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Mental Health Service Utilization Rates among African American Emerging Adults

by

Sha-Lai L. Williams

A dissertation presented to the
Graduate School of Arts and Sciences
of Washington University in
partial fulfillment of the
requirements for the degree
of Doctor of Philosophy

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Foremost, I give honor to my Lord and Savior, Jesus Christ; for without Him, I could not have accomplished any of this. But with God all things are possible – Mark 10:27

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DEDICATION

I dedicate this dissertation to my grandmother, Mrs. Marie A. Matthews, who began a legacy of hard work, determination, and higher education that has spurred not only me, but others in my family, to pursue our post-secondary education with an unparalleled fervor and tenacity. I pray that generations to come will follow in her footsteps and continue to pave the way for others. I love you Granny!

ABSTRACT OF THE DISSERTATION

Mental Health Service Utilization among African American Emerging Adults

by

Sha-Lai L. Williams

Doctor of Philosophy in Social Work

Washington University in St. Louis, 2013

Professor Renee M. Cunningham-Williams, Chairperson

Mental illness affects 25-30% of US adults ages 18 years and older in a given year. Of those individuals, about 41% fail to utilize mental health services. Research indicates that being African American and between the ages of 18 and 29 are associated with decreased rates of service utilization. Yet, less is known about the factors related to mental health service utilization among a specific subset of these groups, namely, African American emerging adults. Using empirically-tested theoretical frameworks as its foundation, this dissertation study aimed to address this gap in literature by examining specific predisposing, enabling, and need factors (e.g., gender, educational attainment, employment, mental health insurance coverage, perceived emotional support, perceived racial discrimination, evaluated need, and perceived need) associated with mental health service utilization by recency of use (e.g., lifetime and past 12 month utilization) and provider types utilized (e.g., mental health versus non-mental health sector) among this group. Secondary analyses was conducted of a nationally representative sample of African American emerging adults (n=806), drawn from the National Survey of American Life. This study found that being female as well as having an evaluated need or a perceived need for services were significantly associated with greater odds of lifetime, past 12 month, and mental health sector providers. This study is a first step in future research to better understanding the factors associated with service utilization among this underserved population.

CHAPTER 1: THE RESEARCH PROBLEM

Introduction

Mental illness affects 25-30% of adults ages 18 years and older in the United States in a given year (Kessler, Chiu, Demler, Merikangas, & Walters, 2005; Reeves et al., 2011; US Department of Health and Human Services [DHHS], 1999, 2001). Of those individuals, about 41% fail to utilize mental health services (National Institute of Mental Health [NIMH], 2006). Evidence from research indicate that factors such as race (e.g., being African American) and age (e.g., being between the ages of 18 and 29, or an "emerging adult"[1]) are associated with decreased rates of mental health service utilization when compared to Caucasian emerging adults, older African Americans, and older Caucasians (Blanco et al., 2008; Davis & Ford, 2004; Hunt & Eisenberg, 2010; Kessler et al., 2005a; Snowden & Yamada, 2005). In fact, when diagnosed with a mental illness, African American adults ages 18 and older utilize outpatient mental health services at only half the rate of their Caucasian counterparts (Davis & Ford, 2004; Snowden & Yamada, 2005; Thornicroft, 2008). Similarly, emerging adults diagnosed with mental illness are less likely to utilize mental health services when compared to adults ages 26 and older with utilization rates of 40% or less versus 62-71%, respectively (Blanco et al., 2008; Hunt & Eisenberg, 2010; Kessler et al., 2005a; Ringeisen, Casanueva, Urato, & Stambaugh, 2009; Rosenthal & Wilson, 2008; Substance Abuse and Mental Health Services Administration [SAMHSA], 2009; Tanner, 2010). Additionally, both African Americans (Snowden & Yamada, 2005; US DHHS, 2001) and emerging adults (Chiang, Hunter, & Yeh, 2004; Tanner, 2010) are

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[1] "Emerging adult" is currently defined as the ages between 18 and 29 years by Arnett (2007); however, Arnett (2000) initially suggested 18-25 years. In addition, studies vary in the age range that is used to conceptualize emerging adult (e.g., 18-25 and 18-29). This issue of discrepant age ranges is discussed further in the "Significance of Focusing on African American Emerging Adults" section.

more likely to seek mental health services from non-mental health sector providers such as medical doctors, non-medical health professionals, and religious or spiritual advisors.

While a number of factors, such as gender, evaluated need, and perceived racial discrimination, have been found to influence mental health service utilization among African Americans in general (Alegría et al., 2002; Cooper-Patrick et al., 1999; Davis & Ford, 2004; Holm-Hansen, 2006) and emerging adults in particular (Blanco et al., 2008; Tanner & Arnett, 2009; Tanner, 2010), less is known about the factors related to mental health service utilization among African American emerging adults (Arnett, 2000; Sly et al., 2011). This gap in the literature is especially concerning given that, compared to older adults, emerging adults are at an increased risk for the onset of severe mental health problems which also occurs during this same developmental period (Eisenberg, Golberstein, & Gollust, 2007; Hunt & Eisenberg, 2010; Mowbray et al., 2006; Tanner & Arnett, 2009). In fact, research indicates that three-fourths of all lifetime cases of mental illness begin by age 24 years (Kessler et al., 2005a). In addition, psychiatric disorders are most prevalent for individuals between the ages of 18 to 25, with almost 50% of emerging adults experiencing at least one psychiatric disorder in a 12-month period (Tanner, 2010) and approximately 20% meeting the criteria for at least one personality disorder (Viner & Tanner, 2009).

In addition, there are potentially devastating personal and societal consequences of untreated mental illness (Russell, 2010). Many of these consequences, such as lower college graduation rates, homelessness and unemployment disproportionately affect African Americans (Carey, 2008; Congressional Research Service, 2005; US Department of Labor, 2011), including those who are not experiencing mental illness. In general, college graduation rates of African Americans are about 20% less than those of their Caucasian counterparts (Carey, 2008).

Moreover, African Americans comprise approximately 50% of persons experiencing chronic homelessness (SAMHSA, 2011), while African American emerging adults between the ages of 20 to 24 are twice as likely to be unemployed than other racial/ethnic groups within the same age range (25% versus 12%, respectively; US Bureau of Labor Statistics, 2012). These cumulative vulnerabilities – race, age, certain societal problems, and the increased potential for mental illness – may contribute to African American emerging adults being at particular risk for experiencing a poorer quality of life (Myers & Hwang, 2004). In addition, failure to use or underutilization of mental health service, if needed, can further impact this population. Thus, a critical exploration of the factors associated with mental health service utilization among this population is warranted.

Study Rationale

Significance of Focusing on African American Emerging Adults

Emerging adulthood, the age group typically ranging between 18-29 years, has been defined as an extended and distinct developmental period between adolescence and young adulthood (Arnett, 2000, 2004, 2007; Tanner, Arnett, & Leis, 2009). Incorporating aspects of the life course perspective, the theory of emerging adulthood posits that emerging adults often experience immense instability as they grapple with significant life transitions, or changes in roles that represent distinct departures from previous roles, such as moving away from family, gaining increased autonomy, or starting post-secondary education (Arnett, 2006; Hutchison, 2005; Tanner et al., 2009).

Originally, emerging adulthood only included ages 18-25 (Arnett, 2000). However, this developmental stage has recently been extended through age 29 to account for this group's longer and more extensive participation in post-secondary education, increased tolerance of

premarital sex and cohabitation, and delayed ages of entering marriage and parenthood (Arnett, 2007). While Arnett (2007) acknowledges that this developmental stage may not last as long for all emerging adults, he stipulates that it is relevant for most. Furthermore, Arnett & Brody theorize that emerging adulthood may be even more challenging for African American emerging adults as they must overcome negative assumptions held by others as they realize their self-identity.

In addition, African Americans generally experience a disproportionate burden related to mental illness (US DHHS, 2001). In fact, literature suggests that when African Americans experience serious mental illnesses such as major depressive disorder or obsessive-compulsive disorder, their symptoms last longer and are more severe and disabling than those of Caucasians (Himle et al., 2008; Williams et al., 2007). Additionally, African American emerging adults have been reported to have higher 12-month rates of mental illness (e.g., depression) when compared to Caucasian emerging adults, older African Americans, and older Caucasians (Jackson et al., 2004) while often having lower rates of mental health service utilization (Kearney, Draper, & Baron, 2003). However, there is limited research that has fully explored the factors, including rates of mental illness, associated with mental health service utilization among this population.

Studies that are related to help-seeking among African American emerging adults tend to focus solely on the college student population among them (e.g., Barksdale & Moloft, 2008; Henderson, Geyen, Rouce, Griffith, & Kritsonis, 2007; Kearney et al., 2003); yet, African American college students only represent approximately 13% of all African Americans ages 18-24 (US Department of Education, 2009). Thus, limiting mental health services research among this age group to just college students fails to address the mental health needs of the vast

majority of African American emerging adults, as well as limits the generalizability of research findings (Barksdale & Moloft, 2008; Henderson et al., 2007). Similarly, although more emerging adults experiencing some type of mental illness are attending college (Hunt & Eisenberg, 2010), it is possible that the majority of college students are not affected by mental health problems; therefore, having a more inclusive sample (e.g., non-college attending emerging adults) could provide a more accurate representation of the mental health needs and service utilization of this age group.

Similarly, when comparing African Americans to whites and other racial/ethnic minorities, the literature most often identifies African Americans as a whole, or divides them into sub-groups by differing age ranges. For example, Chow and colleagues (2003) used the following age ranges in their study examining racial/ethnic disparities in mental health service utilization: <18, 18-20, 21-34, 35-44, and ≥45 while Kessler et al. (2003) presented rates of major depressive disorder by the following age categories: 18-29, 30-44, 45-59, and 60+. While this researcher acknowledges that this discrepancy in age categories within mental health service literature may create some difficulty for study comparison, given the scarcity of literature focusing exclusively on mental health service utilization among African American emerging adults, it is necessary to examine any available literature that includes this population. Thus, this study aims to build on and advance existing mental health services literature in two important ways.

First, it focuses exclusively on mental health service utilization among African American emerging adults, due to the cumulative vulnerabilities affecting this population as well as the paucity of literature examining mental health service utilization among this population, including those who are non-college attending. Second, this study uses a nationally representative and

diverse sample of African American emerging adults, which allows for examination of within-group differences, that may influence service utilization within this group. Specifically, this study is the first to examine the potential impact of predisposing, enabling, and need factors on mental health service utilization among African American emerging adults using a nationally representative sample. While recent mental health research has focused on mental health service utilization among African Americans and emerging adults in general, this study highlights African American emerging adults to gain a better understanding of factors associated with mental health service utilization among this understudied and underserved population.

   Significance to Social Work

     Research indicates that untreated mental illness can negatively affect one's quality of life, personally, socially, and financially (Hu, He, Zhang, & Chen, 2007). For example, societal problems such as homelessness (SAMHSA, 2011) and unemployment (Burke-Miller et al., 2006) can be impacted by untreated mental illness. Individuals experiencing mental illness comprise about 26% of those experiencing homelessness in an given year (SAMHSA, 2011), and their unemployment rate is three to five times higher than those without mental illness (Burke-Miller et al., 2006). It is possible that the adverse consequences of untreated mental illness may exacerbate societal woes currently experienced by African American emerging adults. For instance, African American emerging adults attend and graduate from post-secondary education at lower rates than their Caucasian peers (Carey, 2008; National Science Foundation, 2011), and they experience higher rates of unemployment and homelessness (Russell, 2010) when compared to Caucasian emerging adults. Moreover, while emerging adults, and particularly those who are college attending, have been cited as commonly experiencing depression, eating disorders, anxiety, and attention deficit/hyperactivity disorder (Eisenberg et al., 2007; Mowbray et al.,

2006; Soet & Sevig, 2006), they are less likely to utilize mental health services compared to other adults (ages 26 and older) (Kessler et al., 2005a; Tanner, 2010). In addition, African Americans (Snowden & Yamada, 2005), including African American emerging adults who are college students (Kearney et al., 2003) also have lower rates of mental health service utilization. Yet, it is unclear how untreated mental illness and lower rates of mental health service utilization may affect African American emerging adults. Thus, for a social work perspective, it is necessary to establish the importance of examining mental health service utilization among this population.

Arnett (2000, 2004, 2007) posits that emerging adulthood, a period lasting from the late teens through one's 20s, is now long enough to constitute more than a mere transition from adolescence to adulthood, but is rather, a separate period of the life course. His theory acknowledges five features that make emerging adulthood distinct: (1) the age of identity explorations, (2) the age of instability, (3) the self-focused age, (4) the age of feeling in-between, and (5) the age of possibilities (Arnett, 2004). It is during this time period that emerging adults gradually begin to attain important benchmarks of adulthood such as accepting responsibility for one's actions, making autonomous decisions, and becoming financially independent (Arnett, 2007).

More specifically, these events typically include such milestones as leaving home, finishing education, getting married, and having children (Arnett, 2000, 2007). Achieving such milestones are particularly important to this group given that it is during this development stage that emerging adults often acquire necessary post-secondary education and begin to establish the upward social mobility trajectories that are essential to economic success in later life (Arnett, 2006). However, Arnett (2007) notes that some emerging adults who are a part of vulnerable

populations such as those experiencing mental illness (Arnett, 2007) or who are African

American (Arnett & Brody, 2008), may experience difficulty during this time period. For

African Americans in particular, Arnett & Brody (2008) state that these emerging adults have the

additional challenge of overcoming negative assumptions that others may have about them, as

they while attempting to integrate their own assessment of who they are and what they would

like to accomplish. Reconciling these differences as they formulate their self-identity is crucial

to their successful navigation through emerging adulthood.

Additionally, African American emerging adults, like other emerging adults, are at

increased risk for the onset of severe mental health problems which occur during this same

developmental period (Eisenberg et al., 2007; Hunt & Eisenberg, 2010; Mowbray et al., 2006;

Tanner & Arnett, 2009). However, when this heightened risk is coupled with the

disproportionate burden of mental illness experienced by African Americans in general (US

DHHS, 2001), it creates an additional layer of risk for this population. For example, while

African Americans may experience lower rates of mental illness when compared to Caucasians,

research indicates that they are more likely to be persistently ill once diagnosed (Breslau,

Kendler, Su, Gaxiola-Aguilar, & Kessler, 2005; Williams et al., 2007). This could translate into

a high price for society when the loss of productivity, earnings, and human potential is

considered (National Alliance on Mental Illness [NAMI], 2010). According to *The High Price*

of Cutting Mental Health (NAMI, 2010), the US spends approximately $25 billion annually for

disability payments to people with mental illness. In addition, as many as 50% of individuals

experiencing serious mental illness lives at, or near, the federal poverty level (Cook, 2006).

While none of these considerations are exclusive to African American emerging adults,

their harmful combination and potential negative impact on the overall quality of life of this

population does warrant additional research. This is due, in part, to the fact that mental health problems often hamper a person's ability to acquire greater socioeconomic resources due to higher rates of unemployment (Burke-Miller et al., 2006); a problem which also affects African Americans at higher rates (US Bureau of Labor Statistics, 2012). Given the intersection between socioeconomics and mental illness (Hudson, 2005), and the cumulative problems adversely affecting African American emerging adults (Carey, 2008; SAMHSA, 2011; US Bureau of Labor Statistics, 2012), and especially those who may be experiencing mental health issues (Hunt & Eisenberg, 2010), it is critical to identify and reach this vulnerable population, considering the potential for larger societal problems such as unemployment/underemployment, even those graduating from college. Taking into account these long-term consequences of mental health problems, and particularly, untreated mental illness, it is clear that elucidating the factors that may increase mental health service utilization, and decrease untreated mental illness among this population, benefits not only African American emerging adults, but the larger society as well.

However, examining the factors associated with mental health service utilization cannot be accomplished with a one-prong attack, but rather, requires a theoretical, multi-directional approach that takes into account personal, interpersonal, and societal-level factors that impact service utilization among African American emerging adults. Employing theoretical models such as Andersen's Behavioral Model of Health Services Use (Andersen, 2008) and the Behavioral Model of Vulnerable Populations (Gelberg, Andersen, & Leake, 2000) serve as a key foundation for this examination while providing a solid framework for future social work research, practice, and policy implications related to mental health service utilization among this population.

Given the limited examination of mental illness and mental health service utilization among African American emerging adults (including non-college attending individuals which comprise the majority of this population), conducting research with this understudied population immediately addresses a gap in the literature. In turn, results from this study can be used to reveal current mental health practices among this population (i.e., recency of service utilization and the type of providers utilized), as well as inform future mental health education, outreach, and interventions that may need to be tailored to address the specific mental health needs and factors associated with mental health service utilization among African American emerging adults.

Study Aims and Hypotheses

This dissertation study includes a secondary analysis of the National Survey of American Life (NSAL), a study of African Americans, Afro-Caribbeans, and non-Hispanic Caucasians, ages 18-94 (N=6,082). The NSAL has a nationally representative sample which includes a subsample of African Americans (n=3,570). This study analyzes a specific subset of the African Americans in the larger sample, emerging adults ages 18-29 (n=806), in order to examine the predisposing, enabling, and need factors (e.g., gender, educational attainment, employment, mental health insurance coverage, perceived emotional support, perceived racial discrimination, evaluated need, and perceived need) that are potentially associated with mental health service utilization among this population. **<u>Evaluated need</u>** is operationalized by endorsement of at least one DSM-IV diagnosis type in one of four categories: (1) mood disorders [e.g., major depressive episode, dysthymia, mania, bipolar I and II], (2) anxiety disorders [e.g., agoraphobia without panic disorder, agoraphobia with panic disorder, panic disorder, panic attacks, social phobia, generalized anxiety disorder, posttraumatic stress disorder, separation anxiety disorder, and adult

separation anxiety], (3) substance use disorders [e.g., alcohol abuse and dependence and drug abuse and dependence], and (4) impulse control disorders [e.g., any binge eating, attention deficit/hyperactivity disorder, and oppositional defiant disorder]. Mental health service utilization rates are operationalized by **recency of use** (e.g., whether respondents have utilized any mental health services in their lifetime versus non-use and utilized any mental health services in the past 12 months versus no use in the past 12 months) as well as by **provider types utilized** (e.g., whether respondents have utilized providers in either the mental health sector or the non-mental health sector in their lifetime). Mental health sector providers include psychiatrists, psychologists, psychotherapists, social workers, counselors, and mental health nurses. Non-mental health sector providers include family doctors, any other medical doctors, any other health professionals, religious or spiritual advisors, and any other healers. The specific study aims and hypotheses are:

Aim 1. Compare rates of mental health disorder by DSM-IV diagnosis type[2]

(e.g., mood disorders, anxiety disorders, substance use disorders, and impulse control disorders) among a sample of African American emerging adults.

H_1. A higher percentage of African Americans emerging adults will

endorse anxiety disorders compared to all other disorders.

Aim 2. Compare variations in mental health service utilization rates by recency of use

and provider types utilized among a sample of African American emerging adults.

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[2] The NSAL used the DSM-IV criteria to determine respondent's diagnosis type, if any; thus, the DSM-IV criteria, rather than DSM-IV-TR criteria and soon-to-be released DSM-V criteria, have been used throughout this proposal. While DSM-IV diagnosis type is not a primary independent variable of interest for this study, the DSM-IV diagnoses are important in order to asses "evaluated need" (Aims 4 & 5). Thus, I have combined DSM-IV diagnoses for this purpose in those aims.

H$_{2A}$. The percentage of African American emerging adults ever utilizing services will be lower than the percentage of those who have never utilized services.

H$_{2B}$. The percentage of African American emerging adults utilizing providers in the non-mental health sector will be higher than the percentage utilizing providers in the mental health sector.

Aim 3. Examine the association between mental health service utilization rates by recency of use and provider types utilized by DSM-IV diagnosis type among a sample of African American emerging adults.

H$_{3A}$. African American emerging adults who are diagnosed with mood disorders will have increased odds of utilizing any service in their lifetime history and utilizing providers in the mental health sector compared to those with any other disorders.

H$_{3B}$. African American emerging adults who are diagnosed with substance use disorders will have decreased odds of utilizing any service in their lifetime history and utilizing providers in the mental health sector compared to those with any other disorders.

Aim 4. Examine the association between mental health service utilization rates by recency of use and provider types utilized by predisposing, enabling, and need factors (e.g., gender, educational attainment, employment, mental health insurance coverage, perceived emotional support, perceived racial discrimination, evaluated need, and perceived need).

H_{4A}. African American emerging adults who are female will have increased odds of utilizing any service in their lifetime history and of utilizing providers in the mental health sector compared to those who are males.

H_{4B}. African American emerging adults who are college graduates will have increased odds of utilizing any service in their lifetime history and of utilizing providers in the mental health sector compared to those who have some college or less.

H_{4C}. African American emerging adults who are employed will have increased odds of utilizing any service in their lifetime history and of utilizing providers in the mental health sector compared to those who are unemployed or not in the work force.

H_{4D}. African American emerging adults who have public mental health insurance coverage will have increased odds of utilizing any service in their lifetime history and of utilizing providers in the mental health sector compared to those who have private or no mental health insurance coverage.

H_{4E}. African American emerging adults who have higher perceived emotional support will have increased odds of utilizing any service in their lifetime history and of utilizing providers in the mental health sector compared to those who have lower perceived emotional support.

H_{4F}. African American emerging adults who have lower perceived racial discrimination will have increased odds of utilizing any service in their

lifetime history and of utilizing providers in the mental health sector

compared to those who have higher perceived racial discrimination.

H$_{4G}$. African American emerging adults who have an evaluated mental

health need (e.g., who have a DSM-IV diagnosis) will have increased odds

of utilizing any service in their lifetime history and of utilizing providers

in the mental health sector compared to those who do not have an

evaluated mental health need.

H$_{4H}$. African American emerging adults who have a higher perceived need

for mental health services will have increased odds of utilizing any service

in the past 12 months compared to those who have a lower perceived need

for mental health services.

Aim 5. Test the potential mediating and moderating effects of significant predictor

variables (e.g., predisposing, enabling, and need factors) among a sample of

African American emerging adults.

H$_{5A}$. Evaluated need and perceived need will have mediating effects.

H$_{5B}$. Gender, mental health insurance coverage, perceived emotional

support, and perceived racial discrimination will have moderating effects.

While evidence suggests that certain factors may facilitate or hinder mental health service

utilization among African Americans and emerging adults, the examination of these specific

factors within this national study serve as a first step in illuminating the factors associated with

mental health service utilization specifically among African American emerging adults.

Dissertation Outline

To facilitate this examination, this dissertation study is organized as follows: Chapter 1 introduces the problem of underutilization of mental health services among individuals diagnosed with mental illness, and particularly the impact of race and age on further underutilization. The cumulative vulnerabilities experienced by African American emerging adults as well as the dearth of research examining factors associated with mental health service utilization within this population is underscored. This chapter also lists the specific aims and hypotheses guiding this study. Chapter 2 synthesizes the empirical research investigating mental health need and service utilization among the general population including African Americans and emerging adults, and when available, African American emerging adults. This chapter also highlights gaps in the available literature, further supporting the need for additional mental health service utilization research among this underserved and understudied population. Chapter 3 provides a discussion of two theoretical models – Andersen's Behavioral Model of Health Services Use and the Behavioral Model for Vulnerable Populations – that underpin the conceptual model proposed for this study. A detailed conceptualization of the model, including independent and dependent variables, and model limitations are also described. Chapter 4 describes the study sample of African American emerging adults, drawn from the National Survey of American Life (NSAL), as well as the measures used and the data analysis plan for testing the specific aims and hypotheses identified in Chapter 1. At the conclusion of data analyses, Chapter 5 presents results of univariate, bivariate, and multivariate analyses. This chapter also includes the results of structural equation modeling, which tests the direct and indirect effects of the independent variables on mental health service utilization rates and provider types utilized among African American emerging adults. Chapter 6 concludes the dissertation with a discussion of the study limitations, its social work practice, policy, and

research implications, as well as final thoughts related to mental health service utilization among African American emerging adults.

Summary

To better understand within-group differences in rates of mental health service utilization within African American emerging adults, additional research that focuses exclusively on this population is warranted. This dissertation study addresses several gaps in the literature while examining the impact of predisposing, enabling, and need factors on mental health service utilization among this vulnerable and understudied population. Using a nationally representative survey, this study conducts extensive comparisons of mental health service utilization within a sample of African American emerging adults[3]. Identifying factors that impact mental health service utilization can assist researchers and practitioners in developing targeted mental health outreach and education, with the hopes of increasing service utilization among this underserved population. Furthermore, it will challenge social work practitioners and researchers to consider the heterogeneity of this population and create tailored outreach and interventions to address the specific mental health needs of African American emerging adults.

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[3] Due to the specific focus of this study on African American emerging adults, racial/ethnic comparisons (e.g., African American versus Caucasian) will not be conducted.

CHAPTER 2: LITERATURE REVIEW

Research highlighting the mental health needs of emerging adults (Tanner, 2010; Viner & Tanner, 2009), and college students in particular (Blanco et al., 2008; Hunt & Eisenberg, 2010; Mowbray et al., 2006) has increased over the last decade. Findings indicate that this population, as a whole, is at greater risk for the onset of serious mental illness (Eisenberg et al., 2007; Hunt & Eisenberg, 2010) and that early detection and treatment can be beneficial to decreasing sympomology (McGorry, Killackey, & Yung, 2008; Reeves et al., 2011). However, empirical studies focusing specifically on mental health needs and service utilization among African American emerging adults are sparse. Thus, this literature review examines research related to the mental health needs and service utilization of the general population, including African Americans and emerging adults; and when available, African American emerging adults in particular. Barriers to mental health service utilization among these populations are also included. It is important to note that although there is some overlap between these groups in mental health need and service utilization (e.g., facilitators and barriers to service use), this review highlights the paucity of research exploring the particular need for and utilization of mental health services among African American emerging adults.

Mental Health Needs

Among the General Population

Mental health problems such as depression, bipolar disorder, schizophrenia, suicide, attention deficit/hyperactivity disorder, substance use disorders and eating disorders were cited as affecting approximately 25-30% of all Americans ages 18 and older in a given year (Kessler et al., 2005a; NIMH, 2006; Reeves et al., 2011). This percentage translates to about 58 million people when applied to the 2004 US Census residential population estimate for ages 18 and older (NIMH, 2006). However, Kessler and colleagues (2005a) analyzed data from the National

Comorbidity Survey Replication (NCS-R) and found about half of all Americans will meet the criteria for a DSM-IV diagnosis in their lifetime, with anxiety disorders (28.8%), impulse-control disorders (24.8%), and mood disorders (20.8%) having the highest lifetime prevalence. In a separate analysis of 12 month prevalence rates among the same sample (Kessler et al., 2005b), any anxiety disorder continued to have the highest prevalence rate (18.1%), followed by any mood disorder (9.5%), any impulse control disorder (8.9%), and any substance disorder (3.8%).

