, thank you for your understanding, flexibility, willingness to work with me to find a way to ‘get it all done’, and for your overall support!
Chapter One: Introduction to the Study

Over 20 million young adults aged 18 to 25 reside in the United States (U.S. Census Bureau, 2008). Young adults are America’s future leaders, workers, and parents who face undue burden and stress due to a lack of treatment for behavioral health problems such as depression. In 2007, the National Survey on Drug Use and Health reported that approximately 6 percent of young adult males and 12 percent of young adult females experienced a major depressive episode (MDE) in the year prior to the survey (Office of Applied Studies, 2008). A MDE is defined as a period of at least two weeks during which an individual experiences “depressed mood or loss of interest accompanied by at least four additional symptoms of depression” (American Psychological Association, 1994, p.317).

Young adults underutilize mental health treatments that have been proven effective in reducing depressive symptoms (Andrews, Sanderson, Corry, and Lapsley, 2000) and the burden of disease (Bramsfeld et al, 2006). National survey data show that young adults are the least likely age group to receive mental health services to treat mental health problems such as depression (Substance Abuse and Mental Health Services Administration, 2008; Wang et al., 2005).

Depression during young adulthood increases vulnerability and can impact healthy adult development (Reinherz, Gaiconia, Hauf, Wasserman, & Silverman, 1999). Depression in young adulthood has been linked to problems in psychosocial functioning...
(Reinherz et al., 1999; Gotlib, Lewinsohn, & Seeley, 1998), and increased risk for substance abuse disorders, co-morbid psychopathology, and suicidality (Kessler, Berglund, Demler, Jin, Koretz, Merikangas, Rush, Walters, & Want, 2003). Depression among this age group has also been linked to a decrease in work attendance (Hamalainen et al., 2004), college completion and educational success, and an increase in early parenthood (Fergusson & Woodward, 2002). Further, young adults who experience active symptoms of depression are at increased risk for experiencing depressive episodes in later life (Paradis et al., 2006; Rao et al., 1995).

Depression is often recurring, and should be treated in a proactive manner as a chronic illness through case management, psychotherapy, and pharmacotherapy (Andrews, Saunderson, Corry, & Lapsley, 2000; World Health Organization, 2009). Effective mental health treatment may be used as a tool to intervene, facilitate healing, and prevent further negative consequences, but, young adults must first have access to mental health treatment and utilize treatment services.

Social workers, the largest group of mental health service providers (National Association of Social Workers, 2006; U.S. Bureau of Labor Statistics, 2009), along with other mental health professionals, can effectively work to reduce the burden of untreated major depressive episodes among young adults by first understanding the factors, specific to young adults, that influence mental health services utilization (MHSU).

Studies show that demographics, such as age (Ojeda & Bergstresser, 2008) and race (Hauenstein, Petterson, Rovnyak, Merwin, Heise, & Wagner, 2007), and internal factors, such as beliefs and attitudes toward treatment (Van Voorhees, Fogel, Houston,
Cooper, Wang & Ford, 2006), and individual need (Kessler et al., 1998; Rhodes et al., 2002; Gadalla, 2008) influence MHSU in the general population. Additionally, factors, such as education (Gadalla, 2008), employment (Hauenstein et al., 2007), and insurance coverage (McAlpine & Mechanic, 2000) also influence MHSU.

Current research agendas and national health services reform efforts aim to increase population access to mental health services (Mechanic, 2003), but increased access does not guarantee a reduction in the gap between need and utilization (Leaf et al., 1986). In order to reduce the barriers to MHSU for young adults, researchers and policy makers must first identify these barriers that are specific to the young adult population.

Understanding the factors that influence treatment utilization by young adults may inform efforts geared towards transforming the public health system, may serve as a foundation for developing evidenced based prevention and awareness campaigns that seek to increase mental health services utilization (MHSU), and may assist efforts to reduce the burden of depression. Further, by taking a comprehensive, evidence based approach that considers all the factors that inhibit MHSU by young adults, researchers, policy makers, and helping professionals may strategically and effectively reduce the burden of untreated major depressive episodes in young adults.

**Purpose Statement**

The purpose of this study is to identify the factors that determine MHSU by young adults, aged 18-25, with a past year MDE, and seeks to answer the following research question: “What are the facilitating factors and barriers to mental health services
utilization among young adults aged 18 to 24 who experienced a major depressive
episode in the past year?"

The 2007 National Study on Drug Use and Health (NSDUH) is used in this study
to explore barriers and facilitating factors to MHSU by young adults. As previously
stated, this study seeks to provide findings that may be used to develop public mental
health outreach campaigns, inform public policy that will decrease barriers to treatment
and build on factors that facilitate mental health services utilization.

**Conceptual Definitions**

**Mental Health Services Utilization**

In order to increase the use of evidence based, effective mental health treatment
and decrease disparities among vulnerable populations, such as young adults, the concept
of utilization must first be understood. Additionally, elements of the utilization process
must be specifically defined in order to measure and understand the phenomenon
(Andersen, 1995).

Mental health services utilization (MHSU) is conceptualized as a socio-behavioral
phenomenon that is often studied within the fields of health services research and
behavioral and social sciences research. Mental health services utilization may be
viewed as a type of health behavior, specifically, the overt action of using mental health
professional services for the purpose of promoting individual mental well-being.
Gochman (1997) defines ‘health behavior’ as “those personal attributes such as beliefs,
expectations, motives, values, perceptions, and other cognitive elements; personality
characteristics, including affective and emotional states and trait; and behavioral patterns, actions, and habits that relate to health maintenance, to health restoration, and to health improvement” (Gochman, 1997, p.3).

Information on treatment utilization may be found within the health services research literature. Health services utilization research is commonly approached from a public health perspective that employs health services research methods. The Academy for Health Services Research and Health Policy define health services research as a “multidisciplinary field of scientific investigation that studies how social factors, financing systems, organization structures and processes, health technologies and personal behaviors affect access to health care, the quality of health care, and ultimately our health and well-being” (Lohr & Steinwachs, 2002).

Mental health services utilization is an area of study within the behavioral health sciences. Studies in behavioral health include topics surrounding drug and alcohol abuse and mental health. The term “behavioral” is used to refer to the “overt actions, underlying psychological processes such as emotion, cognition, motivation, and temperament, as well as bio-behavioral interactions” (U.S. Department of Health and Human Services, 2009). Behavioral health is impacted by numerous factors, which include social processes, such as socio-economics, socio-demographics, socio-cultural status, and bio-social interactions between individuals, small groups, and complex systems (U.S. Department of Health and Human Services, 2009).
Mental Health Services Utilization Research

Professions, such as social work, that strive for social justice, seek to alleviate the burden of oppressed populations, and attempt to ensure that vulnerable populations have access to needed resources must adopt a bio-psycho-social approach in order to understand the barriers and factors that facilitate equality in behavioral healthcare. The field of social work provides a unique person-in-environment perspective (Council on Social Work Education, 2001) perspective that may be used to conduct research in the area of young adults’ mental health services utilization. Social work’s comprehensive approach to understanding behavior may be employed in research activities that seek to alleviate the burden of young adults through increasing the knowledge base in order to inform policy, outreach, and treatment.

Social work research approaches to explore and understand the behavior of mental health services utilization must account for multiple factors within a person’s environment along with an individual’s personal characteristics (Ashford, Lecroy, & Lortie, 1997). The following section accounts for multiple factors within young adults’ environment, and provides background information pertinent to environmental and psychological contexts linked to treatment utilization

Background

Young Adult Development

In the U.S., individuals in the process of transition from adolescence to adulthood are expected to increase autonomy and reduce dependence on family. Generally, the age
of emancipation or the age of majority, when children are granted legal control of their lives, begins at age 18 in the U.S. Legally, at the age of majority, children are seen as adults in the eyes of the law and thus, inherit adult responsibility. Although young adults inherit adult responsibility, they may not be developmentally ready for the challenges of adulthood. Individuals in this age group are in a time of continued identity exploration, during which they remain in a transitional state between dependency of adolescence and the responsibilities of adulthood (Arnett, 2000).

Young adulthood is a time of autonomy building and psychological changes where the goal is to adapt to the responsibilities and roles associated with adulthood (Galambos, Barker, & Krahn, 2006). In a healthy transition to adulthood, young people are adapting to new roles and maturing in cognition, emotion, and behavior. During this transitional era of ‘prolonged adolescence’ (Erikson, 1968) or ‘emerging adulthood’ (Arnett, 2000), youth are actually ‘becoming’ adults, and experiencing extreme amounts of change, instability, and experimentation (Arnett, 2000).

Some theorists argue that emerging adulthood is a process that is unique to each individual, varies between cultures and societies, is influenced by the social environment (Arnett, 2000), and is part of a sequential process of change (Wortley & Amatea, 1982). In general, developmental theorists agree that life changes occur within four domains: family, intimacy, career, and inner life, each of which holds external and internal developmental tasks or change (Wortley et al., 1982). According to Wortley et al.’s (1982) overview on adult development theory, developmental theorists agree that change
in adulthood occurs because of a complex interaction of biological aging, environmental, intrapsychic, and interpersonal factors.

In healthy adult development, the tasks associated with emerging into adulthood are difficult. When individuals who are attempting to emerge into adulthood experience mental health problems, such as MDEs, the challenges of normal developmental tasks are intensified. Active depressive symptoms interfere with the individual’s healthy biological, psychological, and social development, which increases existing risks for other behavioral health problems (Kesser et al., 2003).

Evidence suggests that young adults are at an increased risk of participating in dangerous behaviors. For example, in 2008, young adults aged 21 to 24 comprised the largest age group among drivers with a .08 or higher blood alcohol level (National Highway Traffic Safety Administration, 2008). Additionally, the NSDUH 2007 shows that 21 percent of the nearly 33 million young adults in the U.S. abused or were dependent on drugs or alcohol in the year prior to the interview (Office of Applied Studies, 2008). Depression multiplies the risks associated with dangerous behavior, such as suicide, and may be the strongest predictor of suicide among young adults (Haarasilta, Marttunene, Kaprio, & Aro, 2003).

**Depression**

According to the Diagnostic and Statistical Manual, 4th edition (DSM IV) (American Psychological Association, 1994), major depression is a mental health problem that is classified as a mood disorder “characterized by one or more major
depressive episodes” (p.317). A major depressive episode (MDEs) is defined by the DSM IV as a period of at least two weeks during which an individual experiences “depressed mood or loss of interest accompanied by at least five additional symptoms of depression” (American Psychological Association, 1994, p.317).

In the DSM IV, the diagnostic label of MDE, not accounted for by other psychiatric or medical conditions is a Major Depressive Disorder (MDD), Single Episode. A clinical label of MDE requires that at least one of the following symptoms be present: (1) a loss of pleasure or interest in almost all activities or (2) depressed mood. Additionally, an individual must meet a minimum of five out of 9 symptoms during the specified time frame of almost daily in one two-week time period. MDE symptoms include: significant weight loss, hyper-somnia or insomnia almost every day, psychomotor retardation or agitation, fatigue almost every day, feelings of inappropriate or excessive guilt or feelings of worthlessness, reoccurring thoughts of death or suicide, and inability to concentrate (American Psychological Association, 1994).

Symptoms of MDE may vary within different populations. For example, adolescents and children may experience an irritable depressed mood rather than sadness (American Psychological Association, 1994). Some individuals may experience a lack of feelings, sleep disturbances, anxiety, appetite changes, sadness, bodily aches, irritability, withdrawal, and loss of enjoyment in pleasurable activities (American Psychological Association, 1994).
Young adults with depression need social support. However, young adults with depression have difficulty in interpersonal functioning and in relationships, which may impact their ability to draw social support from their family and other support networks (Rao et al., 1995). Relationship difficulties may add to a sense of isolation experienced by young adults with depression and increases the risks for additional psychological problems and problems into adulthood (Rao et al., 1995).

Depression is a mental health problem that places enormous burden on individuals, communities, and societies. The World Health Organization (WHO) measures the global burden of a disease, such as depression, through the ‘disability adjusted life year’ (DALY) calculation. The DALY is a calculation that merges ‘years of life lost’ (YLL), a measure of premature deaths within the years that an individual resides in an area, with the area’s prevalence of disease (World Health Organization, 2010). According to the WHO’s calculations for the year 2000, depression was the fourth leading disease that contributed to the global burden of disease worldwide, and the second leading cause of disability (World Health Organization, 2010). In middle and high income countries, depression is the number one overall leading cause of declining health (World Health Organization, 2008), and the second leading cause of ‘years of life lost’ (YLL) among 15 to 44 year olds worldwide (World Health Organization, 2010).

Studies on the economic burden of illnesses investigate the effect of illnesses on work productivity and the health care system (World Health Organization, 2006).
Kessler et al. (2003) found that in 2000, depression cost the U.S. $51 billion in workplace losses, $5.5 billion in suicide losses, and $26.1 billion in direct treatment costs.

Several studies suggest that the application of evidence based mental health treatment could reduce the depression related burden of disease by 10 to 30 percent (Andrews et al., 2000; Chisholm, Sanderson, Ayuso-Mateos, & Saxena, 2004). Treatments such as case management, psychotherapy, and pharmacotherapy interventions may reduce the burden of disease and alleviate active symptoms of depression, but individuals including young adults must utilize treatment services.

The Surgeon General (U.S. Department of Health and Human Services, 1999) stated that the treatment system was characterized by fragmentation, treatment disparities, and systemic gaps, which are historically rooted in shifting perspectives toward mental health policy and those with mental illness (U.S. Department of Health and Human Services, 1999). According to Andersen (2001), an individual’s environment, which includes the treatment system and health care policy, impacts their treatment utilization.

U.S. Mental Health Policy and Treatment

The following section provides an overview of U.S. mental health policy and the mental health treatment system as they relate to treatment utilization.

U.S. mental health policy.

Historically, young adults have been overlooked in the mental health treatment system and have not been a priority population in the development of mental health policy (Grob, 2001). Societal changes and increased independence among young adults
in the 1960s brought about increased rates of mental health problems, during a time when the system was in transition. One may argue that the characteristics of the current mental health system are in part due to a long history of public policy changes that entailed shifting responsibilities between national and state governments.

Public care for the mentally ill was initially provided through ‘asylums’ or institutions and public hospitals, and almshouses during the 19th century (Grob, 1991). During the mid-1940s, the asylum model had undergone public scrutiny due to humanitarian concerns over treatment of the residents and the declining conditions of the facilities (Grob, 1991). As a result, the national Joint Commission on Mental Illness and Health conducted a study of the U.S. mental health system to explore ways to increase mental health services and training and research, to study mental health system, and to reevaluate hospitalization policy (Ewalt, 1957).

By the 1960s, developments in science, medicine, and therapeutic interventions, and various social movements shifted the focus of mental health care to prevention, psychotherapy, and psychiatry. Ultimately, public policies shifted to a community based care model (Grob, 1991).

In 1963, congress passed the Community Mental Health Centers Act, which allocated federal resources for communities to build new mental health centers that would integrate services, provide continuous services, and provide preventative care (Grob, 1995). The Mental Health Systems Act of 1980 (MHSA) passed under President Carter sought to ease the burden on individuals with serious mental illness through programs
integration (Mechanic, 2007), but the act was repealed in 1981 by the Omnibus Budget Reconciliation Act (OBRA) (Grob, 1991). OBRA (1981) reduced federal resources for mental health, reversed a significant portion of provisions set forth in the MHSA, and allocated resources for State block grants for substance abuse and mental health services (Goldman & Grob, 2006).

Other social policies such as Medicaid and Medicare (1965) and SSI (1972) also played a major role in the changing mental health system. Additionally, recent parity legislation has advanced the movement toward decreasing disparities within the mental health system, and is the result of a slow, incremental movement in Congress.

In 1996, Congress passed The Federal Mental Health Parity Act (MHPA) (P.L. 104-204), which focused solely on self-insurance plans that provided mental health benefits. In 1999, the momentum for expanded coverage increased as a result of the Surgeon General’s (SG) Report on Mental Health (Grob, 1996).

The SG report (U. S. Department of Health and Human Services, 1999) stated that mental disorders were a physical health problem and should be treated as such. Additionally, the SG report supported parity laws that were combined with managed care in order to help decrease disparities and inequalities in the treatment system. Further, the report stated that “continued use of unnecessary limits or overly aggressive management may lead to under-treatment or to restricted access to services and plans” (U.S. Department of Health and Human Services, 1999, p.426).

Parity legislation is progress for mental health, in that it expands opportunity to treat those in need and decreases the disparities between mental health benefits and physical health benefits. However, parity legislation does not address the high treatment costs that certain patients will require, nor does it ensure that services are received (Mechanic, 2003).

**Current U.S. mental health treatment system.**

The current mental health system is comprised of four sectors, which include: specialty mental health, human services, voluntary support network, and general, medical, or primary care (U.S. Department of Health and Human Services, 1999). The specialty mental health sector is comprised of licensed professionals, such as, psychologists, psychiatric nurses, psychiatrists, and clinical social workers, who are trained to treat mental health problems (U.S. Department of Health and Human Services, 1999). Mental health treatment can also be accessed through the human services sector, which includes for example, social services, the criminal justice system, school based counseling, and religious professional counselors (U.S. Department of Health and Human
Services, 1999). Self help groups within the voluntary support network also provide assistance to individuals with mental health disorders (U.S. Department of Health and Human Services, 1999). Primary care providers or general medical practitioners prescribe psychotropic medications to patients in need of mental health treatment and also serve as an initial point of contact for individuals with mental health problems (U.S. Department of Health and Human Services, 1999).

Both the public (i.e. services operated and/or financed by government agencies) and private (i.e. services operated and/or financed by private agencies) sectors provide treatment to individuals with mental health problems through either inpatient or outpatient treatment settings. Outpatient mental health services are provided through clinics or private offices. General hospitals, residential treatment facilities, or psychiatric hospitals provide services to patients in a more restrictive, confined setting.

**Contributing Factors to Mental Health Services Utilization**

Andersen (2001) points out that the environment, which include societal determinants and elements of the health services system, impact individual determinants of utilization. From this ecological systems perspective, a person’s behavior is influenced by the interaction that the individual has with each component within the individual’s ecosystem. In the context of mental health services utilization (MHSU), individual behavior is not only impacted by factors unique to the individual, but is impacted by elements within the community, state, and national environments.
Interactions with the social environment may influence access to resources as well as individual interpretation of need for treatment through perception of social norms (Andersen & Newman, 1973). Studies on individual determinants to MHSU show that pre-disposing factors, such as, beliefs and attitudes toward treatment (Diala et al., 2000; Jorm et al., 2006; Kessler et al., 2001; Leaf et al., 1986), social demographics (Alegria et al., 2008; Ayalon & Young, 2005; Biddle, Gunnell, Sharp, & Donovan, 2004), enabling resources (Diala et al., 2008; Gadalla, 2008; Hauenstein et al., 2007), and need factors (Diala et al., 2000; Jorm et al., 2006; Kessler et al., 2001; Voorbees et al, 2005) contribute to MHSU.

By taking a comprehensive, evidence based approach that considers all the factors that inhibit or facilitate MHSU by young adults, researchers, policy makers, and helping professionals may strategically and effectively reduce the burden of untreated major depressive episodes in young adults. Cross disciplinary research must be conducted to identify the avoidance of utilizing health services (Byrne, 2008) and help prevent the development of more severe mental health problems. Research must identify the barriers and facilitating factors to mental health treatment that are specific to the young adult population. Once the determinants to MHSU are identified, then, based on empirical evidence, helping professionals may effectively work to decrease the barriers and build on the factors that facilitate MHSU by young adults.
Implications for Social Work

Millions of young adults suffer from poor mental health due to major depressive episodes, and fail to receive needed treatment (Andrews et al., 2000). The unequal distribution of treatment services to young adults and the disproportionate burden that depression places on this age group are social justice and ethical issues relevant to the social work profession.

