ANALYZING THE AFFORDABLE CARE ACT'S IMPACT ON THE MENTAL HEALTH TREATMENT GAP

A Thesis

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Marly Young

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Department of Public Policy and Administration

Abstract

of

ANALYZING THE AFFORDABLE CARE ACT'S IMPACT ON THE MENTAL HEALTH TREATMENT GAP

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One in five American adults experiences a mental illness in a given year, yet over 50% never receive treatment (National Alliance on Mental Illness). Further, 35% with a *serious* mental illness never receive treatment (Substance Abuse and Mental Health Administration). This treatment gap costs the U.S. over $100 billion a year in lost productivity and contributes to some of our country's most pressing issues, from substance abuse to homelessness (Scientific American, 2012). The economic and social toll of untreated mental illness suggests government intervention is necessary to ensure that Americans who are mentally ill are able to access treatment.

Barriers to mental health care range from cultural stigma to cost of treatment. The Affordable Care Act, which went into effect in 2014, intended to help address the cost barrier to care by including mental health as one of ten essential health benefits, requiring all Americans to obtain health insurance or pay a penalty, and providing subsidies to help low-income individuals pay for it.

This thesis sought to understand whether the mental health provisions of the Affordable Care Act have effectively expanded access to care among those who need or

want treatment. To analyze this effect, I applied a logistic regression to National Health Interview Survey responses from 2013 and 2016, examining health insurance status, mental health access, and a number of demographic variables. In addition, I interviewed mental health policy experts for their perspectives and insights into my results as well as their policy recommendations.

The regression results suggest that individuals with health insurance are more likely to access mental health care and that the Affordable Care Act appears to have expanded access to care overall. However, even after the Affordable Care Act went into effect, individuals with private insurance were less likely to access care than those with public insurance, and African American, Asian, and Hispanic respondents were all less likely to access care than their white counterparts. Based on my qualitative interviews, these results appear to be fairly consistent with what advocates and policymakers observe.

These findings have important policy implications. They suggest that the Affordable Care Act has helped expand access to care but policymakers should consider further reforms to ensure individuals with private insurance are able to access quality in-network care. They also indicate that additional reforms are necessary to address the persistent racial disparities in mental health care.

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Chapter One

INTRODUCTION

Untreated Mental Illness Creates Negative Externalities

One in five American adults experiences a mental illness in a given year, yet over 50% never receive treatment (National Alliance on Mental Illness). Further, 35% with a *serious* mental illness never receive treatment (Substance Abuse and Mental Health Administration). This treatment gap costs the U.S. over $100 billion a year in lost productivity and contributes to some of our country's most pressing issues, from substance abuse to homelessness (Scientific American, 2012). Such externalities not only have a direct financial impact on the national economy, they harm the public good through the destruction of human life. The economic and social toll of untreated mental illness suggests government intervention is necessary to ensure those who need mental health treatment have access to it.

Mental Health Reforms Must be Data-Driven

Researchers and policymakers have spent decades seeking ways to close this treatment gap with policies designed to address the economic and cultural barriers to care by expanding access, reducing the cost of treatment and fighting the cultural stigma that prevents many from seeking help. California itself has spent over $17 billion in Mental Health Service funds to support county mental health programs since the California Mental Health Services Act went into effect in 2004 (Department of Health Care Services). As the treatment gap persists, it is uncertain whether our mental health policies are achieving their desired outcomes.

The Affordable Care Act, signed in 2010, took a crucial step to reduce the fiscal barrier to access by requiring health insurance companies to provide mental illness coverage comparable to general medical coverage, requiring all Americans to obtain health insurance or pay a penalty, and offering subsidies the help low-income residents afford insurance (U.S. Department of Health and Human Services, 2013). My study aims to determine whether the mental health provisions of the Affordable Care Act, which aimed to address the cost barrier have successfully expanded access to care.

This research has important policy implications as the treatment gap continues to grow and Congress considers repealing provisions of the Affordable Care Act, which many consider an important tool to expanding access. Before dismantling well-intended policies, lawmakers must understand whether the mental health provisions of the Affordable Care Act successfully expanded access to care.

Treatment Gap is a Relatively New Research Focus

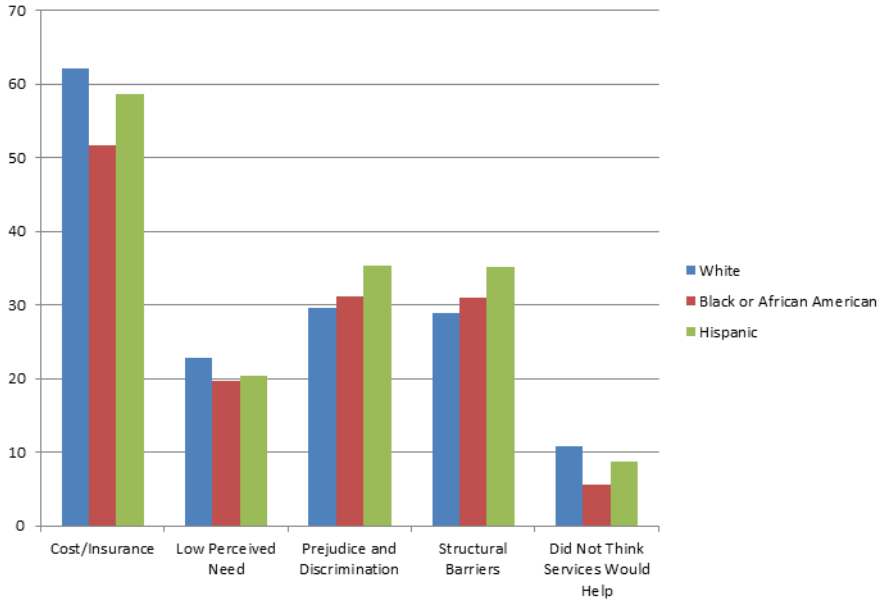
While there is widespread acknowledgment today that mental illness is a public health problem that is worth addressing, this attention has mostly occurred over the last few decades. In 1999, David Satcher, M.D., PhD, released the first U.S. Surgeon General report to deal with issues related to mental health. *Mental Health: A Report of the Surgeon General* declared that mental illness is real and affects one in five Americans, and Americans do not have equal access to mental health care (Hegner, 2000). The report cited race and ethnicity, as well as income, as significant barriers to care (Hegner, 2000). Since then, overwhelming research has further demonstrated how cultural factors such as race and ethnicity, age, and gender, as well as economic factors such as income and

insurance status all correlate with mental health service utilization. Researchers divide these barriers into two categories: cultural versus practical impediments to care.

Cost is Most Commonly Cited Barrier to Care

With out of pocket mental health treatment averaging over $100 per hour, one would expect income and health insurance coverage of mental health services to be critical barriers to accessing treatment (O'Brien, 2018). Survey data supports this assumption. The National Comorbidity Study, the first large scale survey of mental health in the U.S. collected in 1990 and 1992, found 47% of respondents who said they thought they needed treatment cited cost or not having insurance as the reason for not accessing care (Rowan, 2013). Moreover, researchers believe the cost barrier could be getting worse. Data from a 2008 to 2012 Substance Abuse and Mental Health Services Administration National Survey on Drug Use and Health, indicated in Figure 1.1, found cost/insurance to be the most commonly reported barrier to accessing mental health services.