While the prevalence rates of mental illness of African Americans is similar to the general population (e.g., higher rates of any anxiety disorder compared to any mood disorders and any substance use disorders), determining prevalence rates of mental health problems by race/ethnicity is less clear. There are often conflicting data on the mental health needs of African Americans compared to Caucasians with some studies indicating significantly higher prevalence and severity of symptoms among African Americans (Copeland & Butler, 2007; Davis & Ford, 2004; US DHHS, 1999), while others report lower rates (Kessler et al., 2005a; NIMH, n.d.) or no differences at all by race/ethnicity (Jackson et al., 2004; Vega & Rumbaut, 1991). For example, Jackson and colleagues (2004) highlighted these discrepancies when they noted that the Epidemiologic Catchment Area Study (ECA) found fairly comparable rates of mental disorder among African Americans and Caucasians, while the 1990 National Comorbidity Survey (NCS) found that African Americans consistently had mental disorder rates that were below their Caucasian counterparts. More recently, African Americans were found to be less likely to have a lifetime risk of any anxiety, mood, or substance use disorder when compared to Caucasians (Breslau et al., 2005; Kessler et al., 2005a). Similarly, according to data drawn from public health surveillance (Reeves et al., 2011), African Americans had lower rates of lifetime anxiety compared to Caucasians (9.3% versus 12.9%). However, in the same study, African Americans

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were found to experience higher rates of depression (12.7%) and serious psychological distress (5.4%) when compared to Caucasians (7.5% and 3.5%, respectively). It is important to note that although some research indicates that African Americans may have lower lifetime risk of mental illness, they are more likely to be persistently ill once diagnosed (Breslau et al., 2005; Williams et al., 2007).

The mental health needs of emerging adults are considerable given the fact that the onset of several serious mental illnesses (e.g., major depressive disorder, bipolar disorder and schizophrenia) occur between the ages of 15 and 24 (Eisenberg et al., 2007; Hunt & Eisenberg, 2010; Mowbray et al., 2006). In a sample drawn from the NCS-R examining lifetime prevalence of DSM-IV disorders, researchers (Kessler & Wang, 2008) found that among emerging adults ages 18-29 years of age, any anxiety disorder had the highest prevalence rate (30.2%), followed by any impulse control disorder (26.8%), any mood disorder (21.4%), and any substance use disorder (16.7%). Additionally, research indicates that psychiatric disorders are most prevalent for individuals between the ages of 18 to 25, with almost 50% of emerging adults experiencing at least one psychiatric disorder in a 12-month period (Tanner, 2010) and approximately 20% meeting the criteria for at least one personality disorder (Viner & Tanner, 2009). When compared to young adults (ages 26 to 49) and older adults (ages 50 and older), emerging adults have the highest prevalence of serious mental illness (2%, 6%, and 8%, respectively; NIMH, n.d.). Additionally, Kessler et al. (2005a) found that among emerging adults (ages 18-29) sampled in the NCS-R, this group had statistically significant higher odds of lifetime prevalence of any disorder (excluding obsessive-compulsive disorder and separation anxiety disorder) than adults ages 60 years and older. Common disorders characterizing emerging adults include anxiety disorder, substance use disorders including alcohol abuse and dependence, mood

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disorders including depression, eating disorders, and suicidality (Park, Mulye, Adams, Brindis, & Irwin, 2006; Soet & Sevig, 2006; Viner & Tanner, 2009).

Most of the literature exploring mental illness among emerging adults focuses on college students (Hunt & Eisenberg, 2010; Tanner et al., 2009). Using data from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), Blanco and associates (2008) analyzed a subsample of college-age individuals ages 19-25 (both attending college [n=2,188] and not attending college [n=2,904]) and found that almost 46% of college students had experienced at least one psychiatric disorder in a 12-month period. They found that the most prevalent disorders among college students were alcohol use disorders (20.4%) and personality disorders (17.7%), while personality disorders (21.6%) and nicotine dependence (20.7%) were most prevalent among non-college students. Among a sample of college students from a large, Midwestern public university with an approximate enrollment of 40,000 students, researchers found that the most common diagnoses included depression (14.9%), eating disorders (6.1%), anxiety (5.9%), and attention deficit/hyperactivity disorder (4.2%) (Soet & Sevig, 2006). However, African American emerging adults only represent about 13% of college-attending emerging adults (ages 18-24) compared to approximately 64% of Caucasian emerging adults (US Department of Education, 2009). While there may be some similarities between college-attending and non-attending emerging adults, attempting to draw conclusions about the mental health needs of the majority of African American emerging adults from such a limited sample hinders the generalizability of the research findings.

Among African American Emerging Adults

Empirical studies focusing specifically on the mental health needs of African American emerging adults are limited. However, given the cumulative vulnerabilities of race, age, mental

illness, and certain societal problems experienced by this population (Arnett & Brody, 2008; Ialongo et al., 2004; US DHHS, 2001), it is likely that this group is at risk for mental health problems. Similar to African Americans in general, there are contradictory data regarding the specific mental health needs of African Americans emerging adults. One of the few studies focusing exclusively on African American emerging adults (ages 18-25) found that 43% reported high negative affect (a proxy for mental health problems) (Sly et al., 2011). Likewise, in an exploratory study examining psychological needs among African American college students, researchers found that 60% of the students sampled had experienced mental health problems including acute stress, generalized anxiety, financial and relationship problems (National Leadership Council on African American Behavioral Health [NLCAABH], 2009). Additionally, among a sample including African American emerging adults (ages 18- 29, college attending and non-college attending), this group had higher 12-month rates of major depression than same-age Caucasians, and older (ages 30 and up) African Americans and Caucasians (Jackson et al., 2004). Yet, among a sample of college-attending emerging adults of any race/ethnicity (ages 19 to 25), Blanco and associates (2008) found that being African American decreased the odds of having a psychiatric disorder when compared to Caucasians. Thus, it is not clear which, if any, disorders are more prevalent among African American emerging adults. In fact, these discrepant results are further convoluted by findings that indicate that African American emerging adults are less likely to perceive a mental health need, suggesting that available information about their rates of mental illness may be underestimated (Kearney et al., 2003).

Mental Health Service Utilization

Among the General Population

Among individuals affected by mental illness, research indicates that the majority of these individuals delay seeking treatment, with an average of 10 years between the onset of a mental disorder and utilization of mental health services (Wang, Berglund, Olfson, & Kessler, 2004). When mental health services are sought, emerging adults (ages 18-25) are less likely than other age groups studied (e.g., ages 26 and older) to utilize services (Kessler et al., 2005a; Tanner, 2010). Moreover, demographics such as race/ethnicity, gender, and socioeconomic factors may further impact utilization of mental health services (Kearney et al., 2003; Miranda, McGuire, Williams, & Wang, 2008; Thornicroft, 2008). For example, African Americans are about half as likely to participate in outpatient mental health services compared to Caucasians (Davis & Ford, 2004; Snowden & Yamada, 2005; Thornicroft, 2008), although one study found that African Americans and Caucasians had similar mental health utilization rates at follow up (Cooper-Patrick et al., 1999).

When African Americans do utilize services, they are more likely than Caucasians to receive mental health services in a non-specialty mental health setting such as a primary physician's office or the emergency room versus specialty mental health providers such as licensed mental health professionals or mental health centers (Alegría et al., 2002; Cooper-Patrick et al., 1999; Davis & Ford, 2004; Snowden & Yamada, 2005). Cooper-Patrick and colleagues (1999) found that a higher percentage of African Americans used general medical settings without later seeing a mental health professional as compared to Caucasians (14.9% versus 10.8%, respectively). Among the sample from NCS, African Americans had significantly lower odds of receiving specialty mental health services compared to Caucasians. These differences persisted when factors such as income and mental illness were included in the regression models (Alegría et al., 2002). However, some literature indicates that African

Americans have a positive attitude about utilizing mental health services (Diala et al., 2001) and that they utilize specialty mental health services in conjunction with more informal helpers such as family and friends (Snowden, 1998). Yet, even if professional services are sought, one qualitative study of 201 African American males and females found that some participants felt that psychotherapy (in particular) was impersonal, expensive, and invasive and that these factors hindered continued utilization (Thompson, Bazile, & Akbar, 2004).

In fact, additional research supports this occurrence, citing that when African Americans utilize specialty mental health services, they have higher rates of missed appointments (Atdjian & Vega, 2005; Russell, 2010), attend fewer sessions and are more likely than Caucasians to discontinue services (Kearney et al., 2003; Snowden, 2001; Snowden & Yamada, 2005; So, Gilbert, & Romero, 2010). A number of external factors, such as lack of or inadequate health insurance coverage (Hines-Martin, Brown-Piper, Kim, & Malone, 2003; Snowden & Yamada, 2005), the inability to cover the insurance co-payment (Snowden & Thomas, 2000), and being stigmatized by family and friends for having mental health problems (Davis & Ford, 2004; Holm-Hansen, 2006) or utilizing mental health services (Corrigan et al., 2003; Thompson, Noel, & Campbell, 2004; Thornicroft, 2008), have been cited as additional barriers to mental health service utilization among African Americans.

While non-college attending emerging adults are typically less likely than college-attending emerging adults to utilize mental health services due to inadequate health care coverage (Ringeisen et al., 2009; Tanner, 2010), the reasons for underutilization for those attending college is slightly different. College-attending emerging adults reported an unwillingness to seek mental health services due, in part, to a lack of awareness of a mental health problem, and perceived stigma by peers, and family (Eisenberg et al., 2007; Hunt &

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Eisenberg, 2010; Mowbray et al., 2006). In addition, college-attending emerging adults have

reported cost of services as a barrier, although 90% of students have health insurance provided at

minimal to no cost through their educational institutions (Hunt & Eisenberg, 2010). However,

about 50% of those students, including African Americans and Caucasians, did not realize their

insurance covered mental health visits and the remainder were unsure of their coverage

(Eisenberg et al., 2007).

Rosenthal & Wilson (2008) found that while many college-attending emerging adults

would benefit from specialty mental health services, more than 75% of students who were

experiencing clinically significant psychological distress had not received counseling in the past

six months. Other studies found similar rates of underutilization with only 24-36% of students

who screened positive for major depression receiving either therapy or medication in the past

year (Eisenberg et al., 2007; Hunt & Eisenberg, 2010). In a study exploring the mental health of

college-attending emerging adults and their non-college-attending peers, only about 35% of both

college students and their non-college-attending counterparts with mood disorders and 12-16%

of those with anxiety disorders utilized mental health services in the past year (Blanco et al.,

2008). It is important to note that, among individuals diagnosed with depression or any serious

mental illness, the mental health service utilization rates among college-attending emerging

adults are lower than those of emerging adults in general (ages 18 to 25), young (ages 26 to 49)

and older (ages 50 and up) adults (SAMHSA, 2009).

Among African American Emerging Adults

Due to the limited amount of studies examining mental health service utilization among

African American emerging adults in general, most of the studies included in this literature

review focused on college students; thereby, making it difficult to accurately determine service

utilization rates among this population. One study (NLCAABH, 2009) noted that while 80% of the African American college-attending emerging adults reported having traumatic experiences such as sexual/physical abuse and domestic violence, none of them had ever received counseling to address those issues. In addition, in a representative sample of 1,166 college-attending emerging adults including African Americans, Caucasians, Asian Americans, and Hispanics from over 40 institutions nationwide, Caucasian college students participated in more mental health sessions than African American, Asian American and Hispanic college students (3.5 sessions versus 2.2, 1.9, and 1.6 sessions, respectively; Kearney et al., 2003). This disproportionate rate of utilization of college counseling services may be due, in part, to a reluctance of some African American college students to seek mental health services provided by specialty providers (Duncan & Johnson, 2007; Henderson et al., 2007), especially if the mental health provider is Caucasian (Walden, 1994).

Additional factors that may influence mental health service utilization among African American emerging adults are the use of informal sources of support, gender, and educational attainment. This population, particularly college-attending emerging adults, has been found to use family and friends as sources of help-seeking compared to specialty mental health services (Barksdale & Moloft, 2008; Cooper-Patrick et al., 1999; Snowden, 1998; Walden, 1994). Moreover, African Americans who are males and who have less than a high school diploma were less likely to receive any help (e.g., specialty or informal) compared to females and those with a high school diploma or higher (Woodward, Taylor, & Chatters, 2011). Research examining factors associated with mental health service utilization has found that having an evaluated need (e.g., having a mood disorder [for example, depression]) is positively related to service use among samples including African Americans and emerging adults (Blanco et al., 2008; Wang et

al., 2005). Available literature focusing on African American college-attending emerging adults also indicate that lack of perceived need for mental health services (Davis & Ford, 2004; Kearney et al., 2003) and the belief that specialty mental health services, compared to informal services, are not appropriate forms of care (Copeland & Butler, 2007; Davis & Ford, 2004) further hinders mental health service utilization among this population. These factors will be discussed further in Chapter 3.

Summary

There is a paucity of empirical studies focusing specifically on the mental health needs and service utilization of African American emerging adults. Literature about this population is limited, in part, due to small numbers of African American emerging adults in the studies, a focus on college-attending emerging adults, and disparate emerging adult age categories. It is also possible that these factors hinder the ability to accurately assess the needs and service utilization of this population. In fact, an appraisal of the literature focusing on needs and service utilization among the general population, and when available, African American emerging adults, revealed contradictory results for the impact of race/ethnicity on mental health need.

However, race/ethnicity (e.g., being African American) and age (e.g., being an emerging adult) were consistently associated with lower utilization rates of mental health services compared to Caucasian adults, older African Americans, and older Caucasians (Davis & Ford, 2004; Kessler et al., 2005a; Snowden & Yamada, 2005; Tanner, 2010). While about 25-30% of the general population are affected by mental illness at any given time (Kessler et al., 2005a; Reeves et al., 2011), as many as 50% of college-attending emerging adults are diagnosed with mental illness (Blanco et al., 2008; Tanner, 2010). Yet due to limited race-specific research in this area, it is difficult to ascertain actual rates of mental illness among African Americans, and

particularly African American emerging adults. Among individuals who are experiencing

mental illness, both African Americans and emerging adults are less likely to utilize mental

health services when compared to Caucasians and older adults, respectively. Of the barriers to

mental health service utilization presented in this review (e.g., demographic factors, insurance

coverage, and emotional support), little is known about whether these barriers persist for African

American emerging adults. This review highlights the limited research investigating service

utilization among African American emerging adults and illustrates the need for additional

empirical research that expands the knowledge by examining the association between specific

predisposing, enabling, and need factors and mental health service utilization among this

population. Chapter 3 begins this process with an overview of this study's theoretical foundation

while Chapter 4 discusses the study methodology which addresses some of the limitations of

previous literature.

CHAPTER 3: THEORETICAL FOUNDATION AND MODEL CONCEPTUALIZATION

This chapter provides an introduction of the theoretical underpinnings used in the conceptualization of mental health service utilization among African American emerging adults proposed for this dissertation study. First, descriptions of and empirical data from two theoretical frameworks that have been used in health and mental health literature – Andersen's Behavioral Model of Health Services Use and the Behavioral Model for Vulnerable Populations – are discussed. These theoretical models have explored the associations between various independent variables and the receipt of health and mental health services, and are used as the basis for the conceptual model for this dissertation study. Next, building from elements of these existing models, specifications of the study's conceptual model are provided, with a scientific rationale for the inclusion of each variable. In conjunction, these sections provide the theoretical and methodological foundation for this study.

Theoretical Foundation

Andersen's Behavioral Model of Health Services Use

Andersen's Behavioral Model is a well-known and widely used theoretical framework for exploring the use of health services (Aday & Andersen, 1998; see Figure 3.1). The basic premise of the model is founded on three core components – predisposing characteristics, enabling factors, and need – that precipitate use of health services. *Predisposing characteristics* include demographic characteristics, social structure characteristics, and health beliefs. *Enabling factors* represent resources that facilitate or hinder an individual's service use. These factors can include individual and community resources, accessibility of services, health insurance, and cost. *Need for services* has been conceptualized as perceived need by the individual or evaluated need by a health professional. While predisposing characteristics and enabling factors are necessary

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to facilitate the use of health services, need is considered to be a more powerful predictor of service use (Andersen, 1995; Dhingra, Zack, Strine, Pearson, & Ballaz, 2010).

Although the core components have remained relatively constant, the model has been modified several times since its creation to take into account additional variables that influence health care utilization. Andersen (1995) describes the model modifications in four phases of development. Phase one was the original Socio-Behavioral Model created in the late 1960s which theorized that a person's use of health services was based on his predisposition to use services, the factors that facilitated or hindered use, and the person's need for services (Andersen, 1968; Andersen & Anderson, 1967). The second phase was developed by Aday and colleagues in the 1970s. They added the relationship between the core components, now termed "population characteristics" and the health care system as well as consumer satisfaction as an outcome of health services (Aday & Andersen, 1974; Andersen, 2008).

The third phase, crafted in the 1980s and 1990s, added the external environment and personal health practices as important influences on health outcomes. This modification also expanded the outcome of health services to include perceived and evaluated health status. While the first three phases were linear in nature, the fourth phase incorporates feedback loops to depict the inter-related complexity of the core components between contextual and individual characteristics, health behaviors, and health outcomes. The fifth phase of the model emphasizes the importance of contextual and individual factors on understanding health services use. Phase 5divides contextual characteristics in the same way as individual characteristics and adds process of medical care as a type of health behavior (Andersen, 2008).

Figure 3.1. Andersen's Behavioral Model of Health Services Use
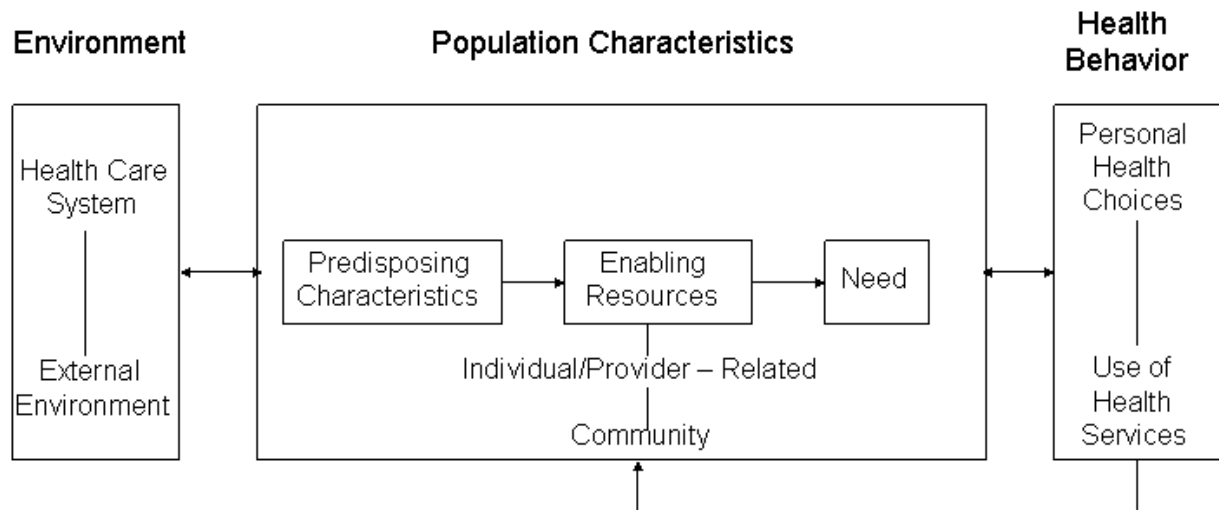
Multiple iterations of the Behavioral Model have produced a rather comprehensive framework that can be helpful in explaining the use of health and mental health services. The model provides the opportunity for individual as well as contextual factors to be explored when determining influences on an individual's service use. The addition of feedback loops allows for the possibility that outcomes of past service use may impact future use, and that each factor – individual, contextual, and health behaviors – is connected to the others. This inter-relatedness acknowledges that the decision to use health and mental health services is not based on an isolated event nor is it a linear decision; rather, it is a myriad of variables that may work in concert or in competition to affect subsequent service use.

Despite these strengths, there are some limitations to the model. Andersen (1995) acknowledges that there are supplementary components that could strengthen the model including the addition of genetic factors and psychological characteristics. According to Andersen (1995), the addition of genetic factors provides more tangible and definable predisposing factors than current factors, while psychological characteristics such as mental

dysfunction and cognitive impairment further impact whether an individual utilizes services. Critics have also cited that the model does not include a component specifically related to the extent and quality of social relationships and their ability to facilitate or hinder service use (Andersen, 1995; Pescosolido, 1991). Another limitation, though not necessarily of the model itself but related to its application, is that the predisposing, enabling and need factors included in the contextual characteristics are often overlooked in studies where the model is used (Andersen, 1995). Moreover, in studies that based their hypotheses on this model, few measure variables in all three factors within the individual characteristics domain (Lemming & Calsyn, 2004). This is a significant omission considering that the authors noted that predisposing factors have not been found to be strong predictors of mental health service utilization nor have enabling factors explained much variance in service use. In a brief literature review, Lemming & Calsyn (2004) indicate that need factors such as increased severity of symptoms, poverty, stress, and self-perceived need have been the strongest predictors of mental health service utilization.

  Relevance to African Americans. Andersen's Behavioral Model (phase 4 in particular) has been used to explore topics including access to specialty mental health services among women (Kimerling & Baumrind, 2005), differences in mental health service utilization among African Americans and Caucasians (Cooper-Patrick et al, 1999) and mental health service utilization among African Americans with severe mental illness (Lemming & Calsyn, 2004). In a study exploring racial/ethnic disparities in access to and utilization of specialty mental health services among women in California (N=3,750), Kimerling & Baumrind (2005) tested the model in an investigation of factors that may account for such disparities. Specifically, they used multiple indicators to examine the racial/ethnic variations in perceived need, service seeking, and utilization to better understand racially linked barriers to services. They hypothesized that

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individual enabling and need factors should account for the most variance in the relationship between perceived need and use of services, if all other conditions were equitable. Results of the study found that frequent mental distress was associated with perceived need, while having health insurance was significantly associated with seeking services. Multivariate models found that demographic variables, enabling factors, and need did not completely account for the racial/ethnic differences observed between perceived need and service seeking in their sample. The authors noted that although race/ethnicity alone were specifically associated with the disparities in access found in their sample, frequent mental distress, a proxy for need factors, was significantly associated with service seeking. They concluded, in part, that their results suggest the need for larger-scale studies that further examine how enabling and need factors predict perceived need for services differently within specific racial and ethnic groups.

Using data from the Baltimore Epidemiologic Catchment Area (ECA) Follow Up, Cooper-Patrick and colleagues (1999) compared mental health service utilization among African Americans and Caucasians at baseline and at follow up 12-15 years later. Respondents who were originally interviewed in 1981 were contacted and re-interviewed between the years of 1993-1996. Variables from the study were classified as predisposing, enabling, and need factors according to Andersen's Behavioral Model. Using logistic regression, the authors examined the effect of race/ethnicity (a predisposing factor) on mental health service use. They found that a statistically higher percentage of African Americans used general medical settings without later seeing a mental health professional as compared to Caucasians (14.9% versus 10.8%, respectively). In addition, at follow up, African Americans were just as likely as Caucasians to utilize any mental health service versus having been 40% less likely to receive services at baseline.

Lemming & Calsyn (2004) also tested the model's ability to predict two service utilization variables: case manager visits and total services used among African American and other racial/ethnic groups including Caucasians (N=3,855). The results, which were statistically significant, found that enabling factors explained more variance than predisposing or need factors at both baseline and 12-month follow-up for case manager visits and total services used. For case manager visits, enabling factors explained 6% of the variance at baseline compared to 2% for predisposing and 1% for need factors. At 12-month follow-up for visits, enabling factors increased to 7%, while predisposing and need remained the same as at baseline. For total services used, 8% of the variance was explained by enabling factors at baseline compared to 2% for both predisposing and need factors. At 12-month follow-up for services used, variance remained the same for enabling and predisposing factors while need decreased to <1%. These results contradict findings from the authors' literature review that indicated that need factors, as opposed to predisposing or enabling factors, would be the strongest predictors of mental health service utilization.

　　　Relevance to African American Emerging Adults. As aforementioned, research related to mental health service utilization among emerging adults, particularly African Americans, is scant (Maulik, Mendelson, & Tandon, 2010); therefore, some empirical studies have used samples that are slightly broader than the typical emerging adult age range. For instance, Maulik and colleagues (2010) used an expanded version of Andersen's Behavioral Model and found that predisposing factors including race, gender, and age impacted the type of mental health services used among a sample of predominantly African American 16-24 year olds (N=500). Using African Americans as their reference group, the authors found that non-African Americans[4] were 7 times more likely than African Americans to utilize mental health services through social

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[4] Specific race/ethnicity for the other groups was not identified by the authors in this article.

services (OR = 7.42, 95% CI = 2.46, 22.35, p < 0.001) and more than twice as likely to receive

services at correctional facilities (OR = 2.55, 95% CI = 1.04, 6.27, p < 0.05). Emerging adults

ages 18-24 were found to be less likely than participants who were 16-17 years of age to utilize

non-specialty services (e.g., social services, correctional facility services, and school-based

services. However, none of the enabling factors included in their study (e.g., having health

insurance, a regular health care provider, or total social support) were found to be significantly

associated with any type of service use.

The Behavioral Model for Vulnerable Populations

Based on Andersen's Behavioral Model (Andersen, 1968, 1995), the Behavioral Model

for Vulnerable Populations (BMVP; Gelberg et al., 2000) explores predisposing, enabling, and

need factors that may predict health behavior and subsequent outcomes among vulnerable

populations. It expands the original model with the addition of vulnerable domains within each

of these headings to account for aspects specific to vulnerable populations that may impact

health outcomes and service utilization. For example, while the traditional predisposing domain

consists of demographic, health beliefs, and social structure factors such as age, race/ethnicity,

and gender; the vulnerable predisposing domain includes additional social structure factors and

childhood characteristics such as mental illness, substance abuse, and psychological resources.

Personal/family and community resources are encompassed within enabling factors. The

traditional enabling domain includes factors such as insurance, regular source of care, and social

support while the vulnerable enabling domain accounts for factors including competing needs,

self-help skills, and social service resources. Both the traditional and vulnerable need domains

consist of perceived and evaluated health, but the vulnerable need domain highlights health

conditions specific to the vulnerable population such as those experiencing homelessness, mental

illness, and disparate health care issues (Bernard, 2011). In addition, the traditional health

behavior domain includes personal health practices (e.g., diet, exercise, and tobacco use) and use

of health services while the vulnerable health behavior domain incorporates unsafe sexual

behaviors and hygiene. Finally, the model posits that these traditional and vulnerable

predisposing, enabling, and need factors are associated with subsequent health outcomes (e.g.,

health status and satisfaction with care), which in turn, may later impact the predictive factors.

Figure 3.2 shows a version of the BMVP and illustrates its adaptability to vulnerable

populations.