This study acknowledges and adheres to social work’s values, principles, and standards set forth in the Social Work Code of Ethics. According to the social work code of ethics, the values which guide the social work profession are: service, social justice, dignity and worth of the person, importance of human relationships, integrity, and competence (National Association of Social Workers, 2008). The Social Work Code of Ethics (National Association of Social Workers, 2008) states that social workers are to serve as advocates for vulnerable populations and pursue social change regarding issues of social injustice. Social workers are to confront social injustice, seek social change, advance knowledge regarding oppression, and “strive to ensure access to needed information, services, and resources” (National Association of Social Workers, 2008, p.2). Section 6 of the social work code of ethics describes social workers’ ethical obligations to society and states that social workers are to advance universal welfare of society and advocate for access to basic needs for all populations (National Association of Social Workers, 2008).
Mental health is a critical component of individual and societal health and well-being and a basic human need, one which social workers should advocate for on behalf of the young adult population. This study helps social workers to fulfill their ethical responsibilities by providing knowledge that may be used to: confront social injustice, advocate for equality in mental health treatment, increase professional competence, and help develop effective advocacy and reform efforts and interventions.

Additionally, evidence from this study may be used to help guide numerous aspects of direct and indirect social work practice, which includes public health social work practice. Public health social work interventions include primary prevention and practice with individuals, communities, groups, and populations. Public health social workers seek to promote wellness through serving in various roles, such as: researcher, administrator, practitioner, and program evaluator (National Association of Social Workers, 2009).

Public health social workers and other social work practitioners that practice directly with the young adult population in clinical settings may use findings from this study to guide relationship building with clients in order to elicit client participation in the therapeutic process. Direct practice social workers, public health social workers, community organizers, and policy advocates also may use this evidence to guide outreach and awareness campaigns that draw young adults in need of mental health services into treatment. Further, social workers, who practice within college campus counseling agencies, may collaborate with college campus leaders to build campus wide outreach
and awareness activities that target barriers to the utilization of mental health treatment by this age group.

Findings from this study may be used to inform mental health policy. As previously described, parity legislation is progress, but does not ensure treatment utilization by young adults. Mental health policy must be informed by empirical research, such as this study, that approaches mental health utilization from a perspective that considers structural, societal, and psychosocial barriers to treatment. Ultimately, one goal of this study is to draw attention to the psychosocial barriers that impact mental health services utilization in order to inform public policy. New mental health legislation addresses the issue of managed care and health insurance for mental health coverage, but does not account for other factors that influence MHSU.

Findings from this study identify specific reasons reported by young adults as to why this population does or does not utilize mental health treatment. Knowing the specific factors that impact young adults’ mental health treatment utilization will help social workers advocate effectively and efficiently for mental health care reform and change.

This study also adds to the social work research knowledge base. This study builds on previous findings from studies that investigated mental health treatment utilization by young adults. While previous studies confirm that young adults are less likely than other age groups to utilize mental health treatment (Substance Abuse and Mental Health Services Administration, 2008; Wang et al., 2005), and have identified
various factors that influence whether or not young adults utilize mental health treatment, very few studies focus specifically on factors that are specific to the young adult population. Additionally, those studies that do focus on young adults may fail to utilize national level data sets that are representative of the general young adult population. Most studies on young adults MHSU utilize small sample sizes that are drawn from populations, such as university students, which may not be generalizeable to the broader U.S. young adult population.

Additionally, the review of literature for this study found no studies within social work research literature that addressed young adult mental health services use within the U.S. population. This study also adds to the social work knowledge base on mental health services use by applying a well known model of health services utilization (Andersen, 1995) to explore data derived from a sample representative of the U.S. young adult population.

This study uses a national level data set that is a validated data set, representative of the U.S. general population. Although there are a few studies that have used past years of NSDUH data to look at mental health treatment use, there are no studies that use NSDUH 2007 to investigate mental health treatment utilization by young adults. The research design used in this study as well as the findings produced from this study may be used to build future studies that focus on this important topic.

Future theoretical foundations for social work research may draw from the framework and theory used in this study. Additionally, the empirical evidence produced
from this study may be used to modify existing theories or build new theories specific to the issues of mental health treatment utilization by the young adult population.

The conceptual and theoretical foundation of this study is drawn from theories that unite the psycho-social elements of help seeking behavior, and uses a modified form of Andersen’s BHSU model (1995). Additionally, this study draws from social psychology and systems theories, which builds on the current theoretical approaches that explore mental health treatment utilization by young adults.

Knowledge about the barriers and facilitating factors to mental health treatment by young adults may be used to develop social work curriculum used to train future social workers in general practice, community organizing and outreach, and public health. Public health social work activities often use outreach and awareness campaigns to educate the public on specific health issues. Evidence from this study may be used to develop educational campaigns based on the understanding of why young adults do or do not use mental health treatment.

**Chapter One Summary**

In 2007, over three million young adults experienced a major depressive episode (MDE), and nearly 2.5 million had an unmet need for mental health treatment (Department of Health and Human Services, 2008). Young adults are a vulnerable population in a critical phase of development and transition (Arnett, 2000). Depression during young adulthood increases vulnerability and can impact healthy adult development (Reinherz et al., 1999). Depression has been linked to problems in
psychosocial functioning (Reinherz et al., 1999; Gotlib et al., 1998), and increased risk for substance abuse disorders, co-morbid psychopathology, and suicidality (Kessler et al., 2003). Effective treatments for depression are available (Bramsfield et al, 2006) but are underutilized by young adults (Andrews et al., 2000).

Studies show that demographics, such as age (Ojeda et al., 2008) and race (Hauenstein et al., 2007), internal factors, such as beliefs and attitudes toward treatment (Van Voorhees et al., 2006), and individual need (Kessler et al., 1998; Rhodes et al., 2002; Gadalla, 2008) influence MHSU in the general population. Additionally, enabling resources, such as employment (Hauenstein et al., 2007) and insurance coverage (McAlpine et al., 2000) may also influence MHSU.

Current research agendas and national health services reform efforts aim to increase population access to mental health services (Mechanic, 2003), but increased access does not guarantee a reduction in the gap between need and utilization (Leaf et al., 1986). In order to reduce the barriers to MHSU for young adults, researchers and policy makers must first identify the barriers that are specific to the young adult population.

Social workers, the largest groups of mental health service providers (NASW, 2006; U.S. Bureau of Labor Statistics, 2009), along with other mental health professionals, can effectively work to reduce the burden of untreated major depressive episodes among young adults by first understanding the factors, specific to young adults, that influence mental health services utilization (MHSU).
The purpose of this study is to identify the factors that determine MHSU by young adults, aged 18-25, with a past year MDE, and seeks to answer the following research question: “What are the facilitating factors and barriers to mental health services utilization among young adults aged 18 to 24 who experienced a major depressive episode in the past year?”

Mental health is a critical component of individual and societal health and well-being and a basic human need, one which social workers should advocate for on behalf of the young adult population. This study helps social workers to fulfill their ethical responsibilities by providing knowledge that may be used to: confront social injustice and advocate for equality in mental health treatment, increase professional competence, and help develop effective advocacy and reform efforts and interventions.
Chapter Two: Theoretical Foundation and Literature Review

Chapter Introduction

This chapter describes the theoretical foundation of this study and provides an overview of literature on mental health services utilization (MHSU) among young adults. The Behavioral Model of Health Services Utilization (Andersen, 1995) is used as an overarching model throughout this review. The Theory of Reasoned Action is used to expand on the theoretical understanding of the relationship between cognition and behavior.

The literature review is guided by assumptions within developmental theory which suggest that the transition to adulthood is a unique stage of life and should be differentiated from adolescence and adulthood. Under this assumption, it is understood that MHSU factors may vary between young adults and other age groups. Therefore, this review focuses on the few studies that investigate MHSU among young adults. Due to the limited amount of MHSU literature specific to the young adult population, this review also draws from studies on adult and adolescent populations to gain a broader understanding of the MHSU process.

Theoretical Foundation

Conceptual Definitions

According to Andersen (1995), one step toward the goals of explaining services utilization, promoting equitable access, and shaping heath policy toward equity is to
define and offer measures of the complex construct ‘access to medical care’ (Andersen, 1995). Andersen teases out the concept of utilization from ‘access’ by identifying four types of access: potential access, realized access, equitable access, and inequitable access. ‘Realized access’ refers to the actual use of services, and is used in this study as a conceptual definition of MHSU (Andersen, 1995).

In the health services research literature, ‘access’, ‘help-seeking’, and ‘utilization’ are common constructs used to describe some piece of the health services utilization process. The term ‘utilization’ is used throughout the literature to describe the actual use of health services. ‘Access to care’ is often used to describe the point of admission into the healthcare system or to the availability of services. ‘Help-seeking’ is used to refer to various aspects of the behavioral/social process through which patients enter the system (Randolph, Murray, Swanson, & Margolis, 2004). In this study, the behavior of focus, mental health services utilization, is considered a ‘health behavior’, which is influenced by factors within the person’s environment and by biological and psychological factors that are specific to the individual.

The Behavioral Model and Framework of Health Services Utilization

Overview.

The original Behavioral Model of Health Services Utilization (BHSU), developed by Andersen (1968) sought to: investigate why families utilize health services, to help measure and define equitable access to health services, and to inform and promote healthcare policy that increased equal access to health services (Andersen, 1995). Over
the years, Andersen continued to develop the behavioral model, and shifted the original focus of the family as the unit of analysis, to an emphasis on the individual. In the 1970s, Andersen included the health care system in his ‘framework for viewing health services utilization’ (Andersen et al., 1973). The inclusion of the health care system in the BHSU framework accounts for the impact of health care policy and the health care system on health services use.

The BHSU framework and model use a systems perspective which incorporates an array of environmental, provider, and individual-related variables linked to individuals’ decisions to utilize treatment (Phillips, Morrison, Andersen, & Aday, 1998). Andersen and Newman (1973) use Baker’s (1970 as cited in Andersen & Newman, 1973) definition of a system which describes a ‘system’ as a combination of interrelated elements that function as a unit. The BHSU’s systems based perspective fits well with social work’s person-in-environment perspective, in that it acknowledges the influence of societal factors and individual characteristics on MHSU.

Figure 2.1 depicts Andersen et al.’s (1973) ‘framework for viewing health services utilization’. This framework assumes that an individual’s environment, defined as “the aggregate of social and cultural conditions that influence the life of an individual or community” (Merriam-Webster, 2010), is intertwined with an individual’s decision to perform the behavior, in this case, to utilize mental health services. Within the context of MHSU, resources within the environment, rules by which the social system operates, as
well as the individual’s interpretation of these processes work together within the system to impact the human behavior of health services utilization (Andersen et al., 1973).

**Components of the BHSU framework.**

**Health services utilization.**

According to Andersen et al. (1973) ‘health services use’, or utilization, must be defined by the type of services used, purpose for the services, and the unit of analysis. ‘Type of services’ refers to the form of services, for example, whether the services are mental health or hospital services (Andersen et al., 1973). ‘Purpose for the services’ entails whether or not the services are for prevention (primary), treatment for illness that restores health (secondary), or long-term illness treatment (tertiary) (Andersen et al., 1973). Finally, the ‘unit of analysis’ has to do with how the researcher defines the unit of analysis being studied and includes contact, volume, or episodes of treatment (Andersen et al., 1973).

**Societal determinants.**

Social norms and technology are the primary societal factors that influence services utilization (Andersen et al., 1973). Andersen et al. (1973) uses Wilbert Moore’s (1969), concept of norms to address a range of mechanisms that are used by social systems to ensure member compliance or social control (Andersen et al., 1973). Social norms may be defined as the “specific rules of behavior that are agreed upon and shared within a culture to prescribe limits of acceptable behavior” (Tischler, 1996, p.648). Taylor’s (1971) description of technology is applied in Andersen et al. (1973), and is
described as techniques or principles used to motivate change towards an identified goal (Taylor, 1971 as cited in Andersen et al., 1973).

**Health services system determinants.**

The health care system within society distributes health care services to the population (Andersen et al., 1973). Resources and organization are the means by which health care services are distributed (Andersen et al., 1973). ‘Resources’ refer to the amount of resources available to the population and the manner by which they are geographically distributed (Andersen et al., 1973). ‘Organization’ refers to the coordination and control of the system’s resources, and entails two facets, ‘access’ and ‘structure’. ‘Access’ describes how individuals gain entrance into the health care system, and structure refers to the system’s characteristics and organization (Andersen et al., 1973).

**Individual determinants.**

The ‘framework for viewing health services utilization’ also accounts for the impact of individual characteristics on utilization. In the BHSU framework and model, individual determinants to health services utilization are categorized into three components: predisposing characteristics, enabling resources, and need factors. ‘Predisposing factors’ exist prior to the individual coming into contact with the health system, and include demographic variables, such as gender and age, social structural variables, such as education and race, and health beliefs, such as attitudes toward services.
(Andersen et al., 1973). ‘Enabling resources’ are categorized into personal/family resources and community resources.

The third factor ‘Need/Illness’ level, encompasses ‘perceived need’ and ‘evaluated need’. ‘Evaluated need’ refers to a professional measurement of an individual’s health status, which can be determined by diagnoses or test results (Andersen & Davidson, 2001). ‘Perceived need’ describes how individuals see their own health status and overall functioning, and how they respond to and experience illness symptoms (Andersen et al., 2001). ‘Evaluated need’ and ‘perceived need’ are further discussed in the following section.

The ‘individual determinants’ component of the BHSU framework is often used as a model in research studies, and is referred to in this study as the BHSU model. The BHSU model is used in numerous studies to explore various types of health services use (Albizu-Garcia et al., 2001; Bradley et al., 2002; Diala et al., 2000; Gadalla, 2008;
Goldstein et al., 2006; Goodwin and Andersen, 2002; Phillips et al., 1998; Stein, Andersen, and Gelberg, 2007; Vingilis et al., 2007), and emerged out of Andersen’s work with national level surveys (Andersen, 2008). To date, the BHSU model is the most used and well known model of treatment utilization (Goldsmith et al., 2002).

Many cross-sectional research studies apply the BHSU model to investigate predictors of mental health services utilization among various populations (Albizu-Garcia, 2001; Barksdale & Molock, 2009; Diala et al., 2000; Elhai, Patrick, Anderson, Simons, & Frueh, 2006; Leaf et al., 1986; Ojeda et al., 2008; Rabinowitz, Gross, & Feldman, 1999; Wu, Pilowsky, Schlenger, & Hasin, 2007). The model is used both in international studies (Albizu-Garcia, 2001; Auslander et al., 2007; Gadalla, 2008; Vanheusden et al., 2008; Vingilisa et al., 2006) and in U.S. based research designs (Diala et al., 2000; Elhai et al., 2007; Freedenthal et al., 2007; Goldstein et al., 2006; Goodwin et al., 2001; Leaf et al., 1986; Solorio et al., 2006). The BHSU model also has been applied to analyses of NSDUH data to study utilization of substance abuse treatment (Wu et al., 2007) and mental health services (Alexandre et al., 2008) among American youth and the general adult population (Ojeda et al., 2008), and is used in this study to explore MHSU among young adults using the NSDUH 2007 data.

Figure 2.2 expands on the ‘individual determinants’ component of Andersen et al.’s (1973) framework for viewing health services utilization (shown in Figure 2.1), and depicts the BHSU model. This model provides the structure for the selection of variables used in this study.
Components of the BHSU model.

Pre-disposing factors.

According to Andersen et al. (1973), demographic characteristics may not be a reason why individuals use services, however, certain demographic characteristics, such as age and gender, can predict which individuals are more or less likely to use services. Social structure characteristics indicate an individual’s status in society, and are measured by variables such as race, employment, and education (Andersen et al., 1973). Andersen and Davidson (2001) state that “social factors determine the status of a person in the community as well as his or her ability to cope with presenting problems and command resources to deal with those problems” (Andersen, Rice, & Kominski, p.7). The third component of ‘pre-disposing characteristics’, ‘beliefs’, indirectly impact the individual’s propensity to use services. Andersen and Davidson (2001) define health beliefs as “attitudes, values, and knowledge people have about health and health services that can influence their subsequent perception of need and use of health services” (Andersen et al., 2001, p.7).
**Enabling resources.**

The means by which individuals can satisfy the need for treatment are referred to as ‘enabling resources’ (Andersen et al., 1973). ‘Enabling resources’ are analyzed at the family/individual level, and can be measured by variables such as health insurance coverage, income, or other payments (Andersen et al., 1973). Community level resources take into account where the individual lives which can determine the level of treatment availability in that community.

**Need/Illness.**

The ‘Need/Illness’ component is the most direct link to utilization (Andersen et al., 1973). Andersen et al. (1973) point out that individuals must first perceive themselves to have symptoms, which are in need of treatment, before they will use treatment services. ‘Perceived need’ (perceived health) is defined as “how people view their own general health and functional state” (Andersen et al., 2001, p.8). Andersen et al. (2001) also state that ‘perceived need’ is “how they experience, and emotionally respond to, symptoms of illness, pain, and worry about their health condition (is a condition judged of sufficient importance and magnitude to seek professional help?)” (Andersen et al., 2001, p.8). Further, ‘perceived need’ is described as a social phenomenon that may be explained by health beliefs and social structure characteristics (Andersen et al., 2001). Perceived need is often measured by self-reports of the condition of the individual’s overall health (Andersen et al., 1973).
Another indicator of illness level includes the ‘evaluated health’ of the individual, and is measured by professional diagnosis of symptom severity (Andersen et al., 1973). Andersen et al. (2001) notes that evaluated need (health) is a professional’s judgment based on biological evidence of an individual’s health condition, but is also impacted by societal changes in the diagnostic methods used in science and medicine.

Figure 2.3 further expands on Figure 2.2 and depicts Andersen et al.’s (1973, p.14) version of the BHSU. Figure 2.3 includes examples of variables listed in Andersen et al. (1973, p.14) that may be used to measure predisposing factors, enabling resources, and need/illness level.

<table>
<thead>
<tr>
<th>Pre-Disposing</th>
<th>Enabling Resources</th>
<th>Need/Illness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic</td>
<td>Family</td>
<td>Perceived</td>
</tr>
<tr>
<td>Age</td>
<td>Income</td>
<td>Disability</td>
</tr>
<tr>
<td>Sex</td>
<td>Health Insurance</td>
<td>Symptoms</td>
</tr>
<tr>
<td>Marital Status</td>
<td>Type of Regular Source</td>
<td>Diagnoses</td>
</tr>
<tr>
<td>Past Illness</td>
<td>Access to Regular Source</td>
<td>General State</td>
</tr>
<tr>
<td>Social Structure</td>
<td>Community</td>
<td>Evaluated</td>
</tr>
<tr>
<td>Education</td>
<td>Ratios of Health Personnel</td>
<td>Symptoms</td>
</tr>
<tr>
<td>Race</td>
<td>and Facilities to Population</td>
<td>Diagnoses</td>
</tr>
<tr>
<td>Occupation</td>
<td>Price of Health Services</td>
<td></td>
</tr>
<tr>
<td>Family size</td>
<td>Region of Country</td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td>Urban-Rural Character</td>
<td></td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential Mobility</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Beliefs**
- Values Concerning Health and Illness
- Attitudes toward Health Services
- Knowledge about Disease

Model of present study.

In this study, Andersen’s model (1995) (Figure 2.2) is modified to include variables that have been determined to influence mental health services utilization. The model used in this study is shown in Figure 2.4. The selection of variables included in this study’s model is influenced by Andersen’s behavioral health model, empirical findings from health services research literature, which are described further in the following section, and identification of variables in the NSDUH 2007 data set.

**Figure 2.4. Model of Mental Health Services Utilization.**

<table>
<thead>
<tr>
<th>Pre-Disposing →</th>
<th>Enabling Resources →</th>
<th>Need/Illness →</th>
<th>Services Utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Demographics</td>
<td>Resources</td>
<td>Evaluated</td>
<td>MHSU</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td>Insurance</td>
<td>MDE Severity</td>
<td>Yes/No</td>
</tr>
<tr>
<td>Marital Status</td>
<td>Income</td>
<td>Substance Abuse/Dependence</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>Other Public Benefits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beliefs</td>
<td></td>
<td>Perceived</td>
<td></td>
</tr>
<tr>
<td>Fear of Stigma</td>
<td></td>
<td>Perceived Health</td>
<td></td>
</tr>
<tr>
<td>Treatment Attitudes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finances/Access</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Literature Review**

The following section provides a review of the literature on mental health services utilization, and is organized according to the model of mental health services utilization (shown in Figure 2.4).

**Predisposing Factors**

**Socio-demographics.**

Treatment disparities within mental health treatment vary by age, race, and gender. In an analysis of combined data from NSDUHs 2005 and 2006, the NSDUH Report (Substance Abuse and Mental Health Services Administration, 2008) found that young adults aged 18 to 25 were the least likely age group in the adult population to receive treatment for depression in the past year and most likely to perceive an unmet need for treatment. In other studies, younger age, among individuals with serious mental illness, was found to be a significant predictor of non-help seeking behavior (Kessler, 2001), treatment dropout (Kessler, 2001), and the likelihood to not receive a minimal standard of mental health treatment (Wang, Demler, & Kessler, 2002).