Figure 1.1 Reasons for Not Accessing Care Among Adults with Serious Mental Illness Who had an Unmet Need 2008-2012



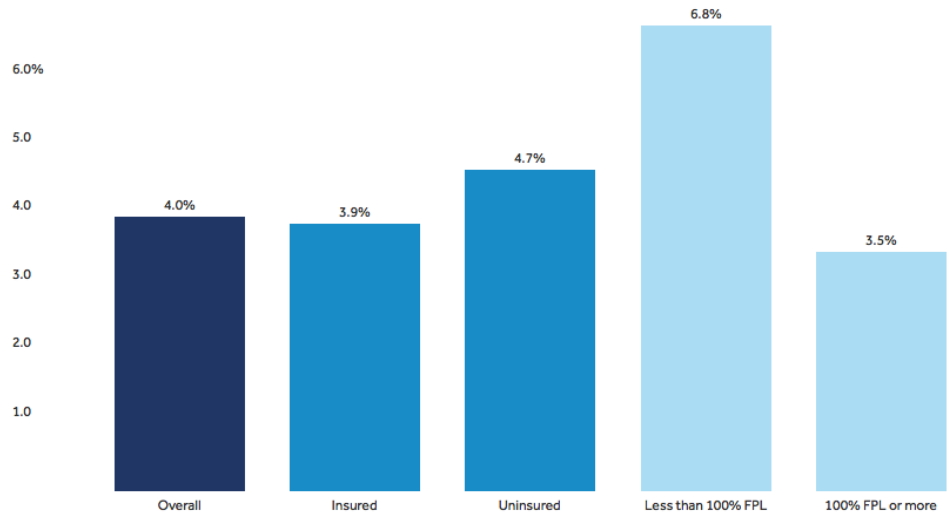
Source: Substance Abuse and Mental Health Services Administration Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2008-2012

Mental Illness Also Disproportionately Impacts the Uninsured and Poor

Not only is cost the most commonly cited barrier to care, mental illness is also more prevalent among uninsured and low-income individuals. This is demonstrated in Figure 1.2. The disparity may be because mental illness leaves an individual more susceptible to living in poverty, through disruptions in employment, substance abuse, or other destabilizing impacts of mental illness. It could also result from the impacts living in poverty may have on one's mental health status. This research indicates that mental health parity alone will not fully address the mental health treatment gap. On top of bringing parity to mental illness, policymakers must also ensure all individuals have health insurance in the first place.

Figure 1.2 Serious Mental Illness, Insurance Status and Income

12-month prevalence of serious mental illness among adults, by insurance status and poverty status, 2015



Source: Kaiser Family Foundation analysis of data from the Substance Abuse and Mental Health Services Administration: *Racial and Ethnic Differences in Mental Health Service Use among Adults*, 2015

Efforts to Bring Mental Health Insurance Parity

Advocates believe that bringing parity to mental health insurance, meaning covering mental illness the way we cover physical conditions, could help reduce this fiscal barrier to care. Efforts to bring parity to mental health insurance have been underway at the federal level since the 1990's, and gained traction recently with growing public attention to mental health.

Traditionally, insurers and employers have covered treatment for mental health care differently than care for physical conditions, such as different prior authorization requirements, more restrictive limits, and lifetime caps (Goodell, Sarah, 2014). However, the trend has slowly begun to change, starting in 1996 with the passage of the Mental

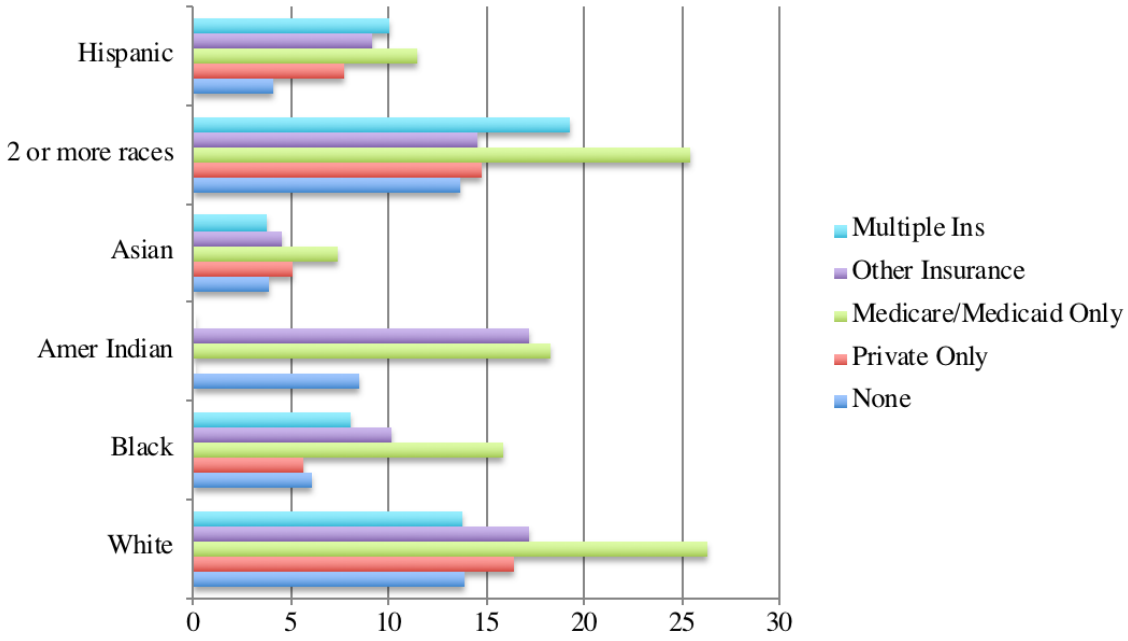
Health Parity Act (MHPA). Written by Senators Paul Wellstone (D-MN) and Pete Domenici (R-NM), the Mental Health Parity Act applied to large employer-sponsored health plans and prohibited them from imposing higher annual or lifetime limits on mental health benefits than those applied to other medical benefits. However, the law did not mandate coverage for mental health treatment. It only applied to group health plans that offer mental health benefits.

Over a decade later in 2008, Congress passed the Mental Health Parity and Addiction Equity Act (MHPEA), which extended the Mental Health Parity Act of 1996 by prohibiting differences in treatment limits, cost sharing, and in and out of network coverage for large group plans. In addition, it also applied to treatment of substance use disorders, which were not covered in the Mental Health Parity Act. Prior to MHPEA's implementation, nearly two-thirds of people with employer sponsored coverage had special limits on inpatient behavioral health coverage and about three-quarters faced limits on outpatient behavioral health coverage (Huskamp, 2014). One of the law's authors, Representative Patrick Kennedy (D-RI), argued: "access to mental health services is one of the most important and most neglected civil rights issues facing the Nation. For too long, persons living with mental disorders have suffered from discriminatory treatment at all levels of society," (Congressional Record 2007).

As indicated in Figure 1.3, individuals with public insurance, Medicare, or Medicaid have greater mental health service use than those with private or no insurance. This assertion is supported by the literature, which will be summarized in the following chapter. This may due to two factors: individuals with public insurance are more likely to

be low-income and have a greater need for mental health care, or private insurance companies have not been adequately meeting the mental health needs of their clients.

Figure 1.3 Mental Health Service Use in the Past Year among Adults, by Race/Ethnicity and Insurance Status 2008-2012



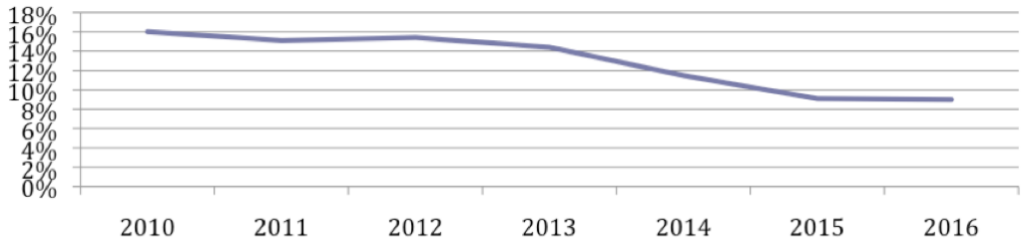
Source: Substance Abuse and Mental Health Services Administration: *Racial and Ethnic Differences in Mental Health Service Use among Adults*, 2015

The Affordable Care Act Expected to Expand Access to Care

The Affordable Care Act, signed by President Barack Obama on March 23, 2010, was intended to expand mental health care two ways: by ensuring all Americans have health insurance and requiring health insurers to cover mental illness. The legislation applied the Mental Health Parity and Addiction Equity Act provisions to individual health plans and defined coverage of mental health treatment as one of ten essential health benefits (Goodell, Sarah, 2014). As a result, all health insurance plans in the

individual and small employer market were required to cover mental health treatment. The Affordable Care Act also included the "individual shared responsibility provision," which required all Americans to have qualifying insurance for the entire year, file for an exemption, or pay a penalty. The law also established tax credits to help lower-income residents pay for coverage. Although the Affordable Care Act was fully implemented on January 1, 2014, Congress repealed the individual mandate in late December 2017 with a provision in tax reform legislation. The expanded mental health coverage requirements, individual mandate and tax credits were all intended and expected to expand access to mental health care. Based on early National Health Interview Survey data, the number of uninsured Americans appears to have declined since the Affordable Care Act went into effect in 2014. As shown in Figure 1.4, in 2010, the percentage of adults without health insurance was 16%, in 2014 it dropped to 11.5% and in 2016, 9% of adults were without health insurance.