Figure 3.2. The Behavioral Model for Vulnerable Populations
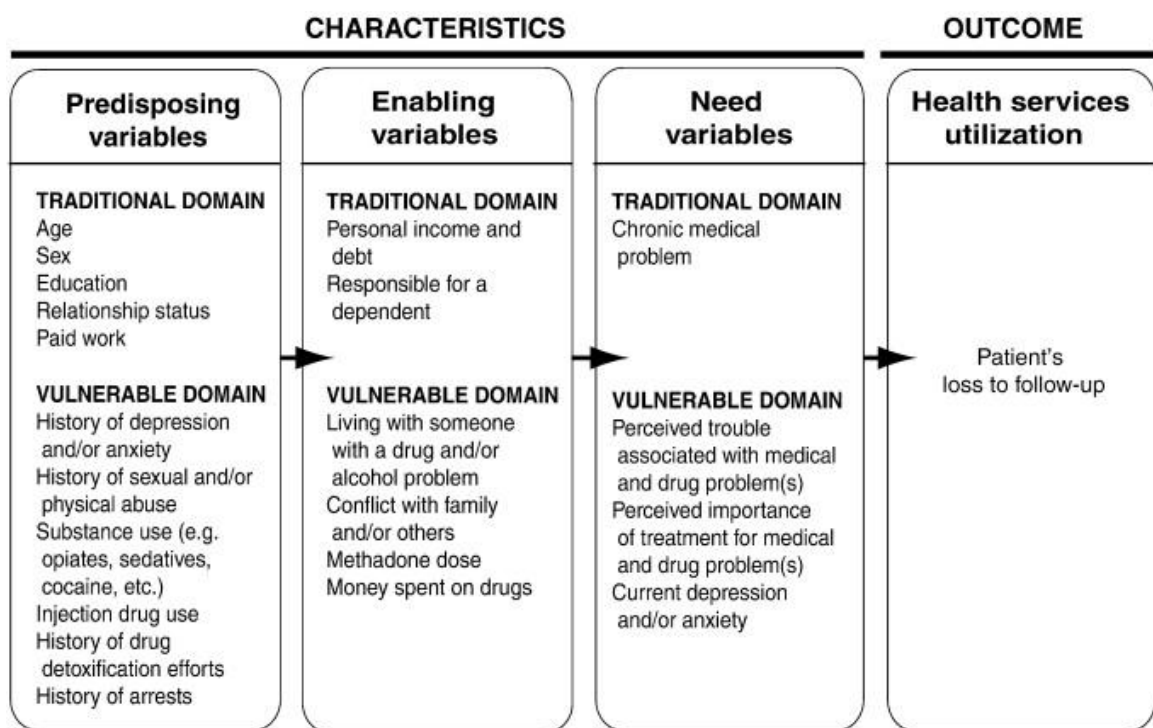
The BMVP has been used to explore health services use among a variety of vulnerable

populations including people who are homeless (Gelberg et al., 2000), persons with disabilities

(Krahn, Farrell, Gabriel, & Deck, 2006), and African Americans with high blood pressure

(Feldman et al., 2009). In an application of the model with people who are homeless and

diagnosed with one of four study conditions (high blood pressure, functional vision impairment, skin/leg/foot problems, and tuberculosis skin test positivity), Gelberg and colleagues (2000) found that predisposing factors such as age (being older) and race (being African American) were significantly correlated with obtaining medical care. For high blood pressure and skin/leg/foot problems, those authors found no enabling factors were significantly associated with obtaining care. In addition, in bivariate and multivariate analyses, predisposing variables in the vulnerable domain were associated with service utilization (Gelberg et al., 2000).

Krahn et al. (2006) used BMVP as a framework in a mixed methods study among people with disabilities in order to capture their perception of barriers to substance abuse treatment. Recurring themes from qualitative interviews were analyzed and fit into the model. Participants associated several predisposing (e.g., stigmatization), enabling (e.g., family support for treatment), and need (e.g., failure to recognize a need for treatment or treatment seen as ineffective) factors with decreased utilization of services. The authors noted that these factors were often unique to this to this population, and that using the BMVP as a framework allowed them to better conceptualize the problem of substance abuse treatment among people with disabilities for future research.

The BMVP has also been used to inform a multi-faceted home-based high blood pressure intervention among African Americans (Feldman et al., 2009). Testing two strategies to improve hypertension among a traditionally underserved, high-risk population, the researchers created a "basic" and an "intensive" intervention. The basic intervention aimed to influence patients by targeting their predisposing knowledge (e.g., providing educational materials) and perceived need (e.g., increasing their awareness of and participation in behaviors that can help control high blood pressure). The intensive intervention augmented the basic intervention by adding a home

support program (an enabling factor), which included structured phone calls provided by trained intervention staff over a 12-month period. Results of this study (Pezzin et al., 2011) found that while the basic intervention yielded no significant improvements in blood pressure, the augmented intervention significantly improved outcomes at 3-month follow up. This suggests that enabling factors such as having a support system to encourage service use may increase service utilization among this specific vulnerable population.

Relevance to African American Emerging Adults. The BMVP is a comprehensive conceptual framework consisting of predisposing, enabling, and need factors in both traditional and vulnerable domains. It incorporates components of other notable service use frameworks such as the Health Belief Model (HBM; Hayden, 2009) and the Theory of Planned Behavior (TPB; Ajzen, 1991) with the inclusion of health beliefs (attitudes and knowledge about health and illness) and perceived barriers to care in the traditional domain. The addition of the vulnerable domain addresses some of the limitations of prior models, such as the limited predictability of behavior in the HBM and the omission of cultural and environmental factors in the TPB. Thus, the BMVP serves as a solid foundation for the conceptual backbone of this study.

Specifically, due to the adaptability of this model to vulnerable populations, the predisposing, enabling, and need factors can be uniquely combined to examine any number of variables that may be associated with mental health service utilization among African American emerging adults. Vulnerable predisposing factors that impact mental health service utilization such as mental illness, substance abuse, and psychological resources are especially relevant to African American emerging adults as the literature has indicated that this population is at greater risk for onset of mental illness (Eisenberg et al., 2007; Hunt & Eisenberg, 2010; Tanner &

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Arnett, 2009). Additionally, by incorporating facilitators and barriers to service use (e.g., traditional enabling factors) into the model, the BMVP has the capacity to take into account the influence of family and friends (e.g., social support) as well as the effects of factors such as perceived racial discrimination on mental health service utilization among African Americans in general (Thompson et al., 2004), and perhaps, among this population. Due to its ability to identify the particular challenges faced by vulnerable populations in obtaining necessary services (Gelberg et al., 2000), the BMVP is an excellent framework for examining the myriad of factors that may be associated with mental health service utilization among African American emerging adults.

Model Conceptualization for Present Study

The conceptual model used in this dissertation study is the first to incorporate components of the BMVP to examine mental health service utilization among African American emerging adults. This framework is applicable to this study due to its comprehensive use of predictor variables and, in particular, its adaptability to the specific needs of the vulnerable population being studied. As previously noted, the BMVP includes several factors associated with service utilization among African Americans in general at both the traditional and vulnerable domains. Of the variables typically included in the BMVP, this study will focus on examining the relationship of predisposing, enabling, and need factors, (e.g., gender, educational attainment, employment, mental health insurance coverage, perceived emotional support, perceived racial discrimination, evaluated need, and perceived need) on mental health service utilization rates by recency of use and provider types utilized among a national sample of African American emerging adults. Each of these constructs has been cited as being associated with mental health service utilization among African Americans in general and a subset of

African American emerging adults (e.g., college students), and is reviewed more specifically

below (see Figure 3.3).

Figure 3.3. Conceptual Model of Mental Health Service Utilization among African American Emerging Adults used in this Study[5]
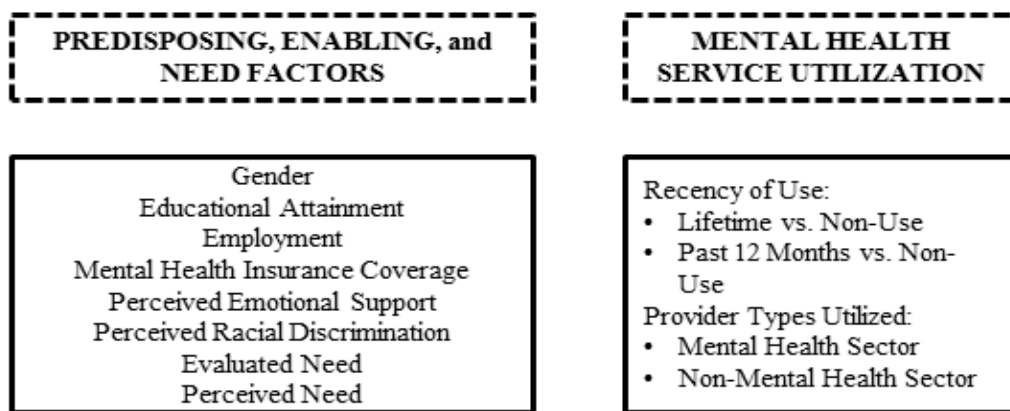
Predisposing, Enabling, and Need Factors

    Gender. Previous literature indicates that females, including African Americans (Cooper-

Patrick et al., 1999; Neighbors & Howard, 1987) and emerging adults (Yorgason, Linville, &

Zitzman, 2008), are more likely to utilize mental health services than their male counterparts.

However, one study found that while females were more likely than males to receive any mental

health treatment within the past 12 months, they were 40% less likely to receive specialty mental

health treatment (Wang et al., 2005). Of the few studies exploring gender differences in mental

health service utilization among African American emerging adults, two sampled African

American college students and found that males are significantly less likely to utilize services

than females (Duncan & Johnson, 2007; Henderson et al., 2007). Yet, one study that

investigated the prevalence of major depressive disorder among a sample of urban African

Americans ages 19-22 (N=1,197), including individuals with some college, found that mental

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[5] This figure uses terms from Andersen's Behavioral Model of Health Services Use and the BMVP, and specifies the timeframe for mental health service utilization.

health service utilization did not vary significantly by gender (Ialongo et al., 2004). In order to examine potential gender differences in service utilization, this study included gender as a primary variable of interest.

Educational attainment. Higher educational levels have been associated with greater likelihood of receiving any mental health services among African Americans ages 18 and older (Cooper-Patrick et al., 1999). That study found that African Americans who were college graduates (≥16 years of education) were more likely to use mental health services within the past 6-12 months compared to African Americans with less than 16 years of education. In addition, one study found that participants who were college graduates were more likely to receive specialized mental health care than those who had less than a college education (Wang et al., 2005). Those same authors noted that because racial/ethnic minorities including African Americans tend to have lower aggregate education, this correlation may lead to increased unmet need among African Americans. Research among African American college students indicates that year in college (e.g., being a senior versus being a freshman) may increase a student's willingness to seek mental health services (Henderson et al., 2007; So et al., 2005). However, because the samples in these studies were limited to African American college students at historically black colleges and universities, the results may not be generalizable to other African American emerging adults. Thus, educational attainment is included in the model of this dissertation study as a primary variable of interest.

Employment. Research examining the effect of employment (as a proxy for socioeconomic position) on mental health among African Americans in general found that African American males who were unemployed had significantly greater odds of 12-month major depressive episode than male respondents who were employed (Hudson, Neighbors,

40

Geronimus, & Jackson, 2011). Yet, less is known about the impact of employment on mental health service utilization among African American emerging adults. One study of 616 emerging adults between the ages of 18-21 found that employment was not associated with use of mental health services; however, these authors noted that this may be due to unstable employment or the fact that health insurance may not be offered through their employers (Ringeisen et al., 2009). To address this issue, this study's conceptual model included employment status as a potential facilitator of mental health service utilization.

Mental Health Insurance Coverage. Having health insurance coverage has been found to be a strong predictor of mental health service utilization among African Americans in general (Cooper-Patrick et al., 1999; Davis & Ford, 2004). In fact, Snowden & Thomas (2000) found that African Americans with Medicaid were more likely to access outpatient mental health treatment than those with private insurance. This may be due to the fact that when African Americans do have private health insurance, they are less likely to have mental health coverage as a part of that insurance (McGuire, Alegría, Cook, Wells, & Zaslavsky, 2006).

Similarly, one study of African American, Caucasian, and Hispanic emerging adults aged 18-21 found that emerging adults with Medicaid were more likely to utilize mental health services than those with private insurance or no insurance (Ringeisen et al., 2009). Yet, other studies have found that among African American and college-attending emerging adults, having health insurance is not associated with increased likelihood of any type of mental health service use (Eisenberg et al., 2007; Maulik et al., 2010). Additionally, African Americans in general and emerging adults of any race/ethnicity typically have lower insurance rates than Caucasians or any age group (between ages 0-64) (Davis & Ford, 2004; Park et al., 2006; US DHHS, 2001). For the purposes of this study, this construct is defined by whether the respondents indicated

having public, private, or no mental health insurance coverage and was included in the conceptual model.

Perceived emotional support. Literature indicates that perceived emotional support may influence the likelihood of mental health service utilization (Hayden, 2009). Pescosolido, Gardner, & Lubell (1998) acknowledge that a person typically does not make health-related decisions alone or in a rational manner; rather, the social support system may influence help-seeking for health and mental health problems. Among a nationally representative sample of adults ages 18 and older, including African Americans, researchers found that higher levels of social support were associated with increased odds of utilization of non-specialty mental health services (e.g., general medical services) (Maulik, Eaton, & Bradshaw, 2009). In addition, among a sample of African Americans that included emerging adults, participants reported that when family members identified mental health services as a resource, they were more likely to seek them out (Hines-Martin, Malone, Kim, & Brown-Piper, 2003). However, it is possible that having a strong support system may impede perceived need as an individual may feel that his need has been met by support from family members, and that there is no longer a need to utilize formal mental health services (Garrido, Kane, Kaas, & Kane, 2009). To examine its potential effects on mental health service utilization among this sample, perceived emotional support was included in this model.

Perceived racial discrimination. Perceived racial discrimination, or a person's perception of individual acts of racial discrimination, may influence a person's decision to seek health and mental health services (Copeland & Butler, 2007; Davis & Ford, 2004). However, research on the effect of perceived racial discrimination on mental health service utilization is limited (Burgess, Ding, Hargreaves, van Ryn, & Phelan, 2008). Among a multi-ethnic sample of adults

ages 18 and older (N=555), Burgess and colleagues (2008) found that perceived racial discrimination was associated with increased likelihood of underutilization of mental health care. In particular, those who experienced major discrimination (e.g., were denied housing or employment) had greater odds of underutilization of mental health services. Yet, little is known about the relationship between perceived racial discrimination and mental health service utilization among African American emerging adults; thus, it is included in this study.

Evaluated need. Both African Americans and emerging adults have been cited as experiencing mental illness at higher rates than Caucasians and older adults, respectively. While African Americans may have lower rates of lifetime anxiety compared to Caucasians, they have been found to experience higher rates of depression and serious psychological distress (Reeves et al., 2011). Similarly, emerging adults have higher prevalence rates of serious mental illness compared to young adults and older adults (NIMH, n.d.). Research indicates that in the general population (Kessler et al., 2005b), and among emerging adults ages 18-29 years of age (Kessler & Wang, 2008), any anxiety disorder has the highest prevalence rate and any substance use disorder has the lowest prevalence rate. Although there is contradictory information about the prevalence rate of mental illness among African Americans compared to Caucasians (e.g., (Copeland & Butler, 2007; Davis & Ford, 2004; Jackson et al., 2004; Kessler et al., 2005a; US DHHS, 1999), this study hypothesizes that any anxiety disorder will have the highest prevalence rate among a sample of African American emerging adults.

Mental health service utilization research indicates that prevalence of a mental illness may be related to any service use, including mental health service utilization (Alegría et al., 2002). Among a sample of 9,282 adults (ages 18 and older), including African Americans, researchers found that individuals diagnosed with any mood disorder (e.g., Bipolar or

Dysthymia) were more likely to seek any type of services than those diagnosed with anxiety disorders (e.g., Panic or Posttraumatic stress) or any substance use disorder (56% versus 42% and 38%, respectively; Wang et al., 2005). Blanco and associates (2008) found that, among a sample of college-attending emerging adults and their non-attending peers (N=5,092), the highest rates of treatment were among those with mood disorders while those with alcohol/drug use disorders had the lowest rates. However, impulse control diagnoses such as eating disorders are not typically included as a category of mental health need among research that focuses on mental health service utilization among adults (e.g., Blanco et al., 2008; Kessler & Wang, 2008). This is a possible limitation considering that these types of disorders are commonly diagnosed among emerging adults, and particularly those who are attending college (Mowbray et al., 2006; Soet & Sevig, 2006). Given that little is known about the impact of mental disorder type on mental health service utilization among African American emerging adults, this study included evaluated need as indicated by endorsed responses to DSM-IV diagnoses type (e.g., mood disorders, anxiety disorders, substance use disorders, and impulse control disorders) among African American emerging adult respondents.

   Perceived need. Perceiving need for mental health services is often the first step in determining whether services are required (Garrido et al., 2009). In fact, perceived need for mental health services is considered to be a more powerful predictor of service use than predisposing or enabling factors (Andersen, 1968; Andersen, 1995; Lemming & Calsyn, 2004). Thus, failure to acknowledge having a mental health problem or the need for services may be one factor in no or under-utilization of mental health services. Available literature targeting African Americans in general and African American emerging adults in particular indicate that these populations are less likely to access mental health services due to lack of perceived need

for services (Hines-Martin et al., 2003b; Kearney et al., 2003). Perceived need for services was included in this study's conceptual model in order to further examine its effect on mental health service utilization among this sample of African American emerging adults.

Mental health service utilization

Recency of use. When diagnosed with a mental illness, African American adults ages 18 and older participate in outpatient mental health services at only half the rate of their Caucasian counterparts (Davis & Ford, 2004; Snowden & Yamada, 2005; Thornicroft, 2008). Similarly, emerging adults with mental illness are less likely to utilize mental health services with utilization rates of 40% and less to 62-71% among adults ages 26 and older compared to (Blanco et al, 2008; Hunt & Eisenberg, 2010; Kessler et al., 2005a; Ringeisen et al., 2009; Rosenthal & Wilson, 2008; SAMHSA, 2009; Tanner, 2010). While these studies operationalized service utilization by use in the past 12 months, this dissertation study also included lifetime utilization of mental health services to further examine service utilization among African American emerging adults. Both lifetime and past 12 month utilization are included in this study in order to fully capture and examine any potential service utilization among this population.

Provider type utilized. When African Americans do seek services, they are less likely to use specialty mental health services (e.g., those provided by licensed or certified mental health care professionals) (Davis & Ford, 2004; Snowden & Yamada, 2005), while African American emerging adults are less likely to attend formal mental health sessions when compared to Caucasian college students (Kearney et al., 2003). Instead, they are more likely than Caucasians and other racial/ethnic groups to use non-specialty mental health services such as medical doctors and emergency rooms (Alegría et al., 2002; Cooper-Patrick et al., 1999; Davis & Ford, 2004; Neighbors, 1985; Snowden, 1999; Snowden & Hu, 1997; US DHHS, 2001). Likewise,

emerging adults, including African American college students, are more likely to seek assistance from non-specialty services such as social service agencies and religious institutions (Chiang et al., 2004; Tanner, 2010). In a sample of college-attending emerging adults, including African Americans (n=75), African American students were more likely to use religious activities as a coping strategy for problems with school and relationships compared to using counseling services (40% versus 21%, respectively; Chiang et al., 2004). To examine differences in mental health service utilization by provider types utilized, this study included providers in the mental health and non-mental health sectors.

Model Limitations

Although this study's model is based on components from models that have been empirically tested with other vulnerable populations including African Americans, these components have not been used to examine mental health service utilization specifically among African American emerging adults. In addition, the variables selected for this dissertation study have not been examined in conjunction with each other, and specifically within this population. Furthermore, there is the possibility that the original significance or magnitude of key concepts to service utilization has been fully been explored or has changed over the years. For example, African Americans, like many people in today's society, are becoming more educated. It is possible that even if Andersen's model had been tested with African Americans in the past, that the relationship between education and service utilization would not have been adequately reflected due to lower rates of post-secondary education. However, the fact that these models – Andersen's Behavioral Model of Health Services Use and the Behavioral Model for Vulnerable Populations – have not been tested with African American emerging adults support the need for preliminary examination of this study's conceptual model among this population. Moreover,

considering the dearth of research examining mental health service utilization among this understudied group, the use of this conceptual model is a first step in addressing significant gaps in the literature.

Summary

The Behavioral Model for Vulnerable Populations, an adaptation of Andersen's Behavioral Model of Health Services Use, serves as the foundational framework for the conceptual model used in this dissertation study. This study is the first to use components of the BMVP to examine mental health service utilization among African American emerging adults. This study's conceptual model draws specific variables from the BMVP, including predisposing, enabling, and need factors (e.g., gender, educational attainment, and employment, mental health insurance coverage, perceived emotional support, perceived racial discrimination, evaluated need, and perceived need,) to examine their impact on mental health service utilization rates and provider types utilized by African American emerging adults in a nationally representative sample. While previous research has investigated the impact of these factors among African Americans in general and also emerging adults, particularly college students, there remains a paucity of literature exploring their impact on African American emerging adults. Therefore, this study addresses a relevant need and pressing gap in the mental health service research literature.

CHAPTER 4: STUDY METHODOLOGY

The investigation of factors associated with mental health service utilization among African American emerging adults is sparse; due, in part, to discrepant use of age categories between studies (e.g., 18-20 and 21-34 versus 18-29; see Chow et al., 2003; Kessler et al., 2003) and a focus on a specific subset of African American emerging adults, namely college students to the exclusion of non-college attending emerging adults (e.g., Barksdale & Moloft, 2008; Henderson et al., 2007; Kearney et al., 2003). Discrepancies in age categories, as well as the exclusive use of African American college students, create difficulties for generalizability of study results, hamper comparison across studies, and limit the ability to gather specific information about mental health services utilized by African American emerging adults. To address these limitations, a secondary data analysis of a sample of African American emerging adults from a nationally representative dataset, the National Survey of American Life (NSAL; Alegría, Jackson, Kessler, & Takeuchi, 2008; Jackson et al., 2004) was conducted. This chapter discusses the NSAL's methodology, as well as the specific subset of African Americans from the NSAL identified for use in this dissertation study. This chapter concludes with an explanation of the data analysis used to examine each specific aim and a methodological summary.

Study Population and Data Collection

The National Survey of American Life (NSAL)

The NSAL is one of three studies (see also, the National Comorbidity Study-Replication [NCS-R] and the National Latino and Asian American Study [NLAAS]) that constitute the National Institute of Mental Health's Collaborative Psychiatric Epidemiology Surveys [CPES]) (Alegría et al., 2008). These surveys were initiated to address the need for recent, comprehensive epidemiological data regarding the correlates, risk factors, and distributions of mental disorders among the general population with special emphasis on racial/ethnic minority

groups. Collectively, these surveys provide the first national dataset with sufficient power to investigate cultural and ethnic influences on mental disorders (Alegría et al., 2008). In particular, the NSAL includes numerous variables related to the emotional, mental, and social conditions of African Americans, Afro-Caribbeans, and non-Hispanic Caucasians, with a focus on mental disorders, psychological distress, and informal and formal service use (Jackson et al, 2004). Additionally, the NSAL explores various psychosocial factors that may impact mental health service utilization among this population (e.g., evaluated need, perceived need, social support, and perceived racial discrimination) (Griffith, Neighbors, & Johnson, 2009). This study was approved by the Institutional Review Board at the University of Michigan and is now a publicly available data set through the Inter-University Consortium for Political and Social Research (ICPSR) at the University of Michigan.

The NSAL targeted English-speaking African American, Afro-Caribbean, and non-Hispanic Caucasian adults, aged 18 years and older residing in households located in the United States. Additionally, respondents were required to reside in urban and rural neighborhoods that were at least 10% African American at the time of data collection. The term "African American" (or Black, as it was used interchangeably throughout the survey) described respondents who were US born Black or who were born in the US and identified themselves as African American. The term "Afro-Caribbean" described respondents who reported being born in a Caribbean country or who reported that they were first or second generation descendants of Caribbean-born parents or grandparents. The majority of the interviews were conducted face-to-face with race matching of interviewer and respondents, while approximately 14% were conducted entirely or partially by telephone. Interviewers used computer assisted personal interviewing (CAPI) software to complete an enumerated listing of all persons living in the

household and determined study eligibility for each member based on their age, race, Hispanic and Caribbean ancestry, and ability to speak English. Only one eligible adult was selected from each household using random selection procedures (Jackson et al., 2004). Surveys took an average of 2 hours and 20 minutes to complete for African Americans, 2 hours and 43 minutes for Afro-Caribbeans, and 1 hour and 43 minutes for Caucasians (as they were not asked some of the disorder questions and some of the study-specific questions which were not appropriate for this population) (Jackson et al., 2004).

Data were collected between February 2001 and March 2003 using an integrated national household probability sampling process and weights were created to account for unequal probabilities of selection, non-response, and post-stratification (Heeringa et al., 2004; Jackson et al., 2004). For NSAL, 11,634 eligible households were identified from 26,495 randomly sampled addresses (Alegría et al., 2008). Initial sample sizes of 4,000 African Americans, 1,000 Afro-Caribbeans, and 1,800 non-Hispanic Caucasians were selected based on the prevalence estimates of mental disorders among each racial/ethnic group (particularly African Americans and non-Hispanic Caucasians) with power calculations for detecting differences among groups at 0.05 probability level or better (Jackson et al., 2004). However, after preliminary examinations of the data, the original size was decreased for the non-Hispanic White sample and increased for the Afro-Caribbean sample to maximize the examination of differences among the samples of African Americans and Afro-Caribbeans (Jackson et al., 2004).

The final sample of the NSAL was a total of 6,082 respondents aged 18 to 94 years, including 3,570 African Americans, 1,623 Afro-Caribbeans, and 891 non-Hispanic Caucasians[6]. The overall response rate for the NSAL was 72.3%, with response rates of 70.7% for African

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[6] The original sample of non-Hispanic Caucasians was 1,006; however, 115 were excluded because they lived in areas where the African American/Afro-Caribbean population was less than 10% (Jackson et al., 2004).

Americans, 77.7% for Afro-Caribbeans, and 69.7% for non-Hispanic Caucasians (Jackson et al., 2004). This final sample represents a nationally representative sample of African Americans and Afro-Caribbeans while the NSAL sample of non-Hispanic Caucasian represents about 14% of the total Caucasian population in the US (Heeringa et al., 2004; Jackson et al., 2004).

African American Emerging Adults subset. For the purposes of this study, a subset of the African American respondents from the original NSAL adult interviews was analyzed[7], namely African American emerging adults ages 18 to 29 (n=806). Given the specific focus of mental health service utilization among African American emerging adults, Afro-Caribbean and non-Hispanic Caucasian and adolescent respondents will be excluded for this dissertation study (see Figure 4.1). As discussed in Chapter 2, no studies have exclusively investigated mental health service utilization among African American emerging adults. The NSAL provides a large, nationally representative sample of African American emerging adults who were surveyed on multiple variables associated with their mental health and mental health service utilization. Furthermore, this large subset of African American emerging adults addresses the heterogeneity of African Americans (e.g., educational attainment and employment status) while providing sufficient statistical power to rigorously test hypotheses within a multivariate context (Griffith et al., 2009; Jackson et al., 2004).

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[7] Stata 12.1/SE accounts for subsetting with the *subpop* command. Additional information is provided in the Data Analyses section.