In addition to age disparities, studies have also found gender disparities in mental health treatment utilization. Overall, treatment disparities between males and females are well documented. Evidence suggests that women are more likely than men to use mental health services (Biddle, Gunnell, Sharp, & Donovan, 2004; Gonzalez, Alegria, & Prihoda, 2005; Leaf et al., 1986; Rhodes et al., 2002; Swartz, Wagner, Swanson, Burns,
George, & Padgett, 1998). Although these findings suggest that the impact of gender and
treatment use exists, some researchers question whether reporting rates reflect an effect
of societal gender norms, that is, a bias toward society’s approval of women over men
seeking or receiving help or behavioral differences (Galdas et al., 2005; Moller-
Leimkuhler, 2002; Leaf et al., 1986; Rhodes et al., 2002). Explanations of gender
disparities within mental health treatment have been based on masculine ideology and
masculine gender role conflict theories that expand on gender norms in society (Addis &
Mahalik, 2003). In short, it is thought that gender socialization results in a belief that it is
acceptable for women to seek help, but it is not acceptable for men to admit they need
assistance (Addis et al., 2003).

According to Andersen et al. (2001), socio-demographic factors (e.g. education,
employment, and race/ethnicity) shape the position of an individual in society and their
capability to deal with problems and access resources to cope with those problems.
Race/ethnicity is one example of a social structure variable that influences MHSU.
Overall, studies consistently show that non-Hispanic Whites are more likely to receive
mental health treatment than non-Hispanic Blacks and other minority populations
(Alegria et al., 2008; Ayalon & Young, 2005; Diala et al., 2000; Gadalla, 2008; Goldstein
et al., 2006; Harris, Edlund, & Larson, 2005; Hauenstein et al., 2007; Mojtabai & Olfson,
2006; Padgett, Patrick, Burns, & Schlesinger, 1994; Swartz et al., 1998). Several studies
show that barriers to treatment may vary between ethnicities due to regional or systemic
issues, such as transportation (Ho, Hunt, & Li, 2008), and lack of health insurance (Wu &
Ringwalt, 2005). These findings remain significant even after controlling for socioeconomic variables that have been linked in some studies to a decrease in MHSU.

The education level of young adults also may impact the likelihood of mental health services utilization. In general, literature suggests that education level impacts whether or not individuals will utilize mental health services. Individuals with more education are more likely than their counterparts with less education to use mental health services (Edlund, Unutzer, & Curran, 2006; Karlin, Duffy, & Gleaves, 2008; Mojtabai & Olfson, 2006). Further, education level may impact the type of treatment sought, that is, whether the mental health treatment is delivered through private or public services (Wang, Berglund, & Kessler, 2000).

**Beliefs.**

Overall, individuals who report fear of stigma are less likely to use mental health services (Hoyt, Conger, Valde, & Weihs, 1997; Kushner & Sher, 1989). Perspectives or attitudes toward mental health treatment, confidence in the providers, and fear of stigma determine in part whether or not the individuals will utilize mental health services (Van Voorhees et al., 2006).

Corrigan (2004) provided an explanation of how stigma impacts treatment utilization, and described the process of label avoidance as a reason for not seeking treatment for mental health problems. In summarizing the literature on shame and treatment avoidance, Corrigan (2004) stated that some individuals internalize
stigmatizing beliefs, which leads to shame, low self-efficacy, and ultimately treatment avoidance.

Subjective norms, or cultural and societal norms, impose behavior conformity on multiple levels and set the standard for what is deemed appropriate. These norms are interpreted by individuals and may impact one’s interpretation of how they are “supposed” to act within the confines of their particular social context. In some cultures, inherent norms or mores, consider certain helping-professionals more socially acceptable than others. Thus, an individual’s mental health services use may differ based on their cultural norms, which define what type of help is appropriate or acceptable.

Findings suggest that the effect of fear of stigma may vary between ethnic and racial groups (Elwy et al., 2008; Golberstein, Eisenberg, & Gollust, 2008; McMiller & Weisz, 1996; Menke & Flynn, 2009; Padgett et al., 1994; Schomerus, Matschinger, & Angermeyer, 2009; Wrigley, Jackson, Judd, & Komiti, 2004; Wu et al., 2005). In many cultures, the fear of stigma has been perpetuated through cultural norms. Beliefs toward treatment are influenced by these cultural norms which are unique to each population (Carr-Copeland, 2006). For example, Ojeda et al.’s (2008) found that compared to other groups, white males report more stigma avoidance and mistrust in the mental health system. In Ojeda et al.’s (2008) study, young adults were also likely to report mistrust of system, stigma avoidance, and other psychosocial factors as barriers to treatment.

In addition to cultural norms, and the fear of stigma, other individual beliefs toward mental health and treatment determine MHSU (Diala et al., 2000; Jorm et al.,
Individuals who believe that they can deal with the problem alone (Jorm et al., 2006) or do not believe that there is a problem (Kessler et al., 2001) are less likely to utilize mental health services. In comparison, those who perceive a need for treatment for a particular behavioral health problem are more likely to seek professional help (Edlund et al., 2006; Jorm et al., 2006; Kessler et al., 2001; Leaf, 1986; Van Voorhees et al., 2006).

Individuals who perceived a need for treatment are more likely to use mental health services (Edlund et al., 2006). Edlund et al. (2006) found that young adults were less likely to perceive a need for treatment than individuals between the ages of 26 to 45 years (Edlund et al., 2006). Perceived need is influenced by a number of factors. Mojtabai et al. (2002) found that health problems, marital loss, gender (female), age (15-24), insurance coverage, and maternal psychopathology were linked to increased perceived need. A study on depression treatment shows that social norms, past treatment behavior, and negative beliefs predict a decreased perceived need for treatment (Van Voorhees et al., 2006). Further, individuals with diagnosed anxiety and mood disorders and those with suicidality are more likely to perceive a need for treatment (Mojtabai et al., 2002).

In general, attitudes toward treatment vary by demographic factors. Women are more likely than men to perceive a need for treatment (Edlund et al., 2006) and are more likely to be willing to seek treatment (Hoyt et al., 1996; McKenzie et al., 2009). Ojeda et
al. (2008) found that males were more likely than females to report stigma avoidance as a reason for not utilizing services. Similarly, Gonzalez et al. (2005) found that young adult males were less likely than females to have a positive attitude towards treatment and were more likely to be embarrassed about treatment.

**Enabling Resources**

Research on the impact of income and employment on mental health services utilization show varying results. Bland, Newman, and Orn (1997) found that income made little difference in seeking help, but other studies show a significant relationship between the two variables. In some studies, lower income decreases the likelihood of receiving treatment (Diala et al., 2000; Hoyt et al., 1997).

Some studies show no significant association between employment and MHSU (Edlund et al., 2006; Kessler et al., 2001). However, in other studies lack of employment has been linked to an increased likelihood of utilizing mental health services (Hamalainen et al., 2004; Haunstein et al., 2007; Olfson & Klerman, 1992; Rhodes, Goering, To, & Williams, 2002). This relationship may exist in part due to types of treatment sought and an individual’s enabling resources, such as type of insurance coverage.

Other research shows that individual level enabling resources, such as income (Diala et al., 2008; Gadalla, 2008; Ojeda et al., 2006) and type of insurance coverage (Diala et al., 2008; Hauenstein et al., 2007; McAlpine & Mechanic, 2000) impact the likelihood that individuals will receive mental health treatment. Findings suggest that individuals with private insurance coverage are more likely than individuals with public
insurance coverage to seek mental health treatment from specialty mental health
treatment services (Diala et al., 2008; McAlpine & Mechanic, 2000). Swartz et al. (1998)
found that individuals who sought treatment from the public sector were more likely to be
African American, male, and have lower levels of education, income, and socioeconomic
status (Swartz et al., 1998). Those who sought care from the private sector were more
likely to be white, between the ages of 25 to 44, and have greater levels of education,
socioeconomic status, and income.

**Need/Illness**

The relationship between symptom severity and treatment utilization is well
documented. Compared to individuals who present with symptoms that do not
significantly impact role functioning, those individuals who experience symptoms that
are more likely to cause distress, such as anxiety (Kessler et al., 1998; Rhodes et al.,
2002), suicidal ideation or attempts (Cheung, Dewa, Cairney, Veldhuizen, & Schaffer,
2009; Gadalla, 2008; Mojtabai et al., 2002), trauma (Elhai et al., 2006), and severe mood
problems are more likely to utilize mental health services. Individuals with more
symptoms of mental health disorders (Rueter, Holm, Burzette, Kim, & Conger, 2007),
severe mental disorders symptoms (Freedenthal et al., 2007; Goldstein et al., 2006; Leaf
et al., 1986; McAlpine et al., 2000; Schomerus et al., 2009), and reoccurring major
depressive episodes (Gadalla, 2008) are also more likely to use mental health services.

Kessler et al. (1998) found that individuals with generalized anxiety disorders,
dysthymia, panic disorders, or major depression sought initial contact with treatment
providers faster than individuals with phobias or addictive disorders. In a study on MHSU among individuals with severe mental illness (SMI), McAlpine et al. (2000) found that individuals with psychotic symptoms or with schizophrenia were more likely to use mental health services than those individuals with bipolar disorder. Further, anxiety symptoms and problems with mood increase the likelihood that individuals will perceive a need for treatment (Mojtabia et al., 2002).

Numerous studies show that those with the presence of a substance use disorder decreases likelihood that individuals in need of mental health services will utilize treatment (Mojtabai, 2009; Rueter et al., 2007). Further, Rhodes, Goering, To, and Williams (2002) found that the presence of substance use or anti-social behaviors and a mental health problem impacted mental health treatment use. However, evidence on the impact of active substance use on attitudes toward treatment is inconclusive. Mojtabai et al. (2002) found that individuals with active substance use were less likely to perceive a need for mental health treatment, but other studies suggest that those with substance use problems were more likely to report a need for mental health treatment (Edlund et al., 2006; Johnson, Stiffman, Hadley-Ives, & Elze, 2001).

Additional Theoretical Interpretations

The behavioral model of health services utilization (Andersen, 1995) is useful in describing who uses services and who does not. Researchers also use other theoretical approaches to further understand the cognitive factors that influence mental health services utilizations.
Andersen (1968) explained that the attitudinal component included in the BHSU model (health beliefs and perceived need) was theoretically grounded in social-psychological models that connected an individual’s perceptions toward his or her own symptoms, attitudes toward services, knowledge about the illness, and an individual’s motivation to seek treatment. The Theory of Reasoned Action (TRA) is one social-psychology theory that emphasizes the role of cognition in an individual’s decision to perform or not to perform the behavior, and provides a useful explanation of the relationship between cognition and behavior included in Andersen’s BHSU.

TRA, which connects beliefs, attitudes, intentions, and behaviors, is influenced in part by the work of Albert Bandura. Bandura (1986) states that human behavior may be explained by cognitive factors, the environment, and personal factors that interact with one another. Ultimately, individual action is guided by forethought or ‘rational decision making’. According to Bandura (1986), individuals weigh the costs, benefits, and outcomes of possible future behaviors.

TRA suggests that attitude, the general negative or positive views of the behavior, along with subjective norms, or perceived social pressure, impacts an individual’s intention to participate in the behavior and ultimately impacts the action itself (Ajzen & Madden, 1986). TRA defines attitudes as “an index of the degree to which a person likes or dislikes an object, where “object” is used in the generic sense to refer to any aspect of the individual’s world”. (Ajzen, 1988, p.64). From this viewpoint, the individual
interprets social norms within their social environment, thus, the individual’s interaction with their environment along with the individual’s cognition influences their behavior.

Interpretation of social norms, known as ‘subjective norms’ in TRA, focuses on the individual’s “perceived social pressure to perform or not to perform the behavior” (Ajzen, 1991, p.188). Subjective norms, an individual’s belief that the majority of significant others think he or she should not or should act out the behaviors, arise out of a motivation to comply, and normative beliefs, which are beliefs that an individual holds about how other individuals may like her or him to behave (Sharma & Romas, 2008).

(Figure 2.5)

Using concepts from TRA to expound on the health beliefs and perceived need constructs in Andersen’s model provides a conceptually detailed explanation of the psychological determinants that impact health services utilization. While Ajzen and
Fishbein (1970) provide a detailed explanation in TRA of the interactions between cognitive factors associated with behavioral outcomes, they also acknowledge the complexity of the attitudinal-behavioral relationship, and believe that attitudes are only one among several determinants of behavior (Ajzen and Fishbein, 1970). Andersen’s model of behavioral health services utilization was selected for this study because it uses a systems perspective which incorporates individual attitudes and beliefs, as well as an array of other environmental, provider, and individual-related variables that are linked to individuals’ decisions to utilize treatment (Phillips, Morrison, Andersen, & Aday, 1998).

**Chapter Two Summary**

The behavioral model of health services utilization (BHSU) (Andersen, 1995) assumes that an individual’s environment, defined as “the aggregate of social and cultural conditions that influence the life of an individual or community” (Merriam-Webster, 2010), is intertwined with an individual’s decision to perform the behavior, in this case, to utilize mental health services. Within the context of MHSU, resources within the environment, rules by which the social system operates, as well as the individual’s interpretation of these processes work together within the system to impact the human behavior of health services utilization (Andersen et al., 1973).

Many cross-sectional research studies apply the BHSU model to investigate predictors of mental health services utilization among various populations (Albizu-Garcia, 2001; Barksdale & Molock, 2009; Diala et al., 2000; Elhai, Patrick, Anderson, Simons, & Frueh, 2006; Leaf et al., 1986; Ojeda et al., 2008; Rabinowitz, Gross, &
The BHSU model also has been applied to analyses of NSDUH data to study utilization of substance abuse treatment (Wu et al., 2007) and mental health services (Alexandre et al., 2008) among American youth and the general adult population (Ojeda et al., 2008), and is used in this study to explore MHSU among young adults using the NSDUH 2007 data.

In the BHSU, individual determinants to health services utilization are categorized into three components: predisposing characteristics, enabling resources, and need factors. ‘Predisposing factors’ exist prior to the individual coming into contact with the health system, and include demographic variables, such as gender and age, social structural variables, such as education and race, and health beliefs, such as attitudes toward services (Andersen et al., 1973). ‘Enabling resources’ are categorized into personal/family resources and community resources. The third factor ‘Need/Illness’ level, encompasses ‘perceived need’ and ‘evaluated need’. ‘Evaluated need’ refers to a professional measurement of an individual’s health status, which can be determined by diagnoses or test results (Andersen & Davidson, 2001). ‘Perceived need’ describes how individuals see their own health status and overall functioning, and how they respond to and experience illness symptoms (Andersen et al., 2001).

Literature supports the BHSU and shows that pre-disposing factors, enabling resources, and need factors influence mental health services utilization. Pre-disposing factors, such as age, gender, race/ethnicity, and beliefs, enabling resources, which include
income, employment, and insurance coverage, and need factors, such as perceived and evaluated health have been found to influence mental health services utilization.

In Andersen’s work on the initial BHSU model (1968), he explained that the attitudinal component included in his model (health beliefs and perceived need) was theoretically grounded in social-psychological models that connected an individual’s perceptions toward his or her own symptoms, attitudes toward services, knowledge about the illness, and an individual’s motivation to act out the behavior. The Theory of Reasoned Action (TRA) is a social-psychology theory that emphasizes the role of cognition in an individual’s decision to perform or not to perform the behavior, and provides a useful explanation of the relationship between cognition and behavior included in Andersen’s BHSU. Andersen’s model of behavioral health services utilization was selected for this study because it uses a systems perspective which incorporates individual attitudes and beliefs, as well as an array of other environmental, provider, and individual-related variables that are linked to individuals’ decisions to utilize treatment (Phillips, Morrison, Andersen, & Aday, 1998).
Chapter Three: Methodology

Chapter Introduction

The following chapter provides an overview of the study’s methodology. The chapter begins with a brief discussion on the research design, research question, and hypotheses of the study. Background on the 2007 NSDUH is then provided, followed by a description of data collection methods, data collection instruments, and sampling methods of the NSDUH. Conceptual and operational definitions of the key variables in the study are described. The chapter concludes with a discussion on the human subjects concern of the study as well as the limitations of secondary data analysis.

Research Design, Research Question, Hypotheses

This study utilizes data from a national level cross-sectional survey, and employs secondary data analysis procedures. The research question guiding this study is: What are the factors that determine the likelihood that young adults (aged 18 to 25 years) with a past year MDE will use mental health services? Using the mental health services utilization model, adapted from Andersen (1995) as presented in Chapter 2, it is hypothesized that predisposing, enabling, and need factors will influence the extent to which mental health services are utilized by young adults, aged 18 to 15, with a major depressive episode in the past year.
Dataset Description: The 2007 National Survey on Drug Use and Health

Data used in this study are derived from the 2007 National Survey on Drug Use and Health (NSDUH), a national level survey of the non-institutionalized, civilian population. NSDUH is conducted annually through the Substance Abuse and Mental Health Services Administration’s Office of Applied Studies, an agency within the United States Department of Health and Human Services. The National Survey on Drug Use and Health (NSDUH) is an annual survey that collects data from non-military civilians residing in households, noninstitutional group settings, and on military bases.

Since 1971, NSDUH has been a primary source of statistical information on illegal drug use by the general U.S. population aged 12 and older. (Office of Applied Studies, 2008). Data on mental health services utilization has been collected through the NSDUH since 2000. In 2004, the NSDUH began collecting data from the general U.S. population on the prevalence of major depressive disorders, the level of impairment caused by depressive disorders, and treatment utilization for depression (Office of Applied Studies, 2008). The NSDUH mental health measures include items derived from the National Comorbidity Survey Replication (NCS-R), which collects data on mental disorders among the U.S. population.
Data Collection

Procedures

NSDUH data collection is planned, conducted, and managed under contract with the Research Triangle Institute International (RTI). Data are collected through face to face interviews. During the initial home visit, the interviewers request to conduct the interview with the selected household member in a private area. The interview process utilizes audio computer-assisted self-interviewing (ACASI) and computer assisted personal interviewing (CAPI) methods to assist respondents in completing the interview. First, the field interviewer (FI) utilizes CAPI methods and reads the questions that appear on the computer screen. The FI then enters the responses into the computer. For sensitive questions, the interviewer transitions the interview into ACASI mode, at which point the interviewee can listen to the questions and also read the questions from the computer screen and then enter the responses into the computer.

To ensure confidentiality, the names of the respondents are not recorded with the data. Once the interview is completed, the respondent received the incentive payment of $30.00 cash.

Data Collection Instruments

Description.

The NSDUH questionnaire includes core and supplemental (noncore) sections. Core questions remain in the survey from year to year, and consist of self-administered items relating to the use of substances and demographic information. Noncore sections
within the NSDUH questionnaire can vary year to year and include questions pertaining to issues, such as, the perceived risks of certain behaviors, mental health, and health care. (Office of Applied Studies, 2008).

**Background.**

The development of structured interviews for diagnosing psychiatric symptoms dissuaded clinicians from relying on their own individual interpretation and provided a standard formula for assessing symptomology (Andrew & Peters, 1998). The diagnostic classification systems which serve as a foundation for structured interviews, such as the Composite International Diagnostic Interview (CIDI), enable these instruments to adequately detect risk factors and estimate population prevalence of psychiatric disorders (Robins, 1985).

NSDUH measures Major Depressive Episodes (MDE) through a separate section that attains information on MDE from respondents aged 18 or older. The questions within this section were constructed from criteria for major depressive episodes in the DSM-IV (APA, 1994) which were modified from the depression portion of the National Comorbidity Survey-Replication (NCS-R; Harvard School of Medicine, 2005).