Figure 1.4 Adults Without Health Insurance National Health Interview Survey 2010-2016



Source: National Health Interview Survey 2010-2016.

Research Into ACA's Impact on Mental Health Access Needed

Mental health advocates believe that the provisions of the Affordable Care Act will help expand access to mental health care by addressing the economic barriers to treatment. However, there has been little research to prove this assertion. As Congress considers dismantling provisions of the Affordable Care Act, it is important to know whether the ACA has made an impact to mental health care access.

This thesis applies quantitative and qualitative approaches to examine the impacts of the cultural and economic barriers to mental health care with a specific focus on health insurance. The quantitative approach involves a logistic regression on responses to the National Health Interview Survey (NHIS) about mental health service utilization, need for care, insurance status, and sociodemographic factors. The analysis examines National Health Interview Survey data in 2013 and 2016, prior to the Affordable Care Act's implementation and the most recent available data since it was fully implemented. The NHIS is a cross-sectional household interview survey with a sample size of about 35,000 households and an 80% response rate. I will supplement these regression results by interviewing policy experts for their perspectives and insight.

The following chapter will provide a review of the existing literature on barriers to mental health care, with an emphasis on the economic barriers, particularly income and insurance. The literature review will summarize the themes that have emerged from this research. Although there has been significant research into the barriers to mental health care, I was unable to find any studies examining how the Affordable Care Act has

impacted service utilization. This dearth in knowledge demonstrates the need for my empirical analysis.

In chapter three, I provide a detailed explanation of my quantitative methodology along with tables of the data and analyze how the results of my study compare with the existing literature.

Chapter four is a summary of the qualitative data, which involves interviews with policy experts from the advocacy, policy-making and policy implementation perspectives. In this chapter, I connect my regression results with the interviews.

The final chapter concludes with the implications of my results and recommendations for policymakers to improve the mental health delivery system. I discuss the challenges to implementing these reforms and the tangible ways they are expected to improve the system.

Chapter Two

LITERATURE REVIEW

Over the last few decades, researchers have sought to understand the barriers to mental health service utilization. While there is wide consensus that a utilization gap exists, the research is varied about the specific barriers, how they relate and the degree of their effect. The mental health treatment barriers are divided into three categories: predisposing (the traits that predispose one to seek treatment), enabling (the factors that enable one to receive treatment) and need (the severity of the illness). Because my research question centers on the economic barriers to treatment, the literature review explores the following themes: racial and ethnic disparities in access, economic barriers to care, insurance's role in closing the treatment gap, and challenges to mental health survey data. The review begins with the challenges to mental health survey data.

Challenges to Mental Health Survey Data

A review of the regression-based literature on mental health service utilization reveals shared challenges and limitations. The research on this topic tends to draw from the National Health Interview Survey, the Medical Expenditure Survey and the National Comorbidity Survey, the first large-scale field survey of mental health in the U.S. All three national surveys ask respondents about their mental health, service utilization, and sociodemographic characteristics. As such, the studies share similar limitations that arise from self-reported data such as recall bias and social desirability issues. Survey respondents may hesitate to respond truthfully to questions about their mental health, a stigmatized affliction in the U.S. In addition, the barriers to service utilization are

complex and difficult to disentangle. Numerous studies reflected on the challenge of assessing the ways in which poverty, race, and discrimination contribute to the need for mental health services while also acting as barriers to care. These limitations should be considered when evaluating the body of research into mental health service utilization barriers.

Another challenge within the literature is assessing mental health severity and need for treatment. To determine whether respondents accessed services, the surveys typically asked a straightforward "did you see a mental health specialist within the past 12 months?" However, to determine "need", survey respondents were asked questions about their anxiety, substance use, and depression which were then compared to various diagnostic tools such as the Kessler scale, versions six and ten (Meyer, 2015; Rowan, 2013; Duong, 2013). The Kessler scale is used in a number of studies summarized below. The Kessler scale is a standardized measure of psychological distress. It involves six or ten questions about the respondent's mood and emotional state over the past month. The questioner scores each response with a final score of ten or more indicating psychological distress (Centers for Disease Control, 2018).

Varied Explanations for Racial Disparities in Access

There is wide agreement within the literature that racial and ethnic disparities in mental health service utilization exist (Cook, 2007; Spencer, 2010; Guo, 2015). However, the reasons behind the disparities are less clear. Some argue cultural stigma plays a role in preventing individuals from seeking treatment, while others point to geographic isolation, discrimination, income and insurance as major barriers preventing individuals

who desire treatment from having access. The following paragraphs summarize the literature on the racial and ethnic disparities.

Cook (2007) sought to determine whether racial disparities in mental health service utilization declined since the 2001 Surgeon General's report *Mental Health: Culture, Race, and Ethnicity.* The study used survey data from five years of the Medical Expenditure Panel Survey (MEPS) (2000 to 2004). The dependent variables were mental health visits and total mental health care expenditures in the past year. The independent variables included mental health status, race and ethnicity, income, education level, region of the country, and insurance coverage. The regression results found significant disparities in mental health expenditure among Hispanics and African Americans in all four years, with the disparities worsening in 2003 and 2004. In 2003 and 2004, African Americans had a 12% probability of mental health spending while whites had 18%. Hispanics were 38% less likely than whites to have utilized mental health care. The study also found disparities between whites and Hispanics in health insurance coverage. The results demonstrate that efforts to close the utilization gap among African Americans and Hispanics from 2001 to 2004 were not successful. However, the study is unable to tell us what is contributing to the disparity. Researchers have hypothesized that the utilization gap is due to geographic isolation, cultural stigma, language barriers, discrimination, or even a preference for less formal methods of treatment not captured by survey questions.

Perception of doctor behavior can be a significant barrier to care. In a 2015 report by the Substance Abuse and Mental Health Administration, 30% of Hispanic respondents, 25.3% of the African American respondents and 26.5% Asian respondents

who had not accessed care cited perceived discrimination as the reason for not seeking treatment. As such, Meyer (2015) used data from the National Comorbidity Study from 2001 to 2002 to determine if there are racial and ethnic differences in reports of provider assessment, treatment and recommendations regarding patient mental health. The dependent variables in the Meyer (2015) study were patient reports of doctor's assessment of alcohol and drug use, mental health, and recommendations for specialty care. Independent variables included sociodemographic factors, such as race and ethnicity, age, gender, age, income and insurance coverage. The analyses found that Asians were the least likely to report being asked about their mental health (11.6%) and substance use (22.3%), and the least likely to be treated compared to all other groups.

Spencer (2010) also examined perceived discrimination as a barrier to care. The study used data from the 2002-2003 National Latino and Asian American Study (NLAAS) to assess how perceived discrimination and English proficiency influence mental health service utilization. To analyze perceived discrimination, respondents were asked "How often do people treat you unfairly because of your race/ethnicity?" with a range of responses 1=never to 4=often. Respondents were asked how well they speak English to access their English proficiency. As expected, perceived discrimination was associated with more use of informal services, with respondents who perceived discrimination 2.35 times as likely to utilize informal services. Respondents without insurance were 2.36 times as likely to use informal services. However, English proficiency was not found to impact service utilization.

Geography Plays a Role in Mental Health Service Utilization

Chow (2003) moved beyond racial and ethnic barriers to care to examine how residence in a high-poverty neighborhood correlates with race and ethnicity as a barrier to care. The study used data from the New York State Office of Mental Health Patient Characteristic survey with the 1990 U.S. Census to study how the patient's neighborhood poverty level and ethnicity correlate with service use. They researchers conducted logistic regressions to analyze service use patterns among African American, Hispanic, Asian and white patients in low and high-poverty neighborhoods. The study confirmed prior research that racial and ethnic disparities among access remain, and poverty level correlated with type of treatment. In low-poverty neighborhoods, whites were most likely to have accessed care (57% were service users), while in high-poverty neighborhoods Hispanics were the most likely to have access care (41% were service users). In high-poverty areas, the odds of Asians using emergency services were twice that of the white patients. Hispanics were also more likely than whites to use emergency services in high-poverty neighborhoods. The researchers also found that the type of treatment was more coercive, such as being referred to care by law enforcement, in high-poverty areas. The study confirms the need for mental health services to tailor outreach and services based on culture and neighborhood.