Figure 4.1 Sampling Strategy for Dissertation Study
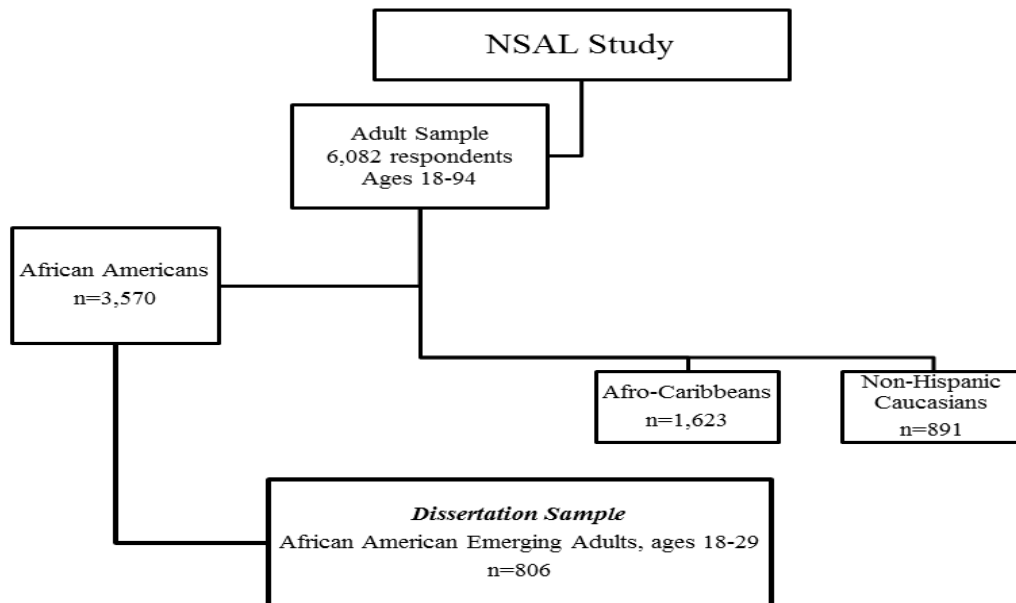
In addition, among the surveys that include African Americans in their sample, many did not include variables that may be specifically associated with mental health service utilization among African American emerging adults. Table 4.1 compares the NSAL with three other large-scale national surveys that include African American emerging adults (e.g., the National College Health Assessment, the Center for the Study of Collegiate Mental Health, and the National Survey on Drug Use and Health). This matrix illustrates the comprehensive nature of the NSAL, including its inclusion of mental health and service utilization variables, as well as its capacity to provide a large and heterogeneous sample of African American emerging adults, including non-college attending emerging adults.

Table 4.1. Comparison Matrix of Four National Surveys that Include African American Emerging Adults						
	Adequate Sample Size of African Americans	Includes Non-College Attending Respondents	Includes List of DSM-IV Disorders	Includes List of Providers Utilized	Includes Items about Lifetime Utilization	Includes Items about Past 12 Month Utilization
National Survey of American Life	Yes, n=806	Yes	Yes	Yes	Yes	Yes
National College Health Assessment[8]	Yes, n=1428	No	Yes	Limited	No	Yes
Center for the Study of Collegiate Mental Health[9]	Yes, n=1917	No	Yes	No	No	Yes
National Survey on Drug Use and Health[10]	NA[11]	Yes	No	No	No	Yes

Study Aims and Hypotheses

This study examines the relationship of predisposing, enabling, need factors (e.g., gender, educational attainment, employment, mental health insurance coverage, perceived emotional support, perceived racial discrimination, evaluated need [also including specifically by DSM-IV diagnosis type], and perceived need) on mental health service utilization and provider types utilized among a nationally representative sample of African American emerging adults ages 18-29. The study's first two aims, which compare rates of mental health disorders and mental health service utilization, respectively, set the stage for subsequent aims (aims 3-5) which test the study's conceptual model. Drawing from the literature exploring mental health service

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[8] American College Health Association. American College Health Association - National College Health Assessment (ACHA-NCHA) Web Summary. Updated August 2007. Available at http://www.acha-ncha.org/data_highlights.html. 2007.

[9] Center for the Study of Collegiate Mental Health (CSCMH). (2009). 2009 Pilot Study Executive Summary. Retrieved from http://ccmh.squarespace.com/storage/2009-CSCMH-Pilot-Report.pdf.

[10] Substance Abuse and Mental Health Services Administration, Results from the 2011 National Survey on Drug Use and Health: Summary of National Findings, NSDUH Series H-44, HHS Publication No. (SMA) 12-4713. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2012.

[11] The survey included 44,629 African Americans; however, this total was not categorized by age.

utilization among African Americans and emerging adults, the specific aims and hypotheses of this study, along with visual depictions for Aims 4 and 5 (Figures 4.2 and 4.3), are as follows:

Aim 1. Compare rates of mental health disorder by DSM-IV diagnosis type (e.g., mood disorders, anxiety disorders, substance use disorders, and impulse control disorders) among a sample of African American emerging adults.

H1. A higher percentage of African Americans emerging adults will endorse anxiety disorders compared to all other disorders.

Aim 2. Compare variations in mental health service utilization rates by recency of use and provider types utilized among a sample of African American emerging adults.

H_{2A}. The percentage of African American emerging adults ever utilizing services will be lower than the percentage of those who have never utilized services.

H_{2B}. The percentage of African American emerging adults utilizing providers in the non-mental health sector will be higher than the percentage of those utilizing providers in the mental health sector.

Aim 3. Examine the association between mental health service utilization rates by recency of use and provider types utilized by DSM-IV diagnosis type among a sample of African American emerging adults.

H_{3A}. African American emerging adults who are diagnosed with mood disorders will have increased odds of utilizing any service in their lifetime history and utilizing providers in the mental health sector compared to those with any other disorders.

H[3B]. African American emerging adults who are diagnosed with substance use disorders will have decreased odds of utilizing any service in their lifetime history and utilizing providers in the mental health sector compared to those with any other disorders.

Aim 4. Examine the association between mental health service utilization rates by recency of use and provider types utilized by predisposing, enabling, and need factors (e.g., gender, educational attainment, employment, mental health insurance coverage, perceived emotional support, perceived racial discrimination, evaluated need, and perceived need).

H[4A]. African American emerging adults who are female will have increased odds of utilizing any service in their lifetime history and of utilizing providers in the mental health sector compared to those who are males.

H[4B]. African American emerging adults who are college graduates will have increased odds of utilizing any service in their lifetime history and of utilizing providers in the mental health sector compared to those who have some college or less.

H[4C]. African American emerging adults who are employed will have increased odds of utilizing any service in their lifetime history and of utilizing providers in the mental health sector compared to those who are unemployed or not in the work force.

H[4D]. African American emerging adults who have public mental health insurance coverage will have increased odds of utilizing any service in

their lifetime history and of utilizing providers in the mental health sector compared to those who have private or no mental health insurance coverage.

H_{4E}. African American emerging adults who have higher perceived emotional support will have increased odds of utilizing any service in their lifetime history and of utilizing providers in the mental health sector compared to those who have lower perceived emotional support.

H_{4F}. African American emerging adults who have lower perceived racial discrimination will have increased odds of utilizing any service in their lifetime history and of utilizing providers in the mental health sector compared to those who have higher perceived racial discrimination.

H_{4G}. African American emerging adults who have an evaluated mental health need (e.g., who have a DSM-IV diagnosis) will have increased odds of utilizing any service in their lifetime history and of utilizing providers in the mental health sector compared to those who do not have an evaluated mental health need.

H_{4H}. African American emerging adults who have a higher perceived need for mental health services will have increased odds of utilizing any service in the past 12 months compared to those who have a lower perceived need for mental health services.

Aim 5. Test the potential mediating and moderating effects of significant predictor variables (e.g., predisposing, enabling, and need factors) among a sample of African American emerging adults.

H_{5A}. Evaluated need and perceived need will have mediating effects.

Figure 4.2. Visual Depiction of Hypothesis 5A
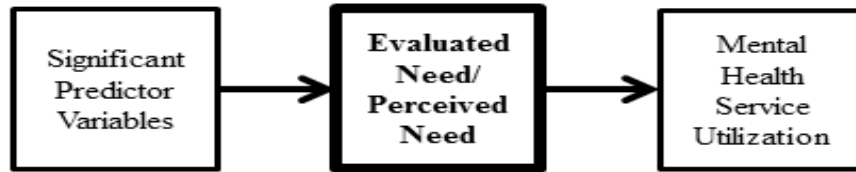
H_{5B}. Gender, mental health insurance coverage, perceived emotional

support, and perceived racial discrimination will have moderating effects.

Figure 4.3. Visual Depiction of Hypothesis 5B
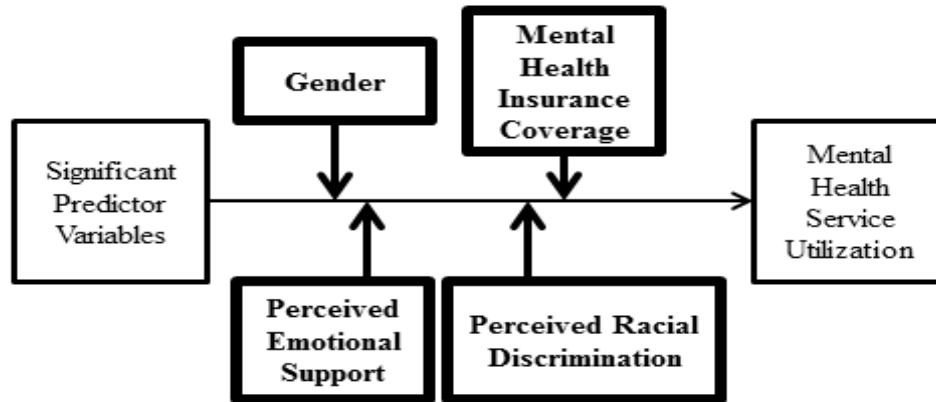
Measures

In order to investigate these hypotheses, the following independent and dependent

variables were used to test this study's conceptual model. Operationalization of each variable is

provided below (see Appendix A for additional detailed information on these study variables).

Predisposing, Enabling, and Need Factors

Gender was a dichotomous variable with male as the reference category (coded as 0).

Educational attainment was collected as a continuous measure of years of education. However,

the original NSAL also created a variable that included four categories of educational attainment:

less than high school (≤11 years of education), high school graduate (12 years of education), some college (13-15 years of education), and college graduate (≥16 years of education). These categories were used in this study with "less than high school" , the reference group, coded as 1, "high school graduate" coded as 2, "some college" coded as 3, and "college graduate" coded as 4.

Employment status was coded into three categories: employed (e.g., respondents who reported that they were currently employed at the time of data collection), unemployed (e.g., respondents who were unemployed but actively seeking employment), and not in labor force (e.g., respondents who were not currently working and were not seeking employment). "Employed", the reference group, was coded as 1, "unemployed" was coded as 2, and "not in labor force" was coded as 2.

Respondents' mental health insurance coverage was measured by three categories: having private mental health insurance coverage, if the respondent indicated having mental health insurance coverage through private insurance (e.g., health insurance through individual or family's employer, former employer, or union); having public mental health insurance coverage, if the respondent indicated having mental health insurance coverage through public insurance (e.g., any federal government health insurance programs, such as Medicare, Medicaid, or CHAMPUS, VA, or other military programs); or no mental health insurance coverage, if the respondent indicated not having either public or private mental health insurance coverage at the time of survey completion. Private mental health insurance coverage, the reference group, was coded as 0, public mental health insurance was coded as 1, and no insurance was coded as 2.

Perceived emotional support was determined using three items asking how often your family members (other than spouse or partner): make you feel loved and cared for, listen to you

talk about your private problems and concerns, and express interest and concern in your well-being. Respondents' answers ranged from very often (1), fairly often (2), not too often (3), and never (4). These answers were reverse coded to generate a scale of perceived emotional support, with a value of 3 equaling the lowest level of perceived emotional support and 12 equaling the highest level. Thus, the higher the score, the higher the level of respondent's perceived emotional support. Cronbach's alpha for this 3-item index is 0.74.

Perceived racial discrimination was assessed using one domain from a modified version of the Lifetime Discrimination subscale of the Detroit Area Study Discrimination Questionnaire (DAS-DQ; Taylor, Kamark, & Shiffman, 2004; Williams, Yu, Jackson, & Anderson, 1997). Respondents were asked if they had ever experienced nine major episodes of discrimination ranging from being unfairly discouraged by a teacher or advisor from continuing your education, to being unfairly fired, to being unfairly stopped, searched, questioned, physically threatened or abused by the police[12]. For each of the nine discrimination events experienced, respondents were asked to identify one *main* reason for the discriminatory experience. Reasons included ancestry or national origins, gender, race, age, height or weight, and shade of skin color. For this study, the variable of interest was whether the respondent identified *race* as the primary reason for any discriminatory experience. This variable was coded into a dichotomous variable with a value of 1 indicating that the respondent had experienced at least one discriminatory experience based on race versus no racial discriminatory experiences (value=0). Cronbach's alpha for this item is 0.67.

DSM-IV diagnosis type was determined using the World Health Organization-Composite International Diagnostic Interview (WHO-CIDI), a comprehensive, fully-structured interview designed to be used by trained lay interviewers for the assessment of mental disorders according

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[12] A complete list of the nine major episodes of discrimination is included in Appendix A.

to the definitions and criteria of ICD-10 and DSM-IV (Jackson et al., 2004). Specifically, in the screening section of the NSAL, respondents' were asked a number of questions about physical and emotional well-being in their lifetime (e.g., have you ever in your life has an attack of fear or panic when all of a sudden you felt very frightened, anxious, or uneasy?). If they answered yes to specific screener questions, NSAL interviewers were prompted to ask respondents additional questions about the specific disorder (e.g., generalized anxiety disorder) to further determine if they met the DSM-IV criterion for the disorder. If the respondent met the criterion for a particular disorder, he/she was considered "endorsed" for the disorder.

Used individually in Aims 1 and 3, DSM-IV diagnosis type was operationalized by four (e.g., mood disorders, anxiety disorders, substance use disorders, and impulse control disorders) dichotomous nominal variables determined by whether or not the respondent screened and endorsed for at least one of four DSM-IV diagnosis type categories. The mood disorder category was a recoded variable that included major depressive episode, dysthymia, mania, bipolar I and II; the anxiety disorder category was a recoded variable that included agoraphobia without panic disorder, agoraphobia with panic disorder, panic disorder, panic attacks, social phobia, generalized anxiety disorder, posttraumatic stress disorder, separation anxiety disorder, and adult separation anxiety; the substance use disorder category was a recoded variable that included alcohol abuse and dependence and drug abuse and dependence; and the impulse control disorder category was a recoded variable that included any binge eating, attention deficit/hyperactivity disorder, and oppositional defiant disorder[13]. For Aims 3, 4, and 5, all four of the DSM-IV diagnosis categories were combined and recoded to create one variable, evaluated need.

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[13] Impulse control disorders were recorded in accordance with the WHO-CIDI classifications (see http://www.hcp.med.harvard.edu/wmhcidi/about.php).

Perceived need[14] is a dichotomous variable (yes/no) determined by one item that asked about respondents' reported need for professional services for problems with their emotions, nerves, or use of alcohol or drugs in the past 12 months.

Mental Health Service Utilization

For the purposes of this study, mental health service utilization rates were operationalized by recency of use (e.g., whether respondents' utilized services in their lifetime versus non-use and utilization in the past 12 months or non-use) and provider type utilized (e.g., lifetime use of the mental health sector the non-mental health sector). Both lifetime and past 12 month utilization are included in this study in order to fully capture and examine any potential service utilization among this population. To determine lifetime utilization, respondents were asked if they ever in their lifetime saw any professionals for problems with their emotions, nerves, or use of alcohol or drugs. In addition, respondents were also asked if they ever talked to a medical doctor or [any] other professional about their problems with the specific disorder (e.g., depression, mania, panic disorder, social phobia, agoraphobia, generalized anxiety disorder, substance use, posttraumatic stress disorder, eating disorders, attention deficit/hyperactivity disorder, oppositional defiant disorder, and separation anxiety disorder).

To further ensure that any mention of lifetime service utilization was captured, this recoded variable also included responses to a series of nine questions that asked respondents about any previous mention of talking to a professional about mental health and included nine response options (e.g., psychiatrist, family doctor, other medical doctor, psychologist, social worker, counselor, other mental health professional, other health professional, religious or spiritual advisor, or other healer). If the respondents answered "yes" to any of these questions or

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[14] This variable will only be used in analyses for past 12 month utilization to provide consistency between the timeframes of both the predictor and outcome variables.

indicated that they had talked to a professional about mental health, those responses were combined and recoded to create the "use in lifetime" category (coded 1), while the "no use" category only included those respondents that answered "no" to all of the questions.

To determine past 12 month utilization, respondents were asked if they had talked to a medical doctor or [any] other professional about their problems for the aforementioned disorders. If the respondents answered "yes" to any of these questions, those responses were combined and recoded to create the "use in the past 12 months" category, while all "no" responses were combined to create the "no use in the past 12 months" category.

Provider types utilized was comprised of two categories: mental health sector or non-mental health sector. Respondents were asked which of the following professionals they have ever talked to: psychiatrist, any other mental health professional (e.g., psychologist, psychotherapist, social worker, counselor, or mental health nurse), family doctor, any other medical doctor, any other health professional, religious or spiritual advisor, and any other healer. Psychiatrist and any other mental health professional were combined and recoded as "mental health sector"; while family doctor, any other medical doctor, any other health professional, religious or spiritual advisor, and any other healer were combined and recoded as "non-mental health sector".

Data Analyses

Data analyses for this dissertation study were conducted using Stata 12.1/SE (StataCorp, 2011) and MPLUS 6.1 (Muthen & Muthen, 2010) analytical software, both of which account for the complex survey design of the NSAL data (e.g., clustering and stratification). As a part of the CPES, the NSAL used weights to take into account unequal probabilities of selection, characteristics of non-respondents, and post-stratification. It is important to weight for unequal

probabilities of selection as it reduces selection bias. Non-response was accounted for using geographic factors while demographic factors such as age, gender, and census region were used to calculate the post-stratification weights. The use of post-stratification weights ensured that the distribution of the sample resembles the distribution of the US on those demographic characteristics. All of these adjustments resulted in the weighted CPES sample, including the NSAL, being representative of the race and ethnic groups included in the study, meaning that no group is either overrepresented or underrepresented. Thus, all analyses in this study utilized the analytic weights recommended by the CPES for conducting analyses using the NSAL only (as opposed to using a combined dataset that included the NCS-R and the NLAAS). In Stata 12.1/SE, the following command was utilized: [*svyset* SECLUSTR [pweight=NSALWTPN], strata(SESTRAT)], while the following: (CLUSTER = psu; WEIGHT = NSALWTPN; STRATIFICATION = SESTRAT; SUBPOPULATION IS AAEA==1) was used in MPlus 6.1. These commands accounted for the primary sampling unit (PSU), corrected for clustering, included the population weight, and standard error estimates corrected for unequal probabilities of selection, nonresponse, and post-stratification (CPES website, n.d.).

In addition, because the sample for this study (e.g., African American emerging adults ages 18-29) is a subset of an existing sample within the NSAL (including African American, Afro-Caribbean, and non-Hispanic Caucasian adults ages 18 and older), the original NSAL race/ancestry and age variables (RANCEST and AGE, respectively) were recoded to generate a new subpopulation variable coded African American emerging adults (e.g., *subpop [AAEA]*). All analyses were then conducted using this unconditional subclass analysis with the AAEA subpopulation variable (CPES website, n.d.).

Univariate analyses

Univariate analyses were performed for each variable separately to ensure that necessary assumptions were met in preparation for more advanced statistical analyses. These analyses provided descriptive characteristics of each variable (e.g., frequency, percent, errors, and missing values) to ensure accuracy of the data as well as gain greater familiarity with the data. Specifically, in Stata 12.1/SE, the *codebook* command identified the type of variable (e.g., numeric), the range of values (e.g., the value assigned each variable category), the frequency of each value, and the amount of missing values of each variable. Additionally, the *tab* command provided the individual and cumulative percentage of each value. The *mean* command provided the mean, standard error, and 95% confidence level for continuous variables such as perceived emotional need.

After performing univariate analyses, and determining the appropriateness of subsequent advanced analyses, the following data analyses were conducted. Table 4.2 depicts the statistical analyses completed by aim, and is followed by a detailed description of each analysis.

Table 4.2. Data Analyses by Aim			
Aim	Statistic	Data Command	Rationale
1	Percentage	*tab* command in Stata 12.1/SE	To demonstrate rates of mental health disorder by DSM-IV diagnosis type
2	Percentage	*tab* command in Stata 12.1/SE	To illustrate variations in rates of service utilization
3	Chi-square analyses	*svy, subpop (AAEA): ta* command in Stata 12.1/SE	To test associations between DSM-IV diagnosis type and service utilization
3	Bivariate logistic regressions	*svy, subpop (AAEA): logistic* command in Stata 12.1/SE	To determine the odds of service utilization by DSM-IV diagnosis type
4	Chi-square analyses	*svy, subpop (AAEA): ta* command in Stata 12.1/SE	To test associations between predisposing, enabling, and need factors and service utilization
4	Bivariate logistic regressions	*svy, subpop (AAEA): logistic* command in Stata 12.1/SE	To determine the odds of service utilization by predisposing, enabling, and need factors
4	Multiple logistic regressions	*svy, subpop (AAEA): logistic* command in Stata 12.1/SE	To test for confounding effects between significant predictor variables and service utilization
5	Structural equation modeling to test for	Created direct and indirect models using significant	To test the potential mediation effects of significant predisposing, enabling, and

	mediation	predictor variables in MPlus 6.1	need factors
5	Regressions with interaction terms to test for moderation	*svy, subpop (AAEA): logistic* command in Stata 12.1/SETATA	To test potential moderation effects of significant predisposing, enabling, and need factors

Aim 1. Compare rates of mental health disorder by DSM-IV diagnosis type (e.g., mood disorders, anxiety disorders, substance use disorders, and impulse control disorders) among a sample of African American emerging adults.

The percentage of African American emerging adults with each diagnosis type was determined using the *mean* command. The percentages were then compared to illustrate variations in rates of mental health disorder by diagnosis type.

Aim 2. Compare variations in mental health service utilization rates by recency and provider types utilized among a sample of African American emerging adults.

After recoding the "use in lifetime versus non-use", "use in the past 12 months versus no use in past 12 months", and "provider types utilized" variables, univariate analyses were conducted for each variable using the *tab* command. These analyses generated percentages for each variable and allowed for within-group comparison.

Bivariate and multivariate analyses

For Aim 3, bivariate analyses of the association between each DSM-IV diagnosis type and mental health service utilization rates by recency of use (e.g., lifetime use and use in the past 12 months) and by provider types utilized were conducted using Rao-Scott chi-squares. Chi-squares are used to test a bivariate association between two nominal or limited ordinal variables. Significant results indicate that the expected value (e.g., a null hypothesis of equal likeliness) is sufficiently different from the observed data. Assumptions of chi-squares are: both variables should be measured on a nominal scale, the cell entries should be independent, and there are at

least five expected frequencies per cell (Drake & Jonson-Reid, 2008). Bivariate logistic regressions were conducted to ascertain which DSM-IV diagnosis type increased the likelihood of mental health service utilization by recency and provider types utilized. Logistic regressions are used to assess the association of categorical independent variables with a dichotomous outcome variable. Assumptions of logistic regressions are: independence of observations, independent variables are associated with but do not perfectly predict a 0 or 1 for the outcome variable, nominal outcome variable, approximately 25 observations per variable are entered into the model, and no problem with multicollinearity (Drake & Jonson-Reid, 2008).

For Aim 4, bivariate analyses included Rao-Scott chi-squares and logistic regressions to determine the association between each independent variable and mental health service utilization as well as the likelihood of service utilization by each independent variable (e.g., to compare the likelihood of service use by gender, educational attainment, etc.). Additionally, using a sequential approach, multiple logistic regressions were conducted to examine the effect of the statistically significant predictor variables on mental health service utilization while controlling for the other significant predictor variables.

Aim 3. Examine the associations between mental health service utilization rates by recency of use and provider types utilized by DSM-IV diagnosis type among a sample of African American emerging adults.
Rao-Scott chi-square analyses were conducted to determine the association of each of the four DSM-IV diagnosis types on mental health service utilization rates by recency of use and provider types utilized. These analyses indicated whether or not the association between the DSM-IV diagnosis type and (1) lifetime use, (2) use in the past 12 months, and (3) each provider type utilized is statistically significant. Next, bivariate logistic regressions were performed to

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determine the odds ratio of mental health service utilization by recency of use (e.g., lifetime use and use in the past 12 months) and by provider types utilized for each DSM-IV diagnosis type.

Aim 4. Examine the association between mental health service utilization rates by recency of use and provider types utilized by predisposing, enabling, and need factors (e.g., gender, educational attainment, employment, mental health insurance coverage, perceived emotional support, perceived racial discrimination, evaluated need, and perceived need).

Similar to Aim 3, Rao-Scott chi-square analyses were conducted to illustrate the association of each predisposing, enabling, and need factor on mental health service utilization by recency of use and provider types utilized. These analyses indicated whether or not there is a statistically significant relationship between each factor and (1) lifetime use, (2) use in the past 12 months, and (3) each provider type utilized. Bivariate logistic regressions were also performed to determine the odds ratio of mental health service utilization by recency of use (e.g., lifetime use and use in the past 12 months) and by provider types utilized for each factor.

In order to test whether there was any confounding impact between the significant predictor variables and mental health service utilization by recency of use (e.g., lifetime use and use in the past 12 months) and provider types utilized among African American emerging adults, multiple logistic regressions (one for each category of service utilization) were conducted using the statistically significant predictor variables (e.g., gender, perceived emotional support, evaluated need, and perceived need) and demographic controls (e.g., educational attainment and employment status). These multiple logistic regressions were conducted sequentially and were used to determine the independent effect of each variable on mental health service utilization rates by recency of use and provider types utilized. The original bivariate model included one predictor variable; model 1 included all of the statistically significant predictor variables; and

model 2 added the demographic controls which included educational attainment and employment status.

   Aim 5. Test the potential mediating and moderating effects of significant predictor variables (e.g., predisposing, enabling, and need factors) among a sample of African American emerging adults.

   A structural equation modeling (SEM) approach, which uses regression based techniques to test a theoretical model, was constructed to test the potential mediation effects of significant predisposing, enabling, and need factors among this sample. SEM has advantages over an ordinary least squares regression model in that it is able to include measurement error in the model. Additionally, the structural model is able to test multiple mediating relationships simultaneously in accordance with the hypothesized structure of the variables (Garson, 2009). Therefore, it was used to evaluate the direct, indirect, and total effects of statistically significant predisposing, enabling, and need factors (e.g., gender, mental health insurance coverage, perceived emotional support, evaluated need, and perceived need) among this sample of African American emerging adults. The model for lifetime utilization included evaluated need as a potential mediator and gender and perceived emotional support as exogenous variables. The model for past 12 month utilization included both evaluated and perceived need as potential mediators, and gender, perceived emotional support, and mental health insurance coverage as exogenous variables. Each model was tested for goodness-of-fit and modifications were made as needed (see Chapter 5 for additional details of these analyses). While SEM has advantages over multiple logistic regression and can be used as a confirmatory procedure, it will not be able to test the direction of the relationship and is unable to provide any information about the causal direction of the relationships (Garson, 2009).

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In order to test for potential moderation effects of each statistically significant predisposing, enabling, and need factors (e.g., gender, mental health insurance coverage, perceived emotional support, evaluated need, and perceived need) among this sample, logistic regressions with interaction terms were conducted for both lifetime and past 12 month utilization. In separate analyses for each statistically significant predisposing, enabling, and need factor, the following model was created: mental health service utilization as the outcome variable and the predictor variables (e.g., gender) and each additional predictor variable (entered individually) along with the corresponding interaction term (e.g., gender*[variable]). This resulted in the following equation for each predisposing, enabling, and need factor, respectively:

$$y_{\text{mental health service utilization}} = x1_{\text{gender}} + x2_{\text{evaluated need}} + x1*x2_{\text{gender*evaluated need}}$$

A statistically significant interaction term indicated that the predictor variable had a moderating effect on the relationship (e.g., evaluated need moderated the relationship between gender and service utilization).