The NCS-R uses the Composite International Diagnostic Interview (CIDI) to screen for psychiatric diagnoses against DSM-IV criteria. The development of the CIDI was intended to be used in epidemiologic studies of psychopathology across cultures, and dates back to 1981 (Wittchen, 1993). The CIDI was developed through a partnership project between the United States Alcohol, Drug Abuse, and Mental Health
Administration and the World Health Organization (Robins et al., 1988). A task force was created under this project to develop the CIDI based on disease classification systems such as, the DSM-III, the International Classification of Diseases (ICD-10), and others (Robins et al., 1988). During that time (1980s), the National Institute of Mental Health (NIMH) was conducting the Epidemiologic Catchment Area study (ECA), one of the first epidemiologic studies that screened for psychopathology in the general population through a diagnostic questionnaire (Regier et al., 1984). NIMH’s ECA program developed the Diagnostic Interview Schedule (DIS) based on diagnosis criteria of the DSM-III (1980) and other diagnostic criteria (Robins, Helzer, Croughan, & Ratclif, 1981), and used the DIS in the ECA community surveys. Questions in the DIS were then used to develop the CIDI (Robins et al., 1988).

**Reliability and validity.**

Wittchen (1993) states that a review of reliability and validity studies of the DIS are useful in understanding the psychometric properties of the CIDI. Early studies of the DIS primarily investigated the diagnostic validity of the instrument by comparing congruence of diagnoses between clinician’s and lay interviewers with samples drawn from clinical settings, not the general population (Wittchen, 1993). All of the studies revealed good concordance (kappa .50 to .70) between lay interviewers and clinicians in most diagnostic categories (Wittchen, 1993). Test-retest studies also produced good results (kappa =.60 or higher), with scores for depression yielding a kappa of above .6 (Wittchen, 1993).
Numerous studies have investigated the reliability and validity of the CIDI’s depression module (Wittchen, 1993). Wittchen (1993) presents a summary of the studies that have investigated the validity and reliability of the CIDI. According to Wittchen (1993), several studies on the clinical validity of the CIDI to diagnosis depression yielded modest to good kappa scores (.40 to .79). Some studies compared the CIDI to professional clinical diagnostic interviews and reported that the CIDI’s clinical validity for depression was acceptable (see Wittchen et al., 1993) while others reported low kappa scores for clinical validity (k=.29) (Tiemens, VonKorff, & Lin, 1999). Several validity studies compared the CIDI to other instruments and found acceptable levels of concordance. Janca, Robins, Cottler, and Early (1992) found high diagnostic concordance for depressive disorders between the CIDI and the ICD-10 (k=.78). Similarly, a study that compared diagnostic assessment for depression in the CIDI against the DSM-III-R (APA, date) diagnostic checklist produced good results (k=.84) (Janca, Robins, Bucholz, Early, & Shayka, 1992). Further, Kurdyak and Gnam (2005) summarized several reliability and validity studies of the CIDI, and state that these studies generate acceptable levels of inter-rater reliability (kappa= above .60).

Sample

NSDUH 2007 Sampling Procedures

The 2007 NSDUH employed a four-staged stratified sample of all 50 states and the District of Columbia and was designed to provide an adequate sample in each state
that allowed for small area estimation (SAE). Additionally, the complex sampling design allowed for sufficient national level estimates.

In the design, California, Michigan, New York, Ohio, Illinois, Pennsylvania, Texas, and Florida were considered large sample States. Large sample states had a target sample size of 3,600, with a range of 3,557 to 3,669, and the remaining states had a target sample size of 900, with a range of 824 to 974.

The first sampling stage stratified the states into 900 regions or stratas, which were based on census tracts, geographical areas defined by the 2000 census. Small states were divided into 12 regions and large states were divided into 48 regions. In each region, probability sampling procedures were conducted that were proportionate to the region’s size. Individuals between the ages of 12 to 17 and 18 to 25 were oversampled to efficiently represent these age groups according to population proportions.

A national address list of 192,092 was created from a list of addresses in each region. Of the total addresses selected, 158,411 were designated as eligible sample units. Interviewers then randomly selected sample persons from the sample units by means of a handheld computerized device that was programmed to randomly select the individuals from the households. Interviewers entered demographic data of all household members into the handheld computerized device. The handheld computer then selected zero to two of the household’s members.

The total sample included 85,774 persons residing on military bases (excluding active military), and residing in households and in non-institutional group homes. The
final sample available included 67,870 persons, and is a representative sample of the non-institutionalized general U.S. population. In the NSDUH 2007 public use data file, certain records were suppressed from the final sample to ensure confidentiality of respondents. The final sample in the NSDUH 2007 public use file includes 55,435 records.

Sample Selection Criteria of Present Study

The sample used in this study was drawn from the larger NSDUH 2007 sample (N=55,435), and was selected using purposive sampling procedures. For a case to be included in this study’s sample, the individual must have been between the ages of 18 to 25 years, and experienced a major depressive episode (MDE) within the 12 months prior to the interview. The selection criteria resulted in a final sample of 1,711 young adults (aged 18 to 25) with a past year MDE.

MDE identification.

Questions in the NSDUH 2007 MDE section assessed the nine DSM-IV characteristics of MDE, and attained information on the presence of MDE symptoms, severity, and time period. Major Depressive Episode (MDE) was defined according to the DSM-IV (American Psychological Association, 1994). According to the DSM-IV, for a diagnosis of MDE at least one of the following symptoms must be present: (1) a loss of pleasure or interest in almost all activities or (2) depressed mood. Additionally, MDE was diagnosed if an individual met a minimum of five out of 9 symptoms during the specified time frame of almost daily in one two-week time period. MDE symptoms
include: significant weight loss, hypersomnia or insomnia almost every day, psychomotor retardation or agitation, fatigue almost every day, feelings of inappropriate or excessive guilt or feelings of worthlessness, reoccurring thoughts of death or suicide, and inability to concentrate (APA, 1994).

Variables and Measurement

The variables used in this study are conceptually and operationally defined in the following section. The model depicted in Figure 3.1 is being used to study mental health services utilization (MHSU) by young adults (aged 18 to 25 years) with the presence of a past year MDE. The MHSU model is adapted from Andersen’s behavioral health model of health services utilization (BHSU) (1995). Variables included in the MHSU model were selected according to Andersen’s BHSU, empirical findings from health services research literature, and variables included in the 2007 NSDUH. Variables are classified into the following three categories: pre-disposing factors, enabling resources, and need/illness factors. ‘Pre-disposing factors’ include social demographic and individual beliefs variables. ‘Enabling resources’ include measures of an individual’s financial resources. The ‘need/illness’, variables include measures of individuals’ evaluated and perceived health.
**Figure 3.1. Model of Mental Health Services Utilization***

<table>
<thead>
<tr>
<th>Pre-Disposing →</th>
<th>Enabling Resources →</th>
<th>Need/Illness →</th>
<th>Services Utilization</th>
<th>MHSU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Demographics</td>
<td>Resources</td>
<td>Evaluated</td>
<td>MDE Severity</td>
<td>Yes/No</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td>Insurance</td>
<td>MDE Severity</td>
<td>Substance Dependence</td>
<td></td>
</tr>
<tr>
<td>Marital Status</td>
<td>Income</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>Other Public Benefits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beliefs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear of Stigma</td>
<td></td>
<td></td>
<td>Perceived</td>
<td></td>
</tr>
<tr>
<td>Treatment Attitudes</td>
<td></td>
<td></td>
<td>Perceived Health</td>
<td></td>
</tr>
<tr>
<td>Finances/Access</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


**Mental Health Services Utilization**

Mental Health Services Utilization (MHSU) is defined by NSDUH as, “treatment or counseling for any problem with emotions, nerves, or mental health in the 12 months prior to the interview in any inpatient or outpatient setting, or the use of prescription medication for a mental or emotional condition” (Office of Applied Studies, 2006,p.1). Services can be received in outpatient or inpatient settings, or through prescription medication for emotional or mental conditions. MHSU is created from three items that asked respondents about the use of outpatient, inpatient, or prescription medication for nerves, emotions or mental health in the past year. A code of 1 (yes) is assigned if the respondent answered “yes” to having received outpatient mental health services, inpatient mental health services, or prescription medication in year prior to the interview. A code of 0 (no) is assigned if the respondent did not receive any mental health treatment in the 12 months prior to the interview.
Pre-disposing Factors

‘Predisposing factors’ exist prior to the individual coming into contact with the health system, and include for example, social demographic variables, and health belief variables (Andersen, 1973).

Social demographics.

Race/ethnicity.

NSDUH classifies race/ethnicity by the respondent’s self-report of ethnic and racial identification or origin. Responses to the NSDUH race/ethnicity questions are coded into the following categories: Non-Hispanic White (1), Non-Hispanic Black (2), Non-Hispanic Native American or Alaska Native (3), Non-Hispanic Hawaiian or Pacific Islander (4), Non-Hispanic Asian (5), Non-Hispanic more than one race (6), and Hispanic (7). In this study race/ethnicity categories are collapsed into the following four categories: White (1), Black (2), Hispanic (3), and Other (0).

Marital status.

Marital status refers to whether or not the respondent was married, divorced, never married, or widowed at the time of the interview. Responses to the NSDUH marital status item are coded into the following categories: Married (1), Widowed (2), Divorced or Separated (3), or Never Married (4). In this study, marital status categories are collapsed into two categories: ever married (1) and never married (0). ‘Ever married’ combines those who were divorced/separated, married, or widowed.
**Employment.**

Employment refers to whether or not the respondent was currently working at a job either full time, part-time, or not at all at the time of the interview. Employment is measured based on questions of work in the 7 days (week) prior to the interview. Follow-up questions asked the hours per week the respondent worked. Employment is categorized by full-time (1), part-time (2), unemployed (3), or other (4). Full-time includes individuals who typically worked at least 35 hours per week and who had a job even though they did not work in the past week or who did work in the past week. Similarly, part-time employment includes individuals who worked less than 35 hours per week, who may or may not have worked in the past week. ‘Unemployed’ refers to individuals who were on layoff, looking for work, or did not have a job. This study codes ‘employment’ according to the following two categories: employed (1) and unemployed (0).

**Gender.**

Gender refers to the sex of the respondent, either male (1) or female (0). The gender of the respondent was recorded at the beginning of the interview.

**Education.**

Education is a measure of the highest year or grade of school completed by the respondent. The education variable is coded into the following categories: Less than high school (1), high school graduate (2), some college (3), college graduate (4).
Beliefs.

Beliefs are measured by a combination of items that asked those individuals who reported an unmet need for treatment to identify reasons why they did not receive treatment. Individuals were first identified as having an unmet need for mental health treatment through a response to the question, “During the past 12 months, was there any time when you needed mental health treatment or counseling for yourself but didn’t get it?” If the individual reported that they did not receive needed mental health treatment services, then the individual was asked, “Which of these statements explains why you did not get the mental health treatment or counseling you needed?” The individual then selected one or more reasons from the following 15 possible responses: (1) couldn’t afford the cost, (2) concerned that getting mental health treatment or counseling might cause neighbor or community to have a negative opinion of you, (3) concerned that getting mental health treatment or counseling might have a negative effect on your job, (4) health insurance does not cover any mental health treatment or counseling, (5) health insurance does no pay enough for mental health treatment or counseling, (6) did not know where to go to get services, (7) concerned that the information you gave the counselor might not be kept confidential, (8) concerned that you might be committed to a psychiatric hospital or might have to take medicine, (9) didn’t think you needed treatment at the time, (10) thought you could handle the problem without treatment, (11) didn’t think treatment would help, (12) didn’t have time (because of job, childcare, or other commitments), (13) didn’t want others to find out that you needed treatment, (14) you
had no transportation, or treatment was too far away, or the hours were not convenient, or
(15) some other reason or reasons.

In this study, a series of factor analyses using Varimax rotation were conducted on these data, which resulted in a final solution with three components (Table 3.1). The initial factor analysis solution resulted in the exclusion of the following two response items: ‘fear that others would find out’ and ‘did not have transportation’.

Table 3.1. Final Factor Analysis Solution: Summary of Items and Factor Loadings from Principle Components Analysis with Varimax Rotation

<table>
<thead>
<tr>
<th>Item</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Communality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handle problem alone</td>
<td>.813</td>
<td>.088</td>
<td>.036</td>
<td>.670</td>
</tr>
<tr>
<td>Treatment would not help</td>
<td>.746</td>
<td>.157</td>
<td>.034</td>
<td>.582</td>
</tr>
<tr>
<td>Did not have time</td>
<td>.681</td>
<td>.056</td>
<td>.179</td>
<td>.498</td>
</tr>
<tr>
<td>Did not need treatment</td>
<td>.655</td>
<td>-.083</td>
<td>.079</td>
<td>.442</td>
</tr>
<tr>
<td>Fear that others would find out</td>
<td>.638</td>
<td>.279</td>
<td>-.004</td>
<td>.485</td>
</tr>
<tr>
<td>Fear of Neighbors’ negative opinion</td>
<td>.070</td>
<td>.673</td>
<td>.050</td>
<td>.460</td>
</tr>
<tr>
<td>Confidentiality concerns</td>
<td>.093</td>
<td>.666</td>
<td>.068</td>
<td>.457</td>
</tr>
<tr>
<td>Fear of being committed</td>
<td>.150</td>
<td>.665</td>
<td>.215</td>
<td>.511</td>
</tr>
<tr>
<td>Fear of negative impact on job</td>
<td>.025</td>
<td>.572</td>
<td>.076</td>
<td>.334</td>
</tr>
<tr>
<td>Could not afford cost</td>
<td>.065</td>
<td>.068</td>
<td>.744</td>
<td>.562</td>
</tr>
<tr>
<td>No insurance coverage for treatment</td>
<td>.042</td>
<td>-.039</td>
<td>.627</td>
<td>.396</td>
</tr>
<tr>
<td>Insurance would not pay enough</td>
<td>.054</td>
<td>.157</td>
<td>.560</td>
<td>.342</td>
</tr>
<tr>
<td>Did not know where to go</td>
<td>.104</td>
<td>.305</td>
<td>.547</td>
<td>.402</td>
</tr>
</tbody>
</table>

The components identified through the factor analyses were subjected to reliability analysis testing. Reliability analyses tests revealed acceptable Cronbach’s Alpha scores (α=.50-.73). The final three components were labeled: ‘stigma’ (α=.73), ‘attitudes toward treatment’ (α=.59), and ‘finances/access’ (α=.50) (Table 3.2).
‘Stigma’ refers to the respondent not receiving mental health treatment because of fear that society would impose negative sections on the individual for receiving mental health treatment. ‘Attitudes toward treatment’ refers to a respondent holding a negative view toward mental health treatment. ‘Finances/Access’ refers to a respondent not receiving treatment because of beliefs related to finances or not knowing where to get treatment.

Items in the ‘stigma’ factor included the following responses: fear of being committed, fear that the counselor would not keep information confidential, fear of neighbors’ opinion, and fear of negative impact on job. Items in the ‘attitudes toward treatment’ factor included the following responses: the individual could handle the problem on their own, treatment would not help, the respondent did not have time for treatment, and that the individual did not need treatment. Items in the ‘finances/access’ factor included the following responses: could not afford cost, did not have insurance to cover treatment, insurance would not cover enough, and did not know where to go.

<table>
<thead>
<tr>
<th>Table 3.2. Reliability Analysis of Final Factor Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component 1 = ‘Stigma’</td>
</tr>
<tr>
<td>Fear of being committed</td>
</tr>
<tr>
<td>Fear that counselor will not keep confidentiality</td>
</tr>
<tr>
<td>Fear that neighbors have a negative opinion</td>
</tr>
<tr>
<td>Fear that treatment will have a negative impact on job (α) = .59</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component 2 = ‘Attitudes toward treatment’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Could handle problem alone</td>
</tr>
<tr>
<td>Treatment would not help</td>
</tr>
<tr>
<td>No time for treatment</td>
</tr>
<tr>
<td>No need for treatment                     (α) = .73</td>
</tr>
</tbody>
</table>
Table 3.2 continued. *Reliability Analysis of Final Factor Solution*

<table>
<thead>
<tr>
<th>Component 3 = ‘Finances/Access’</th>
<th>Chronbach’s Alpha (α)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Could not afford cost</td>
<td>(α) = .50</td>
</tr>
<tr>
<td>No insurance coverage for treatment</td>
<td></td>
</tr>
<tr>
<td>Insurance would not cover enough</td>
<td></td>
</tr>
<tr>
<td>Did not know where to go</td>
<td></td>
</tr>
</tbody>
</table>

Items that loaded on the three components in the factor analyses were used to compute three additive variables (‘stigma’, ‘attitudes toward treatment’, and ‘finances/access’). Responses range from 0 (zero items selected) to 4 (four items selected).

**Enabling resources**

Variables under ‘enabling resources’ describe personal and community level resources that assist an individual in attaining health services, and are measured by income, health insurance coverage, and receipt of other public benefits.

**Income.**

Income is the amount of financial earnings or government assistance paid to the respondent’s household. The ‘total family income’ variable is a categorical variable that classifies income into the following categories: less than $20,000 (coded 0), $20,000 to $49,999 (coded 1), $50,000 to $74,999 (coded 2), and $75,000 or more (coded 3).

**Health insurance.**

Health insurance status refers to whether or not the respondent was covered by health insurance at the time of the interview. A response is coded 1 (yes), if the respondent is covered by any of the following types of insurance: private insurance,
Medicare, Medicaid/Chip, Champus, ChampVA, VA, military, or other insurance. A response is coded 0 = no, if the respondent is not covered by any of the previously stated types of insurance.

**Other public benefits.**

‘Other public benefits’ refers to whether or not the respondent was a recipient of any of the following government programs: Supplemental Security Income (SSI), food stamps, cash or non-cash aid. A response is coded 1 (yes), if the respondent is a recipient of SSI, food stamps, cash or non-cash assistance. A response is coded 0= no, if the respondent is not a recipient of governmental assistance.

**Need/Illness**

Variables in the ‘need’ component, address an individual’s ‘perceived need’, that is, how they view their own health status, and an individual’s ‘evaluated need’, which is measured by a professional healthcare provider (Andersen, 1995).

**MDE severity.**

‘MDE severity’ refers to the level of impairment caused by MDE symptoms, and is measured by MDE symptomology variables and the Sheehan Disability Scale (SDS). ‘MDE severity’ is an overall measure of interference in an individual’s life across the SDS domains. MDE symptomology refers to the presence of MDE symptoms that are identified in the DSM-IV (American Psychological Association, 1994). MDE symptoms are measured by NSDUH questions that are based on DSM-IV criteria that must be present for the diagnosis of MDE. According to the DSM-IV, for a diagnosis of MDE at
least one of the following symptoms must be present: (1) a loss of pleasure or interest in almost all activities or (2) depressed mood.

MDE symptom questions in the NSDUH identified the presence of the following nine symptoms associated with MDE: sadness, lost of interest in pleasurable activities, changes in appetite or weight, sleep problems, restlessness or lethargy, feelings of worthlessness, inability to concentrate or make decisions, and thoughts or plans of suicide. A response of yes to the presence of the MDE symptoms was coded 1 and a no response was coded 0. These responses were then assessed over the four domains classified in the SDS.

In the NSDUH 2007, the SDS assesses impairment in three role domains or major life activities: (1) Home management, (2) work, (3) social life, and close relationships (4). Each item employs an 11-point scale ranging from none (0), mild (1-3), moderate (4-6), severe (7-9), to very severe (10). Severe impairment is then classified by scores of 7 or more in at least one of the role domains. In this study, ‘MDE severity’ is coded: none (0), mild (1), moderate (2), severe (3), and very severe (4).

Sheehan Disability Scale: Reliability.

A study conducted on the psychometric properties of the SDS found acceptable levels of reliability and validity (Leon, Olfson, Portera, Farber, and Sheehan, 1997). Results showed a high level of internal consistency (alpha=.89). Additionally, factor analysis results showed high levels of item variance accounted for by each factor: family impairment (.77), work impairment (.67), and social impairment (.81) (Leon et al., 1997).
**Substance dependence.**

Substance dependence refers to past year abuse of or dependence on any illicit drugs or alcohol. Illicit drugs may include: heroin, cocaine, marijuana, inhalants, nonmedical use of pain relievers, or hallucinogens (NSDUH, 2007). NSDUH uses the DSM IV (American Psychological Association, 1994) criteria of substance dependence to classify a respondent as dependent. Substance dependence differs from substance abuse in that dependence involves physiological and psychological impact of withdrawal and tolerance (NSDUH, 2007). Substance dependence is coded 1=yes, if the respondent meets criteria for substance dependence in the past year. A response is coded 0=no, if the respondent does not meet substance dependence criteria.

**Perceived health.**

‘Perceived health’ is a self-report of the condition of the respondent’s overall health and is categorized into the following: excellent= 3, very good =2, good=1, and fair/poor=0.