Dinwiddie (2013) explored the ways in which geographic isolation influences mental health service utilization among Latinos, African Americans and whites. The theory behind the study is that geographic isolation would have an impact on the number of mental health specialists available. The study used data from the 2006 Medical

Expenditure Panel Survey, 2006 American Medical Association Area Research File and the 2000 Census, and the sample included over 18,000 individuals. Applying a logistic regression, the results showed that respondents living in regions with high Latino isolation had limited access to mental health specialists whereas respondents living in neighborhoods with high African American isolation had access to mental health specialists. Specifically, Latino-isolated regions were 2.3 times more likely to be psychiatrist shortage areas. The researchers point out that the predominant race of the neighborhood is correlated with the type of mental health treatment used, with Latinos utilizing general doctors rather than mental health specialists. This study is important because it moves beyond the belief that the disparity is due to cultural stigma and points to a geographic factor that may also be contributing.

This research further demonstrates that mental health service utilization gaps exist between ethnicities but it is not solely due to cultural stigma or economic factors. The research illustrates that policymakers will have to address factors like discrimination, geographic isolation, and income.

Income is a Significant Barrier to Care

Mojtabai (2005) applied multiple logistic regressions to National Health Interview Survey data from 1997 to 2002 to assess disparities in mental health service utilization due to cost. The study found that cost was a significant barrier to both contacting mental health professionals and using prescription medications. The prevalence of nonuse of services because of cost increased from 15.6% to 20.0% for mental health care and from 27.7% to 34.1% for medication from 1997 to 2002. Age, race, income and insurance

disparities also persisted during the time period. The study assessed need by determining the presence of significant psychological distress with the Kessler 6 screening instrument in which responses to questions about psychological distress are rated on a Likert scale from 0 (none of the time) to 4 (all of the time). Use or non-use of services was assessed with the question "In the past 12 months have you talked to any of the following health care providers about your own health?" In addition to the cost variable, the study also found that participants from minority groups were less likely than participants from non-Hispanic white groups to have any contact with a mental health professional.

Slaunwhite (2015) examined barriers to mental health service utilization due to income and gender among Canadians using data from the 2002 Canada Community Health Survey (CCHS). Just like the National Health Interview Survey, the CCHS is a cross-sectional national population health survey with a sample of 36,984 participants. Mental Health diagnosis was assessed using the World Mental Health Composite International Diagnostic Interview Instrument, which is used by other national surveys, including the National Health Interview Survey. Household income was divided into three categories: low-income (<$29,999), middle-income ($30,000-79,999) and high-income (>$80,000). Women were more likely to report barriers to care, including demands on their time (1.63 times), income (1.01 times), and family responsibilities (1.51 times), as well as not having access to a provider nearby (1.42 times). Both men and women from low-income households were more likely to report availability and accessibility barriers to mental health care than those in the middle and high-income

households. To summarize, this study found participants in low-income households are more likely to report access barriers to mental health care.

Reid (2008) examined the relationship between economic status and access to health care by performing a meta-regression of data from four major surveys: the Medical Expenditure Panel Survey (MEPS), the National Health Interview Survey (NHIS), the National Survey of America's Families (NSAF) and the National Survey of Homeless Assistance Providers and Clients (NSHAPC). She defined economic and housing instability as her explanatory variable, while her dependent variable was access to health care, which was broken into four categories: 1) having no usual source of care, 2) having no health insurance, 3) postponing needed medical care, and 4) postponing medications. Among the general population, the rate of not having access to care was 14%, while the rate was 26.1% among those with unstable housing. There was a 3.4% increase in the not having access to care variable for each increase in the housing instability variable. The study backs up the long-standing assumption that housing instability correlates with poor access to health care. The study also makes an important note that economic instability and health insurance status may be bidirectional. That is, economic instability may cause individuals to refrain from purchasing insurance while lack of insurance may end up causing economic instability, a strong case for government intervention to address the economic impact of the uninsured.

Expanding Insurance Coverage Could Play a Role in Reducing Treatment Gap

Historically, research has found that having insurance is associated with greater access to care over those without insurance (Landerman, Bums, Swartz, et al. 1994;

Rabinowitz, Bromet, Lavelle, et al. 1998). However, new research has begun to examine how the various types of insurance impact access to care. McAlpine (2000) used data from the Healthcare for Communities Study in 1997 and 1998 to examine how the various types of insurance (public, private, none) are associated with access to mental health care. Similar to others, service utilization was accessed by asking respondents whether they visited a mental health specialist in the past 12 months. The privately insured were 2.5 times as likely to use specialty care compared to those without insurance but those with public insurance (Medicaid or Medicare) were almost six times more likely to have access to specialty care. Also important to note, one in five respondents with a severe mental illness reported being uninsured. Since being uninsured is correlated with experiencing barriers to care, this research demonstrates a significant barrier to treatment for individuals with a severe mental illness. The Affordable Care Act's individual mandate—which required Americans to purchase health coverage or pay a penalty—was intended to close this insurance gap.

Rowan (2013) analyzed responses to the National Health Interview Survey from 1999 to 2010 to study changes in insurance coverage and cost for mental health services for participants with public insurance, private insurance or no insurance in the United States. Similar to others based on the National Health Interview Survey, use is assessed by asking respondents whether they saw a mental health professional within the past 12 months. The cost barrier was assessed by asking respondents whether they thought they needed mental health care but did not access it due to cost. Also similar to others, mental health was assessed using the Kessler-6 scale. The study finds that although access to

specialty care remained relatively stable for people with a mental illness, self-reported cost barriers to care increased among the privately insured and the uninsured who had a serious mental illness. The study notes that the barriers due to cost among those with private insurance suggests that people with private health insurance may still experience cost barriers to care. While this suggests private health insurance may not be adequately meeting the mental health treatment needs, it does not cover the time period following the Affordable Care Act's implementation, which was intended to expand access to mental health care. As such, this study presents an opportunity for my research.

Much like Rowan (2013), Duong (2014) used Health Interview Survey data to examine the cost barriers to mental health care among respondents with private, public and no insurance. Using data from the California Health Interview Survey 2011 and 2012, Duong (2014) found uninsured respondents were the most likely to respond that cost was a barrier to mental health care (3.57 odds ratio) and the publicly insured group was the least likely to cite cost as a barrier to care (.20 odds ratio). The study suggests that the mental health provisions in the Affordable Care Act may reduce the cost barrier to treatment. However, the study points out that additional policies must be enacted to reduce other barriers to treatment. Her research indicated stigma was a significant barrier among the employment-based group, which was more likely to report: "being concerned about what would happen if someone found out," with a 2.13 odds ratio. Because this study examined the years prior to the Affordable Care Act, it also presents an opportunity for my research.

To summarize, the literature supports my hypothesis that race and ethnicity, income and insurance status contribute to the mental health treatment gap in the U.S. However, researchers are still unclear about the ways the variables interact with each other. The literature also demonstrates that the uninsured are the least likely to access services, while those with public insurance are the most likely, which may indicate private insurance was not adequately meeting the mental health needs of the respondents at the time of the survey. I was not able to find research into the effect of insurance on mental health service utilization after the Affordable Care Act's implementation in 2014, which presents an opportunity for my research.

Chapter Three

QUANTITATIVE METHODS AND RESULTS

This thesis utilizes quantitative and qualitative data to study the barriers to mental health service utilization, with a particular focus on health insurance's role in expanding access to care. This chapter summarizes the quantitative analysis, which is based on a logistic regression of National Health Interview Survey data about mental health access from 2013, before the Affordable Care Act became law and 2016, after the mental health provisions went into effect. In this chapter, I will summarize the quantitative data, explain the theoretical model, provide a list of the variables, analyze the regression results, and discuss the study's limitations. The following chapter will summarize my interviews with mental health policy experts. In chapter five, I will bring it all together with a summary of the key findings, policy implications, and recommendations for reform.

Quantitative Analysis: Logistic Regression

Data Sources

This study is based on the National Health Interview Survey, a large-scale interview survey of a statistically representative sample of the U.S. population, conducted by the National Center for Health Statistics and the Centers for Disease Control. It is one of the largest in-person health interviews in the country. The interviewers visited an average of 35,000 to 40,000 households across the nation and collected data from about 75,000 to 100,000 Americans. The questions include demographic information as well as health habits, access to care, and insurance status. For the purposes of this study, the 2013 sample size was 34,329 households with 89,976 individuals. The total household

response rate was 79.5%. The 2016 sample size was 35,000 households with 87,500 individuals. The total household response rate was 67.9%.

Theoretical Model

As demonstrated in the literature review, this paper focuses on the factors that influence utilization of mental health services, with an emphasis on the financial barriers. As such, the independent variables fall into three categories: descriptive characteristics, enabling factors, and need.