Summary

While a limited number of studies exploring mental health service utilization among African American emerging adults exist, the generalizability of this literature is often hampered by age category discrepancies and the use of samples limited to a specific subset of African American emerging adults (e.g., college students). Thus, there is a need for the examination of mental health service utilization among African American emerging adults in general. The NSAL provides a comprehensive source of recent data on the mental, emotional, and economic conditions of individuals who self-identify as African American as well as a large heterogeneous sample of emerging adults with sufficient power to conduct statistical analysis. Using bivariate and multivariate analyses, including SEM, this study will elucidate mental health service

utilization among African American emerging adults by examining some of the demographic

factors, facilitators and barriers to service use that may be associated with service use among this

underserved and understudied population.

CHAPTER 5: STUDY RESULTS

This chapter presents a description of the study's sample along with the results of the

bivariate (chi-squares and logistic regressions) and multivariate (logistic regressions and

structural equation modeling) analyses. The results are organized by aim and include tables (and

figures where applicable) which depict the details of each analysis[15].

Sample Description

Independent variables

This section describes the study sample, as well as the predisposing, enabling, and need

variables (see Table 5.1). The study's sample consisted of African American emerging adults

ages 18-29 (n=806). The mean age was 23.5 years with a standard deviation of ±3.5 years. The

majority of the sample was female (66%) and employed (72%). Nearly half (44%) were high

school graduates while less than one-tenth (8%) were college graduates. With regards to mental

health insurance coverage, slightly more than half of the sample (51%) had no mental health

insurance coverage (n=375), 31% had private coverage (n=231), and 18% had public coverage

(n=133). Thirty-seven percent of the sample (n=299) scored a 12, the highest possible score, on

the perceived emotional support scale, indicating that they felt "very" supported by family and

friends, while less than 2% (n=11) scored a 1, the lowest possible score. Of the respondents who

had experienced at least one racially discriminatory event, 32% (n=257) indicated that they felt

the experience was due to race. Forty-seven percent of the sample endorsed at least one type of

DSM-IV diagnosis (e.g., mood, anxiety, substance use, or impulse control disorders) in their

lifetime (n=372) while 28% of the sample endorsed at least one type of DSM-IV diagnosis in the

past 12 months (n=219). DSM-IV diagnoses included, but were not limited to, major depressive

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[15] All percentages are weighted, while the logistic regressions results conducted in Stata 12.1/SE include 68 psu's
and 34 strata.

disorder, generalized anxiety disorder, alcohol abuse and dependence, and attention

deficit/hyperactivity disorder. Conversely, only 5% of the sample (n=38) perceived a need for

mental health services in the past 12 months.

Table 5.1. Description of Independent Variables among the Sample (n=806)		
Independent Variable	Frequency	Percentage
Age (M ±SD)	23.5 ± 3.5	
Gender		
Female	531	65.88
Male	275	34.12
Educational Attainment		
Some High School	186	23.08
High School Graduate	356	44.17
Some College	196	24.32
College Graduate	68	8.44
Employment		
Employed	581	72.08
Unemployed	135	16.75
Not in Labor Force	90	11.17
Mental Health Insurance Coverage		
Private	231	31.26
Public	133	18.00
None	375	50.74
Perceived Emotional Support (M±SD)	9.99	2.21
Perceived Racial Discrimination (≥ 1 event)	257	31.89
Evaluated Need (Lifetime)	**372**	**47.09**
Mood Disorders	117	14.77
Anxiety Disorders	292	36.92
Substance Use Disorders	66	8.34
Impulse Control Disorder	150	18.99
Evaluated Need (Past 12 Month)	**219**	**27.72**
Mood Disorders	72	9.09
Anxiety Disorders	166	20.99
Substance Use Disorders	31	3.92
Impulse Control Disorders	50	6.33
Perceived Need	38	5.14

Missing Values

After recoding the variables to create the independent variables used in this study, there

were some missing values for four of the eight independent variables (e.g., mental health

insurance coverage, perceived emotional support, evaluated need, and perceived need). The

missing values for mental health insurance coverage (n = 51), perceived emotional support (n =

2), and perceived need n = 51) were due to respondents answering the question with "don't

know" or refused to answer or failing to respond to the item. Evaluated need (e.g., lifetime and past 12 month) had 16 missing values; however, these values were due to the respondent not being asked these questions[16] (CPES, 2010). Both listwise deletion and multiple imputation were conducted in Stata 12.1/SE to assess the impact of the missing values on future analysis. The results of preliminary analysis (e.g., a bivariate logistic regression) indicated similar findings; thus, subsequent analyses were done using listwise deletion (Allison, 2002).

Analytic Results by Aim

Aim 1 Results

In preparation for the inclusion of evaluated need (both lifetime and past 12 month) in subsequent analyses, variations in rates of mental health disorder by DSM-IV diagnosis type (e.g., mood disorders, anxiety disorders, substance use disorders, and impulse control disorders) are first presented. Figure 5.1 illustrates overall lifetime endorsement among the sample as well as by DSM-IV diagnosis category. Nearly 40% of respondents endorsed anxiety disorders (n=292), followed by less than 20% for impulse control disorders (19%, n=150) and mood disorders (15%, n=117), and less than 10% for substance use disorders (8%, n=66).

Figure 5.1. Rates of Lifetime DSM-IV Diagnosis Type by Category (%)

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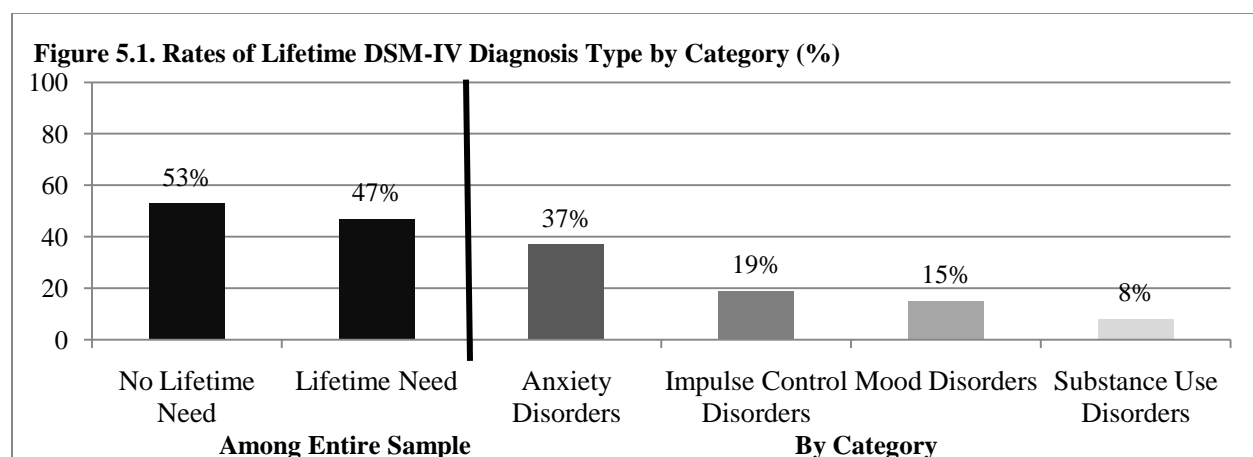
[16] These missing values represent respondents (n = 16) who indicated that they were not willing to complete the entire survey. They were asked questions from the NSAL sections D, E, G to the end; the survey was then discontinued.

Figure 5.2 illustrates overall endorsement of any DSM-IV diagnosis and for each of the four DSM-IV diagnosis categories in the past 12 months. Twenty-eight percent of the entire sample (n=219) endorsed at least one type of DSM-IV diagnosis in the past 12 months. About one in five (21%) endorsed anxiety disorders (n=166). This was at least twice the rate of the remaining disorders: mood disorders (9%, n=72), impulse control disorder (6%, n=50), and substance use disorders (4%, n=31).

Figure 5.2. Rates of Past 12 Month DSM-IV Diagnosis Type by Category (%)
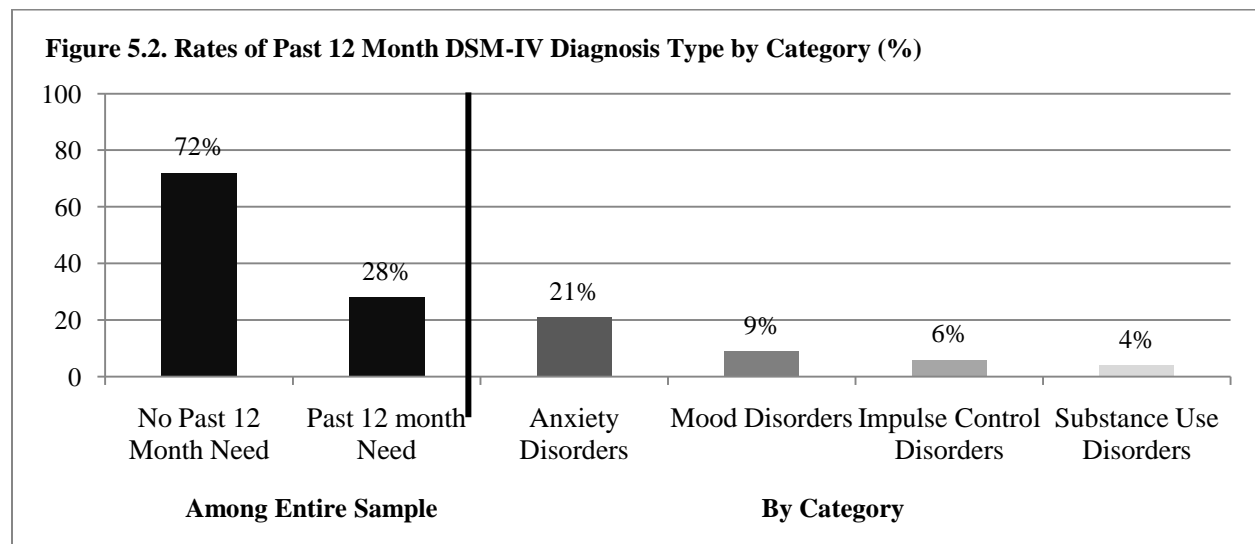
Summary of Aim 1 Results

Anxiety disorders had the highest prevalence rate among this sample of African American emerging adults, with 37% of respondents experiencing at least one anxiety disorder (e.g., generalized anxiety disorder) in their lifetime and 21% experiencing at least one anxiety disorder in the past 12 months. These findings support the study hypothesis that a higher percentage of this sample would endorse anxiety disorders compared to all other disorders.

Aim 2 Results

The purpose of this aim was to compare variations in mental health service utilization rates by recency (e.g., use in lifetime versus non-use and use in the past 12 months versus no use in the past 12 months) and provider types utilized (e.g., mental health sector and non-mental

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health sector) among the sample. Figure 5.3 depicts the results of this analysis. Among the entire sample of African American emerging adults, one in four (25%, n=200) had utilized some type of mental health services in their lifetime compared to 75% who had not utilized services (n=606). However, only 9% of the sample (n=74) had utilized any type of mental health services in the past 12 months compared to nearly 91% (n=732) who had not utilized service in the same timeframe.

Lifetime service utilization was also analyzed to determine the type of provider utilized among the entire sample, including those providers in the mental health sector and the non-mental health sector. About one-tenth (11%) of the respondents utilized providers in the mental health sector (n=79) compared to 89% (n=639) who did not; while only five percent (n=33) had utilized providers in the non-mental health sector versus 95% who did not.

Figure 5.3. Rates of Service Utilization by Recency of Use and Provider Types Utilized among Entire Sample (%)
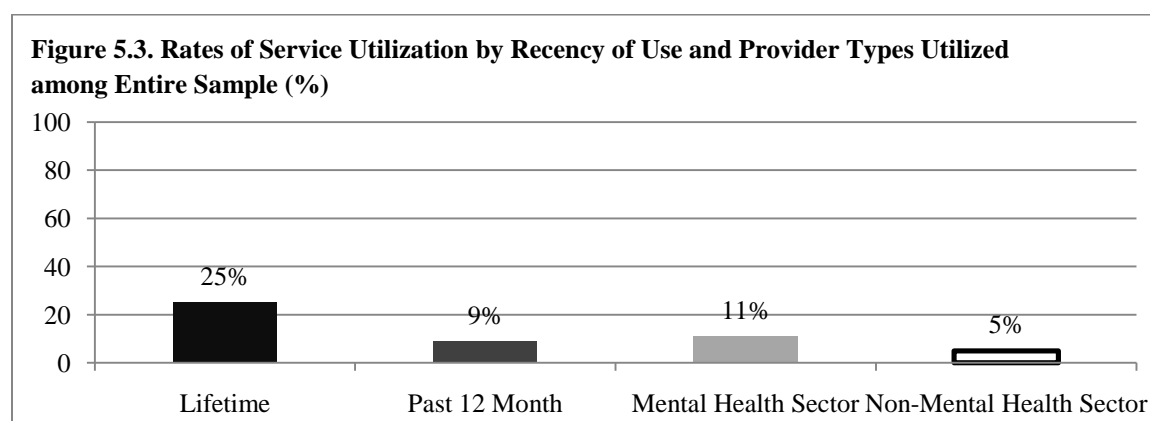
To further examine variations in rates of service utilization, analyses were also conducted to compare differences in recency and provider types utilized among those respondents who endorsed at least one type of lifetime DSM-IV diagnosis (n=372) and at least one type of past 12 month DSM-IV diagnosis (n=219). These results are highlighted in Figure 5.4. Among those respondents with an evaluated need in their lifetime, less than half (44%, n=163) utilized services in their lifetime compared to 56% (n=209) who did not utilize services. Utilization rates

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decreased for past 12 month use, with less than one-third (28%, n=61) of respondents who

indicated an evaluated need in the past 12 months utilizing services versus nearly three-quarters

(72%, n=158) who did not utilize services in the same timeframe. Less than one in five

respondents (17%, n=51) with an evaluated need utilized providers in the mental health sector,

compared to 83% (n=241) who did not. Among respondents with an evaluated need, only one-

tenth (11%, n=32) utilized non-mental health sector providers compared to 89% (n=260) who

did not utilize providers in this sector.

Figure 5.4. Rates of Service Utilization by Recency of Use and Provider Types Utilized among Respondents with Evaluated Need (%)
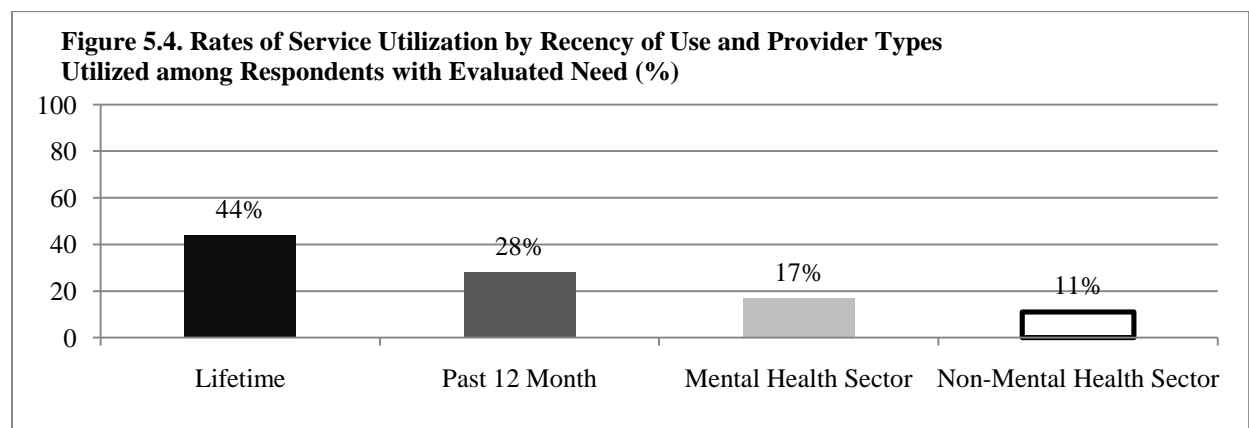
Summary of Aim 2 Results

In general, the percentage of African American emerging adults in this sample who had

ever utilized services was lower compared to those who had never utilized services, with

utilization rates ranging from as low as 5% for non-mental health sector to 25% for lifetime

utilization. Utilization rates did increase among respondents with an evaluated need for services;

yet, these rates still represented a lower percentage of respondents who utilized services

(compared to those who did not utilize) with rates ranging from 11% for non-mental health

sector to 44% for lifetime utilization. These findings supported study hypothesis 2A which

posited that the percentage of African American emerging adults ever utilizing services would be

lower than the percentage of those respondents who had never utilized services. However,

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hypothesis 2B, which stated that the non-mental health sector would have a higher percentage of service utilization compared to mental health sector utilization, was not supported.

Aim 3

The purpose of this aim was to examine variations in mental health service utilization rates by recency of use and provider types utilized by DSM-IV diagnosis type among the study sample. Rao-Scott chi-squares were conducted in Stata 12.1/SE [*svy, subpop (AAEA): ta*] for each lifetime DSM-IV diagnosis type including mood disorders, anxiety disorders, substance use disorders, and impulse control disorders. These associations were examined with mental health service utilization in one's lifetime and by provider types utilized. For each past 12 month DSM-IV diagnosis type, Rao-Scott chi-squares were performed for past 12 month service utilization only. Table 5.2 illustrates the chi-square results of each utilization category. Multiple bivariate logistic regressions were also conducted in Stata 12.1/SE [*svy, subpop (AAEA): logistic*] to determine the likelihood of service use in one's lifetime, past 12 months, and by provider types utilized by DSM-IV diagnosis type. Bivariate logistic regression results are highlighted in Table 5.3.

Rao-Scott Chi-Squares

Lifetime Mood Disorders. Significant associations were found between lifetime mood disorders and service utilization. Specifically, 56% of respondents who endorsed any mood disorder utilized services in their lifetime compared to 44% who had not utilized services [$F_{(1, 34)} = 58.84$, $p < 0.001$]. Only one-tenth (9%) of respondents with any mood disorder utilized providers in the non-mental health sector compared to 91% who had not [$F_{(1, 34)} = 4.79$, $p = 0.036$]. Although not statistically significant, approximately one-fifth (19%) of respondents with

any mood disorder utilized providers in the mental health sector compared to 81% who did not utilize mental health sector providers [F (1, 34) = 2.17, p = 0.150].

Lifetime Anxiety Disorders. Approximately half (48%) of respondents who had endorsed any anxiety disorder had utilized services in their lifetime compared to 52% who had not utilized services [F (1, 34) = 86.99, p < 0.001]. This statistically significant association persisted across provider types utilized with 21% of anxiety-endorsed respondents utilizing providers in the mental health sector [F (1, 34) = 22.77, p < 0.001] and 11% utilizing providers in the non-mental health sector compared to those who did not endorse any anxiety disorder [F (1, 34) = 118.51, p < 0.001].

Lifetime Substance Use Disorders. Substance use disorders were found to have a statistically significant association with lifetime service utilization. Forty-one percent of respondents who endorsed substance use disorders utilized services in their lifetime compared to 59% who did not utilize services [F (1, 34) = 10.27, p = 0.003]. However, having a substance use disorder was not statistically associated with service utilization by providers in the mental health or non-mental health sectors. Less than one-tenth (7%) of respondents who endorsed substance use disorders utilized mental health sector providers compared to 93% who did not utilize mental health sector providers [F (1, 34) = 0.85, p = 0.364]. An even lower percentage of respondents (3%) who endorsed any substance use disorder utilized non-mental health sector providers compared to the overwhelming majority (97%) who did not utilize providers in the non-mental health sector [F (1, 34) = 0.005, p = 0.946].

Lifetime Impulse Control Disorders. Significant associations were found between lifetime impulse control disorders and service utilization. Fifty-five percent of respondents who endorsed any impulse control disorder utilized services in their lifetime compared to 45% who had not

endorsed [$F(1, 34) = 60.84$, $p < 0.001$]. Similarly, having an impulse control disorder was

statistically associated with utilization of providers in the mental health sector with 27% of

respondents utilizing those providers compared to 73% who had not [$F (1, 34) = 14.36$, p =

0.001]. Less than one-tenth (7%) of respondents who endorsed any impulse control disorder

utilized non-mental health sector providers versus 93% who had not [$F (1, 34) = 4.62$, p =

0.039].

    Past 12 Month DSM-IV Diagnoses. Having any DSM-IV diagnosis in the past 12 months

was statistically associated with service utilization in the same timeframe. In particular, 35% of

respondents who endorsed any mood disorder [$F (1, 34) = 46.10$, $p < 0.001$], 30% who endorsed

any anxiety disorder [$F (1, 34) = 61.40$, $p < 0.001$], 28% who endorsed any substance use

disorder [$F (1, 34) = 13.36$, p = 0.001], and 37% who endorsed any impulse control disorder [F

$(1, 34) = 70.22$, $p < 0.001$] had utilized services in the past 12 months.

Table 5.2. Rates of Service Utilization by DSM-IV Diagnosis Type (%)

	Lifetime		Past 12 Month		Mental Health Sector		Non-Mental Health Sector	
	Yes	No	Yes	No	Yes	No	Yes	No
Mood Disorders	56.47	43.53	34.83	65.17	19.18	80.82	8.83	91.17
p value		**<0.001**		**<0.001**		0.150		**0.036**
Anxiety Disorders	48.42	51.58	29.99	70.01	20.74	79.26	10.62	89.38
p value		**<0.001**		**<0.001**		**<0.001**		**<0.001**
Substance Use Disorders	40.67	59.33	28.44	71.55	7.45	92.55	3.28	96.72
p value		**0.003**		**0.001**		0.364		0.946
Impulse Control Disorders	55.23	44.77	36.99	63.01	27.19	72.81	7.09	92.91
p value		**<0.001**		**<0.001**		**0.001**		**0.039**

    Bivariate Logistic Regressions (see Table 5.3)

    Lifetime Utilization. Lifetime service utilization was regressed by mood disorder, anxiety

disorder, substance use disorder, and impulse control disorder, respectively. Endorsing for any

lifetime DSM-IV diagnosis type was significantly associated with increased likelihood of

utilizing services in one's lifetime. The results of these models indicated that respondents who

endorsed mood disorders (OR = 5.01, 95% CI = 3.17, 7.88, p < 0.001) and impulse control

disorders (OR = 5.30, 95% CI = 3.34, 8.39, p < 0.001) were five times more likely to have

utilized services in their lifetime compared to those who did not endorse these disorders. The

odds were slightly higher among respondents who endorsed anxiety disorders, with those

respondents being six times more likely to have utilized services in their lifetime compared to

those respondents who did not endorse anxiety disorders (OR = 6.11, 95% CI = 4.03, 9.27, p <

0.001). Respondents with substance use disorders were twice as likely to have utilized services

in their lifetime compared to those with no substance use disorders (OR = 2.11, 95% CI = 1.30,

3.43, p = 0.003).

    Past 12 Month Utilization. Service utilization in the past 12 months was regressed on past

12 month mood disorder, anxiety disorder, substance use disorder, and impulse control disorder,

respectively. Results indicated that endorsing for any past 12 month DSM-IV diagnosis type

significantly increased the odds of past 12 month service utilization among this sample.

Compared to those respondents who did not endorse for DSM-IV disorders in the past 12

months, those respondents who endorsed for mood disorders (OR = 7.43, 95% CI = 3.77, 14.62,

p < 0.001) and impulse control disorders (OR = 7.37, 95% CI = 4.25, 12.78, p < 0.001) were

more than seven times more likely to have utilized services. Respondents with anxiety disorders

were over eight and a half times more likely to have utilized services in the past 12 months

compared to those with no anxiety disorders (OR = 8.66, 95% CI = 4.59, 16.53, p < 0.001).

Those with substance use disorders had the lowest odds of the four DSM-IV diagnosis types, but

respondents with substance use disorders were still four times more likely to have utilized

services in the past 12 months versus those with no substance use disorders (OR = 4.20, 95% CI

= 1.77, 9.92, p = 0.002).

Mental Health Sector. Individual regression models for mood disorder, anxiety disorder, substance use disorder, and impulse control disorder (respectively) on service utilization by mental health sector providers were conducted. Only anxiety disorders and impulse control disorders were significantly associated with increased likelihood of mental health sector utilization. The results of these models indicated that respondents who endorsed anxiety disorders were slightly more than two and a half times more likely to have utilized mental health sector providers compared to those who did not endorse any anxiety disorders (OR = 2.60, 95% CI = 1.71, 3.95, p < 0.001). Similarly, respondents who endorsed impulse control disorders were over three times more likely to utilize providers in the mental health sector compared to those who did not endorse for these disorders (OR = 3.30, 95% CI = 1.69, 6.46, p = 0.001). Neither those respondents who endorsed mood disorders (OR = 1.75, 95% CI = 0.80, 3.84, p = 0.154) nor substance use disorders (OR = 0.54, 95% CI = 0.13, 2.16, p = 0.372) were statistically more likely to utilize mental health sector providers compared to those respondents who did not endorse mood disorders or substance use disorders.

Non-Mental Health Sector. Service utilization by health sector providers was regressed on mood disorder, anxiety disorder, substance use disorder, and impulse control disorder, respectively. Having an anxiety disorder, mood disorder, or impulse control disorder was significantly associated with increased odds of non-mental health sector utilization. Compared to those respondents who did not endorse for DSM-IV disorders in their lifetime, those respondents who endorsed for anxiety disorders were almost 44 times more likely to have utilized non-mental health sector providers in their lifetime compared to those respondents who

did not endorse any anxiety disorders (OR = 43.79, 95% CI = 13.66, 140.39, p < 0.001)[17]. Those

respondents with mood disorders (OR =3.35, 95% CI = 1.02, 11.01, p = 0.046) and impulse

control disorders (OR = 2.67, 95% CI = 1.02, 7.00, p = 0.046) were around three times more

likely to have utilized non-mental health sector providers compared to those respondents who did

not endorse for either type of disorder. Respondents who endorsed substance use disorders did

not have statistically significant different utilization rates of non-mental health sector providers

compared to those who did not endorse (OR = 0.96, 95% CI = 0.25, 3.63, p = 0.946).

Table 5.3. Odds Ratios of Service Utilization by DSM-IV Diagnosis Type

	OR (95% CI)			
	Lifetime	Past 12 Month	Mental Health Sector	Non-Mental Health Sector
Mood Disorders	5.01*** (3.17, 7.88)	7.43*** (3.77, 14.62)	1.75 (0.80, 3.84)	3.35* (1.02, 11.01)
Anxiety Disorders	6.11*** (4.03, 9.27)	8.66*** (4.59, 16.53)	2.60*** (1.71, 3.95)	
Substance Use Disorders	2.11** (1.30, 3.43)	4.20** (1.77, 9.92)	0.54 (0.13, 2.16)	0.96 (0.25, 3.63)
Impulse Control Disorders	5.30*** (3.34, 8.39)	7.37*** (4.25, 12.78)	3.30*** (1.69, 6.46)	2.67* (1.02, 7.00)
*p value ≤ 0.05, **p value ≤ 0.01, ***p value ≤ 0.001				

Summary of Aim 3 Results

Anxiety and impulse control disorders were significantly associated with all four

categories of service utilization (e.g., lifetime, past 12 month, mental health sector, and non-

mental health sector). Mood disorders were significantly associated with lifetime, past 12

month, and non-mental health sector while substance use disorders were only significantly

associated with lifetime and past 12 month utilization.