**Data Analysis Plan**

Bivariate and multivariate statistical tests will be used to analyze the data. The frequencies of each variable will be analyzed. Relationships between variables will be tested using the Pearson $r$ correlation. The Pearson $r$ assesses the degree to which two variables are related, where 1 represents a perfect linear relationship (Meyers, Gamst, & Guarimo, 2006).
Multivariate analyses will be conducted using logistic regression. Logistic regression will be used to predict the probability that a case will belong to the treatment seeking group. In logistic regression, the dependent variable is a dichotomous variable, and the independent variables are either dichotomous, quantitative, or a combination of the two (Meyers, Gamst, and Guarino, 2006). Logistic regression assumes that perfect multicollinearity does not exist, all irrelevant predictors are eliminated from the model, and that the independent variables are measured at the interval, summative response scale, or ratio level (Meyers et al., 2006).

Human Subjects Concerns

The institutional review board of the Catholic University of America found this study to be exempt from research concerns involving human subjects.

Limitations of Secondary Data Analysis

Numerous studies use national level surveys, such as the NSDUH, the Epidemiological Catchment Area study (ECA), and the National Comorbidity Survey (NCS) to study mental health services utilization. Although these national level surveys provide useful information, there are some methodological limitations associated secondary data analysis derived from large scale cross-sectional research.

Analyses utilizing for example, data from NSDUH, are limited to the measures included in the surveys, which means that certain variables which may influence MHSU cannot be tested (Vingilis et al., 2007). Additionally, large scale surveys, such as NSDUH, that provide data on MHSU, rely on self reports of respondents, which depends
on memory recall of activities and feelings within the past twelve months (Barkin et al., 2003; Cooper et al., 2003; Diala et al., 2000; Goodwin et al., 2002; Haunstein et al., 2007; Horwitz & Uttaro, 1998; Karlin et al., 2008; Kessler et al., 1997; 1999; Lewinsohn et al., 2003; Vanhuesden et al., 2008). Self reports may be influenced by the respondent’s desire to answer questions that would be socially desirable and may not be completely accurate (Barkin et al., 2003; Mojtabai et al., 2006), which may lead to underreporting of depression symptoms and treatment (Hauenstein et al., 2007).

Other methodological limitations involve inclusion or exclusion, definition, and measurement of variables within the studies. Some fail to employ a comprehensive model that includes variables that previous studies have found to influence MHSU. Mojtabai et al. (2008) notes that some studies fail to include variables that can measure various aspects of social factors associated with MHSU. Additionally, researchers have noted that some studies fail to include level of impairment, comorbid psychiatric conditions, and attitudes about treatment (Lewinsohn, Rohde, Seeley, Klein, & Gotlib, 2003; Mojtabai et al., 2008), which are critical determinants of mental health services utilization.

Other researchers have noted problems in the definitions of MHSU and mental health diagnoses. Some studies may use definitions of MHSU that are too broad or too narrow, and thus, fail to represent the full picture of the phenomenon. In some studies, definitions of treatment providers may overlap (Elhai et al., 2007), lack differentiation (Hauenstein et al., 2007), and may be less than precise (Kessler et al., 1998). Further, in
some studies, diagnoses of mental health conditions are based on single structured interviews, which may or may not be clinically validated (Wu et al., 2007). Additionally, some studies use only diagnostic criteria for certain mental illnesses, which limits the measurement of problems associated with comorbid pathology (Mojtabai et al., 2008).

In order to overcome these limitations it is critical that researchers use models that are inclusive of variables found in previous research to influence the MHSU process. To date, the BHSU is the most used and well known comprehensive model of access to treatment (Goldsmith, et al., 2002). While the application of models such as the BHSU are critical to investigate the full picture of MHSU, studies should also employ precise definitions of variables in order to adequately measure the factors that predict MHSU. Further, researchers suggest that future studies should apply a thorough analysis of the influence of mood symptoms, level of impairment across domains, and other cognitive factors that influence MHSU (Leaf et al., 1996; Mojtabai et al., 2008).

Researchers investigating MHSU using secondary data analysis of large scale data should be familiar with the limitations of these methods in order to build in strategies that strengthen the study. In order to account for multiple predictors of MHSU, researchers should employ a comprehensive analytic model that employs a bio-pscyho-social framework. While the application of models such as the BHSU are critical to investigate the full picture of MHSU, studies should also employ precise definitions of variables in order to adequately measure the factors that predict MHSU.
Chapter Three Summary

This study utilizes data from a national level cross-sectional survey, and employs secondary data analysis procedures. The research question guiding this study is: What are the factors that determine the likelihood that young adults (aged 18 to 25 years) with a past year MDE will use mental health services? Using the mental health services utilization model, adapted from Andersen (1995) as presented in Chapter 2, it is hypothesized that predisposing, enabling, and need factors will influence the extent to which mental health services are utilized by young adults, aged 18 to 15, with a major depressive episode in the past year.

Data used in this study are derived from the 2007 National Survey on Drug Use and Health (NSDUH), a national level survey of the non-institutionalized, civilian population. The NSDUH mental health module includes items are derived from items in the National Comorbidity Survey Replication (NCS-R), which collects data on mental disorders among the U.S. population.

The NCS-R uses the Composite International Diagnostic Interview (CIDI) to screen for psychiatric diagnoses against DSM-IV criteria. Reliability and validity studies of the CIDI show acceptable results (Wittchen, 1993).

NSDUH employs a four-staged stratified sample of all 50 states and the District of Columbia is designed to provide adequate sample in each state that allow for small area estimation (SAE). This study’s sample was drawn from the larger NSDUH 2007 sample based on purposive sampling procedures. Cases were selected out if the
respondents were between the ages of 18 to 25 and had the presence of a past year major depressive episode. In this study, logistic regression is used to predict the probability that a case will belong to the treatment seeking group.

Researchers investigating MHSU using secondary data analysis of large scale data should be familiar with the limitations of these methods in order to build in strategies that strengthen the study. In order to account for multiple predictors of MHSU, researchers should employ a comprehensive analytic model that employs a bio-pscyho-social framework. While the application of models such as the BHSU are critical to investigate the full picture of MHSU, studies should also employ precise definitions of variables in order to adequately measure the factors that predict MHSU.
Chapter Four: Results

Chapter Introduction

This chapter presents a description of the study’s sample and provides the frequencies and percentages of the variables included in this study. Additionally, this chapter presents the results of the Pearson’s $r$ correlation analysis and the logistic regression analyses.

In this chapter, the descriptions of the sample and variables are presented and organized according to the factors included in this study’s model (as presented in chapters two and three), which include predisposing factors, enabling resources, and need factors. The predisposing factors include the socio-demographic and belief variables. Income, insurance coverage, and government benefits are the variables included in the enabling resources component. The need factor includes MDE severity, substance dependence, and health status.

The results of the Pearson’s R correlation analysis and the logistic regression analyses are also presented in this chapter. Tables are included in each section to depict the details of the data analyses results.

Characteristics of the Sample

This section details the descriptive data of the sample, which include predisposing characteristics (socio-demographics and beliefs), enabling resources, and need variables. Additionally, this section provides descriptive data on the dependent variable, MHSU.
Socio-demographics

The sample used in this study was comprised of 1,711 young adults, aged 18 to 25, who were classified as having experienced a major depressive episode (MDE) in the 12 months prior to the interview. The following socio-demographic characteristics of the sample were included in this study’s model: gender, race/ethnicity, marital status, employment, and education.

As depicted in Table 4.1, the young adults in this study’s sample ranged in age, from 18 to 25 years, with an average age of 21. Of the total young adults in this sample, 69 percent were female and 31 percent were male. The majority of these individuals were white (67.3 %), had never married (82.5 %), and were employed (68.6 %). Over half of the sample were either high school graduates (34.3 %) or had completed some college (34.2 %).

Table 4.1. Frequencies and Percentages of the Socio-Demographic Data of the Sample (N=1711)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>215</td>
<td>12.6</td>
</tr>
<tr>
<td>19</td>
<td>214</td>
<td>12.5</td>
</tr>
<tr>
<td>20</td>
<td>211</td>
<td>12.3</td>
</tr>
<tr>
<td>21</td>
<td>216</td>
<td>12.6</td>
</tr>
<tr>
<td>22 or 23</td>
<td>441</td>
<td>25.8</td>
</tr>
<tr>
<td>24 or 25</td>
<td>414</td>
<td>24.2</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>530</td>
<td>31.0</td>
</tr>
<tr>
<td>Female</td>
<td>1181</td>
<td>69.0</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>1152</td>
<td>67.3</td>
</tr>
<tr>
<td>Black</td>
<td>176</td>
<td>10.3</td>
</tr>
<tr>
<td>Hispanic</td>
<td>229</td>
<td>13.4</td>
</tr>
<tr>
<td>Other Race</td>
<td>154</td>
<td>9.0</td>
</tr>
</tbody>
</table>
Table 4.1 continued

Frequencies and Percentages of the Socio-Demographic Data of the Sample (N=1711)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ever married</td>
<td>299</td>
<td>17.5</td>
</tr>
<tr>
<td>Never married</td>
<td>1412</td>
<td>82.5</td>
</tr>
<tr>
<td>Employment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>1174</td>
<td>68.6</td>
</tr>
<tr>
<td>Not employed</td>
<td>537</td>
<td>31.4</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than high school</td>
<td>340</td>
<td>19.9</td>
</tr>
<tr>
<td>High school graduate</td>
<td>587</td>
<td>34.3</td>
</tr>
<tr>
<td>Some college</td>
<td>585</td>
<td>34.2</td>
</tr>
<tr>
<td>College graduate</td>
<td>199</td>
<td>11.6</td>
</tr>
</tbody>
</table>

Beliefs

Out of the 1,711 young adults in this sample, 662 (39 %) reported that they did not receive needed mental health treatment in the 12 months before the interview. These individuals were then asked to identify reasons why they did not receive treatment. The factor analysis, described in chapter three, resulted in a total of 13 items used to measure beliefs about why treatment was not received. These responses are depicted in Table 4.2.

The responses were coded into 1 (yes) if the respondent selected a response as a reason why they did not receive mental health treatment, and 0 (no) if the respondent did not select the item as a reason why they did not receive treatment. The items most commonly selected by respondents included the following: could not afford cost (17.4 %), could handle problem alone (8.1 %), did not know where to go (8.1 %), fear of being committed (7.6 %), did not think treatment would help (6.5 %), and did not have time (6.4 %). These items were not mutually exclusive, that is, the respondent could have selected more than one reason why treatment was not received. The majority of
respondents did not select any of the possible reasons as to why they did not receive treatment.

Table 4.2. Frequencies and Percentages of the Sample’s Beliefs/Reasons Why Mental Health Treatment Was Not Received (N=662)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Frequency</th>
<th>%</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handle problem alone</td>
<td>Yes</td>
<td>204</td>
<td>8.1</td>
<td>No</td>
</tr>
<tr>
<td>Treatment would not help</td>
<td>Yes</td>
<td>111</td>
<td>93.5</td>
<td>No</td>
</tr>
<tr>
<td>Did not have time</td>
<td>Yes</td>
<td>110</td>
<td>6.4</td>
<td>No</td>
</tr>
<tr>
<td>Did not need treatment</td>
<td>Yes</td>
<td>68</td>
<td>4.0</td>
<td>No</td>
</tr>
<tr>
<td>Fear that others would find out</td>
<td>Yes</td>
<td>88</td>
<td>5.1</td>
<td>No</td>
</tr>
<tr>
<td>Fear of neighbors’ negative opinion</td>
<td>Yes</td>
<td>93</td>
<td>5.4</td>
<td>No</td>
</tr>
<tr>
<td>Confidentiality concerns</td>
<td>Yes</td>
<td>77</td>
<td>4.5</td>
<td>No</td>
</tr>
<tr>
<td>Fear of being committed</td>
<td>Yes</td>
<td>130</td>
<td>7.6</td>
<td>No</td>
</tr>
<tr>
<td>Fear of negative impact on job</td>
<td>Yes</td>
<td>43</td>
<td>2.5</td>
<td>No</td>
</tr>
<tr>
<td>Could not afford cost</td>
<td>Yes</td>
<td>297</td>
<td>17.4</td>
<td>No</td>
</tr>
<tr>
<td>No insurance coverage for treatment</td>
<td>Yes</td>
<td>41</td>
<td>2.4</td>
<td>No</td>
</tr>
<tr>
<td>Insurance would not pay enough</td>
<td>Yes</td>
<td>49</td>
<td>2.9</td>
<td>No</td>
</tr>
<tr>
<td>Did not know where to go</td>
<td>Yes</td>
<td>138</td>
<td>8.1</td>
<td>No</td>
</tr>
</tbody>
</table>

Note: The frequency totals (yes, no) for each item equal the sample total (n=1,711)

Enabling Resources

As shown in Table 4.3, the majority of young adults in the sample reported an annual income of either less than $20,000 (37.9 %) or $20,000 to $49,999 (33.4 %). Additionally, nearly three-fourths (71.8 %) of the respondents had health insurance coverage, and nearly one-fourth (24.0 %) received assistance from government programs. The data on ‘enabling resources’ measures are presented in Table 4.3.
Table 4.3. Frequencies and Percentages of the Enabling Resources Data of the Sample (N=1711)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than $20,000</td>
<td>649</td>
<td>37.9</td>
</tr>
<tr>
<td>$20,000-$49,999</td>
<td>572</td>
<td>33.4</td>
</tr>
<tr>
<td>$50,000-$74,999</td>
<td>212</td>
<td>12.4</td>
</tr>
<tr>
<td>$75,000 or more</td>
<td>278</td>
<td>16.2</td>
</tr>
<tr>
<td>Health Insurance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health insurance</td>
<td>1229</td>
<td>71.8</td>
</tr>
<tr>
<td>No health insurance</td>
<td>482</td>
<td>28.2</td>
</tr>
<tr>
<td>Government Benefits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recipient of benefits</td>
<td>411</td>
<td>24.0</td>
</tr>
<tr>
<td>Not a recipient of benefits</td>
<td>1300</td>
<td>76.0</td>
</tr>
</tbody>
</table>

**Need**

The measures of ‘need’ included: MDE severity, presence of substance dependence, and perceived health. MDE severity was categorized as none (0), mild (1), moderate (2), severe (3), or very severe (4). The majority of the individuals’ MDE severity was moderate (29.1 %), severe (46.2 %) or very severe (17.8%). The majority of individuals in the sample (74.1 %) were not dependent on substances, and perceived their health to be good (30.8 %), very good (37.7 %), or excellent (19.1 %). The data on ‘need’ measures are presented in Table 4.4.

Table 4.4. Frequencies and Percentages of the Need Data of Sample (N=1711)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDE Severity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>5</td>
<td>.3</td>
</tr>
<tr>
<td>Mild</td>
<td>101</td>
<td>5.9</td>
</tr>
<tr>
<td>Moderate</td>
<td>498</td>
<td>29.1</td>
</tr>
<tr>
<td>Severe</td>
<td>791</td>
<td>46.2</td>
</tr>
<tr>
<td>Very Severe</td>
<td>305</td>
<td>17.8</td>
</tr>
</tbody>
</table>
Table 4.4 continued

Frequencies and Percentages of the Need Data of Sample (N=1711)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substance Dependence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>444</td>
<td>25.9</td>
</tr>
<tr>
<td>No</td>
<td>1267</td>
<td>74.1</td>
</tr>
<tr>
<td>Perceived Health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fair/Poor</td>
<td>212</td>
<td>12.4</td>
</tr>
<tr>
<td>Good</td>
<td>527</td>
<td>30.8</td>
</tr>
<tr>
<td>Very good</td>
<td>645</td>
<td>37.7</td>
</tr>
<tr>
<td>Excellent</td>
<td>327</td>
<td>19.1</td>
</tr>
</tbody>
</table>

Mental Health Services Utilization

The dependent variable, mental health services utilization (MHSU), was defined as having received inpatient treatment, outpatient treatment, or prescription medication in the 12 months prior to the interview. As presented in Table 4.5., the majority of this sample (62.4%) had not received any mental health treatment.

Table 4.5. Frequencies and Percentages of the Sample’s Mental Health Services Utilization (N=1711)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>MHSU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>644</td>
<td>37.6</td>
</tr>
<tr>
<td>No</td>
<td>1067</td>
<td>62.4</td>
</tr>
</tbody>
</table>

Bivariate Relationships

The Pearson’s r correlation was used to analyze the bivariate relationships between the variables. Results of the correlation analysis are described in this section and depicted in Table 4.6. Overall, there were numerous significant relationships between the variables. However, there was no perfect multicollinearity between
variables, which is a requirement that must be met in order to use logistic regression analyses.

**Independent Variables and MHSU**

Overall, MHSU was significantly correlated with a number of predisposing, enabling resources, and need variables. Those who received mental health services were significantly more likely to be white (r=.19), to have higher levels of education (r=.07) and income (r=.05), to be female (r=-.13), and to have health insurance coverage (r=.15). Further, those who were dependent on a substance (r=.06) and those with higher levels of MDE severity (r=.17) were also more likely to have received mental health services.

Not receiving any mental health services was significantly associated with being Hispanic (r=-.09), being Black (r=-.11), or from another race (r=-.08), and having positive perceptions of overall health (r=-.09). There were also significant positive relationships between receiving mental health services and having negative views toward treatment or having a fear of stigma.

**Pre-disposing Factors**

The Pearson $r$ correlation analysis revealed significant relationships between race variables and other independent variables. Whites were significantly more likely to have high levels of education (r=.09) and income (r=.09), to have health insurance (r=.09), to be employed (r=.09), and to have negative attitudes toward mental health treatment (r=.08). Whites were also significantly less likely to be a recipient of government benefits (r=-.11).
Blacks were significantly less likely to be married ($r = -0.09$) or employed ($r = -0.05$), to have high levels of education ($r = -0.05$) or income ($r = -0.08$), and significantly more likely to receive government benefits ($r = 0.17$). Hispanics were more likely to be male ($r = 0.05$), have ever married ($r = 0.05$), to have positive attitudes toward treatment ($r = -0.07$), and significantly less likely to have health insurance ($r = -0.11$) or high levels of education ($r = -0.10$). Other races were significantly less likely to be employed ($r = -0.06$).

There were significant relationships between gender and other independent variables. Compared to females, males were significantly more likely to have never married ($r = -0.10$), to have negative attitudes toward treatment ($r = -0.06$), to have higher levels of education ($r = -0.08$) or income ($r = 0.06$), and to have a substance dependence problem ($r = 0.08$). Further, males were significantly less likely than females to receive government benefits ($r = -0.09$), to have health insurance ($r = -0.11$), or to have concerns over cost or access to mental health treatment ($r = -0.09$).

Education was significantly correlated with a number of variables. Those with high levels of education were more likely to be employed ($r = 0.20$), to have health insurance ($r = 0.14$), to have higher levels of income ($r = 0.14$), and to have positive perceptions of their overall health ($r = 0.18$). Additionally, those with higher levels of education were significantly less likely to have higher levels of MDE severity ($r = -0.08$) and to receive government benefits ($r = -0.25$).

Individuals who were employed were significantly more likely to have health insurance ($r = 0.05$), to have higher levels of income ($r = 0.18$), to have more positive
perceptions of their overall health \((r=0.11)\), and were significantly less likely to have higher levels of MDE severity \((r=-0.09)\).

Marital status was significantly associated with government benefits and substance dependence. Those who were ever married were significantly more likely to receive government benefits \((r=0.08)\), but less likely to have a substance dependence problem \((r=-0.13)\).

The analysis revealed significant relationships between stigma and attitudes towards mental health treatment, MDE severity, substance dependence, and perceived health. Those with a fear of stigma were more likely to have negative attitudes toward mental health treatment \((r=0.24)\), to have concerns over the cost of or access to mental health treatment \((r=0.33)\), to have high levels of MDE severity \((r=0.16)\), and to have a substance dependence problem \((r=0.12)\), and less likely to have positive perceptions of their overall health \((r=-0.05)\).

There were also significant relationships between having concerns over the cost of or access to mental health treatment and health insurance coverage, MDE severity, and perceived health. Young adults with concerns over cost of or access to treatment were significantly less likely to have health insurance \((r=-0.11)\), to have high levels of MDE severity \((r=0.15)\), to have a substance dependence problem \((r=0.07)\), and to have negative perceptions of overall health \((r=-0.10)\).