Descriptive refers to demographic or descriptive information about the respondent, such as ethnicity, age, education, marital status, employment status, and gender. The variables are based on the individual's responses to interview questions. I created dummy variables for each of the categories, with age as a continuous variable.

Enabling refers to the factors that influence the respondent's ability to access services, such as insurance coverage, cost, location, and income. Income is divided into four categories: below $35,000, between $35,000 and 75,000, between $75,000 and $100,000 and over $100,000. The insurance variable indicates whether the respondent has health insurance. I have also included type of insurance with private, Medicare and Medicaid. For the 2016 dataset, I have included a variable indicating whether the respondent has health insurance through the Affordable Care Act marketplace. That variable is labeled "exchange." While location—specifically whether the respondent lives in a rural or an urban setting—is an enabling variable that ideally would have been included in this type of study, the National Health Interview Survey does not offer this type of information so it is not included.

Need refers to whether the respondent needs mental health treatment. As explained in the literature review, mental health status in survey data is often determined using the Kessler 6 or Kessler 10 (K6 or K10) scale, which is a series of six or ten questions designed to ascertain the respondent's mental health status and degree to which the feelings interfere with the respondent's daily life. The National Health Interview Survey utilizes the K6 scale, asking the respondent whether he or she felt sad, restless, nervous, worthless, hopeless, or everything is an effort in the past thirty days. I constructed a variable based on whether the respondent answered that he or she had felt those emotions in the past thirty days. The interview then asks the respondent whether the emotions interfered with his or her daily life. I then constructed "emotions interfere" variables based on whether the respondent indicated that the emotions interfered a lot, a little, or some of the time.

The demographic and enabling details are the independent variables in my study and insurance coverage is the key explanatory variable. The dependent variable is mental health service utilization. As such, the model behind my regression is:

Mental health service utilization: f(descriptive) + f(enabling) + f(need)

These factors are broken down as such:

Mental health service utilization: Have spoken with professional about mental/emotional health problems. 1= yes 0=no.

Descriptive: Ethnicity (Asian dummy, Hispanic dummy, African American dummy, American Indian dummy) age (continuous) gender (male dummy) marital status (widowed dummy, divorced dummy, separated dummy) Education (8^{th} grade only

dummy, high school no diploma dummy, high school dummy, GRE dummy, BA/BA dummy, Masters dummy), Employment (unemployed looking for work dummy, unemployed not looking for work dummy)

Enabling: Income (total family income $35,000 to $74,999, total family income $75,000 to $99,999, total family income $100,000 and over), insurance, (has insurance dummy), type of insurance (Private dummy, Medicare dummy, exchange dummy and Medicaid dummy),

Need: Emotions (felt sad, nervous, restless, hopeless, worthless or felt everything is an effort within the past thirty days), Emotions interfere (emotions variable and interfere with daily life a lot, a little or some of the time)

Data

The prior section described the theoretical model behind this study. This section will provide the data used to conduct a logistic regression to examine the barriers to mental health service utilization. The first table will summarize the variables and the anticipated effect of the independent variable on the dependent variable. The anticipated effects are based on the literature.

Table 3.1 Variable Descriptions with Expected Effect on Mental Health Service Utilization (2013 and 2016)

Variable	Description	Anticipated Effect
Asian	Respondent identifies as Asian, Binary variable 1= identifies as Asian	Negative
Hispanic	Respondent identifies as Hispanic, Binary variable 1= identifies as Hispanic	Negative
African American	Respondent identifies as African American, Binary variable 1= identifies as African American	Negative
American Indian	Respondent identifies as American Indian, Binary variable 1= identifies as American Indian	Negative
Age (18 and over)	Continuous variable indicating respondent's age	Positive
Male	Respondent is male, binary variable 1=male, 0=female	Negative
Widowed	Respondent is widowed, binary variable 1=widowed	Negative
Divorced	Respondent is divorced, binary variable 1=divorced	Negative
Separated	Respondent is separated, binary variable 1= separated	Negative
Never Married	Respondent never married, binary variable 1= never married	Negative
Living with Partner	Respondent lives with his or her partner, binary variable 1= lives with partner	Positive
8^{th} or less	Binary variable 1= Achieved 8^{th} grade or less education	Negative
High school, no diploma	Binary variable 1= Finished high school, no diploma	Negative
High school graduate	Binary variable 1= Graduated high school	Positive
High school GRE	Binary variable 1= GED recipient	Positive
Some college	Binary variable 1= Finished some college, no degree	Positive
BA/BS degree	Binary variable 1= Earned a bachelor's degree	Positive
Masters	Binary variable 1= Earned a masters degree	Positive
Unemployed, looking	Binary variable 1= unemployed, looking for work	Negative

for work		
Unemployed, not looking for work	Binary variable 1= unemployed, not looking for work	Negative
Total Family Income $35,000 to $74,999	Binary variable 1= total family income is between $35,000 and $74,999	Negative
Total Family Income $75,000 to $99,999	Binary variable 1= total family income is between $75,000 and 99,999	Positive
Total Family Income $100,000 and over	Binary variable 1= total family income is over $100,000	Positive
Insurance	Binary variable 1= has health insurance	Positive
Private Insurance	Binary variable 1= has private health insurance	Negative
Medicare	Binary variable 1= has Medicare insurance	Positive
Medicaid	Binary variable 1= has Medicaid insurance	Positive
Exchange	Binary variable 1= purchased health insurance through the exchange	Positive
In the past 30 days, felt sad, restless, worthless, hopeless, nervous, or everything is an effort	Binary variable 1= reported feeling sad, restless, worthless, hopeless, nervous, everything is an effort within the past 30 days	Positive
Emotions interfere a lot	Binary variable 1= Emotions interfered a lot	Positive
Emotions interfere a little	Binary variable 1= Emotions interfered a little	Positive
Emotions interfere some	Binary variable 1= Emotions interfered some	Positive

Summary Statistics

Tables 3.2 and 3.3 provide the list of variables and their descriptive statistics, including the mean, standard deviation, minimum and maximum values for each year. Because most of the variables are dummy variables (1= yes, 0=no), the minimum value for most is 0 and the maximum value is 1.

Table 3.2 Descriptive Statistics (2013)

Variable	Type	Mean	Std. Dev.	Minimum	Maximum
Asian	Dummy	.062	.241	0	1
Hispanic	Dummy	.172	.377	0	1
African American	Dummy	.155	.362	0	1
American Indian	Dummy	.010	.101	0	1
Age	Continuous	48.7	18.2	18	85
Male	Dummy	.447	.497	0	1
Widowed	Dummy	.140	.347	0	1
Divorced	Dummy	.030	.171	0	1
Separated	Dummy	.242	.428	0	1
Never Married	Dummy	.060	.238	0	1
Living with Partner	Dummy	.003	.0515	0	1
Income $35,000 to $74,999	Dummy	.289	.453	0	1
Income $75,000 to $99,000	Dummy	.093	.290	0	1
Income $100,000 and over	Dummy	.153	.359	0	1
High school, no diploma	Dummy	.071	.257	0	1
High school graduate	Dummy	.194	.395	0	1
High school GRE	Dummy	.024	.152	0	1
Some college	Dummy	.197	.398	0	1
BA/BS degree	Dummy	.207	.405	0	1
Masters	Dummy	.141	.348	0	1
Insurance	Dummy	.909	.286	0	1
Private Insurance	Dummy	.635	.482	0	1
Medicare	Dummy	.290	.454	0	1
Medicaid	Dummy	.189	.392	0	1
Accessed mental health care	Dummy	.080	.271	0	1
Employed dummy	Dummy	.549	.497	0	1
Unemployed, looking for work	Dummy	.052	.221	0	1
Unemployed, not looking for work	Dummy	.367	.481	0	1
Felt sad, worthless, etc.	Dummy	.068	.251	0	1
Emotions interfere a lot	Dummy	.041	.197	0	1
Emotions interfere some	Dummy	.072	.259	0	1

Emotions interfere a little	Dummy	.096	.294	0	1
Emotions do not interfere	Dummy	.116	.320	0	1

Table 3.3 Descriptive Statistics (2016)