Endorsing for anxiety disorders was significantly associated with the largest increased

likelihood of lifetime, past 12 month, mental health sector, and non-mental health sector

utilization (all statistically significant). Conversely, those respondents who endorsed for

substance use disorders had the lowest odds of utilizing any services, although only lifetime and

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[17] However, given the effect of a small sample size (n=30) and the wide confidence intervals of this model, it is likely that the model is unstable and that the results are unreliable (du Prel, Hommel, Röhrig, & Blettner, 2009; Sim & Reid, 1999). Therefore, it will not be included in Table 5.4.

past 12 month utilization were statistically significant. These findings did not support hypothesis 3A which indicated that those respondents with mood disorders would have increased odds of utilizing any service in their lifetime and mental health sector providers. Hypothesis 3B was supported, in part, as respondents with substance use disorders had decreased odds of utilizing services in their lifetime. While those respondents also had decreased odds of utilizing providers in the mental health sector, those results were not statistically significant.

Aim 4

The purpose of this aim was to compare variations in lifetime and past 12 month mental health service utilization and by provider types utilized by specific predisposing, enabling, and need factors. These factors included socio-demographics (e.g., gender, educational attainment, employment), mental health insurance coverage, perceived emotional support, perceived racial discrimination, evaluated need, and perceived need. Analyses included Rao-Scott chi-squares conducted in Stata 12.1/SE [*svy, subpop (AAEA): ta*] which tested the association between each factor and mental health service utilization, with detailed results in Table 5.4. Bivariate logistic regressions were performed in Stata 12.1/SE [*svy, subpop (AAEA): logistic*] and assessed the odds of service utilization by each factor as seen in Table 5.5. Numerous multiple logistic regressions were also conducted in Stata 12.1/SE [*svy, subpop (AAEA): logistic*] and were used to examine the effects of each significant predictor variable on mental health service utilization while controlling for the other independent variables. These results are highlighted in Tables 5.6-5.8.

Rao-Scott Chi-Squares

Gender. In each of the four mental health service utilization categories, gender was statistically associated with service utilization with a higher percentage of females utilizing

services compared to males. Specifically, among respondents who had utilized services in their

lifetime, nearly 70% of females had utilized services compared to only one-third (31%) of males

[F (1, 34) = 19.30, p < 0.001]. Similarly, among those who had utilized services in the past 12

months, more females had utilized services compared to males (70% versus 30%, respectively;

[F (1, 34) = 4.47, p = 0.042]). This trend persisted for mental health sector providers with about

twice as many females utilizing providers in the mental health sector compared to males (68%

versus 32%, respectively; [F (1, 34) = 5.87, p = 0.021]). Among respondents who had utilized

providers in the non-mental health sector, nearly four-fifths (77%) of females had utilized those

providers compared to 23% of males [F (1, 34) = 4.25, p = 0.047].

Educational Attainment. Respondents who were high school graduates tended to have

higher percentages of service utilization rates in each of the four categories, while those who

were college graduates tended to have the lowest percentages. These analyses found that,

overall, educational attainment was not statistically associated with mental health service

utilization in any category. For example, among those respondents who had utilized services in

their lifetime, about 23% had some high school, 40% were high school graduates, 30% had some

college, and less than 7% were college graduates [F (1, 34) = 1.62, p = 0.201]. Among those

who had utilized services in the past 12 months, 23% had some high school, 42% were high

school graduates, 34% had some college, and only 1.4% were college graduates [F (1, 34) =

2.63, p = .062]. Likewise, among respondents who had utilized providers in the mental health

sector, approximately one-fifth (22%) had some high school, nearly one-half (46%) were high

school graduates, 25% had some college, and nearly 7% were college graduates [F (1, 34) =

0.18, p = 0.880]. This trend continued among those respondents who utilized non-mental health

sector providers, with one-tenth (10%) having some high school, nearly one-half (47%) being

high school graduates, 38% having some college, and less than 5% being college graduates [$F_{(1, 34)}$ = 1.77, p = 0.174].

Employment. Employment status did not have a statistically significant association with any of the four mental health service utilization categories. Among those respondents who had utilized services in their lifetime, the majority (70%) were employed, compared to 16% who were unemployed and approximately 14% who were not in the labor force [$F_{(1, 34)}$ = 0.46, p = 0.618]. Similarly, among those who had utilized services in the past 12 months, three-fourths (75%) were employed, 14% were unemployed, and 11% were not in the labor force [$F_{(1, 34)}$ = 0.22, p = 0.771].   Rates of utilization were fairly consistent among those who had utilized the mental health sector, with nearly 70% of those respondents being employed, 15% being unemployed, and 16% not in the labor force [$F_{(1, 34)}$ = 0.53, p = 0.565]. Among those who had utilized providers in the non-mental health sector, nearly two-thirds (66%) were employed, one-fourth (25%) were unemployed, and less than one-tenth (9%) were not in the labor force [$F_{(1, 34)}$ = 0.84, p = 0.432].

Mental Health Insurance Coverage. Mental health insurance coverage was statistically associated with utilization in the past 12 months with one-third (32%) of respondents with private mental health insurance coverage, slightly more than one-fourth (26%) with public mental health insurance coverage, and over two-fifths (42%) with no insurance utilizing any services in the past 12 months [$F_{(1.98, 67.37)}$ = 3.42, p = 0.039]. However, having mental health insurance coverage was not statistically associated with lifetime utilization or utilization of providers in the mental health or non-mental health sectors. Among those who had utilized services in their lifetime, one-third (31%) had private insurance, about one-fifth (20%) had public insurance, and one-half (50%) had no insurance [$F_{(1.95, 66.36)}$ = 1.30, p = 0.278].

These rates, although statistically non-significant, were somewhat similar for mental health sector utilization (29%, 16%, and 55%, respectively; [F (1.92, 65.41) = 0.22, p = 0.792]) and non-mental health sector utilization (23%, 23%, and 54%, respectively; [F (1.84, 62.63) = 0.78, p = 0.451]).

Perceived Emotional Support. Perceived emotional support was only statistically associated with past 12 month utilization, with one-third (32%) of respondents with high perceived emotional support, about 15% of those with some perceived emotional support, about 4% of those who perceived a fair amount of emotional support, and 4% of those respondents with no perceived emotional support utilizing services in the past 12 months [F (5.92, 201.18) = 2.22, p = 0.044]. Yet, analyses indicated that lifetime, mental health sector, and non-mental health sector utilization were not statistically associated with perceived emotional support. Among respondents who had utilized services in their lifetime, one-third (31%) of those respondents had high perceived emotional support, 15% had some perceived emotional support, less than 4% perceived fair emotional support, and less than 4% perceived no emotional support [F (7.26, 246.92) = 1.99, p = 0.055]. Similarly, among respondents who had utilized mental health sector providers, 33% had high perceived emotional support, 11% perceived some emotional support, less than 4% perceived fair emotional support, and nearly 4% perceived no emotional support [F (6.46, 219.53) = 0.85, p = 0.542]. These percentages shifted slightly among those respondents who utilized providers in the non-mental health sectors, with one-third (30%) perceiving high emotional support, slightly more than one-fourth (27%) perceiving some emotional support, less than 2% perceiving a fair amount of emotional support, and less than 2% perceiving no emotional support [F (6.63, 225.56) = 0.97, p = 0.451].

Perceived Racial Discrimination. Having experienced at least one racially discriminatory event was not found to be statistically associated with service utilization in any category. Among those respondents who had utilized services in their lifetime, over one-third (36%) had experienced at least one racially discriminatory event (e.g., had been unfairly fired or stopped by the police) compared to 64% of those with no racially discriminatory event [F (1, 34) = 0.07, p = 0.800]. This trend was somewhat similar for past 12 month utilization as well as utilization of mental health and non-mental health sector providers. Among respondents who had utilized services in the past 12 months, two-fifths (41%) had experienced at least one racially discriminatory event compared to 59% who had not [F (1, 34) = 1.73, p = 0.198]. One-third (30%) of respondents who utilized providers in the mental health sector had experienced at least one racially discriminatory event versus 70% of respondents with no racially discriminatory experience [F (1, 34) = 0.31, p = 0.585]. Among respondents who utilized non-mental health sector providers, two-fifths (40%) had at least one racially discriminatory event compared to 60% who had not [F (1, 34) = 0.35, p = 0.559].

Evaluated Need. Both lifetime and past 12 month evaluated need were statistically associated with mental health service utilization across each category among this sample. Nearly four-fifths (79%) of respondents who had utilized services in their lifetime had a lifetime evaluated need compared to one-fifth (21%) of respondents who did not have a lifetime evaluated need [F (1, 34) = 81.35, p < 0.001]. Additionally, more respondents who utilized services in the past 12 months had an evaluated need in same timeframe compared to those who did not have a past 12 month evaluated need (79% versus about 21%, respectively; [F (1, 34) = 65.27, p < 0.001]). Additionally, more respondents who utilized providers in the mental health sector had an evaluated need compared to those who did not have an evaluated need (63% versus

37%, respectively; [F $(1, 34) = 11.24$, p $= 0.002$]). Similarly, a significantly higher percentage of

respondents who utilized providers in the non-mental health sector had an evaluated need

compared to those who did not (98% versus 2%, respectively; [F $(1, 34) = 85.90$, p < 0.001]).

Perceived Need. Among respondents who perceived a need for services (n=38), slightly

more than 15% of respondents utilized services in the past 12 months compared to 85% of

respondents who did not utilize services in the same timeframe [F $(1, 34) = 8.21$, p $= 0.007$].

Table 5.4. Rates of Service Utilization among the Entire Sample by Predisposing, Enabling, and Need Factors (%)

	Lifetime Use	Past 12 Month Use	Mental Health Sector	Non-Mental Health Sector
Gender	(n=200)	(n=74)	(n=79)	(n=33)
Female	69.33	70.45	68.06	77.10
Male	30.67	29.55	31.94	22.90
p value	**< 0.001**	**0.042**	**0.021**	**0.047**
Educational Attainment				
Some High School	23.29	22.58	22.09	10.32
High School Graduate	39.87	41.94	45.76	47.09
Some College	29.88	34.10	25.34	38.08
College Graduate	6.95	1.39	6.81	4.51
p value	0.201	0.062	0.880	0.174
Employment				
Employed	70.23	75.12	68.45	65.56
Unemployed	16.08	14.20	15.42	25.19
Not in Labor Force	13.69	10.67	16.13	9.25
p value	0.618	0.771	0.565	0.432
Mental Health Insurance Coverage	(n=188)	(n=72)	(n=71)	(n=32)
Private	30.81	31.58	28.70	23.02
Public	19.62	26.19	15.88	23.45
None	49.57	42.23	55.42	53.52
p value	0.278	**0.039**	0.792	0.451
Perceived Emotional Support	(n=199)		(n=78)	
12 (Very)	31.26	31.61	33.20	29.13
11	15.19	12.55	14.65	17.32
10	13.92	8.18	17.70	7.40
9 (Some)	14.93	14.73	11.27	26.94
8	7.53	7.69	10.94	6.79
7	5.72	9.88	4.23	3.90
6 (Fairly)	3.49	3.50	3.58	1.81
5	1.03	1.33	0.00	2.64
4	3.41	6.34	0.65	2.30
3 (Never)	3.51	4.19	3.77	1.76
p value	0.055	**0.044**	0.542	0.450
Perceived Racial Discrimination				
≥1 Event	35.96	41.47	30.47	40.42
No Event	64.04	58.53	69.53	59.58
p value	0.800	0.198	0.585	0.559
Evaluated Need				

Lifetime	79.43	62.66	98.30
No Lifetime Need	20.57	37.34	1.70
p value	**<0.001**	**0.002**	**<0.001**
Past 12 Month	79.05		
No Past 12 Month Need	20.95		
p value	**<0.001**		
Perceived Need[a]	(n=38)		
Yes	15.44		
No	84.56		
p value	**0.007**		

aPerceived Need was only included in Past 12 Month Utilization analysis and this result is a row percentage.

Bivariate Logistic Regressions (see Table 5.5)

Lifetime Service Utilization. Being female and having an evaluated need increased the likelihood of utilizing services in one's lifetime. Females were twice as likely to utilize services in their lifetime compared to males (OR = 2.11, 95% CI = 1.49, 2.99, p < 0.001), while those with an evaluated need were seven times more likely to have utilized services in their lifetime compared to those who did not have an evaluated need (OR = 7.00, 95% CI = 4.37, 11.23, p < 0.001). However, for each unit increase in perceived emotional support, the likelihood of lifetime service utilization was decreased by 9% (OR = 0.91, 95% CI = 0.83, 1.00, p = 0.05); thus, the higher the perceived emotional support, the less likely the respondent was to have utilized services in their lifetime. Table 5.7 provides detailed results of these analyses by service utilization type (e.g., lifetime, past 12 month, mental health sector, and non-mental health sector).

Past 12 Month Utilization. Similar to lifetime utilization, being female and having an evaluated need increased the odds of past 12 month service utilization. Among this sample, females were almost twice as likely as males to have utilized services in the past 12 months (OR = 1.97, 95% CI = 1.02, 3.82, p = 0.05). Additionally, respondents with an evaluated need were almost 15 times more likely to have utilized services in the past 12 months compared to those who did not have an evaluated need (OR = 14.84, 95% CI = 6.46, 34.09, p < 0.001). Having a

perceived need also increased the likelihood of past 12 month service utilization, with those

respondents being 3.5 times more likely to have utilized services in that timeframe than those

who did not perceive a need for services (OR = 3.54, 95% CI = 1.37, 9.16, p = 0.01). Perceived

emotional support decreased the odds of past 12 month service utilization. For each unit increase

in perceived emotional support, the likelihood of utilizing services in the past 12 months

decreased by 14% (OR = 0.86, 95% CI = 0.77, 0.96, p = 0.009). In addition, respondents who

were college graduates were less likely to have utilized services in the past 12 months compared

to respondents who were not college graduates (OR = 0.14, 95% CI = 0.03, 0.69, p = 0.02).

Mental Health Sector Utilization. As with lifetime and past 12 month utilization, the

trend of the independent association of gender and evaluated need with greater odds of service

utilization persisted for utilization of providers in the mental health sector.   Female respondents

were almost twice as likely (OR = 1.91, 95% CI = 1.10, 3.32, p = 0.02) to have utilized mental

health sector providers compared to their male counterparts. Those respondents with an

evaluated need were about three times more likely (OR = 2.74, 95% CI = 1.46, 5.13, p = 0.003)

to have utilized providers in the mental health sector compared to those who did not have an

evaluated need.

Non-Mental Health Sector Utilization. Only evaluated need was independently associated

with greater odds of utilization of providers in the non-mental health sector. Respondents with

an evaluated need were 90 times more likely (OR = 90.07, 95% CI = 12.09, 670.91, p < 0.001)[18]

to utilize providers in the non-mental health sector compared to those who did not have an

evaluated need. These wide confidence intervals suggest that the number of respondents who

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[18] However, given the effect of a small sample size (n=32) and wide confidence intervals of this model, it is likely
that the model is unstable and that the results are unreliable (du Prel et al., 2009; Sim & Reid, 1999). Therefore, it
will not be included in Table 5.6.

utilized non-mental health sector providers is very low. This occurrence will be discussed in greater detail in the study limitations section.

Table 5.5. Odds Ratios of Service Utilization by Type

	OR (95% CI)			
	Lifetime	Past 12 Month	Mental Health Sector	Non-Mental Health Sector
Gender (reference = male)				
Female	2.11*** (1.49, 2.99)	1.97* (1.02, 3.82)	1.91* (1.10, 3.32)	2.89 (0.97, 8.61)
Educational Attainment (reference = some High School)				
High School graduate	0.71 (0.49, 1.03)	0.82 (0.43, 1.60)	0.84 (0.47, 1.50)	1.93 (0.61, 6.13)
Some college	1.07 (0.60, 1.91)	1.27 (0.58, 2.81)	0.92 (0.48, 1.78)	3.10 (0.80, 11.00)
College graduate	0.69 (0.39, 1.25)	0.14* (0.03, 0.69)	0.72 (0.29, 1.78)	1.06 (0.28, 4.07)
Employment (reference = Employed)				
Unemployed	0.96 (0.61, 1.54)	0.79 (0.43, 1.46)	0.87 (0.55, 1.37)	1.63 (0.66, 4.05)
Not in labor force	1.31 (.66, 2.61)	0.88 (0.33, 2.37)	1.36 (0.68, 2.74)	0.89 (0.28, 2.77)
Mental Health Insurance Coverage (reference = Private)				
Public	1.56 (0.87, 2.81)	1.95 (0.94, 4.05)	1.30 (0.50, 3.39)	1.41 (0.75, 2.64)
No insurance	1.04 (0.63, 1.71)	0.84 (0.44, 1.60)	1.23 (0.57, 2.62)	0.98 (0.58, 1.64)
Perceived Emotional Support	0.91* (0.83, 1.00)	0.86** (0.77, 0.96)	0.96 (0.84, 1.09)	0.93 (0.78, 1.11)
Perceived Racial Discrimination (reference = No discrimination)				
≥1 racial discrimination event	1.06 (0.67, 1.68)	1.36 (0.85, 2.17)	0.82 (0.39, 1.71)	1.31 (0.52, 3.33)
Evaluated Need (reference = no need)				
Endorsed	7.00*** (4.37, 11.23)	14.84*** (6.46, 34.09)	2.74** (1.46, 5.13)	
Perceived Need[a] (reference = no)				
Yes		3.54** (1.37, 9.16)		

*p value ≤ 0.05, **p value ≤ 0.01, ***p value ≤ 0.001
[a]Perceived Need was only included in Past 12 Month Utilization analysis

Multiple Logistic Regressions[19] (see Tables 5.6-5.8)

Results from the bivariate logistic regressions indicated that evaluated need was significantly associated with greater odds of all four categories of mental health service utilization (e.g., lifetime, past 12 month, mental health sector, and non-mental health sector). Gender was associated with greater odds of lifetime and past 12 month utilization while perceived need was also associated with increased likelihood of past 12 month utilization.

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[19] These analyses were only conducted for lifetime utilization, past 12 month utilization, and mental health sector utilization. Non-mental health sector utilization was not included in this section because only one predictor variable, evaluated need, was significantly associated with its use.

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Perceived emotional support was associated with decreased odds of lifetime and past 12 month utilization. Only evaluated need and gender were associated with greater odds of utilization of mental health sector providers. Based on these results, multiple logistic regressions were conducted to test the association of these specific factors with service utilization while controlling for the other significant predictor variables and demographic controls.

Lifetime Utilization. Gender, perceived emotional support, and evaluated need were significantly associated with lifetime service utilization at the bivariate level; therefore, these variables (model 1), along with demographic controls (model 2), were used in the multiple logistic regressions for lifetime utilization (see Table 5.7). Gender and evaluated need continued to be associated with increased likelihood of lifetime utilization, while controlling for other statistically significant predictor variables and demographic controls. For example, in model 1, females remained two times more likely to have utilized services in their lifetime compared to males, while controlling for evaluated need and perceived emotional support (OR = 2.24, 95% CI = 1.56, 3.21, p < 0.001) and demographic controls (OR = 2.16, 95% CI = 1.49, 3.14, p < 0.001). Similarly, evaluated need persisted as a significant predictor variable for lifetime utilization, while controlling for gender and perceived emotional support (OR = 7.32, 95% CI = 4.39, 12.21, p < 0.001) and demographic controls (OR = 7.66, 95% CI = 4.46, 13.13, p < 0.001). Those respondents with evaluated need were still seven times more likely to have utilized services in their lifetime compared to those without an evaluated need. However, perceived emotional support was no longer significantly associated with greater odds for lifetime utilization once the model controlled for gender and evaluated need (OR = 0.97, 95% CI = 0.89, 1.07, p = 0.560) and demographic controls (OR = 0.98, 95% CI = 0.89, 1.08, p = 0.663).

Table 5.6. Multiple Logistic Regressions of Lifetime Utilization

	Bivariate Logistic Regression OR (95% CI)	Multiple Logistic Regression	
		Model 1 OR (95% CI)	Model 2 OR (95% CI)
Gender	2.11*** (1.49, 2.99)	2.24*** (1.56, 3.21)	2.16*** (1.49, 3.14)
Perceived Emotional Support	0.91* (0.83, 1.00)	0.97 (0.89, 1.07)	0.98 (0.89, 1.08)
Evaluated Need	7.00*** (4.37, 11.23)	7.32*** (4.39, 12.21)	7.66*** (4.46, 13.13)
*p value ≤ 0.05, **p value ≤ 0.01, ***p value ≤ 0.001			

Past 12 Month Utilization. Gender, perceived emotional support, evaluated need, and perceived need were found to be significantly associated with past 12 month service utilization at the bivariate level; thus, these variables (model 1), along with demographic controls (model 2), were used in the multiple logistic analyses for past 12 month service utilization (see Table 5.8). These analyses determined that the association between evaluated need and past 12 month utilization persisted while controlling for gender, perceived emotional support, and perceived need (OR = 11.91, 95% CI = 3.70, 38.26, p < 0.001) and demographic controls (OR = 11.41, 95% CI = 3.53, 36.81, p < 0.001). Conversely, gender was no longer significantly associated with increased likelihood of past 12 month utilization, while controlling for evaluated need, perceived need, and perceived emotional support (OR = 0.93, 95% CI = 0.42, 2.06, p = 0.846) or demographic controls (OR = 0.96, 95% CI = 0.41, 2.27, p = 0.931).   Perceived emotional support also failed to remain significantly associated with past 12 month utilization when controlling for gender, evaluated need, and perceived need (OR = 0.97, 95% CI = 0.75, 1.25, p = 0.808) and demographic controls (OR = 0.97, 95% CI = 0.76, 1.24, p = 0.800). Similarly, perceived need for services was no longer significantly associated with past 12 month utilization while controlling for gender, perceived emotional support, and evaluated need (OR = 1.40, 95% CI = 0.48, 4.07, p = 0.524) and demographic controls (OR – 1.47, 95% CI = 0.52, 4.22, p = 0. 454).

Table 5.7. Multiple Logistic Regressions of Past 12 Month Utilization

	Bivariate Logistic	Multiple Logistic Regression

	Regression OR (95% CI)	Model 1 OR (95% CI)	Model 2 OR (95% CI)
Gender	1.97*** (1.02, 3.82)	0.93 (0.42, 2.06)	0.96 (0.41, 2.27)
Perceived Emotional Support	0.86** (0.77, 0.96)	0.97 (0.75, 1.25)	0.97 (0.76, 1.24)
Evaluated Need	14.84*** (6.46, 34.09)	11.91*** (3.70, 38.26)	11.41*** (3.53, 36.81)
Perceived Need	3.54** (1.37, 9.16)	1.40 (0.48, 4.07)	1.47 (0.52, 4.22)
*p value ≤ 0.05, **p value ≤ 0.01, ***p value ≤ 0.001			

Mental Health Sector Utilization. Gender and evaluated need were found to be

significantly associated with utilization of mental health sector providers; thus, these variables

(model 1), along with demographic controls (model 2), were used in the multiple logistic

analyses for mental health sector (see Table 5.9). Gender continued to be significantly

associated with increased odds of utilization of mental health sector providers while controlling

for evaluated need (OR = 1.90, 95% CI = 1.09, 3.31, p = 0.025) and demographic controls (OR =

1.88, 95% CI = 1.10, 3.22, p = 0.022). Similarly, evaluated need maintained a significant

association with increased odds of mental health sector utilization while controlling for gender

(OR = 2.69, 95% CI = 1.45, 4.97, p = 0.002) and demographic controls (OR = 2.73, 95% CI =

1.44, 5.19, p = 0.003).

Table 5.8. Multiple Logistic Regressions of Mental Health Sector Utilization

	Bivariate Logistic Regression OR (95% CI)	Multiple Logistic Regression	
		Model 1 OR (95% CI)	Model 2 OR (95% CI)
Gender	1.91* (1.10, 3.32)	1.90* (1.09, 3.31)	1.88* (1.10, 3.22)
Evaluated Need	2.74** (1.46, 5.13)	2.69** (1.45, 4.97)	2.73** (1.44, 5.19)
*p value ≤ 0.05, **p value ≤ 0.01, ***p value ≤ 0.001			

Summary of Aim 4 Results

Gender was significantly associated with lifetime, past 12 month, mental health sector,

and non-mental health sector utilization, while neither educational attainment, employment

status, nor perceived racial discrimination were found to be significantly associated with any of

the four categories. Mental health insurance coverage and perceived emotional support were

only significantly associated with past 12 month utilization. Evaluated need was significantly associated with all four categories, and perceived need for services was significantly associated with past 12 month utilization.

Being female was significantly associated with increased odds of lifetime, past 12 month, and mental health sector utilization. Being a college graduate was significantly associated with decreased odds of past 12 month utilization. Perceived emotional support was significantly associated with decreased odds of lifetime and past 12 month utilization. Evaluated need was significantly associated with increased odds of utilization in each category, while perceived need was significantly associated with increased odds of past 12 month utilization. Employment status, mental health insurance coverage, and perceived racial discrimination were not significantly associated with any service utilization.

These findings supported three of Aim 4's hypotheses; namely, being female (4A), having an evaluated need (4G) and a perceived need for services (4H) were significantly associated with increased likelihood of utilizing services in one's lifetime and in the mental health sector. However, hypotheses for educational attainment (4B), employment status (4C), mental health insurance coverage (4D), perceived emotional support (4E), and perceived racial discrimination (4F) were not supported among this sample.

Aim 5

The purpose of Aim 5 was to test the potential mediating and moderating effects of the statistically significant predictor variables among a sample of African American emerging adults, both for lifetime and past 12 month mental health service utilization. Potential mediation was determined by conducting structural equation models in MPlus 6.1 for lifetime and past 12 month utilization. The lifetime utilization model tested the direct effects of gender and perceived

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emotional support on evaluated need, and the direct effect of gender, perceived emotional

support, and evaluated need on lifetime utilization. The model also tested the indirect effect of

evaluated need on the relationship between the predictor variables (e.g., gender and perceived

emotional support) and the outcome variable, lifetime utilization (see Table 5.9). The past 12

month utilization model tested the direct effects of gender, perceived emotional support, and

mental health insurance coverage on evaluated and perceived need, respectively. It also tested

the direct effects of gender, perceived emotional support, mental health insurance coverage,

evaluated need, and perceived need on past 12 month utilization. Lastly, the model tested the

indirect effects of evaluated need and perceived need on the relationship between the predictor

variables (e.g., gender, perceived emotional support, and mental health insurance coverage) and

the outcome variable, past 12 month utilization (see Table 5.10).