**Enabling Resources**

Those with higher levels of income were significantly more likely to have health insurance \((r=0.11)\) and to have positive perceptions of their overall health \((r=0.08)\).
Conversely, those with higher levels of income were significantly less likely to receive government benefits ($r=-.24$).

Having health insurance coverage was significantly associated with perceived health and substance dependence. Those with health insurance were significantly less likely to have a substance dependence problem ($r=-.07$). Additionally, those who had health insurance were significantly more likely to have positive perceptions of their overall health ($r=.13$).

**Need/Illness**

There were significant relationships between MDE severity and government benefits, attitudes toward treatment, stigma, perceived health, and substance dependence. Those with higher levels of MDE severity were more likely to be a recipient of government benefits ($r=.09$), to have negative attitudes toward treatment ($r=.08$), to have a fear of stigma ($r=.16$), to have negative perceptions of their overall health ($r=-.10$), and to have a substance dependence problem ($r=.09$).
Table 4.6

Pearson’s r Correlation Analysis Results

<table>
<thead>
<tr>
<th>Measure</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predisposing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. White</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Black</td>
<td>-.49**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Hispanic</td>
<td>-.56**</td>
<td>-.13**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Other Race</td>
<td>-.45**</td>
<td>-.11**</td>
<td>-.12**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Marriage</td>
<td>.03</td>
<td>-.09**</td>
<td>.05*</td>
<td>-.03</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Employed</td>
<td>.09**</td>
<td>-.05*</td>
<td>-.03</td>
<td>-.06*</td>
<td>-.02</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Gender</td>
<td>-.03</td>
<td>-.04</td>
<td>.05*</td>
<td>.02</td>
<td>-.10**</td>
<td>-.01</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Education</td>
<td>.09**</td>
<td>-.05*</td>
<td>-.10**</td>
<td>.03</td>
<td>-.02</td>
<td>.20**</td>
<td>-.08**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Stigma</td>
<td>.01</td>
<td>-.01</td>
<td>-.03</td>
<td>-.03</td>
<td>-.02</td>
<td>-.02</td>
<td>-.03</td>
<td>-.01</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Attitudes towards</td>
<td>Treatment</td>
<td>.08**</td>
<td>-.01</td>
<td>-.07**</td>
<td>-.03</td>
<td>-.03</td>
<td>-.06**</td>
<td>.04</td>
<td>.24**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Finances/Access</td>
<td>.02</td>
<td>-.04</td>
<td>-.01</td>
<td>.02</td>
<td>.03</td>
<td>-.09**</td>
<td>.02</td>
<td>.33**</td>
<td>.02**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enabling Resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Health Insurance</td>
<td>.07**</td>
<td>-.01</td>
<td>-.11**</td>
<td>.02</td>
<td>.03</td>
<td>.05*</td>
<td>-.11**</td>
<td>.14**</td>
<td>.01</td>
<td>.04</td>
<td>-.11**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Income</td>
<td>.09**</td>
<td>-.08**</td>
<td>-.03</td>
<td>-.02</td>
<td>-.01</td>
<td>.18**</td>
<td>.06*</td>
<td>.14**</td>
<td>-.01</td>
<td>.01</td>
<td>.03</td>
<td>.11**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Government Benefits</td>
<td>-.11**</td>
<td>.17**</td>
<td>.00</td>
<td>-.01</td>
<td>.08**</td>
<td>-.21**</td>
<td>-.09**</td>
<td>-.25**</td>
<td>.03</td>
<td>-.03</td>
<td>.04</td>
<td>-.04</td>
<td>-.24**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. MDE Severity</td>
<td>-.01</td>
<td>-.01</td>
<td>.00</td>
<td>.00</td>
<td>-.09**</td>
<td>.01</td>
<td>-.08**</td>
<td>.16**</td>
<td>.08**</td>
<td>.15**</td>
<td>.00</td>
<td>-.00</td>
<td>.09**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Substance Dependence</td>
<td>.02</td>
<td>-.01</td>
<td>-.03</td>
<td>.00</td>
<td>-.13**</td>
<td>-.01</td>
<td>.08**</td>
<td>.01</td>
<td>.12**</td>
<td>.01</td>
<td>.07**</td>
<td>-.07**</td>
<td>-.01</td>
<td>.01</td>
<td>.09**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>MHSU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. MHSU</td>
<td>.19**</td>
<td>-.11**</td>
<td>-.09**</td>
<td>-.08**</td>
<td>.04</td>
<td>-.01</td>
<td>-.13**</td>
<td>.07**</td>
<td>.01**</td>
<td>.06**</td>
<td>.04</td>
<td>.15**</td>
<td>.05**</td>
<td>.03</td>
<td>.17**</td>
<td>.06*</td>
<td>-.09**</td>
</tr>
</tbody>
</table>

Note: Marriage: 0=never married, 1=ever married. Employed: 0=unemployed, 1=employed. Gender: 0=female, 1=male. Education: 0=less than high school, 1=high school graduate, 2=some college, 3=college graduate. Stigma: 0=no fear of stigma, 1=fear of stigma. Attitudes toward treatment: 0=positive attitudes toward treatment, 1=negative attitudes toward treatment. Insurance: 0=uninsured, 1=insured. Income: 0=less than $20,000, 1=$20,000-$49,999, 2=$50,000-$74,999, 3=$75,000 or more. Government Benefits: 0=no government benefits, 1=received government benefits. MDE Severity: 0=none, 1=mild, 2=moderate, 3=severe, 4=very severe. Substance Dependence, 0=none, 1= substance dependent. Perceived Health: 0=fair/poor, 1=good, 2=very good, 3=excellent. MHSU: 0=no treatment, 1=received treatment.

*p < .05  **p < .01
Multivariate Results

This section provides the results from the multivariate analyses, which are depicted in Table 4.7 and Table 4.8. The research question guiding this study was: What are the factors that determine the likelihood that young adults (aged 18 to 25 years) with a past year MDE will use mental health services? Logistic regression analysis was used to test the hypothesis that predisposing, enabling, and need factors will influence the extent to which mental health services are utilized by young adults, aged 18 to 15, with a major depressive episode in the past year.

This study met all of the assumptions of logistic regression. The three assumptions of logistic regression are as follows: (1) perfect multicollinearity does not exist, (2) all irrelevant predictors are eliminated from the model, and (3) the independent variables are measured at the interval, summative response scale, or ratio level (Meyers et al., 2006). In this study, the correlation analyses revealed the absence of perfect multicollinearity. Further, the logistic regression model building included all predictors relevant to MHSU and excluded the variables that did not have an effect on the dependent variable. All variables included in the model were dichotomous or interval level variables. In this study, the dependent variable, mental health services utilization (MHSU) is a dichotomous variable coded 0 (no MHSU) and 1 (utilization of mental health services).

In this study, logistic regression analysis was used to predict the log odds that a case belonged to the group that used mental health services. The model building in
logistic regression analysis requires that the researcher add variables related to the
dependent variable in blocks. Through this process, the researcher can observe the
impact that the independent variables have on the dependent variable after other
independent variables are either added or eliminated (Menard, 2010). Each block, as well
as the full model, is then analyzed through a series of statistical tests that measure the
error and validity of the model (Menard, 2010; Meyers et al., 2006).

**Statistical Tests of Logistic Regression Model**

The Likelihood Ratio Test (denoted -2LL) and the Omnibus Tests of Model
Coefficients (Model Chi-Square) were used in this study to assess the significance or
validity of the model. The Likelihood Ratio Test determines the degree to which the
block of independent variables increases the prediction of MHSU better than chance. In
the Omnibus Test of Model Coefficients, the model chi square tests the null hypothesis,
which states that the coefficients equal zero \( b_1 = b_2 = b_n = 0 \) (Meyers et al., 2006). “The
model chi-square value is the difference between the constant-only model and the full
model (i.e. constant and predictors)” (Meyers et al., 2006, p.239).

The Nagelkerke Psuedo R Square was also used to get an approximation of the
variance explained by the logistic regression model. The ‘Nagelkerke R Square’ estimate
is different than \( R^2 \) in least squares regression, but is the preferred test to establish the
proportion of variance in the dependent variable accounted for by the independent
variables (Meyers et al., 2006).
Logistic Regression Analyses Results

Summary.

The full logistic regression model is shown in Table 4.7. The classification results showed that the constant only model correctly predicted 62.4% of MHSU. The social-demographic variables (race/ethnicity, marital status, education, employment, and gender) were entered in model 1. The results showed that all of the social-demographic variables were significant predictors of MHSU, with the exception of employment. Model 1 showed a 62.1% capacity to predict MHSU with a pseudo R of 7.8% ($X^2=101.48$, $df=7$, $p=.000$).

In model 2, after the belief variables (attitudes toward treatment, stigma, and finances/access) were entered, of the social-demographics, being white, level of education, and gender remained significant. Stigma was the only belief variable that was a significant predictor of MHSU in model 2. The predictive capacity of model 2 was 63.5%, with a pseudo R of 9.1% ($X^2=117.77$, $df=3$, $p=.001$).

The social-demographics, beliefs, and enabling resources (health insurance, income, and government programs) were entered in model 3. In this model, being white, education, gender, and stigma retained their significance. Health insurance coverage was the only enabling resource variable that was found to be a significant predictor of the likelihood of MHSU. The predictive capacity of model 3 was 64.9% with a pseudo R of 11.6% ($X^2=152.67$, $df=13$, $p=.000$).
Once the need variables (MDE severity, substance dependence, and health status) were entered in model 4, income and government programs became insignificant. However, being white, education, gender, and stigma retained their significance. Additionally, all of the need variables were found to be significant predictors of MHSU. Model 4 showed a predictive capacity of 67.0 % with a pseudo R of 16.4 % ($X^2=219.25$, $df=16$, $p=.000$).

As presented in Table 4.8, the significant predictors in the previous logistic regression models were entered in a final logistic regression model. These predictors included being white, education, gender, stigma, health insurance, MDE severity, perceived health status, and drug dependence. The final logistic regression model had a predictive capacity of 67.0 % with a pseudo R of 15.7 % ($X^2=209.40$, $df=8$, $p=.000$). Results from the final logistic regression model are depicted in Table 4.8.

**Model 1 results.**

In the first model, the ‘predisposing factor’ variables were included. In this model, being white, gender, and education were the significant predictors of MHSU. The results of model 1 revealed that Whites were 2.34 times more likely to use mental health services than individuals of other races/ethnicities (O.R. 2.34), those with more education were 1.13 times more likely to use treatment, and males were 45 percent less likely to use mental health services.
**Model 2 results.**

The ‘belief’ variables were added in model 2. In this model, out of the ‘predisposing variables’, being white, gender, and education retained their significance. Of the belief variables, stigma was the only significant predictor.

In model 2, whites were 2.4 times more likely than individuals of other races/ethnicities to use treatment services. The odds ratio of gender remained relatively stable; the results showed that males were 44 percent less likely to use services. The odds ratio of education also remained stable in model 2 (O.R. 1.13). In this model, young adults with more education with 1.13 times more likely than those with less education to use mental health services. Additionally, model 2 showed that those that reported the fear of stigma associated with receiving mental health treatment were 1.4 times more likely to use treatment services (O.R 1.40).

**Model 3 results.**

The ‘enabling resources’ variables, income, health insurance coverage, and being a recipient of government benefits were added in model 3. The results indicated that those variables that were significant predictors of MHSU in model 1 and model 2 remained significant in model 3. Out of the ‘enabling resources’ variables, health insurance coverage was the only significant predictor of MHSU.

In model 3, whites were 2.43 times more likely to use mental health services, males were 40 percent less likely than females to use treatment services, and individuals
with more education were 1.12 times more likely than those with less education to use services.

Stigma retained significance in model three, with the odds ratio slightly decreasing. This model showed that young adults that reported the fear of stigma associated with receiving mental health treatment were 1.37 times more likely to use mental health services.

In model 3, health insurance coverage was the only variable of the ‘enabling resources’ component that was a significant predictor of MHSU. In model 3, young adults with health insurance coverage were nearly twice as likely as their counterparts without health insurance coverage to use mental health treatment services (O.R. 1.88).

Model 4 results.

The need variables, MDE severity, having a substance dependence problem, and perceived health were added in model 4. In model 4, being white, gender, education, stigma, insurance coverage, and all of the need variables were significant predictors of MHSU.

In model 4, whites were over two and half times more likely to use treatment (O.R. 2.60), those with health insurance coverage were about twice as likely as those without health insurance to use mental health services (O.R. 2.03), those with more education were 1.12 times more likely than their counterparts to use mental health services, and males were 42 percent less likely than females to utilize treatment (O.R. 0.58). Compared to young adults with lower levels of MDE severity, individuals with
more MDE severity were one and half times more likely to use mental health services (O.R. 1.50). Further, those with a substance dependence problem were 1.32 times more likely than those without a substance use problem to use treatment (O.R. 1.32). Finally, compared to individuals with positive perceptions of their overall health, those with poor perceptions of self-health were 22 percent more likely to utilize mental health services (O.R. 0.78).

**Final model results.**

In the final model, only the variables that were significant in models 1 through 4 were included. The significant variables included in the final model were being white, gender, education, stigma, having health insurance coverage, MDE severity, having a substance dependence problem, and perceived health status.

In the final model, being white showed the strongest effect on MHSU (O.R. 2.45). Compared to other race/ethnicities (Black, Hispanic, or Other), Whites were two and a half times more likely to use mental health services (O.R. 2.45). Compared to males, females were 57 percent more likely to use services (O.R. 0.57). Young adults with higher levels of education were 1.16 times more likely to use treatment (O.R. 1.16).
Table 4.7. Saturated Logistic Regression Model: Predisposing, Enabling Resources, and Need Factors on MHSU

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
<th>Model 3</th>
<th></th>
<th>Model 4</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>Odds Ratio</td>
<td>Coefficient</td>
<td>Odds Ratio</td>
<td>Coefficient</td>
<td>Odds Ratio</td>
<td>Coefficient</td>
<td>Odds Ratio</td>
</tr>
<tr>
<td>Predisposing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>.85</td>
<td>2.34*</td>
<td>.87</td>
<td>2.40*</td>
<td>.89</td>
<td>2.43*</td>
<td>.95</td>
<td>2.60*</td>
</tr>
<tr>
<td>Black</td>
<td>-.22</td>
<td>.81</td>
<td>-.19</td>
<td>.83</td>
<td>-.23</td>
<td>.79</td>
<td>-.18</td>
<td>.84</td>
</tr>
<tr>
<td>Hispanic</td>
<td>.10</td>
<td>1.10</td>
<td>.14</td>
<td>1.15</td>
<td>.22</td>
<td>1.24</td>
<td>.25</td>
<td>1.29</td>
</tr>
<tr>
<td>Marriage</td>
<td>.11</td>
<td>1.12</td>
<td>.13</td>
<td>1.14</td>
<td>.09</td>
<td>1.10</td>
<td>.12</td>
<td>1.13</td>
</tr>
<tr>
<td>Employed</td>
<td>-.19</td>
<td>.83</td>
<td>-.19</td>
<td>.83</td>
<td>-.19</td>
<td>.82</td>
<td>-.12</td>
<td>.88</td>
</tr>
<tr>
<td>Gender</td>
<td>-.59</td>
<td>.55*</td>
<td>.13</td>
<td>.56*</td>
<td>-.52</td>
<td>.60*</td>
<td>-.54</td>
<td>.58*</td>
</tr>
<tr>
<td>Education</td>
<td>.12</td>
<td>1.13*</td>
<td>-.58</td>
<td>1.13*</td>
<td>.12</td>
<td>1.12*</td>
<td>.17</td>
<td>1.19*</td>
</tr>
<tr>
<td>Health Beliefs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stigma</td>
<td>.34</td>
<td>1.40*</td>
<td>.32</td>
<td>1.37*</td>
<td>.23</td>
<td>1.26*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitudes Towards Treatment</td>
<td>.06</td>
<td>1.06</td>
<td>.05</td>
<td>1.05</td>
<td>.04</td>
<td>1.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access/Financial</td>
<td>-.03</td>
<td>.97</td>
<td>.03</td>
<td>1.03</td>
<td>-.05</td>
<td>.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enabling Resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insurance</td>
<td>.63</td>
<td>1.88*</td>
<td>.71</td>
<td>2.03*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>.10</td>
<td>1.10</td>
<td>.09</td>
<td>1.09</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government</td>
<td>.31</td>
<td>1.37</td>
<td>.22</td>
<td>1.24</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MDE Severity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.40</td>
<td>1.50*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Substance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.28</td>
<td>1.32*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.25</td>
<td>.78*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived Health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 2 Log L Likelihood Ratio</td>
<td>2164.81</td>
<td>2148.51</td>
<td>2113.62</td>
<td>2047.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nagelkerke R Square</td>
<td>.08</td>
<td>.09</td>
<td>.12</td>
<td>.16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model Chi-Square</td>
<td>101.48</td>
<td>117.77</td>
<td>152.67</td>
<td>219.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05
As previously mentioned, stigma was the only ‘belief’ variable that was a significant predictor of MHSU. In the final model, those that identified more reasons for not receiving treatment associated with the stigma factor (fear of neighbors, job impact, fear of being committed, and confidentiality concerns) were 1.25 times more likely to use mental health services (O.R. 1.25).

Health insurance coverage was the only ‘enabling resources’ variable included in the final model. The results showed that those with health insurance coverage were about twice as likely as the uninsured to use services (O.R. 2.05).

All of the need variables were retained in the final model. Out of these variables, MDE severity had the strongest effect on MHSU. Those with higher levels of MDE severity were one and a half times more likely to utilize treatment services (O.R. 1.51). Additionally, young adults with a substance dependence problem were 1.29 times more likely than their counterparts to use mental health services (O.R. 1.29). Young adults with poor perceptions of their overall health were 33 percent more likely than those with positive self-health perceptions to use mental health treatment services (O.R. 0.77).
Table 4.8. Final Logistic Regression Model Results: Significant Predictors on MHSU

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Odds Ratio</th>
<th>95% CI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predisposing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>.90</td>
<td>2.45*</td>
<td>1.94-3.11</td>
<td>.00</td>
</tr>
<tr>
<td>Gender</td>
<td>-.56</td>
<td>.57*</td>
<td>.45-.73</td>
<td>.00</td>
</tr>
<tr>
<td>Education</td>
<td>.15</td>
<td>1.16*</td>
<td>1.03-1.30</td>
<td>.01</td>
</tr>
<tr>
<td>Stigma</td>
<td>.22</td>
<td>1.25*</td>
<td>1.04-1.49</td>
<td>.01</td>
</tr>
<tr>
<td>Enabling Resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insurance</td>
<td>.72</td>
<td>2.05*</td>
<td>1.60-2.64</td>
<td>.00</td>
</tr>
<tr>
<td>Need</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MDE Severity</td>
<td>.44</td>
<td>1.55*</td>
<td>1.37-1.76</td>
<td>.00</td>
</tr>
<tr>
<td>Substance</td>
<td>.28</td>
<td>1.33*</td>
<td>1.05-1.68</td>
<td>.04</td>
</tr>
<tr>
<td>Dependence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived Health</td>
<td>-.27</td>
<td>.77*</td>
<td>.68-.86</td>
<td>.00</td>
</tr>
</tbody>
</table>

- 2 Log L Likelihood Ratio  2062.80
Nagelkerke R Square  .15
Model Chi-Square  203.49

p < .05
Discussion

The results from the logistic regression analyses revealed that the overall model was a relatively good fit for predicting the odds of mental health services utilization among young adults aged 18 to 25 with a past year MDE ($X^2=209.40$, $df=8$, $p=.000$). In the final model, the model’s capacity to predict the odds of MHSU increased from 62.4 percent for the initial model to 67.1 percent for the final model. Additionally, the model chi-square increased from 101.48 in model 1 to 203.49 in the final model, and Nagelkerke’s Pseudo R Square also increased from .07 to .15.

Findings from this logistic regression analysis indicate that being white, being female, having more education, having concerns about the stigma associated with mental health treatment, having health insurance coverage, having more MDE severity, having a substance dependence problem, and having poor perceptions of self-health increased the odds of mental health services utilization among young adults with a past year MDE.