Variable	Type	Mean	Std. Dev.	Minimum	Maximum
Asian	Dummy	.051	.219	0	1
Hispanic	Dummy	.115	.319	0	1
African American	Dummy	.112	.315	0	1
American Indian	Dummy	.011	.103	0	1
Age	Continuous	50.8	18.6	18	85
Male	Dummy	.454	.498	0	1
Widowed	Dummy	.142	.349	0	1
Divorced	Dummy	.026	.159	0	1
Separated	Dummy	.226	.418	0	1
Never Married	Dummy	.059	.236	0	1
Living with Partner	Dummy	.002	.045	0	1
Income $35,000 to $74,999	Dummy	.274	.446	0	1
Income $75,000 to $99,000	Dummy	.102	.302	0	1
Income $100,000 and over	Dummy	.199	.399	0	1
High school, no diploma	Dummy	.057	.232	0	1
High school graduate	Dummy	.177	.382	0	1
High school GRE	Dummy	.020	.141	0	1
Some college	Dummy	.198	.399	0	1
Masters	Dummy	.166	.372	0	1
Insurance	Dummy	.951	.215	0	1
Private insurance	Dummy	.687	.464	0	1
Medicare	Dummy	.339	.473	0	1
Medicaid	Dummy	.191	.393	0	1
Exchange	Dummy	.049	.218	0	1
Accessed mental health care	Dummy	.091	.287	0	1
Employed dummy	Dummy	.539	.498	0	1
Unemployed, looking for work	Dummy	.033	.179	0	1
Unemployed, not looking for work	Dummy	.397	.489	0	1
Felt sad, worthless, etc.	Dummy	.108	.311	0	1
Emotions interfere a lot	Dummy	.037	.188	0	1
Emotions interfere a little	Dummy	.098	.298	0	1

Emotions interfere some	Dummy	.068	.252	0	1
Emotions do not interfere	Dummy	.134	.341	0	1

Regression model framework

This analysis is based on a binary dependent variable and numerous binary independent variables. Because the dependent variable—mental health service utilization—is binary, a logistic regression is the most appropriate method for this analysis. Further, I conducted tests to check for multicollinearity and heteroskedasticity. Multicollinearity occurs when two descriptive variables are highly correlated. If multicollinearity is present, it can lead to inaccurate conclusions drawn from the analysis. Heteroskedasticity can also invalidate the statistical results. To check for multicollinearity, I ran the Variance Inflation Factor (VIF) test. If VIF values are under four, multicollinearlity is not a concern. Table 3.4 summarizes the VIF test results, which indicate that none of the variables had a VIF value over 4. To check for heteroskedasticity, I ran the Breusch-Pagan / Cook-Weisberg test. I found this to be a concern and therefore used robust standard errors to correct for it.

Table 3.4 Variance Inflation Factors

Variable	**VIF 2013**	**VIF 2016**
Asian	1.06	1.03
Hispanic	1.18	1.09
African American	1.13	1.08
American Indian	1.01	1.01
Age (18 and over)	2.48	2.37
Male	1.03	1.05
Widowed	1.17	1.38
Divorced	1.08	1.14
Separated	1.57	1.04
Never Married	1.14	1.61
Living with Partner	1.01	1.14
High school, no diploma	1.33	1.21
High school graduate	1.65	1.37
Some college	1.67	1.36
BA/BS degree	1.81	1.86
Masters	1.75	1.36
Unemployed, looking for work	1.10	1.08
Unemployed, not looking for work	1.71	1.71
Income $35,000 to $74,999	1.38	1.37
Income $75,000 to $99,999	1.32	1.30
Income $100,000 and over	1.72	1.77
Insurance	1.63	1.37
Private Insurance	1.98	1.78
Medicare	1.55	2.34
Medicaid	1.47	1.47
Exchange	1.05	1.05
Felt sad, worthless,	1.17	1.17
Emotions interfere a lot	1.11	1.05
Emotions interfere a little	1.03	1.03
Emotions interfere some	1.05	1.04
Mean VIF	1.40	1.39

Results

Logistic Regression Results Support Hypothesis

As demonstrated in tables 3.5 and 3.6, in both the 2013 and 2016 logistic regressions, having health insurance was positively correlated with accessing mental health care. Respondents with health insurance were 2.03 times more likely to access mental health care in 2013 while respondents were 2.55 times more likely in 2016, supporting my assumption that health insurance is positively associated with mental health access, and that the relationship would be greater following the Affordable Care Act's implementation.

Access Varies Among Types of Insurance

However, respondents with private insurance were slightly less likely to access mental health care than those with public insurance such as Medicaid in both 2013 and 2016. Respondents with private insurance were .783 times as likely (or .217 times less likely) to access care in 2016 and .740 times as likely (or .26 times less likely) to access mental health care in 2013. This important finding, which prior literature supports, may indicate that private insurers are not adequately meeting their beneficiaries' mental health needs.

My regression results also found that respondents with Medicaid were about 1.26 times more likely to access mental health care, and there was virtually no difference comparing 2013 and 2016 (1.26 in 2013 and 1.27 in 2016). These results are supported by the literature cited in chapter 2, which found respondents with public insurance were more likely to access mental health services than those with private insurance. This result

may be related to an increased need for mental health care among the low-income population. As I indicated in the introduction, rates of mental illness tend to be higher among low-income residents (Substance Abuse and Mental Health Services Administration, 2015).

The Medicare results and the results for participants with health insurance through the Affordable Care Act marketplace were not statistically significant. However, each of these subpopulations should be studied further because my results indicate that age is negatively correlated with mental health access and it is important to know whether those with insurance through the ACA marketplace are able to access needed care.

Education, Age and Gender Influence Mental Health Access

My regression results for both years also indicate that education is positively correlated with mental health access, with participants who did not finish high school and participants who did not attend college less likely to access mental health treatment while those with a bachelors or masters degree more likely to access mental health treatment. Further research is needed to understand why education positively correlates with mental health access and whether there are policy steps to expand access among less-educated populations. Further, age negatively correlates with accessing mental health treatment and men are less likely to access care. Prior research cited in chapter two supports this gender disparity in mental health access, which may be related to cultural stigma.

Racial Disparities Still a Concern

African American, Asian and Hispanic respondents were all less likely to access mental health care in both years. While Asian and Hispanic respondents were slightly

more likely to access mental health services in 2016 than in 2013, African American respondents were slightly less likely in 2016 than in 2013. American Indian and Multiple Race respondents were not statistically significant. While it appears the Affordable Care Act could have expanded access to mental health services overall, this expansion was not universally experienced throughout all demographic groups, which points to a need for additional policy reforms.

Based on these demographic discrepancies, I created interaction terms for Asian respondents and health insurance, African American respondents and health insurance, and Hispanic respondents with health insurance to further analyze the relationship between race and insurance status. The results can be found in tables 3.7 and 3.8. While the results for Asian respondents with insurance were not statistically significant, Hispanic respondents with health insurance were 61% more likely and African American respondents were 23% more likely to access mental health care. In 2016, the Hispanic respondents were 86.3% more likely and the results for Asian and African American respondents were not statistically significant. These preliminary results indicate that the relationships between health insurance, race, and mental health care access need to be examined further.

Table 3.5 Logistic Regression Results (2013)

	Odds Ratio	Odds Ratio-1 *100	Robust Std. Error	P Value	90% confidence interval	
Constant	.0328138	-96.72%	.0048011	0.000	.0257951	.0417423
Asian	.3443196***	-65.57%	.0425299	0.000	.2810127	.4218883
Hispanic	.5772715***	-42.28%	.038972	0.000	.5165992	.6450695
American Indian	1.157674	15.77%	.2217232	0.445	.8448319	1.586361
African American	.6720475***	-32.80%	.0437786	0.000	.6037618	.7480564
Multiple Race	1.082057	8.21%	.1442848	0.554	.8689532	1.347423
Age	.9862987***	-1.37%	.0017776	0.000	.983379	.989227
Male	.891542*	-10.85%	.0395944	0.010	.828737	.9591067
Widowed	2.154048***	115.4%	.1343804	0.000	1.943974	2.386822
Divorced	2.082641***	186.3%	.2422277	0.000	1.720005	2.521733
Separated	1.824922***	82.49%	.1134441	0.000	1.647546	2.021395
Never Marry	1.360131**	36%	.1304954	0.001	1.161565	1.592641
Living with Partner	.9461181	-5.39%	.5221122	0.920	.3817096	2.345079
HS, no diploma	.7916025*	-20.84%	.074683	0.013	.6778169	.9244893
High school grad	.7448379 ***	-25.52%	.0548706	0.000	.6598376	.8407879
Some College	1.003957	.396%	.06929	0.954	.896216	1.12465
Bachelor Degree	1.295447***	29.54%	.0925289	0.000	1.151851	1.456945
Masters	1.895451***	89.54%	.1458267	0.000	1.670144	2.151153
Unemployed	1.894975***	89.50%	.1018336	0.000	1.734663	2.070103
Looking for work	1.26816*	26.82%	.117929	0.011	1.088291	1.477757
Income 35 to 75	1.006586	2.66%	.0570035	0.908	.917058	1.104854
Income 75 to 99	1.09174	9.17%	.0960941	0.319	.9445884	1.261815
Income 100 and over	1.307378**	30.74%	.1006864	0.001	1.151824	1.483939
Health insurance	2.030252***	103.02%	.2105048	0.000	1.711919	2.407779
Private insurance	.7835847***	-21.64%	.0466846	0.000	.710438	.8642626
Medicare	.9550282	-4.50%	.0679242	0.518	.8495905	1.073551
Medicaid	1.260546***	26.05%	.0797832	0.000	1.135914	1.398852
Can't afford mental	3.36269***	236.2%	.3209239	0.000	2.874164	3.934252
Emotions inter a lot	8.058258***	705.8%	.5860926	0.000	7.149654	9.08233
Emotions inter some	4.274946 ***	327.5%	.2673731	0.000	3.857022	4.738154
Emotions a little	3.090624***	209.1%	.1820013	0.000	2.805301	3.404968
Number of observations	34,557					
Prob > chi2	0.0000					
Adjusted r squared	0.1524					