Potential moderation was assessed in Stata 12.1/SE [*svy, subpop (AAEA): logistic*]

through the use of interaction terms in separate logistic regression models. For example, the

following type of equation was used for each significant predictor variable (e.g., gender,

perceived emotional support, and evaluated need on lifetime utilization and gender, perceived

emotional support, mental health insurance coverage, evaluated need, and perceived need on past

12 month utilization):

$$y_{\text{mental health service utilization}} = x1_{\text{gender}} + x2_{\text{evaluated need}} + x1{*}x2_{\text{gender*evaluated need}}$$

Mediation

Lifetime Utilization. Drawing from the theoretical framework and the results of the

bivariate analyses, gender, perceived emotional support, and evaluated need were included in a

structural equation model to assess whether evaluated need mediated the relationship between

gender and perceived emotional support on lifetime mental health service utilization (see Figure

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5.5). Results indicated that gender did not have a statistically significant direct effect on evaluated need (Standardized regression coefficient [SRC] = 0.09, p = 0.176). However, perceived emotional support had a statistically significant direct effect on evaluated need (SRC = −0.22, p < 0.001). Conversely, with regards to lifetime utilization, gender had a statistically significant direct effect on service utilization (SRC = 0.17, p <0.001) and perceived emotional support did not have a significant effect on service utilization (SRC = 0.02, p = 0.701). Lifetime evaluated need had a significant direct effect on lifetime utilization (SRC = 0.62, p < 0.001). Table 5.9 shows the significant mediating effect of evaluated need on the relationship between perceived emotional support and lifetime utilization (SRC = −0.13, p < 0.001). However, evaluated need did not mediate the relationship between gender and lifetime utilization (SRC = 0.05, p = 0.185).

Figure 5.5. Results of Structural Equation Model for Lifetime Utilization
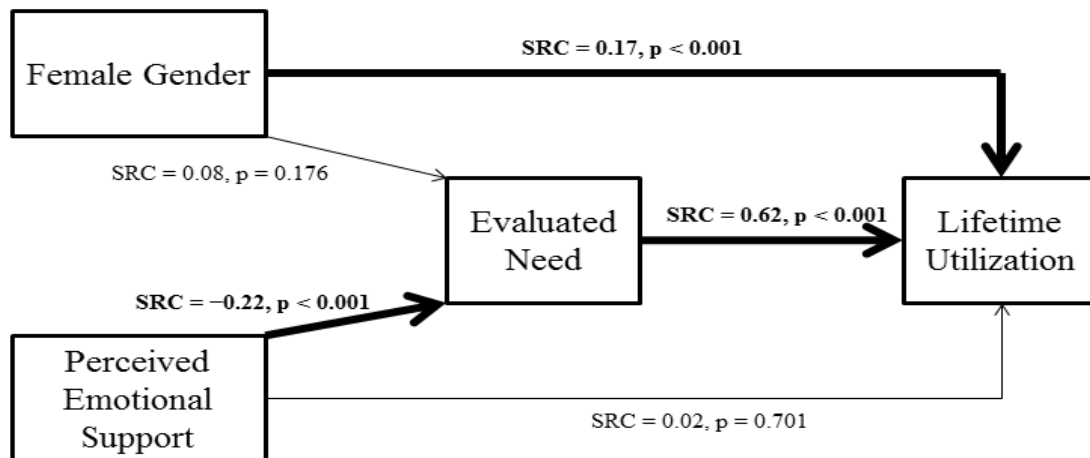
Table 5.9. Indirect Effects of Gender and Perceived Emotional Support on Lifetime Utilization		
	SRC	SE
Gender →Evaluated Need →Lifetime Utilization	0.05	0.10
Perceived Emotional Support→ Evaluated Need →Lifetime Utilization	−0.13[***]	0.02
***p value ≤ 0.001		

Past 12 Month Utilization. Drawing from the theoretical framework and the results of the bivariate analyses, gender, perceived emotional support, mental health insurance coverage, evaluated need, and perceived need were included in a structural equation model to assess whether evaluated need and perceived need mediated the relationship between gender, perceived emotional support, and mental health insurance coverage on service utilization in the past 12 months (see Figure 5.6). Gender (SRC = 0.18, p = 0.001), perceived emotional support (SRC = −0.25, p <0.001), and mental health insurance coverage (SRC = 0.16, p = 0.015) had direct effects on past 12 month evaluated need. Gender, perceived emotional support, and mental health insurance coverage did not have a direct effect on perceived need (SRC = −0.10, p = 0.329; SRC = 0.11, p = 0.290; SRC = −0.07, p =0.481, respectively).

Past 12 month evaluated need (SRC = 0.73, p < 0.001), perceived need (SRC = −0.24, p = 0.047), and mental health insurance coverage (SRC = −0.20, p = 0.014) had a direct effect past 12 month utilization, while gender (SRC = 0.01, p = 0.913) and perceived emotional support (SRC = 0.04, p = 0.599) did not. A review of Table 5.10 reveals that past 12 month evaluated need mediated the relationships between gender (SRC = 0.13, p = 0.001), perceived emotional support (SRC = −0.18, p < 0.001), and mental health insurance coverage (SRC = 0.12, p = 0.009) and past 12 month utilization, whereas perceived need did not mediate any of these relationships.

Figure 5.6. Results of Structural Equation Model for Past 12 Month Utilization
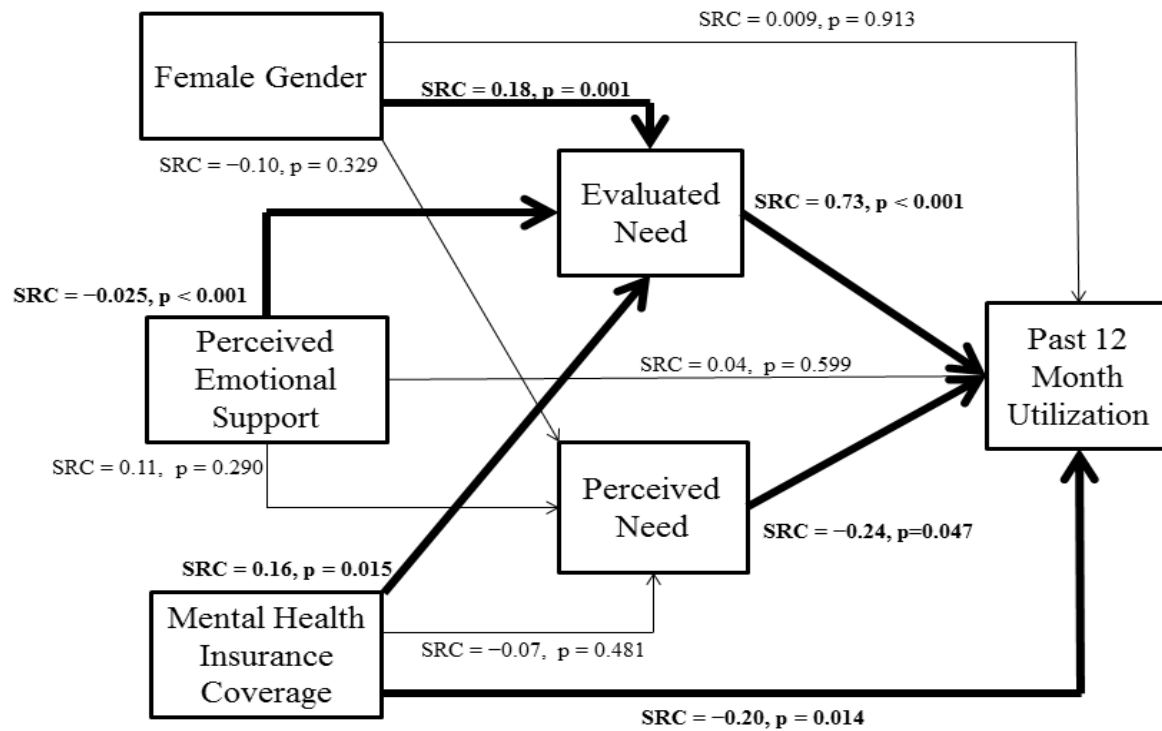
Table 5.10. Indirect Effects of Gender, Perceived Emotional Support, and Mental Health Insurance Coverage on Past 12 Month Utilization

	SRC	SE
Gender → Evaluated Need →Past 12 Month Utilization	0.13[***]	0.09
Gender → Perceived Need → Past 12 Month Utilization	0.02	0.06
Perceived Emotional Support→ Evaluated Need → Past 12 Month Utilization	−0.18[***]	0.02
Perceived Emotional Support → Perceived Need → Past 12 Month Utilization	−0.03	0.01
Mental Health Insurance Coverage →Evaluated Need → Past 12 Month Utilization	0.12[**]	0.05
Mental Health Insurance Coverage → Perceived Need →Past 12 Month Utilization	0.02	0.03

**p≤0.01, ***p≤0.001

Moderation

  Lifetime Utilization. Logistic regressions were conducted using interaction terms of the

statistically significant predictor variables from the bivariate analyses for lifetime service

utilization – gender, perceived emotional support, and evaluated need – to examine whether any

of these variables were moderating the relationship between the significant predictor variables

and lifetime utilization. Table 5.11 highlights the results of these analyses which found that none

of the predictor variables significantly moderated the previously identified relationships between

gender, perceived emotional support, and evaluated need and lifetime utilization.

Table 5.11. Logistic Regressions of Lifetime Utilization with Interaction Terms

	OR (95% CI)
Gender	1.55 (0.55, 4.35)
Evaluated Need	5.25[**] (1.85, 14.94)
Gender*Evaluated Need	1.55 (0.42, 5.63)
Gender	0.52 (0.09, 3.05)
Perceived Emotional Support	0.83[*] (0.69, 0.98)
Gender*Perceived Emotional Support	1.15 (0.97, 1.39)
Perceived Emotional Support	1.08 (0.90, 1.29)
Evaluated Need	27.89[**] (3.49, 222.84)
Perceived Emotional Support*Evaluated Need	0.88 (0.72, 1.08)
*p value ≤ 0.05 **p value ≤ 0.01	

Past 12 Month Utilization. Similarly, logistic regressions were conducted using

interaction terms of the statistically significant predictor variables from the bivariate analyses for

past 12 month service utilization – gender, perceived emotional support, mental health insurance

coverage, past 12 month evaluated need, and perceived need – to examine whether any of these

variables were significantly moderating the relationship between the significant predictor

variables and past 12 month utilization. Table 5.12 highlights the results of these analyses which

found that none of the predictor variables significantly moderated the previously identified

relationships between gender, perceived emotional support, mental health insurance coverage,

past 12 month evaluated need, and perceived need and past 12 month utilization.

Table 5.12. Logistic Regressions of Past 12 Month Utilization with Interaction Terms

	OR (95% CI)
Gender	1.62 (0.07, 39.81)
Perceived Emotional Support	0.85 (0.63, 1.15)
Gender*Perceived Emotional Support	1.02 (0.73, 1.43)
Gender	2.71 (0.89, 8.27)
Mental Health Insurance Coverage	1.07 (0.67, 1.73)
Gender* Mental Health Insurance Coverage	0.76 (0.36, 1.61)
Gender	1.26 (0.29, 5.39)
Evaluated Need	12.47[***] (3.57, 43.56)
Gender*Evaluated Need	1.22 (0.28, 5.34)
Gender	8.76 (0.46, 167.42)
Perceived Need	1.01 (0.61, 1.68)
Gender*Perceived Need	5.42 (0.50, 59.40)

Perceived Emotional Support	0.85 (0.67, 1.07)
Mental Health Insurance Coverage	0.81 (0.14, 4.83)
Perceived Emotional Support*Mental Health Insurance Coverage	1.01 (0.85, 1.20)
Perceived Emotional Support	0.77 (0.56, 1.07)
Evaluated Need	0.99 (0.03, 32.71)
Perceived Emotional Support*Evaluated Need	1.32 (0.91, 1.92)
Perceived Emotional Support	0.74^{*} (0.56, 0.97)
Perceived Need	0.52, (0.23, 1.14)
Perceived Emotional Support*Perceived Need	0.85 (0.61, 1.18)
Mental Health Insurance Coverage	0.79 (0.37, 1.70)
Evaluated Need	21.41^{***} (7.27, 63.07)
Mental Health Insurance Coverage*Evaluated Need	0.78 (0.36, 1.72)
Mental Health Insurance Coverage	0.87 (0.12, 6.40)
Perceived Need	0.72 (0.40, 1.29)
Mental Health Insurance Coverage*Perceived Need	0.84 (0.17, 4.24)
Evaluated Need	0.78 (0.03, 19.42)
Perceived Need	0.56^{*} (0.31, 1.01)
Evaluated Need*Perceived Need	0.09 (0.01, 0. 04)
*p value ≤ 0.05 ***p value ≤ 0.001	

Summary of Aim 5 Results

Structural equation modeling results indicated that having an evaluated need for services in one's lifetime did have a significant mediating effect on the relationship between perceived emotional support and lifetime utilization among African American emerging adults in this sample. Similarly, past 12 month evaluated need had a significant mediating effect on the relationship between gender, perceived emotional support, and mental health insurance coverage and past 12 month utilization, respectively. Perceived need for services did not have a significant mediating effect on any of these relationships. Thus, hypothesis 5A was partially supported as evaluated need mediated the association between being an African American emerging adult and service utilization.

None of the significant predictor variables from the bivariate analyses (e.g., gender, mental health insurance coverage, perceived emotional support, evaluated need, and perceived need) significantly moderated the relationship between being an African American emerging adult and service utilization; thus, hypothesis 5B was not supported.

Summary

      This chapter presented the results of the analyses conducted among the study sample of African American emerging adults, including univariate, bivariate chi-squares and logistic regressions, and multivariate logistic regressions. In addition, structural equation modeling and logistic regressions with interaction terms were performed to examine potential mediation and moderation of the independent variables. Chapter 6 provides a discussion of the implications of these results on mental health service utilization among African American emerging adults in greater detail.

CHAPTER 6: DISCUSSION AND IMPLICATIONS

It has been repeatedly stated that African Americans, in general, experience a disproportionate burden related to mental illness (US DHHS, 2001). More specifically, African American emerging adults are adversely affected by cumulative vulnerabilities including race, age, and mental illness, which may further contribute to their being at particular risk for experiencing a poorer quality of life (Myers & Hwang, 2004). These risks have potentially devastating personal and societal consequences, which can mirror those of untreated mental illness such as lower graduation rates, increased incidence of homelessness, and a greater likelihood of unemployment (Carey, 2008; Congressional Research Service, 2005; Russell, 2010; US Department of Labor, 2011). Yet, despite these bleak outcomes, African American emerging adults often have some of the lowest mental health service utilization rates compared to Caucasian emerging adults as well as older African Americans and older Caucasians (Jackson et al., 2004; Kearney et al., 2003).

Unfortunately, literature exploring the factors associated with mental health service utilization among African American emerging adults is limited. Research that is available tends to focus on college-attending emerging adults (e.g., Blanco et al., 2008) or includes a small sample of African American emerging adults from one post-secondary institution (e.g., Barksdale & Moloft, 2008); however, limiting studies to these types of African American emerging adult subsets fails to address the majority of African American emerging adults and hampers the generalizability of the results. Thus, this dissertation study sought to address this gap in the literature and advance existing mental health services literature in two key ways. First, it focused exclusively on mental health service utilization among African American emerging adults; and secondly, it used a nationally representative and heterogeneous sample of

African American emerging adults, including non-college attending individuals. Specifically, this study was the first to examine the potential impact of predisposing, enabling, and need factors on mental health service utilization among African American emerging adults using a nationally representative sample. The reminder of this chapter summarizes and discusses the study results, identifies study limitations, and offers practical, research, and policy implications of its findings.

Discussion

Aim 1

This study found that nearly half of the sample (47%) endorsed at least one type of DSM-IV disorder in their lifetimes, while 28% endorsed at least one type of DSM-IV disorder in the past 12 months. This study also found that, among respondents with an evaluated need, anxiety disorders were most prevalent with 37% of respondents endorsing for at least one type of anxiety disorder in their lifetime and 21% of respondents endorsing for at least one type of anxiety disorder in the past 12 months. This finding supported the hypothesis that African American emerging adults would have a higher percentage of anxiety disorders compared to all other disorders. This result is consistent with earlier findings from studies of the general population, African Americans, and emerging adults (Breslau et al., 2005; Kessler et al., 2005b; Kessler & Wang, 2008).

Aim 2

This study also sought to compare variations in mental health service utilization rates by recency (e.g., use in lifetime versus non-use and use in the past 12 months versus no use in the past 12 months) and provider types utilized (e.g., mental health sector and non-mental health sector). One-fourth of the sample had utilized services in their lifetime, while only 9% of

respondents had utilized services in the past 12 months. This rate was slightly lower than

previous literature on this population which has cited utilization rates ranging from 12-36% in

the past 12 months among other samples of emerging adults (Blanco et al., 2008; Eisenberg et

al., 2007; Hunt & Eisenberg, 2010). However, compared to the zero lifetime utilization rate

identified among one small sample of African American college students (NLCAABH, 2009),

this sample's lifetime utilization rate of 25% among the entire sample and 44% among those

respondents with an evaluated need was significantly higher. Overall, these findings were

similar to prior literature that indicated that African Americans and emerging adults

underutilized services, whether in their lifetime or the past 12 months, and supported the

hypothesis that the percentage of African American emerging adults ever utilizing services

would be lower than the percentage of those who have never utilized services.

Additionally, there were higher rates of utilization by providers in mental health sector,

both in the entire sample and among those who endorsed at least one DSM-IV diagnosis. Eleven

percent of the entire sample and 17% of respondents who endorsed at least one DSM-IV

diagnosis in their lifetime utilized providers in the mental health sector, compared to 5% of the

entire sample and 11% of respondents who endorsed at least one DSM-IV diagnosis in their

lifetime who utilized providers in the non-mental health sector. These findings were surprising

given that previous literature indicated African Americans and emerging adults respectively were

more likely to utilize non-mental health sector providers such as primary care physicians and

emergency rooms (e.g., Alegría et al., 2002; Davis & Ford, 2004; Snowden & Yamada, 2005).

However, these results could be indicative of the aforementioned positive attitude that

some African Americans have towards professional help-seeking for their mental health needs

(Diala et al., 2001). This study did not explore the number of times that respondents visited any

professional, so it is possible that these results reflect an initial visit to a provider in the mental health sector, and that there may be different findings if service utilization had included and compared the number of sessions by provider types utilized. Additionally, this finding could be influenced by information about services sought during childhood; for example, when the respondent's parent or some other "gateway provider" such as a guidance counselor referred and took the individual to services as well as how the respondent defined key study terms such as "counselor". This discrepancy suggests that, when assessing provider types utilized by this population, it is important to determine when the respondent sought services, who initiated those services, and what constituted (to the respondent) a mental health or non-mental health sector provider.

Aim 3

Another aim of this study was to examine the association between DSM-IV diagnosis type (e.g., mood, anxiety, substance use, and impulse control disorders) on mental health service utilization by recency (e.g., lifetime and past 12 months) and provider types utilized (e.g., mental health sector and non-mental health sector). This study found that respondents with anxiety disorders were more likely to have utilized services in their lifetime, in the past 12 months, in the mental health sector, and in the non-mental health sector compared to respondents with other disorders. In addition, respondents with anxiety disorders had greater likelihood of using all four categories of service utilization compared to respondents with other disorders. These findings are inconsistent with previous literature among emerging adults which found that those with mood disorders were more likely to seek services compared to those with anxiety disorders or substance use disorders (Blanco et al., 2008; Wang et al., 2005). Thus, the hypothesis that

respondents with mood disorders would be more likely to have utilized any service in their lifetime and in the mental health sector was not supported.

One reason for the discrepancy could be the higher rate of anxiety disorders in this sample compared to other disorders (e.g., mood, substance use, and impulse control disorders). Also, impulse control disorders such as eating disorders are not typically included as a category of mental health need among research that focuses on mental health service utilization among adults (e.g., Blanco et al. 2008). However, consistent with the literature, this study did find that respondents with substance use disorders were significantly less likely to have utilized services in their lifetime and in the past 12 months. This finding could indicate that, regardless of study population, individuals with substance use disorders are either not seeking traditional services, whether it be in the mental health or non-mental health sector, that they are seeking services through other means that are not being adequately identified in studies, or that they are seeking services later in their life.

Aim 4

This study also sought to assess the odds of mental health service utilization by recency (e.g., lifetime and past 12 months) and provider types utilized (e.g., mental health sector and non-mental health sector) by predisposing, enabling, and need factors (e.g., gender, educational attainment, employment, mental health insurance coverage, perceived emotional support, perceived racial discrimination, evaluated need, and perceived need). Findings indicated that being female and having an evaluated need increased the likelihood of utilizing services in one's lifetime, in the past 12 months, and in the mental health sector. These results were similar to previous literature which found that, among African Americans (Cooper-Patrick et al., 1999) and emerging adults (Yorgason et al., 2008), females were more likely than males to utilize services.

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Additionally, perceiving a need for services was significantly associated with greater odds of past 12 month service utilization. Evaluated need was the only factor that was significantly associated with increased odds of non-mental health sector utilization. Need, both *evaluated need* as well as a *perceived need* for services, has been cited as a strong predictor of service utilization (Alegría et al., 2002; Andersen, 1995; Lemming & Calysn, 2004). The findings from this current study are consistent with previous literature and supported by both Andersen's Behavioral Model of Health Services Use (Andersen, 1995) and the Behavioral Model for Vulnerable Populations (Gelberg et al., 2000). This, then, is an important finding as it indicates that among this sample of African American emerging adults, those individuals that need services are, in fact, utilizing them.

Conversely, higher perceived emotional support was found to decrease the odds of respondents utilizing services in their lifetime and in the past 12 months while educational attainment was associated with decreased odds of past 12 month utilization. While these findings are contradictory to other studies, it could again be due to the sample population. For example, previous literature has included African American emerging adults, but typically does not parcel out results by race/ethnicity (e.g., Maulik et al., 2009). As a whole, emerging adults with higher perceived emotional support may be more likely to seek services; however, among African American emerging adults in this sample, receiving emotional support from family and friends may buffer the need for services or delay the desire to seek services. It is possible that talking to a friend or family member may cause the individual to feel better, and therefore decrease him or her from utilizing more formal mental health services.

Additionally, this study found that employment status and mental health insurance coverage were not significantly associated with increased odds of any mental health service

utilization. While the majority of this sample was employed, almost half (48%) of those

respondents did not have mental health insurance coverage. Moreover, having any mental health

insurance coverage, whether private or public, did not significantly impact service utilization. It

is possible that being employed or having mental health insurance coverage are not sufficiently

enabling or predicting mental health service utilization among this population. This non-

significant result could be due to a discrepancy between when services were sought (e.g., in

childhood) versus the respondent's current employment and insurance coverage status. Overall,

while it is necessary for this population to be gainfully employed at some point, and for them to

have adequate insurance coverage, either through their employers or a national health care plan,

neither appears to be sufficient enough to increase service utilization among this sample of

African American emerging adults. Although having health insurance coverage has been found

to be a strong predictor of service utilization among African Americans in general (Cooper-

Patrick et al., 1999, Davis & Ford, 2004; Snowden & Thomas, 2000), it is possible that, among

this sample, need for services is a more impactful predictor of service utilization compared to

employment or mental health insurance coverage. More in-depth research that specifies the

timeframe of service receipt and employment and insurance coverage is needed to fully explore

how these factors may hinder or facilitate service utilization among African American emerging

adults.

Little is known about the impact of perceived racial discrimination on mental health

service utilization among African American emerging adults. Unlike previous literature

(Burgess et al., 2008), this study found that perceived racial discrimination was not significantly

associated with decreased odds of service utilization. This finding could be influenced by the

age of the respondents, and the fact that they may not have perceived an experience of racial

discrimination, or they may have experienced discrimination but not attributed it to race. Additional research on the impact of other types of discrimination, such as ageism, experienced by this population would further add to the literature and help clarify possible reasons for underutilization of services among African American emerging adults.

Aim 5

Evaluated need mediated the relationship between perceived emotional support and lifetime service utilization, as well as the association of gender, perceived emotional support, and mental health insurance coverage with past 12 month service utilization. These findings confirm the theoretical framework that guided this study and support the premise that predisposing and enabling factors alone may not account for service utilization among African American emerging adults. Interestingly however, among this sample, perceived need did not mediate any of the relationships with these same predictor variables and past 12 month service utilization. This could be because only a very small percentage (5%) of the respondents perceived a need for services in the past 12 months. This is disconcerting given that almost one-third (28%) of the sample endorsed for a DSM-IV disorder in the same timeframe. These results indicate that while African American emerging adults are experiencing symptoms of mental illness, they may not be aware that these symptoms are indicative of a serious problem nor do the symptoms appear to precipitate a need to seek and utilize formal mental health services. However, it is important to note that this study did not account for severity of mental illness. It is possible that some, or even most of the respondents, experienced mild symptomology that may not require professional services. In fact, among the general population, 43.5% of any anxiety disorders are considered mild (Kessler & Wang, 2008). Despite this possibility, any level of mental illness needs to be identifiable among this at-risk population. Thus, it is still necessary to improve mental health

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outreach in order to educate African American emerging adults about the symptoms of mental illness, the adverse effects of untreated mental illness, and the importance of utilizing formal mental health services.

It was also important to conduct further examination of the potential moderating effect of statistically significant predictor variables on earlier identified bivariate associations (e.g., gender and service utilization). Findings from this current study indicated that when the variables (e.g., gender, mental health insurance coverage, perceived emotional support, evaluated need, and perceived need) were included in separate interaction statement, there was no difference in the association between the respective predictor variable and mental health service utilization (e.g., lifetime or past 12 months). For example, when gender was included in an interaction term with evaluated need, the association between evaluated need and mental health service utilization was not found to be different for females and males.

This is an interesting finding within this current study, given that, among this sample, females were consistently more likely to utilize services compared to males; yet further analysis indicated that being female does not necessarily increase the magnitude of the relationship between evaluated need and service utilization. This implies that gender alone, as a predisposing factor, may not be as large a contributing factor to increased rates of service utilization among African American emerging adults as speculated. However, additional research exploring the reasons why females may be more likely than males to utilize services is needed to fully understand the intricate interconnections between predisposing and enabling factors that may be associated with mental health service utilization among this population.

Study Limitations

Before discussing the implications of this research for African American emerging adults, it is important to consider some of its limitations. One of the main limitations was the cross-sectional design of the NSAL which hinders the ability to make causal inferences about the factors that may be related to mental health service utilization among this population. It is possible that additional factors that were not asked or that are beyond the scope of this dissertation study may further impact service use among African American emerging adults. However, the NSAL does provide extensive information about relevant factors that have been found to be related to mental health service utilization among African Americans and emerging adults in general. Thus, even though longitudinal data is preferable, this dissertation study addresses gaps in the mental health literature, particularly among an underserved and understudied population.

Another limitation was the fact that only individuals who were not institutionalized at the time of the survey were interviewed (e.g., individuals who were incarcerated or homeless). As aforementioned, African Americans, including African American emerging adults, are overrepresented in homeless populations; thus, it is possible that a percentage of African American emerging adults, particularly those who are males, are not represented in these data and the results of this study may not be generalizable to these potentially high need and vulnerable subgroups. However, this study does include 275 African American emerging adults who are male and thus, will offer an exciting first look at important mental health services information among this particular subgroup.

Similarly, individuals who were away at college (including living on campus) were also not included, because by definition, they were not considered part of the household probability samples (Jackson et al., 2004). It is possible that individuals who were currently in college and

living on campus would provide additional information about service utilization among this population; however, the NSAL study team found that respondents were willing to provide information on family members who were away from home. Thus, they theorize that it is possible to estimate the impact of potential individuals lost to particular household listings (Jackson et al., 2004).