Chapter Four Summary

The sample used in the study was comprised of 1711 young adults, aged 18 to 25, who were classified as having experienced a major depressive episode (MDE) in the 12 months prior to the interview. Individuals in the sample ranged in age, from 18 to 25 years, with an average age of 21. Of the total young adults in the sample, 69 percent were female and 31 percent were male. The majority of the individuals were white (67.3 %), had never married (82.5 %), and were employed (68.6 %). Over half of the sample were either high school graduates (34.3 %) or had completed some college (34.2 %). The
majority of young adults in the sample reported an annual income of either less than $20,000 (37.9 %) or $20,000 to $49,999 (33.4 %). Additionally, nearly three-fourths (71.8 %) of the respondents had health insurance coverage, and nearly one-fourth (24.0 %) received assistance from government programs. The majority of the individuals’ MDE severity was either moderate (29.1 %), severe (46.2 %), or very severe (46.2 %). The majority of individuals in the sample (74.1 %) were not dependent on substances, perceived their health to be good (30.8 %), very good (37.7 %), or excellent (19.1 %), and had not received any mental health treatment (62.4 %).

The research question guiding the study was: What are the factors that determine the likelihood that young adults (aged 18 to 25 years) with a past year MDE will use mental health services? The Pearson’s r correlation was used to analyze the bivariate relationships between the variables. Logistic regression analysis was used to test the hypothesis that predisposing, enabling, and need factors will influence the extent to which mental health services are utilized by young adults, aged 18 to 15, with a major depressive episode in the past year. Overall, there were numerous significant relationships between the independent variables. However, there was no perfect multicollinearity, which is a requirement that must be met in order to use logistic regression analyses.

The study met all of the assumptions of logistic regression. The three assumptions of logistic regression are as follows: (1) perfect multicollinearity does not exist, (2) all irrelevant predictors are eliminated from the model, and (3) the independent variables are measured at the interval, summative response scale, or ratio level (Meyers et
In the study, the correlation analyses revealed the absence of perfect multicollinearity. Further, the logistic regression model building included all predictors relevant to MHSU and excluded the variables that did not have an effect on the dependent variable. All variables included in the model were dichotomous or interval level variables. In the study, the dependent variable, mental health services utilization (MHSU) is a dichotomous variable coded 0 (no MHSU) and 1 (utilization of mental health services).

The results of the final logistic regression model showed that compared to other races/ethnicities, Whites were two and a half times more likely to use mental health services (O.R. 2.45). Compared to males, females were 57 percent more likely to use services (O.R.0.57). Young adults with higher levels of education were 1.16 times more likely than those with less education to use treatment (O.R. 1.16). Those that identified more reasons for not receiving treatment associated with the stigma factor (fear of neighbors, job impact, fear of being committed, and confidentiality concerns) were 1.25 times more likely to use mental health services (O.R. 1.25). Those with health insurance coverage were about twice as likely as the uninsured to use services (O.R. 2.05).

Those with higher levels of MDE severity were one and a half times more likely to utilize treatment services (O.R. 1.51). Additionally, young adults with a substance dependence problem were 1.29 times more likely than their counterparts to use mental health services (O.R. 1.29). Young adults with poor perceptions of their overall health were 33 percent more likely than those with positive self-health perceptions to use mental health treatment services (O.R. 0.77).
The Likelihood Ratio Test (denoted \(-2\text{LL}\)) and the Omnibus Tests of Model Coefficients (Model Chi-Square) were used in this study to assess the significance or validity of the model. The results from the logistic regression analyses revealed that the overall model was a relatively good fit for predicting the odds of mental health services utilization among young adults aged 18 to 25 with a past year MDE \((X^2=209.40, df=8, p=.000)\).
Chapter Five: Summary of Study

Chapter Introduction

This chapter provides a general summary of previous chapters. It also presents the conclusions of the study, describes the study’s limitations and contributions, and provides recommendations for future research and practice. In this chapter, the background information, which is relevant to the issue of young adults and mental health services utilization (MHSU), is first summarized. An overview of the theoretical foundations of the study and the review of literature, which is included in chapter two, is then provided, followed by a summary of the study’s methodology and data analyses results. Next, the overall conclusions and limitations of the study are presented. This chapter concludes with recommendations for future practice and research.

Young Adults and MHSU

Young adults are America’s future leaders, workers, and parents who face undue burden and stress due to a lack of treatment for behavioral health problems. Every year, a large proportion of these young adults experiences a major depressive episode (MDE) (Office of Applied Studies, 2008), which is defined as a period of at least two weeks during which an individual experiences “depressed mood or loss of interest accompanied by at least four additional symptoms of depression” (American Psychological Association, 1994, p.317). However, young adults underutilize mental health treatments that have been shown to be effective in reducing depressive symptoms (Andrews et al.,
Depression during young adulthood increases vulnerability and can impact healthy adult development (Reinherz et al., 1999). When youth are emerging into adulthood while experiencing mental health problems, such as MDEs, the challenges of normal developmental tasks are intensified. Depression in young adulthood has been linked to problems in psychosocial functioning (Reinherz et al., 1999; Gotlib et al., 1998), and increased risk for substance abuse disorders, co-morbid psychopathology, and suicidality (Kessler et al., 2003).

Depression is often recurring, and should be treated in a proactive manner as a chronic illness through case management, psychotherapy, and pharmacotherapy (Andrews et al., 2000; World Health Organization, 2009). Effective mental health treatment may be used as a tool to intervene, facilitate healing, and prevent further negative consequences, but young adults must first have access to treatment and utilize mental health treatment services.

Social workers, the largest group of mental health service providers (National Association of Social Workers, 2006; Bureau of Labor Statistics, 2009), along with other mental health professionals, can effectively work to reduce the burden of untreated major depressive episodes among young adults by first understanding the factors specific to young adults that influence mental health services utilization (MHSU). Professions, such as social work, that strive for social justice, seek to alleviate the burden of oppressed populations and attempt to ensure that vulnerable populations have access to needed
resources, must adopt a bio-psycho-social approach in order to understand the barriers
to and factors that facilitate equality in behavioral healthcare. The field of social work
provides a unique person-in-environment perspective (Council on Social Work
Education, 2001) perspective that may be used to conduct research in the area of young
adults’ mental health services utilization. Social work’s comprehensive approach to
understanding behavior may be employed in research activities that seek to alleviate the
burden of young adults through increasing the knowledge base in order to inform policy,
outreach, and treatment.

**Purpose of Study**

The purpose of the study was to identify the factors that determine MHSU by
young adults, aged 18-25, with a past year MDE. The study was guided by the following
research question: “What are the facilitating factors and barriers to mental health services
utilization among young adults aged 18 to 24 who experienced a major depressive
episode in the past year?”

**Theoretical Foundation**

Social work’s research approaches to explore and understand the behavior of
mental health services utilization must account for multiple factors within a person’s
environment along with an individual’s personal characteristics (Ashford et al., 1997).
Andersen (2001) points out that the environment, which include societal determinants
and elements of the health services system, impact individual determinants of services
utilization. From this ecological systems perspective, a person’s behavior is influenced
by the interaction that the individual has with each component within the individual’s
ecosystem.
In the study, the Behavioral Model of Health Services Utilization (BHSU) (Andersen, 1995) was used as an overarching model. The Theory of Reasoned Action was used to expand on the theoretical understanding of the relationship between cognition and behavior in the BHSU.

Andersen’s behavioral model of health services utilization (BHSU) (Andersen, 1995) uses a systems perspective which incorporates an array of environmental, provider, and individual-related variables linked to individuals’ decisions to utilize treatment (Phillips et al., 1998). To date, the BHSU model is the most used and well known model of treatment utilization (Goldsmith et al., 2002). Many cross-sectional research studies apply the BHSU model to investigate predictors of mental health services utilization among various populations (Albizu-Garcia, 2001; Barksdale et al., 2009; Diala et al., 2000; Elhai et al., 2006; Leaf et al., 1986; Ojeda et al., 2008; Rabinowitz et al., 1999; Wu et al., 2007).

**BHSU Model**

The BHSU includes the following three categories of predictors of health services utilization: predisposing factors, enabling resources, and need/illness.

The pre-disposing factors include demographic, social structure, and health belief variables. According to Andersen et al. (1973), demographic characteristics may not be a reason why individuals use services, however, certain demographic characteristics, such as age and gender, can predict which individuals are more or less likely to use services. Social structure characteristics indicate an individual’s status in society and are measured by variables such as race, employment, and education (Andersen et al., 1973). Andersen and Davidson (2001) state that “social factors determine the status of a person in the
community as well as his or her ability to cope with presenting problems and command resources to deal with those problems” (Andersen et al., 2001, p.7). The third component of ‘pre-disposing characteristics’, ‘beliefs’, indirectly impact the individual’s propensity to use services. Andersen and Davidson (2001) define health beliefs as “attitudes, values, and knowledge people have about health and health services that can influence their subsequent perception of need and use of health services” (Andersen et al., 2001, p.7).

The means by which individuals can satisfy the need for treatment are referred to as ‘enabling resources’ (Andersen et al., 1973). ‘Enabling resources’ may be analyzed at the family/individual level, and measured by variables such as health insurance coverage, income, or other payments (Andersen et al., 1973).

The ‘Need/Illness’ component of the BHSU is the most direct link to utilization (Andersen et al., 1973), and includes ‘perceived health’ and ‘evaluated health’. ‘Perceived health’ is described as a social phenomenon that may be explained by health beliefs and social structure characteristics (Andersen et al., 2001), and is often measured by self-reports of the condition of the individual’s overall health (Andersen et al., 1973). The ‘evaluated health’ of the individual is defined and measured by professional diagnosis of the symptom severity (Andersen et al., 1973).

**Additional Theoretical Interpretations**

Andersen (1968) explained that the attitudinal component included in the BHSU model (health beliefs and perceived need/health) was theoretically grounded in social-psychological models that connected an individual’s perceptions towards his or her own symptoms, attitudes toward services, knowledge about the illness, and an individual’s
motivation to seek treatment. The Theory of Reasoned Action (TRA) was used in the study to further explain the impact of the ‘health beliefs’ component of Andersen’s BHSU model.

TRA suggests that attitude, the general negative or positive views of the behavior, along with subjective norms, or perceived social pressure, impacts an individual’s intention to participate in the behavior and ultimately impacts the action itself (Ajzen et al., 1986). While Ajzen and Fishbein (1970) provide a detailed explanation in TRA of the interactions between cognitive factors associated with behavioral outcomes, they also acknowledge the complexity of the attitudinal-behavioral relationship, and believe that attitudes are only one among several determinants of behavior (Ajzen et al., 1970).

Andersen’s model of behavioral health services utilization was selected for the study because it uses a systems perspective which incorporates individual attitudes and beliefs, as well as an array of other environmental, provider, and individual-related variables that are linked to individuals’ decisions to utilize treatment (Phillips et al., 1998). This system based perspective fits well within the person-in-environment perspective of social work in that it acknowledges the importance of societal influences, individual characteristics, and internal cognitive factors, each of which play a role in determining MHSU.

**Literature Review**

The BHSU was used as an organizing framework to structure the study’s literature review. The literature review was guided by assumptions within developmental theory which suggest that the transition to adulthood is a unique stage of life and should be differentiated from adolescence and adulthood. Under this assumption, it was
understood that MHSU factors may vary between young adults and other age groups. Therefore, the review focused on the few studies that investigate MHSU among young adults. Due to the limited amount of MHSU literature specific to the young adult population, the literature review elicited evidence from studies on adult and adolescent populations to gain a broader understanding of the MHSU process.

Overall, the literature supported Andersen’s model, in that the evidence found within the literature, suggested that certain pre-disposing, enabling resources, and need factors influence mental health services utilization. Studies on individual determinants to MHSU show that pre-disposing factors, such as, beliefs and attitudes toward treatment (Diala et al., 2000; Jorm et al., 2006; Kessler et al., 2001; Leaf et al., 1986), social demographics (Alegria et al., 2008; Ayalon & Young, 2005; Biddle et al., 2004), enabling resources (Diala et al., 2008; Gadalla, 2008; Hauenstein et al., 2007), and need factors (Diala et al., 2000; Jorm et al., 2006; Kessler et al., 2001; Voorbees et al, 2005) contribute to MHSU.

Methodology

Data Source

The data used in the study were derived from the 2007 National Survey on Drug Use and Health (NSDUH), a national level survey of the non-institutionalized, civilian population age 12 and older. The NSDUH is conducted annually through the Substance Abuse and Mental Health Services Administration’s Office of Applied Studies, an agency within the United States Department of Health and Human Services.

Since 1971, the NSDUH has been a primary source of statistical information on illegal drug use by the general U.S. population aged 12 and older (Office of Applied
Studies, 2008). Data on mental health services utilization has been collected through the NSDUH since 2000. In 2004, the NSDUH began collecting data from the general U.S. population on the prevalence of major depressive disorders, the level of impairment caused by depressive disorders, and treatment utilization for depression (Office of Applied Studies, 2008). The NSDUH mental health measures include items derived from the National Comorbidity Survey Replication (NCS-R), which collects data on mental disorders among the U.S. population.

The NSDUH measured Major Depressive Episodes (MDE) through questions that were constructed from the diagnostic criteria of major depressive episodes in the DSM-IV (APA, 1994). These questions were modified from the depression portion of the National Comorbidity Survey Replication (NCS-R; Harvard School of Medicine, 2005). Previous studies on the reliability and validity studies of the instruments used in the study revealed acceptable kappa scores (see Wittchen, 1993).

**NSDUH 2007 Sampling Procedures**

The 2007 NSDUH employed a four-staged stratified sample of all 50 states and the District of Columbia and was designed to provide an adequate sample in each state that allowed for small area estimation (SAE). The first sampling stage stratified the states into 900 regions or stratas, which were based on census tracts, geographical areas defined by the 2000 census. Small states were divided into 12 regions and large states were divided into 48 regions. In each region, probability sampling procedures were conducted that were proportionate to the region’s size.

A national address list of 192,092 was created from a list of addresses in each region. Of the total addresses selected, 158,411 were designated as eligible sample units.
Interviewers then randomly selected sample persons from the sample units by means of a handheld computerized device that was programmed to randomly select the individuals from the households. Interviewers entered demographic data of all household members into the handheld computerized device. The handheld computer then selected zero to two of the household’s members for an interview.

The total sample included 85,774 persons residing in households and in non-institutional group homes, and includes those on military bases (excluding active duty military members). The final sample included 67,870 persons, and is a representative sample of the non-institutionalized general U.S. population.

Data Collection Procedures

The interview process utilized audio computer-assisted self-interviewing (ACASI) and computer assisted personal interviewing (CAPI) methods to assist respondents in completing the interview. During the initial home visit, the interviewers request to conduct the interview with the selected household member in a private area. First, the field interviewer (FI) used the CAPI methods and read the questions that appeared on the computer screen. The FI then entered the responses into the computer. To ensure confidentiality, the names of the respondents were not recorded with the data. Once the interview was completed, the respondent received an incentive payment of $30.00 cash.

Sample Selection Criteria for Present Study

The sample used in the study was drawn from the larger NSDUH 2007 sample included in the public use files (N=55,435), and was selected using purposive sampling procedures. For a case to be included in the study’s sample, the individual must have
been between the ages of 18 to 25 years and experienced a major depressive episode (MDE) within the 12 months prior to the interview. The selection criteria resulted in a final sample of 1,711 young adults (aged 18 to 25) with a past year MDE.

**Variables: Conceptual Definitions and Measurement**

**Dependent Variable: MHSU**

The dependent variable, mental health services utilization (MHSU), defined by NSDUH as, “treatment or counseling for any problem with emotions, nerves, or mental health in the 12 months prior to the interview in any inpatient or outpatient setting, or the use of prescription medication for a mental or emotional condition” (Substance Abuse and Mental Health Services Administration, 2006, p.1), was a dichotomous variable coded 1 for MHSU and 0 for no MHSU. The MHSU variable was created from three items that asked respondents about the use of outpatient, inpatient, or prescription medication for nerves, emotions or mental health in the past year.

**Independent Variables**

**Predisposing factors.**

‘Predisposing factors’ exist prior to the individual coming into contact with the health system, and include for example, social demographic variables and health belief variables (Andersen, 1973).

**Socio-demographics.**

NSDUH classifies race/ethnicity by the respondent’s self-report of ethnic and racial identification or origin. In the study race/ethnicity categories were collapsed into the following four categories: White (1), Black (2), Hispanic (3), and Other (0).
Marital status, whether or not the respondent was married, divorced, never married, or widowed at the time of the interview, was collapsed into two categories: ever married (1) and never married (0). Employment, whether or not the respondent was currently working at a job either full time, part-time, or not at all at the time of the interview, was a dichotomous variable coded 1 for employed and 0 for unemployed. Gender referred to the sex of the respondent, either male (1) or female (0). Education, a measure of the highest year or grade of school completed by the respondent, was classified into the following categories: Less than high school (1), high school graduate (2), some college (3), college graduate (4).

Beliefs.

Beliefs were measured by a combination of items that asked those individuals who reported an unmet need for treatment to identify reasons why they did not receive treatment. The individual then selected one or more reasons from 15 possible responses. A series of factor analyses using Varimax rotation were conducted on these data, which resulted in a final solution with three components. The components identified through the factor analyses were subjected to reliability analysis testing. Reliability analyses tests revealed acceptable Cronbach’s Alpha scores ($\alpha=.50-.73$). The final three components were labeled: ‘stigma’ ($\alpha=.73$), ‘attitudes toward treatment’ ($\alpha=.59$), and ‘finances/access’ ($\alpha=.50$) (Table 3.2).

Items that loaded on the three components in the factor analyses were used to compute three additive variables (‘stigma’, ‘attitudes toward treatment’, and ‘finances/access’). Responses range from 0 (zero items selected) to 4 (four items selected).
‘Stigma’ referred to the respondent not receiving mental health treatment because of fear that society would impose negative sections on the individual for receiving mental health treatment. ‘Attitudes toward treatment’ referred to a respondent holding a negative view toward mental health treatment. ‘Finances/Access’ referred to a respondent not receiving treatment because of beliefs related to finances or not knowing where to get treatment.

**Enabling resources.**

Variables under ‘enabling resources’ describe personal and community level resources that assist an individual in attaining health services, and are measured by income, health insurance coverage, and receipt of other public benefits.

Income was the amount of financial earnings or government assistance paid to the respondent’s household. The ‘total family income’ variable was a categorical variable that classified income into the following categories: less than $20,000 (coded 0), $20,000 to $49,999 (coded 1), $50,000 to $74,999 (coded 2), and $75,000 or more (coded 3).

Health insurance coverage, whether or not the respondent was covered by health insurance at the time of the interview, was coded 1 (yes), if the respondent was covered by private insurance, Medicare, Medicaid/Chip, Champus, ChampVA, VA, military, or other insurance, or 0 (no), if the respondent was not covered by any of the previously stated types of insurance.

‘Other public benefits’, whether or not the respondent was a recipient of Supplemental Security Income (SSI), food stamps, cash or non-cash aid, was coded 1 (yes), if the respondent was a recipient of SSI, food stamps, cash or non-cash assistance, and 0 (no), if the respondent was not a recipient of governmental assistance.
Variables in the ‘need’ component address an individual’s ‘perceived need’, that is, how they viewed their own health status, and an individual’s ‘evaluated need’, which was measured by a professional healthcare provider (Andersen, 1995).

‘MDE severity’, the level of impairment caused by MDE symptoms, was measured by MDE symptomology variables and the Sheehan Disability Scale (SDS). ‘MDE severity’ was an overall measure of interference in an individual’s life across the SDS domains. MDE symptoms were measured by NSDUH questions that were based on DSM-IV criteria.

MDE symptom questions in the NSDUH identified the presence of the following nine symptoms associated with MDE: sadness, lost of interest in pleasurable activities, changes in appetite or weight, sleep problems, restlessness or lethargy, feelings of worthlessness, inability to concentrate or make decisions, and thoughts or plans of suicide. A response of yes to the presence of the MDE symptoms was coded 1 and a no response was coded 0. These responses were then assessed over the four domains classified in the SDS.

In the NSDUH 2007, the SDS assessed impairment in three role domains or major life activities: (1) Home management, (2) work, (3) social life, and close relationships (4). Each item employed an 11-point scale ranging from none (0), mild (1-3), moderate (4-6), severe (7-9), to very severe (10). Severe impairment was then classified by scores of 7 or more in at least one of the role domains. In the study, ‘MDE severity’ was coded: none (0), mild (1), moderate (2), severe (3), and very severe (4).
Substance dependence referred to any past year abuse of or dependence on any illicit drugs or alcohol. NSDUH used the DSM IV (American Psychological Association, 1994) criteria of substance dependence to classify a respondent as dependent. Substance dependence differs from substance abuse in that dependence involves the physiological and psychological impact of withdrawal and tolerance (NSDUH, 2007). Substance dependence was coded 1 (yes), if the respondent met criteria for substance dependence in the past year, and a 0 (no), if the respondent did not meet substance dependence criteria.