Standard errors corrected for hetereoskedasticity.
*** indicates 99% confidence
** indicates 95% confidence
*indicates 90% confidence

Table 3.6 Logistic Regression Results (2016)

	Odds Ratio	Odds Ratio-1 *100	Robust Std. Error	P Value	90% confidence interval	
Constant	.0361733	-96.4%	.0057949	0.000	.027794	.0470788
Asian	.4858828***	-54.12%	.0567951	0.000	.4008951	.5888876
Hispanic	.6342437***	-36.58%	.0465894	0.000	.5620596	.7156983
American Indian	.8240288	-17.6%	.1651891	0.334	.5925704	1.145895
African American	.6276679***	-37.23%	.0463628	0.000	.5558585	.7087542
Multiple Race	.9933747	-.066%	.1263083	0.958	.8059032	1.224456
Age	.9822151***	-1.78%	.0017459	0.000	.9793476	.985091
Male	.8283143*	-17.17%	.0359813	0.010	.7711952	.8896639
Widowed	1.016533	1.65%	.0980643	0.865	.8673778	1.191336
Divorced	2.122424***	112.24%	.1348412	0.000	1.911825	2.356221
Separated	2.629697***	162.97%	.3011199	0.000	2.178248	3.174711
Never Marry	1.876094***	87.6%	.1145846	0.000	1.696777	2.074361
Living with Partner	1.458914***	45.89%	.1291368	0.000	1.261242	1.687567
HS, no diploma	.6927991**	-30.72%	.0754291	0.001	.5792042	.8286725
High school grad	.7990737**	-20.09%	.0585582	0.002	.7083327	.901439
Some College	.9811472	-1.89%	.0658711	0.777	.878567	1.095704
Bachelor Degree	1.334095***	33.41%	.0911397	0.000	1.192299	1.492754
Masters	1.676651***	67.67%	.127418	0.000	1.479637	1.899897
Unemployed	1.669335***	66.93%	.0886043	0.000	1.529774	1.821627
Looking for work	1.276775*	27.67%	.1308457	0.017	1.078714	1.5112
Income 35 to 75	1.057052	5.71%	.0587564	0.318	.9646926	1.158253
Income 75 to 99	1.222111*	22.21%	.0987111	0.013	1.070069	1.395756
Income 100 and over	1.24081	24.08%	.0912421	0.003	1.099451	1.400344
Health insurance	2.553099***	155.31%	.3334665	0.000	2.059513	3.164979
Private insurance	.7409146***	-25.91%	.0436167	0.000	.6725355	.8162461
Medicare	1.053786	5.38%	.069751	0.429	.9450809	1.174995
Medicaid	1.27148***	27.15%	.076072	0.000	1.152312	1.402971
Exchange	1.175719	17.57%	.112084	0.089	1.005085	1.375321
Emotions inter a lot	8.049623***	704.96%	.6272327	0.000	7.081297	9.150362
Emotions inter some	4.028413***	302.84%	.2548007	0.000	3.630368	4.4701
Emotions a little	2.856638***	185.66%	.1641856	0.000	2.59895	3.139877
Number of observations	33,028					
Prob > chi2	0.0000					
Adjusted r squared	0.1549					

Standard errors corrected for hetereoskedasticity.
*** indicates 99% confidence
** indicates 95% confidence
*indicates 90% confidence

Table 3.7 Interaction Variables (2013)

	Odds Ratio	Robust Std. Error	P Value	90% confidence interval	
Health Insurance	1.834263	.2262675	0.000	1.497415	2.246886
Asian	.4781122	.1985553	0.076	.2414721	.9466572
Asian & Health Ins	.6930421	.3015451	0.399	.3387997	1.417673
Hispanic	.373266	.0887187	0.000	.2524817	.5518322
Hisp & Health Ins	1.610154	.397477	0.054	1.072817	2.416627
African American	.54883	.1249541	0.008	.3773975	.7981354
AA & Health Ins	1.237902	.2929797	0.367	.8387214	1.827068

Table 3.8 Interaction Variables (2016)

	Odds Ratio	Robust Std. Error	P Value	90% confidence interval	
Health Insurance	2.175644	.3124633	0.000	1.717884	2.755383
Asian	.1550626	.1676845	0.085	.0261824	.9183434
Asian & Health Ins	3.221802	3.505499	0.282	.5380785	19.29088
Hispanic	.3494614	.1330281	0.006	.1868401	.6536245
Hisp & Health Ins	1.86347	.7214316	0.108	.9857476	3.522729
African American	.3721844	.1475676	0.013	.1938763	.7144823
AA & Health Ins	1.727581	.6967938	0.175	.8898479	3.353985

Limitations

There are limitations to this quantitative analysis that must be acknowledged. As indicated in the literature review, there are a number of limitations to mental health survey data, due to self-reported responses to questions about a stigmatized condition. The first limitation is due to recall bias. Respondents may misremember whether they have accessed mental health treatment or inaccurately recall details. They may also inadvertently provide inaccurate responses to questions about their health insurance status.

The second limitation is social desirability bias in which respondents may not answer truthfully to the interviewer due to social stigma around mental illness, income, and other socially charged characteristics. The National Health Interview Survey is delivered in-person, rather than over the phone or online which provide respondents a stronger sense of anonymity. In addition, the National Health Interview Survey "sample adult" data set, which I used in this study, oversamples African American, Hispanic, and Asian individuals as well as adults 65 years and over.

Additionally, while the majority of my results are statistically significant and there appears to be a positive correlation between health insurance and mental health care and it appears greater in 2016 than in 2013, there could be reasons unaccounted for in this analysis. Further research is necessary to fully examine whether the Affordable Care Act truly expanded mental health care access.

This chapter provided an overview of my regression results, which indicated that having health insurance is positively correlated with accessing mental health treatment, yet while public insurance is positively correlated with mental health care, private insurance is not, and racial disparities in access persist. While these regression results help shine a light on patterns of disparities and illustrate general trends, they do not tell the whole story. The regression results do not explain what is causing the trends I observed and how to address them. In order to provide further context, analysis, and policy recommendations for my results, I interviewed three experts from the policy-making, advocacy and implementation sides of the mental health policy debate. The following chapter provides a summary of the interviews, in which we review my

regression results, discuss the racial disparities in access, and explore their recommendations for mental health reform.

Chapter Four

QUALITATIVE ANALYSIS

Quantitative analysis is a valuable tool to identify how mental health service barriers interact among specific subsets of the population, which can inform public policy. However, experts in the field can help shed light on the realities behind implementing reforms to the system. Their knowledge of the legislative proposals that we have tried in our state legislature as well as those proposed in other states and even at the federal level, can prove invaluable to a realistic discussion of policy recommendations. Additionally, their knowledge of the access challenges can help inform the story behind the regression results. As such, I elected to incorporate interviews with boots on the ground policy experts into this thesis. I chose to interview representatives from the policy-making, policy implementation, and advocacy aspects of mental health policy in order to provide a balanced perspective on the realities, challenges and opportunities to mental health policy reform. The following sections will summarize the interview subjects as well as the interview process.