Another possible limitation was the overall response rate for African Americans in the NSAL was 70.7%. Although there is no agreement on what constitutes an adequate response rate, a response rate of 80% for face-to-face interviews and 70% for telephone interviews have been cited as being acceptable in social science research (Shi, 2008). Thus, it is possible to consider a response rate of 70.7% as a potential limitation. However, given the fact that survey response rates among African Americans in general are typically low for epidemiological surveys coupled with the comprehensive nature, scope, and length of the NSAL, the NSAL investigators deemed the response rate to be excellent (Jackson et al., 2004).

An additional limitation was the potential for small subsets for service utilization (e.g., number of respondents who utilized religious or spiritual advisors) which may limit the number of variables included in the bivariate and multivariate models and may subsequently influence the reliability of some results (see Neighbors et al., 2008 and Woodward et al., 2011 for detailed discussion of this issue). There was the possibility that an assumption (e.g., sufficient cell sizes and observations) was not met initially and that some of the variables had to be recoded or combined to create a new category in order to address that issue. For example, this study originally planned to have three "provider types utilized" categories including mental health sector, health sector, and non-health sector. However, after conducting univariate analysis, neither the health sector only (n=18) nor the non-health sector only (n=4) categories met the

minimum number of observations (e.g., 25) needed for logistic regression; thus, those categories were combined to create one category called non-mental health sector (n=33). While this was a legitimate concern, it was addressed during the analytic stage of this dissertation by combining categories as indicated above. In addition, this sample included 806 respondents which, according to the power analysis conducted in G*Power 3.1.3 (Faul et al., 2007), provided sufficient power for the statistical analyses performed in this study.

Another limitation related to small service utilization subsets (e.g., non-mental health sector) was the issue of wide confidence intervals when conducting logistic regressions. As seen earlier in the results section, a small number of respondents utilized providers in the non-mental health sector. For example, among the respondents with an evaluated need in their lifetime, 32 utilized providers in the non-mental health sector compared to one respondent who did not. This lower number likely influenced the output of several analyses (see, Non-Mental Health Sector outcomes in Table 5.3 [Anxiety Disorders] and Table 5.5 [Evaluated Need]), which caused unstable models (du Prel et al., 2009; Sim & Reid, 1999); thus, they were subsequently dropped from the model. However, this researcher deemed it important to include this variable category, especially given that previous research (Snowden & Yamada, 2005; Tanner, 2010; US DHHS, 2001) has found higher utilization rates of non-mental health sector providers among African Americans and emerging adults. This limitation highlights the need for larger data sets similar to the NSAL that allow for examination of mental health service utilization in numerous ways (e.g., provider types utilized) and that also have sufficient power for advanced statistical analysis.

Lastly, a limitation of this study was the issue of recall and, in particular, the age of onset of any mental illness, the age of perceived need for services, and the last time they remember speaking to any professional about a problem, all of which could have occurred at any point in

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their lifetime. Most responses were retroactive reports that happened more than a year ago and reliability of the details of the problem or service utilization may be subject to potential recall bias (Maulik et al., 2010; Snowden, 1998; Vega & Rumbaut, 1991). However, allowing this retrospective approach provided the opportunity to share details about service utilization that may have been overlooked if a more restrictive timeframe (e.g., within the past 12 months only) had been used. For example, by including lifetime utilization in this study, it was determined that service utilization rates among African American emerging adults in this sample were higher for lifetime utilization compared to past 12 month utilization. In addition, examining lifetime utilization allowed for comparison of "provider types utilized", a NSAL survey item that was not asked of past 12 month utilization. Thus, despite the potential limitation of recall, inclusion of lifetime service utilization was an added benefit to this study.

While there were a few limitations to this dissertation study, the significant advantages of this study facilitated an initial examination of the association between predisposing, enabling, and need factors and mental health service utilization among African American emerging adults and provided insight into practice, research, and policy implications for this population.

Implications

Research indicates that untreated mental illness has devastating individual and societal effects; many of which cause increased economic and financial hardship (Hu et al., 2007). This is especially true for African American emerging adults who experience a disproportionate burden of mental illness and other vulnerabilities such as homelessness and unemployment (Russell, 2010). Addressing the reasons for decreased utilization of mental health services among this population cannot be accomplished with a one-prong attack, but rather requires a multi-directional approach that includes making changes in mental health practice, research, and

policy. Exploring future implications for each of these areas is paramount to unlocking the elusive causes for disparate service utilization, including within-group differences.

Practice

A first step in addressing mental health service underutilization begins with formal mental health professionals, community agencies, and organizations that frequently interact with African American emerging adults. Greater mental health outreach is needed, particularly among African American emerging adults who are male, and this outreach must go beyond merely educating African American emerging adults themselves about the reality of mental illness and its subsequent consequences; it must also reach the informal network that they are likely seeking support from. Literature abounds with strategies for using local religious organizations such as churches or other places African Americans frequently congregate (e.g., beauty salons and barber shops) as platforms for active outreach (Newhill & Harris, 2007; So et al., 2005; Snowden, 2001); however, if these are not the places that African American emerging adults frequent, this type of outreach is not effective. Creative solutions are needed that target those individuals (e.g., African American emerging adults who are male) who are consistently less likely to utilize mental health services. In today's society, emerging adults who are male and female, and of all races/ethnicities, are very familiar with social media sites such as Facebook and Twitter, and it may be that these types of outlets may be more appropriate avenues for heightening awareness and understanding of mental illness (Burns, Davenport, Durkin, Luscombe, & Hickie, 2010; Hanson, Thackeray, Barnes, Neiger, & McIntyre, 2008).

When conducting mass outreach and providing mental health education to African American emerging adults, it will also be important to use individualized, and culturally-targeted targeted materials (Kreuter, Lukwago, Bucholtz, Clark, & Sanders-Thompson, 2003; So et al.,

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2005). Health literature indicates that health communication materials that provide group-specific data in a culturally-relevant context may generate positive responses to cancer screenings in African Americans who otherwise may not get screened (Thompson, Kalesan, Wells, Williams, & Caito, 2010). When used to promote mental health education, targeted materials may be helpful in reducing stigma by normalizing mental illness and providing "real-life" and relevant information specifically related to African American emerging adults (Cooper et al., 2003; Kreuter et al., 2003). While these recommendations have not been specifically tested with African American emerging adults, their success with African American women and older adults offer promising possibilities for targeting this population with hopes they will seek treatment earlier without fear of isolation from family, peers and the community (Snowden & Yamada, 2005).

Additional practical recommendations have been gathered through qualitative methods such as focus groups and interviews. Researchers have found that access to mental health services may also be increased by improving the geographical location of mental health services (Snowden, 2001; U.S. DHHS, 2001). Focus group participants indicated that mental health services offered within their communities would be more accessible and may improve the likelihood of African Americans seeking services (Newhill & Harris, 2007). If mental health services are more accessible (e.g., being more centrally located or available via public transportation) or even offered within other key service systems (e.g., primary care, public schools, and social service agencies) (Holm-Hansen, 2006), African Americans with fewer financial means and possibly greater mental health needs may be more inclined to seek services (Newhill & Harris, 2007). Furthermore, qualitative studies indicate that streamlining services by providing a better continuity of mental health care services (Maulik et al., 2010; Russell, 2010)

with more comprehensive and coordinated services (U.S. DHHS, 2001) from a single point of

entry (Holm-Hansen, 2006; Newhill & Harris, 2007) will make access more feasible.

In addition to increased accessibility and streamlined services, it is important that mental

health agencies make every effort to hire professionals of color (Miranda et al., 2008; Newhill &

Harris, 2007), and, at minimum, ensure cultural awareness and sensitivity among their staff

(Atdjian & Vega, 2005; Copeland & Butler, 2007; Newhill & Harris, 2007; Snowden & Thomas,

2000). Specifically, research indicates that culturally competent professionals should actively:

be awareness of his/her own assumptions, biases, values, perceived notions, and personal

limitations; attempt to understand a culturally different client's worldview without negative

judgments; and develop and practice relevant, appropriate, and sensitive intervention strategies

and skills for working with culturally diverse clients (Shin et al., 2005; Sue, Arrendondo, &

McDavis, 1992). This improved awareness by mental health professionals is critical, in part,

due to the fact that when African Americans do seek services, they are more likely to be

misdiagnosed (Schwartz & Feisthamel, 2009; Snowden, 2001) and receive inappropriate or

inaccurate treatment (Rollman et al., 2002; U.S. DHHS, 2001; Young, Klap, Sherbourne, &

Wells, 2001). It is the expectation that these types of problems will begin to decrease as

professionals' cultural awareness and sensitivity increase.

Snowden & Hu (1996) found that racial/ethnic minority representation in mental health

services was strongly related to increased service utilization. They recommended three

important conditions for improving client retention in mental health services: ethnic matching of

therapist and client, language matching of therapist and client, and location of agency in a

racial/ethnic community. Moreover, specialized minority-oriented programs (Snowden & Hu,

1996) that provide mental health treatment that is tailored to the specific and unique needs of

African Americans (U.S. DHHS, 2001) have also been shown to increase minority utilization and retention of mental health services (Chow et al., 2003). When more specialized programs are not available, it is essential for primary care professionals to be educated on how to assess, treat, and refer African American patients who require more in-depth mental health treatment. By integrating mental health care with health care, and viewing mental illness as a chronic disorder such as diabetes and cardiovascular disease, it is possible that more equitable care may be received regardless of race/ethnicity (Russell, 2010; U.S. DHHS, 2001).

Research

There are a number of research implications for mental health service utilization among African Americans emerging adults; namely, continued research examining the factors associated with service utilization. For instance, being an African American emerging adult who was female was consistently significantly associated with an increased likelihood of service utilization; yet, less is known about why African American emerging adults who are male are underutilizing services. In addition, as in other emerging adult populations, African American emerging adults who endorsed having substance use disorders were the least likely to utilize any type of service (Blanco et al., 2008; Wang et al., 2005). Additional research is needed to gain better understanding of whether or not these individuals are actually not utilizing any services, or whether the type of services they are utilizing, such as informal services such as Alcoholics Anonymous or Narcotics Anonymous, are not being adequately identified.

Further examination of the specific types of DSM-IV disorders, and their potential association with service utilization, is also needed. This study characterized four DSM-IV disorder types, yet given the high rates of anxiety disorders among this population, it would be interesting to determine the rates of specific anxiety disorders and assess whether there are

variations in service use within the anxiety category. In addition, it would be useful to investigate pathways to service, considering that many of these African American emerging adults may have utilized services prior to turning 18 years of age and at their parent's request or at the referral of another professional, such as a teacher or counselor. Parceling out when services were utilized may impact the utilization rates identified in this study.

While this study addressed the need for samples to represent the heterogeneity of African Americans (Neighbors, 1985), it was limited to one national survey that excluded persons who were not currently living in the home (e.g., college students living on campus). It is important to conduct research that has a nationally representative sample of African American emerging adults, including college-attending students, to further address the heterogeneity of this population. Several national surveys such as the National Survey on Drug Use and Health and the National College Health Assessment have large African American emerging adult subsamples within their surveys that can be used in future comparative studies to assess whether the results found in this study persist. In addition, future samples need to include, to adequately represent, and to provide avenues for identifying subsets within the African American emerging adult sample to facilitate more in-depth within-group comparison. For example, studies, particularly those focusing on college students, fail to include a sufficient number of African American emerging adults (e.g., Yorgason et al., 2008), or African American emerging adults who are attending and have graduated from historically Black colleges and universities (e.g., Barksdale & Moloft, 2008). Addressing this gap in the literature is an important step in future research among this diverse population.

Moreover, the need for longitudinal data collection of African Americans (Hines-Martin , et al., 2003a; Maulik et al., 2010; Snowden & Cheung, 1990), and African American emerging

adults in particular, remains. Longitudinal data would be especially helping in understanding

service utilization among African American emerging adults, especially as it relates to mental

illness and service utilization throughout adulthood (Russell, 2010). Older adults typically have

the highest service utilization rates (NIMH, n.d.); thus, having longitudinal data on a specific

cohort of African American emerging adults would allow researchers greater opportunities to

explore the impact of additional factors such as perceived emotional support, perceived need,

and delayed treatment on service utilization over time.

Research is also needed to investigate the mental health consequences of discrimination,

such as ageism and sexism, among African American emerging adults as well as the long-term

effects of the stress process on this population (Copeland & Butler, 2007; Vega & Rumbaut,

1991). These factors may also be compounded by experiences of discrimination and stigma due

to a diagnosis of mental illness (Corrigan et al., 2003). This area of research requires further

exploration as those authors found that perceptions of discrimination due to factors such as race

and gender did not lessened the stigma associated with mental illness. In addition to identifying

the negative effects of stigma and discrimination on service utilization among this population,

studies exploring this topic among African American emerging adults should also include

research that identifies protective and enabling factors that increase access to and utilization of

mental health services (Hines-Martin et al., 2003b; Vega & Rumbaut, 1991).

Policy

The Affordable Care Act (ACA), which is set to take effect in 2014, ensures that health

plans offered to individuals will include essential health benefits such as mental health and

substance use disorder services (US DHHS, 2013). The ACA is slated to improve mental health

coverage and treatment to individuals who were previously uninsured and experiencing mental

illness or who were denied insurance due to previous existing conditions including mental illness and substance use disorders. In addition, expanded outreach and educational programs as well as greater access to prevention services have already initiated (SAMHSA, 2010). Improved accessibility to services is essential for African American emerging adults given that lack of or inadequate health insurance coverage (Hines-Martin, et al., 2003a; Snowden & Yamada, 2005) and cost of mental health services (Davis & Ford, 2004; Padgett, Patrick, Burns, & Schlesinger, 1994; Russell, 2010) have been cited as barriers to their ability to access to mental health services. Moreover, given that mental health insurance coverage alone did not have a significant association with increased service use in this study, it would be interesting to see if enhanced accessibility, in fact, improves service utilization among African American emerging adults.

The ACA is also expected to create additional incentives to coordinate primary care, mental health, and addiction services (SAMHSA, 2010). This plan is similar to the specific protocols recommended by the Institute of Medicine which included providing economic incentives for mental health agencies who improve patient-provider interactions, screenings, and preventive and evidence-based mental health services (Miranda et al., 2008). Their research indicated that the use of quality improvement interventions with primary care physicians and non-specialty mental health service providers decrease disparities by improving access and quality of care, including cultural sensitivity (Miranda et al., 2003; Miranda et al., 2008). While this type of program has been found to be successful with other population (Miranda et al., 2008), additional examination will be needed to assess its benefits and the long-term outcomes for increased service utilization among African American emerging adults.

Similarly, it is imperative that national guidelines are implemented outlining the expectations of mental health service professionals and agencies. Atdjian & Vega (2005)

suggest the use of existing health care examples (e.g., National Standards for Culturally and

Linguistically Appropriate Services (CLAS) in Health Care) to establish clear and consistent

policies for mental health providers and agencies. These policies would include new standards

in licensing/certification of providers and guidelines for accreditation of agencies which may

help improve mental health service utilization among African American emerging adults. Such

policies would also allow for ongoing evaluation of procedures and services to ensure that

evidence-based treatments are being used and that equitable mental health care is provided to this

population, as well as other racial/ethnic minorities (Holm-Hansen, 2006). In addition, these

guidelines should include avenues to monitor and assess an agency's community outreach,

service diversity and coordination, and cultural responsiveness (Snowden & Hu, 1996).

Summary

Underutilization of mental health services is a persistent and concerning problem that has

been identified among African American emerging adults; yet less is known about the factors

associated with service utilization among this population. This dissertation study is the first to

examine predisposing, enabling, and need factors associated with mental health service

utilization among a nationally representative sample of African American emerging adults. This

study examined mental health service utilization among African American emerging adults by

addressing five specific aims: (1) comparing variations in rates by DSM-IV diagnosis type, (2)

comparing variations in service utilization rates by recency and provider types utilized, (3)

examining variations in service utilization rates (lifetime and past 12 month) by DSM-IV

diagnosis type, (4) examining the association between predisposing, enabling, and need factors

and service utilization by recency and provider types utilized, and (5) assessing the potential

mediating and moderating effect of the predisposing, enabling, and need factors on the

relationship between being an African American emerging adult and service utilization. The findings supported some of the study hypotheses (as seen in Appendix B); for example, confirming higher rates of anxiety disorders among this sample and that evaluated need is associated with significantly increased odds of any service utilization. While all of the study hypotheses were not supported, this study is an important first step in better understanding the factors associated with mental health service utilization among African American emerging adults.

Furthermore, implications for significant, and immediate, advancements in practice, research, and policy were addressed. Engaging African American emerging adults in mental health services includes: educating them about mental illness and mental health services, providing outreach in venues that they actually participate, offering services within their community, all while normalizing mental illness and decreasing any associated stigma. Mental health professionals and agencies are charged with making mental health services more geographically and logistically accessible as well as more socially acceptable. Furthermore, mental health agencies and accreditation bodies should ensure that professionals are culturally competent, sensitive to the concerns of this population, and providing services that cater to the specific, and often challenging, needs of African American emerging adults. Having a racially diverse staff including clinicians and attempting to match clients with therapists based on cultural and linguistic similarities are equally important (Snowden & Hu, 1996).

Research is also needed to examine the relationship between specific DSM-IV disorders and mental health service utilization, specifically between substance use disorders and lower rates of service utilization. In addition, further exploration of the impact of ageism, sexism, stigma, and informal supports including religious factors on service utilization among African

American emerging adults is needed. The initiation of ACA provides a unique ability for this population to assess the benefits of more comprehensive mental health insurance coverage and greater accessibility to services. Furthermore, it serves as an excellent opportunity to begin a series of longitudinal data collection, a limitation that has been noted repeatedly in previous literature exploring mental health service utilization among African American emerging adults. Considering the adverse consequences of untreated mental illness, and the cumulative vulnerabilities experienced by this population, underutilization of mental health services requires immediate action on all fronts, practice, research, and policy.

Final Thoughts

This study enhances our understanding of the relationship between specific predictor variables and mental health service utilization among African American emerging adults, contributes to the paucity of mental health literature among this population, and addresses noted limitations in the few studies that have specifically examined service utilization among African American emerging adults. Grounded in theoretical frameworks such as the Behavioral Model of Health Services Use and the Behavioral Model for Vulnerable Populations, this study examined predisposing, enabling, and need factors associated with service utilization among this population. Findings provided valuable information about the factors, namely gender, perceived emotional support, and evaluated need, which influenced service utilization among this sample. This type of innovative research must continue in order to address underutilization of mental health services among African American emerging adults, in hopes of increasing service utilization and, thereby, decreasing and eventually eliminating the disproportionate burden of mental illness experienced by African American emerging adults.

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Appendix A. Table of Study Variables					
Variable Type	*Category*	*Construct*	*Study Operationalization*	*Measurement Level*	*Survey Question*
Independent Variables	Predisposing, Enabling, and Need Factors	Gender	Male/Female	Nominal	SEX: What is (his/her) sex?
		Educational Attainment	<12 years, 12 years, 13-15 years, ≥16 years	Ordinal, polychotomous	H13. How many years of school did you finish?
		Employment	Employed, Unemployed, or Not in labor force	Ordinal, polychotomous	D1. Are you working now full or part time, temporarily laid off, unemployed, retired, (a homemaker,) a student, are you permanently disabled, or something else?
		Mental Health Insurance Coverage	Private, Public, No insurance	Nominal, polychotomous	C23. Are you currently covered by any federal government health insurance programs, such as Medicare, Medicaid, or CHAMPUS, VA, or other military programs C24. Are you covered by health insurance through your employer, or former employer or union, such as Blue Cross-Blue Shield or an HMO? C24c. Are you covered by health insurance through your family's employer, or former employer or union (such as Blue Cross-Blue Shield or an HMO) (By family I mean husband/wife/partner or parents?)
		Perceived Emotional Support	Never, Fairly, Some, Very Often	Continuous, with higher score meaning higher support α = 0.76 for African Americans	E6A-C. Other than your (spouse/partner), how often do your family members…make you feel loved and cared for? Listen to you talk about your private problems and concerns? Express interest and concern in your well-being?
		Perceived Racial Discrimination	Yes (has perceived experience of discrimination based on race only) or No (has not perceived experience of discrimination based on race only)	Ordinal α = 0.71 for African Americans	G12A.At any time in your life, have you ever been <u>unfairly</u> fired? G12B. For <u>unfair</u> reasons, have you ever not been hired for a job? G12C. Have you ever been <u>unfairly</u> denied a promotion? G12D. Have you ever been <u>unfairly</u> stopped, searched, questioned, physically threatened or abused by the police? G12E. Have you ever been <u>unfairly</u> discouraged by a teacher or advisor from continuing your education? G12F. Have you ever been <u>unfairly</u> prevented from moving into a neighborhood because the landlord or a realtor refused to sell or rent you a house or apartment? G12G. Have you ever moved into a neighborhood where neighbors made life difficult for you or your family? G12H. Have you ever been <u>unfairly</u> denied a bank loan? G12I. Have you ever received service from

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					someone such as a plumber or car mechanic that was worse than what other people get? G13A-I. What do you think was the <u>main</u> reason for this experience?
		Evaluated Need (collective DSM-IV diagnoses)	Yes/No	Ordinal	DSM-IV. Did respondent's answers to screener and subsequent disorder-specific questions indicate endorsement of a DSM-IV diagnosis?
		Perceived Need[20]	Yes/No	Ordinal	SR122. Was there ever a time during the past 12 months when you felt that you might need to see a professional because of problems with your emotions or nerves or your use of alcohol or drugs?
		DSM-IV Diagnosis (Individual diagnosis)[21]	Yes/No	Ordinal	Is the respondent endorsed for one of the following six DSM-IV diagnosis type categories? mood disorders (major depressive episode, dysthymia, mania, bipolar I and II), panic disorders (agoraphobia without panic disorder, agoraphobia with panic disorder, panic disorder, panic attacks, social phobia, generalized anxiety disorder, posttraumatic stress disorder, separation anxiety disorder, and adult separation anxiety), substance use disorder (alcohol abuse and dependence and drug abuse and dependence), any binge eating, attention deficit/hyperactivity disorder, or oppositional defiant disorder.

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[20] Perceived Need is only used in analysis for Past 12 Month Utilization

[21] Individual DSM-IV diagnosis types are used in Aims 1 and 3 and operationalized as "evaluated need" for use in Aims 2, 4, and 5

Dependent Variable	Mental Health Service Utilization by Recency and Provider Types Utilized	Utilized any professional services ever in lifetime	Yes, used in lifetime, No use in lifetime	Ordinal	DP69a, M33a, PD50a, SO25a, AG24a, GA44a, SU95a, PT246a, EA35a, AD14a, OD12a, SA43a. Did you ever in your life talk to a medical doctor or other professional about your (insert DSM-IV diagnosis type)?
					
					DP72, M36, PD53, SO28, AG27, GA47, SU98, PT249, EA38, AD17, OD15, SA46. Which of the following types of professionals did you ever talk to about your (insert DSM-IV diagnosis type)?
					  a. A psychiatrist?
					  b. Any other mental health professional, such as a psychologist, psychotherapist, social worker, a mental health nurse or counselor?
					  c. A family doctor?
					  d. Any other medical doctor, like a cardiologist or (WOMEN: gynecologist/MEN: urologist)?
					  e. Any other health professional, like a nurse or physician's assistant?
					  f. A religious or spiritual advisor like a minister, priest, or rabbi?
					  g. Any other healer, like an herbalist, chiropractor, or spiritualist?
					
					SR17 (01-09: all mentions). Which of the following types of professionals did you ever see about problems with your emotions or nerves or your use of alcohol or drugs?
					  A. Psychiatrist
					  B. General practitioner or family doctor
					  C. Any other medical doctor, like a cardiologist or (women: gynecologist/ men: urologist)
					  D. Psychologist
					  E. Social worker
					  F. Counselor
					  G. Any other mental health professional, such as a psychotherapist or mental health nurse
					  H. A nurse, occupational therapist, or other health professional
					  I. A religious or spiritual advisor like a minister, priest, or rabbi
					  J. Any other healer, like an herbalist, chiropractor, or spiritualist

		Utilized any professional services in past 12 months	Yes, use in the past 12 months, No use in the past 12 months	Ordinal	DP69, M33, PD50, SO25, AG24, GA44, SU95, PT246, EA35, AD14, OD12, SA43. Did you talk to a medical doctor or other professional about your (insert DSM-IV diagnosis type) in the past 12 months? By professional we mean psychiatrists, psychologists, counselors, spiritual advisors, herbalists, acupuncturists, and other healing professionals.

| | | Provider Types Utilized | Mental Health Sector, Non-Mental Health Sector | Ordinal | **Mental Health sector** includes psychiatrists, psychologists, psychotherapists, social workers, counselors, and mental health nurses. **Non-Mental Health sector** includes family doctors, any other medical doctors, any other health professionals, religious or spiritual advisors, and any other healers. |

Appendix B. Were the Study Hypotheses Supported?			
Aim	Hypothesis	Yes	No
1	Hypothesis 1: A higher percentage of African American emerging adults will endorse anxiety disorders compared to all other disorders.	X	
2	Hypothesis 2A: The percentage of African American emerging adults ever utilizing services will be lower than the percentage of those who have never utilized services.	X	
2	Hypothesis 2B: The percentage of African American emerging adults utilizing providers in the non-mental health sector will be higher than the percentage utilizing providers in the mental health sector.		X
3	Hypothesis 3A: African Americans emerging adults who are diagnosed with mood disorders will have increased odds of utilizing any service in their lifetime and utilizing providers in the mental health sector compared to those with any other disorders.		X
3	Hypothesis 3B: African Americans emerging adults who are diagnosed with substance use disorders will have decreased odds of utilizing any service in their lifetime and utilizing providers in the mental health sector compared to those with any other disorders.	X	
4	Hypothesis 4A: African American emerging adults who are female will have increased odds of utilizing any service in their lifetime history and of utilizing services provided in the mental health sector than African American emerging adults who are male.	X	
4	Hypothesis 4B: African American emerging adults who are college graduates will have increased odds of utilizing any service in their lifetime history and of utilizing services provided in the mental health sector than those who have some college or less.		X
4	Hypothesis 4C: African American emerging adults who are employed will have increased odds of utilizing any service in their lifetime history and of utilizing services provided in the mental health sector than those who are unemployed or not in the work force.		X
4	Hypothesis 4D: African American emerging adults who have public mental health insurance coverage will have increased odds of utilizing any service in their lifetime history and of utilizing services provided in the mental health sector than those who have private or no mental health insurance coverage.		X
4	Hypothesis 4E: African American emerging adults who have higher perceived emotional support will have increased odds of utilizing any service in their lifetime history and of utilizing services provided in the mental health sector than those who have lower perceived emotional support.		X
4	Hypothesis 4F: African American emerging adults who have lower perceived racial discrimination will have increased odds of utilizing any service in their lifetime history and of utilizing services provided in the mental health sector than those who have higher perceived racial discrimination.		X
4	Hypothesis 4G: African American emerging adults who have an evaluated need (e.g., who have a DSM-IV diagnosis) will have increased odds of utilizing any service in their lifetime history and of utilizing services provided in the mental health sector than those who do not have an evaluated need.	X	
4	Hypothesis 4H: African American emerging adults who have a higher perceived need for services will have increased odds of utilizing services in the past 12 months than those who have a lower perceived need for services.	X	
5	Hypothesis 5A: Evaluated need and perceived need will have mediating effects.		X
5	Hypothesis 5B: Gender, mental health insurance coverage, perceived emotional support, and perceived racial discrimination will have moderating effects.		X