‘Perceived health’, a self-report of the condition of the respondent’s overall health, was categorized into the following: excellent (coded 3), very good (coded 2), good (coded 1), and fair/poor (coded 0).

**Data Analyses**

Bivariate and multivariate statistical tests were used to analyze the data. Relationships between variables were tested using the Pearson $r$ correlation. Multivariate analyses were conducted using logistic regression. Logistic regression was used to predict the probability that a case would belong to the treatment seeking group. In the logistic regression models, the dependent variable, MHSU, was dichotomous, and the predictors of MHSU were dichotomous or interval level variables. The following statistical tests were used in the study to assess the significance or validity of the model: the Likelihood Ratio Test (denoted -2LL), the Nagelkerke Psuedo $R^2$, and the Omnibus Tests of Model Coefficients.

The Likelihood Ratio Test (denoted -2LL) and the Omnibus Tests of Model Coefficients (Model Chi-Square) were used in this study to assess the significance or
validity of the model. The results from the logistic regression analyses revealed that the overall model was a relatively good fit for predicting the odds of mental health services utilization among young adults aged 18 to 25 with a past year MDE ($X^2 = 209.40, \text{df}=8, p=.000$).

Conclusions of the Present Study

This section presents conclusions based on the data analyses results from this study. The design of the present study, secondary analyses of cross-sectional survey data, does not allow for the interpretation of causation, nor do the statistical analyses procedures used in the study produce evidence of directionality. (Limitations of the study and limitations to the interpretation of the study’s findings are discussed in a following section.) However, these findings may be used to gain a broader understanding of MHSU and the socio-behavioral phenomena occurring within the treatment system.

The findings from the study present a snapshot of young adults’ MHSU in the U.S. and also reflect socio-economic disparities that exist in the U.S. mental health treatment system as a whole. Andersen (1995) describes the process of using the BHSU model to determine whether or not the access to health services is equitable or inequitable. This judgment is made according to the analyses of the variables included in the research model. That is, whether or not access to treatment is considered to be ‘equitable’ is determined by which of the predictors of utilization, included in the model, are more dominant (Andersen, 1995). Further, in the research studies that utilize the BHSU model, if the data analyses results show that the variance of utilization (the dependent variable) is primarily accounted for by basic demographics or need variables, then the access to treatment is deemed to be ‘equitable’ (Andersen, 1995). However, if
the variance in utilization is primarily accounted for by social structure variables, such as education or race, health beliefs, or enabling resources (e.g. income, health insurance coverage) then access to treatment is said to be ‘inequitable’ (Andersen, 1995).

The data analyses results from the study show that whites, those with more education, and those with health insurance coverage had increased odds of utilizing mental health services. Overall, studies consistently show that non-Hispanic Whites are more likely to receive mental health treatment than non-Hispanic Blacks and other minority populations (Alegria et al., 2008; Ayalon & Young, 2005; Diala et al., 2000; Gadalla, 2008; Goldstein et al., 2006). The literature also shows that individuals with more education (Edlund, Unutzer, & Curran, 2006; Karlin, Duffy, & Gleaves, 2008; Mojtabai & Olfson, 2006) and health insurance coverage (Diala et al., 2008; Hauenstein et al., 2007; McAlpine & Mechanic, 2000) are more likely than their counterparts to use mental health services.

According to Andersen et al. (2001), social structure factors (e.g. education, employment, and race/ethnicity) shape the position of an individual in society and their capability to deal with problems and access resources to cope with those problems. The findings in this study and previous research, which indicate that social structure variables (education and race) and health insurance coverage (enabling resource) significantly impact the odds of young adults’ MHSU, may indicate a level of inequitable access to treatment among young adults with a past year MDE. However, these findings must be considered in the context of the other variables included in this model and in previous research studies.
As previously described, Andersen (1995) suggests that in research studies that utilize the BHSU model, if the data analyses results show that the variance of utilization (the dependent variable) is primarily accounted for by basic demographics or need variables, then the access to treatment is deemed to be ‘equitable’ (Andersen, 1995).

The finding from this study which shows that MDE severity significantly increases the odds of MHSU is consistent with previous research (Kessler et al., 1998; Rhodes et al., 2002; Rueter, Holm, Burzette, Kim, & Conger, 2007). According to Andersen (1995), this finding may indicate that there is at least some level of equitable access to mental health services for this population. However, while MDE severity significantly increased the odds of MHSU among this population in the present study, the odds effect of MDE severity was not as strong as the effect of being white.

The present study also found that another indicator of need, the presence of a substance dependence problem, significantly increased the likelihood of MHSU. The relationship between substance dependence and MHSU is controversial in the literature. Some studies show that those with the presence of a substance use disorder have a decreased likelihood of mental health services utilization (Mojtabai, 2009; Rueter et al., 2007). However, other studies indicate that individuals with a substance use problem were more likely to report a need for mental health treatment (Edlund et al., 2006; Johnson, Stiffman, Hadley-Ives, & Elze, 2001), which has been linked to MHSU (Edlund et al., 2006). The finding from this study, which shows that individuals with a substance dependence problem have increased odds of MHSU, may indicate that the specific relationship between MDEs and substance dependence influences MHSU among young adults.
In the present study, the stigma factor, which included fear of neighbors, job impact, fear of being committed, and concerns over confidentiality increased the likelihood of MHSU. This finding is inconsistent with the literature. Previous studies have found that individuals who report fear of stigma are less likely to use mental health services (Hoyt, Conger, Valde, & Weihs, 1997; Kushner & Sher, 1989).

There are several possible explanations of the finding that young adults with the fear of stigma have increased odds of using mental health services. One possible explanation involves the measure of stigma used in this study. Stigma is a complex construct that may not have been adequately measured by the NSDUH 2007 items used in the present study. Further, the operationalization of stigma in this study needs further investigation. Second, it may be that young adults’ need for mental health treatment outweighs the fear of stigma associated with MHSU. In deciding whether or not to use mental health services, young adults who report high levels of need may decide that their illness level is greater than their fear of the stigma attached to receiving treatment.

The present study also found that individuals’ perceived health influenced the likelihood of MHSU. Perceived need/health refers to, “how they experience, and emotionally respond to, symptoms of illness, pain, and worry about their health condition (is a condition judged of sufficient importance and magnitude to seek professional help?)” (Andersen et al., 2001, p.8). Findings from this study revealed that poorer perceptions of overall health increased the odds of MHSU, which is consistent with Andersen et al.’s (1973) theory that individuals must first perceive themselves to have symptoms, which are in need of treatment, before they will use treatment services.
Finally, this study found that being female significantly increased the odds of MHSU. This finding is also consistent with previous research (Biddle, Gunnell, Sharp, & Donovan, 2004; Gonzalez, Alegria, & Prihoda, 2005; Leaf et al., 1986; Rhodes et al., 2002; Swartz, Wagner, Swanson, Burns, George, & Padgett, 1998). Although these findings suggest that the impact of gender and treatment use exists, some researchers question whether reporting rates reflect an effect of societal gender norms (Galdas et al., 2005; Moller-Leimkuhler, 2002; Leaf et al., 1986; Rhodes et al., 2002). In short, it is thought that gender socialization results in a belief that it is acceptable for women to seek help, but it is not acceptable for men to admit they need assistance (Addis et al., 2003).

The present study did not confirm previous research which shows that attitudes toward treatment or income level among this sample increased the odds of MHSU. This may be an indication that income and attitudes toward treatment with a past year MDE are not significant predictors of MHSU by young adults with a past year MDE. As previously stated, the NSDUH items used in this study to measure attitudes toward treatment and stigma may not be an adequate measurement of these constructs.

**Limitations of the Present Study**

The limitations of this study and the limitations to the interpretation of this study’s findings are described in this section. This study employed secondary analyses of data derived from a cross-sectional survey and is bound by the limitations associated with secondary analysis and cross-sectional survey research. This study is also subject to the limitations which are specific to the study.

Secondary analyses are limited to the measures included in the survey, which means that certain variables which may influence MHSU cannot be tested (Vingilis et al.,
In the study, variables that may be critical determinants of MHSU could not be analyzed. These possible determinants included the sample participants’ previous treatment history, social support network, specific mental health diagnoses other than MDE, and age of MDE onset. Further, the NSDUH 2007 public use data file does not give information on the individual’s region of residence. Therefore, community level access variables could not be assessed.

Along with the limitation of the exclusion of additional potential predictors of MHSU, the study has limitations associated with cross-sectional survey research. For example, NSDUH relies on self reports of respondents, which depend on memory recall of activities and feelings within the past twelve months. Self reports may be influenced by the respondent’s desire to answer questions that would be socially desirable and may not be completely accurate (Barkin et al., 2003; Mojtabai et al., 2006), which may lead to underreporting of depression symptoms and treatment (Hauenstein et al., 2007). Additionally, cross-sectional survey design research cannot explain causal relationships between predictor variables and MHSU (Mojtabai et al., 2008; Karlin et al., 2008; Lewinsohn et al., 2003; Vanhuesden et al., 2008; Cooper et al., 2003).

There are some cautions regarding the generalizeability of this study’s findings. First, while the NSDUH sample is a nationally representative sample, some important populations such as institutionalized and homeless outside of shelters were not included (Mojtabai et al., 2006), therefore, findings derived from any secondary analysis of NSDUH data can only be generalized to the populations that were surveyed in NSDUH and to the populations that represent the samples that were used in the studies. The present study used a sub-sample of the NSDUH’s larger sample, which included young
adults, aged 18 to 25, with a past year MDE, therefore, the findings from this study can only be generalized to young adults (aged 18 to 25) in the U.S. civilian population with a past year MDE.

The measurement of the beliefs scales and the lack of analyses conducted on the age variations within the sample are other limitations specific to this study. As previously stated, while the reliability of the factor analyses that resulted in the creation of the attitude scales used in this study revealed acceptable Chronbach’s alpha levels, the NSDUH items used to create the scales may not be an adequate measurement of the participant’s attitudes towards treatment or their fear of stigma.

**Contributions of the Present Study**

Contributions of this study are related to the study’s data analyses results, and the impact of those findings on future professional activities and research. Understanding the findings from this study may inform efforts geared towards transforming the public health system and informing public policy, may serve as a foundation for developing evidenced based prevention and awareness campaigns that seek to increase mental health services utilization (MHSU), may be used to develop social work curriculum, and may assist efforts to reduce the burden of depression among young adults in the U.S..

The findings from this study may be used to help professionals strategically target efforts to influence those identified factors or barriers to MHSU that are deemed to be ‘mutable’ factors, or factors that can be changed or influenced. ‘Mutability’, the degree to which a factor within the research model can be altered, highlights areas where behavior change can be promoted by interventions or policy (Andersen, 1995). Low mutability variables, such as demographics and social structure factors are viewed as
variables that cannot be easily manipulated or changed. In contrast, health beliefs are considered to have a medium degree of mutability, which suggests that there is at least some possibility that public health educational campaigns, for example, which are geared towards changing individuals’ health beliefs, may succeed in transforming individual’s perceptions toward treatment and their illness. According to Andersen (1995), enabling factors are considered to have a high degree of mutability and may offer entry points to influence individuals’ use of health services. Andersen (1995, p.5) argues, “… people’s perceived need for care may be increased or decreased through health education programs, changing financial incentives to seek services, and so on”.

Direct practice social workers, public health social workers, community organizers, and policy advocates also may use the evidence from the study to guide outreach and awareness campaigns that draw young adults in need of mental health services into treatment. Further, social workers or helping professionals, who practice within college campus counseling agencies, may collaborate with college campus leaders to build campus-wide outreach and awareness activities that target barriers identified in the study and build on the identified factors that facilitate MHSU by this age group.

The review of literature for this study found no studies within social work research literature that addressed young adult mental health services use within the U.S. population. This study adds a unique study on young adults’ MHSU to the current social work research knowledge base by building on previous findings from studies conducted in health services research fields which investigated young adults’ MHSU. Finally, this study also adds to the social work knowledge base by applying a well known model of
health services utilization (Andersen, 1995) to explore data derived from a sample representative of the U.S. young adult population.

Ultimately, this study helps social workers to fulfill their ethical responsibilities by providing knowledge that may be used to: confront social injustice, advocate for equality in mental health treatment, increase professional competence, and help develop effective advocacy and reform efforts and interventions. Evidence from this study may be used to help guide numerous aspects of direct and indirect social work practice. Public health social workers and other social work or helping professional practitioners that practice directly with the young adult population in clinical settings may use findings from this study to guide relationship building with clients in order to elicit client participation in the therapeutic process.

Knowledge about the barriers and facilitating factors to mental health treatment by young adults may be used to develop social work curriculum used to train future social workers in general practice, community organizing and outreach, and public health. Public health social work activities often use outreach and awareness campaigns to educate the public on specific health issues. Evidence from this study may be used to develop educational campaigns based on the understanding that education, gender, race/ethnicity, beliefs, insurance coverage, substance dependence, and symptom severity are significant predictors of MHSU among young adults.

Findings from this study may be used to inform mental health policy. As previously described, parity legislation and the recent healthcare reform bill may be progress, but does not ensure treatment utilization by young adults. Mental health policy must be informed by empirical research, such as this study, that approaches mental health
utilization from a perspective that considers structural, societal, and psychosocial barriers to treatment.

This study offers unique contributions for the theoretical foundations and research designs of future studies on MHSU. Future theoretical foundations for social work research may draw from the framework and theory used in this study as well as from the study’s research design. Additionally, the empirical evidence produced from this study may be used to modify existing theories or build new theories specific to the issues of mental health treatment utilization by the young adult population. The research design used in this study as well as the findings produced from this study may be used to build future studies that focus on this important topic.

The conceptual and theoretical foundation of this study is drawn from theories that unite the psycho-social elements of help seeking behavior. Using a modified form of Andersen’s BHSU model (1995) and drawing from social psychology and systems theories establishes a new way to understand factors that impact young adults’ mental health treatment utilization.

This study adds to the knowledge base on MHSU specifically among the young adult population. While, previous studies confirm that young adults are less likely than other age groups to utilize mental health treatment (Substance Abuse and Mental Health Services Administration, 2008; Wang et al., 2005), and have identified various factors that influence whether or not young adults utilize mental health treatment, very few studies focus specifically on factors that are specific to the young adult population. Additionally, those studies that do focus on young adults may fail to utilize national level data sets that are representative of the general young adult population. Most studies on
young adults MHSU utilize small sample sizes that are drawn from populations, such as university students, which may not be generalizeable to the broader U.S. young adult population. This study uses a national level data set that a validated data set, representative of the U.S. general population. Therefore, the findings from this study may be generalized to other young adults in the U.S. civilian population between the ages of 18 to 25 years with a past year MDE.

**Recommendations for Research and Practice**

**Recommendations for Future Research**

In order to overcome the research and interpretation limitations described in previous sections, it is critical that researchers using secondary data analysis of large scale data be familiar with the limitations of these methods and build in strategies that strengthen the study. Additionally, researchers should use bio-psycho-social research models that are inclusive of variables found in previous research to influence the MHSU process. While the application of models such as the BHSU are critical to investigate the full picture of MHSU, studies should also employ precise definitions of variables in order to adequately measure the factors that predict MHSU.

Future research studies should further analyze how the independent variables used in the study contribute to the specific type of mental health services that are used. For example, previous research indicates that education level may impact the type of treatment sought, that is, whether the mental health treatment is delivered through private or public services (Wang, Berglund, & Kessler, 2000). Findings suggest that individuals with private insurance coverage are more likely than individuals with public insurance
coverage to seek mental health treatment from specialty mental health treatment services (Diala et al., 2008; McAlpine & Mechanic, 2000).

Future research models should account for variables not measured in this study, such as, community/regional level variables that impact access treatment, age variation within the 18 to 25 year old age group, previous treatment history, and social support networks. Future research should account for participants’ specific mental health diagnoses and apply a thorough analysis of the influence of mood symptoms, level of impairment across domains, and other cognitive factors that influence MHSU (Leaf et al., 1996; Mojtabai et al., 2008).

By employing comprehensive research models that account for the bio-psycho-social factors that influence young adults’ MHSU future research may build upon this study and continue to influence practice and policy work that decreases disparities in mental health treatment utilization. Finally, future research may replicate this study’s analyses on slightly older adults age 25 to 35 to see what might change within the context of the aging process.

**Recommendations for Practice**

The unequal distribution of treatment services to young adults and the disproportionate burden that depression places on this age group are social justice and ethical issues relevant to the social work profession. Social work and interdisciplinary researchers need to adopt the issue of young adults’ mental health services utilization. Social work researchers need to continue to investigate MHSU by the population and give a voice to the young adults that are in need of mental health treatment.
The reorganization of mental health systems and mental health policy are needed to increase the mental well-being of young adults. However, the identification of gaps in the mental health system and policy explain only part of a broader picture.

According to Andersen (1991), when studying utilization, one ultimately aims to use the research in the context of policy analysis in order to impact health services use. In the current political context, millions of young adults lack health care coverage (Holahan et al., 2008; Roberts & Rhoades, 2008), and in this study health insurance was found to be a significant predictor of MHSU. The lack of healthcare insurance and the increased likelihood of risk taking behavior establish a foundation of vulnerability and burden for young adults, which social work and helping professions research and practice must address.

Historically, young adults have been overlooked in the mental health treatment system and have not been a priority population in the development of mental health policy (Grob, 2001). Effective mental health treatment can help young adults address the problems associated with major depressive episode, but young adults must utilize these services.

Recently, the U.S. Congress passed a healthcare reform bill. While an analysis of this legislation is beyond the scope of this study, this recent change in U.S. policy is relevant to the issue of MHSU among young adults. The passage of the healthcare reform bill and recent mental health parity legislation may expand health care coverage for young adults, but this passage of healthcare reform does not account for or address the other bio-psycho-social factors influence MHSU.
Future mental health policy reform efforts must consider and work towards decreasing the underutilization of mental health services by young adults in need of treatment, and must be guided by empirical evidence from research studies that employ a model that accounts for the bio-psycho-social determinants of young adults’ MHSU.
References


Andersen, R. (1968). *A behavioral model of families' use of health services*: Center for Health Administration Studies, University of Chicago.


Kessler, R. C., Berglund, P., Demler, O., Jin, R., Koretz, D., Merikangas, K. R., et al. (2003). The epidemiology of major depressive disorder - Results from the


Psychosocial functioning of young adults who have experienced and recovered
from major depressive disorder during adolescence. *Journal of Abnormal


Lohr, K. N., & Steinwachs, D. M. (2002). Health services research: An evolving
definition of the field. *Health Services Research, 37*(1), 7-9.

Internal working models, self-reported problems, and help-seeking attitudes
among college students. *Journal of Counseling Psychology, 45*(1), 79-83.

impact of co-occurring mood and anxiety disorders among substance-abusing
youth. *Journal of Affective Disorders, 103*, 105-112.

underutilization of mental health services: The influence of help-seeking attitudes.
*Aging & Mental Health, 10*(6), 574-582.


illness - Commentary. *Health Services Research, 36*(6), 1009-1017.

infrastructure, conceptual models, and serendipity in health services research.

48-59.


lessons from the past. *Psychiatric Services, 54*(9), 1227-1232.

Behavior, 45*, 76-86.

anxiety and mood disorders: Implications for health care policy. *Journal of

Mechanic, D. (2007). Mental health services then and now. *Health Affairs, 26*(6), 1548-
1550.

Quarterly, 85*(3), 533-559.


attendance at health checks. *Psychology & Health, 8*(6), 447-462.

Norman, P., Conner, M., & Bell, R. (2000). The Theory of Planned Behaviour and

Norquist, G. S., & Regier, D. A. (1996). The epidemiology of psychiatric disorders and
the de facto mental health care system. *Annual Review of Medicine, 47*, 473-479.


barriers to mental health care: An examination of perceptions and attitudes among


Rhodes, A. E., Goering, P. N., To, T., & Williams, J. I. (2002). Gender and outpatient mental health service use. *Social Science & Medicine, 54*(1), 1-10.


169