Policy-Making Perspective

For the policy-making perspective, I interviewed a former policy consultant for Senator Jim Beall (D-San Jose), Chair of the Senate Select Committee on Mental Health. She advised Senator Beall on mental health policy and staffed the Senator on the Mental Health Committee. Senator Beall has worked on mental health issues at the state and local level for decades, both as a state legislator and San Jose City Councilmember. Senator Beall's work on the mental health committee, coupled with his legislative

proposals make his staff uniquely qualified to provide insight into the mental health reforms that have succeeded, the challenges behind those that have not, and the opportunities ahead.

Policy-Implementation Perspective: California Department of Health Care Services

For the policy implementation perspective, I interviewed a representative with the Department of Health Care Services (DHCS). DHCS oversees Mental Health Service Act funding to county mental health programs. The Mental Health Services Act (MHSA) imposes a 1% tax on Californians who earn 1 million or more to fund county mental health programs. As the agency in charge of collecting and evaluating outcomes data from county mental programs, the Department of Health Care Services is well positioned to understand and speak to the effectiveness of mental health programs and California's mental health delivery system as a whole.

Advocacy Perspective: National Alliance on Mental Illness, California

Representation for the advocacy perspective came from an advocacy manager with the National Alliance on Mental Illness (NAMI). NAMI has been deeply embedded in state and federal mental health policy since its formation in 1979. NAMI focuses on the needs of mentally ill individuals and their families in their approaches to public policy. The California chapter advocates on behalf of 19,000 individuals to the state legislature and the Governor on mental health legislation. As such, they are qualified to speak on the challenges and opportunities to mental health reform in California and nationwide.

Interview Questions

The interviews focused on my findings and their implications for public policy as well as the interviewee's experience with mental health policy. I asked the interviewees about their experiences with mental health policy and their assessment of the challenges to mental health reform. In addition, I asked them for their perspective on my regression results and how those results align with their experiences and expectations. Finally, I asked what they believe the state should prioritize. The questions are included in the Appendix.

Key Themes

A number of key themes emerged from my interviews with mental health policy experts. Principally, all three agreed that the Affordable Care Act, with its requirement that mental health be covered as one of ten essential health benefits, was an important step in expanding coverage. However, our bifurcated mental health delivery system, lack of clarity regarding mental health coverage, and persistent racial disparities in health care access across the board, have left many people who need or want mental health care without access to it. The interviews made it clear that addressing the fiscal barrier to care must be done in tandem with additional reforms in order to truly expand access to care. In addition my results, which appeared to indicate that health insurance coverage and access to mental health care have risen but not uniformly, with public insurance recipients experiencing a greater increase in care and racial disparities in access persisting, seem to be align with mental health policy outcomes.

There were some differences in each organization's preferred reforms to our mental health delivery system. The NAMI advocate emphasized the need for much bigger picture reforms, such as the intersection of mental health and the criminal justice system. She talked about "interrupting the revolving door between mental health, prisons, and hospitals." While the Beall staffer discussed increasing oversight and accountability of our insurance industry as well as expanding the provider workforce. On the other hand, the DHCS representative called for improving the quality and timeliness of Medi-Cal funded mental health treatment to ensure beneficiaries have access to high-quality and timely care. These key themes and reforms are summarized below.

The Affordable Care Act Was An Important Step

The mental health provisions of the Affordable Care Act were undeniably an important step in expanding access to mental health care. By requiring mental health services to be covered as one of ten essential health benefits, mandating individuals to secure health insurance or pay a penalty, and offering subsidies to help low-income individuals purchase health coverage on the exchange, the Affordable Care Act has technically expanded access to care. In addition, the Affordable Care Act expanded access to mental health services among Medi-Cal recipients with mild to moderate mental illness, whereas prior to the Affordable Care Act, most mental health treatment for Medi-Cal recipients was limited to those with severe mental illness. This expansion in mental health care for Medi-Cal recipients with mild to moderate mental illness is a critical achievement of the Affordable Care Act. However, as I will explain later, policymakers are working to improve the quality of Medi-Cal funded mental health services.

Convoluted Mental Health Delivery System a Barrier to Care

Despite the advancements under the Affordable Care Act, our mental health delivery system is difficult for many to navigate and individuals who have coverage for mental health may not know how or where to access it. The Beall staffer explained, "The ACA is a huge piece. It changed the landscape in the cost of health care and increased the individuals eligible for Medi-Cal and subsidies in the exchange. That being said, health care costs continue to rise. We have not solved the affordability issue." She described our mental health delivery system as "bifurcated, convoluted, and not consumer friendly." She said, "People don't know where to go to access care. Insurers cover mental health because they have to," but this does not necessarily mean patients are able to navigate the system and secure treatment. The DHCS representative added "where there can be challenges, sometimes it can be unclear to a beneficiary or to a provider where they should receive services if their level of impairment is not black and white." They all agreed that improvements to mental health services must be made to ensure access to treatment. These improvements include educating recipients about their coverage, enhancing care coordination, expanding in-network providers, and holding insurers accountable to mental health parity laws. While some improvements, such as improving care coordination, must be made to the mental health delivery system as a whole, others, such as improving provider reimbursement rates, require reforms to or enhanced oversight of the insurance industry.

Improving Education

As a result of the Affordable Care Act, insurers are required to provide coverage for mental health services but patients still struggle to gain access to treatment. The Beall staffer noted that many individuals are unaware of the services to which they are entitled. Others struggle to find a provider in their network. A study published by Milliam, a risk management and health care consulting company found that in 2015 (after the ACA went into effect) behavioral care was four to six times more likely to be provided out-of-network than medical surgical care (Meleck, 2017). One solution that consistently arose in my interviews is improving the coordination of care between general health practitioners and mental health providers to enable doctors to refer patients to mental health providers. As the Beall staffer remarked, "It's hard to know who to refer patients to. There isn't a designation for maternal mental health [for example], [there] isn't a way to certify that a provider is an expert with a particular emphasis." Physicians may be best positioned to refer a patient to a mental health provider and assist a patient with accessing mental health services, however without better coordination and communication they may not know who to refer the patient to. Bolstering this relationship could be key to helping patients access treatment.

NAMI is supporting legislation this year to allow for same day billing for Medi-Cal patients referred to a behavioral health provider by their primary doctor. Medi-Cal currently does not allow billing for same day visits at the same location, for example if a patient is referred to a mental health provider from a general practitioner he or she cannot bill for both visits in the same day. For patients who are low-income or have time

constraints, it can be difficult to return to a provider for a separate mental health consultation. On top of improving care coordination, the shortage of mental health providers, especially those in network, can lead to access challenges.

Better Coordination of Care

In addition to improving care coordination between general health and mental health providers, my interviews revealed challenges to coordinating care between mental health providers to ensure no one is left out of the delivery system as a result of confusion over who should provide the services. With our bifurcated mental health delivery system in which counties provide mental health services while others are served through their insurance plans, some patients may fall through the cracks. As the DHCS representative notes, the counties and health plans are required to coordinate their care and some are more successful than others. The counties and the mental health plans are required to establish a Memo of Understanding outlining how they will handle referrals and ensure beneficiaries are receiving the care they need.

This bifurcated mental health delivery system issue is where my interviews were in the least alignment. While the DHCS representative argued that the counties have always provided mental health services for low-income residents and are best positioned to do so, the other interviewees were a bit more critical of county mental health services. The NAMI representative specifically mentioned the recent state audit released in February this year, which concluded that the DHCS's oversight of the counties had been "ineffective," and called on the agency to enhance its oversight of county Mental Health Services Act spending. DHCS agreed to the audit's conclusions and is currently working

to enhance its oversight of county mental health spending. As she noted, there is wide variety among California's 58 counties in terms of their resources, needs, and outcomes.

Expanding Provider Workforce

Without proper reimbursement, mental health providers may not have an incentive to contract with health insurers, leaving insured individuals with limited options for providers. In-network care tends to have lower member co-pays or co-insurance requirements as compared to out-of-network care. Patients may even end up paying out-of-pocket for a preferred provider. This leaves many patients paying more money for treatment even when they have coverage, or delaying necessary care because they cannot find a provider in their network. The Beall staffer spoke to this problem. She said, "There is a culture of mental health providers not wanting to be in the system and contract with health plans." The Milliman study referenced earlier found that in 2015, out of network providers completed 4% of medical/surgical care while 16.7% provided behavioral care (Meleck, 2017). To address this shortage in providers, state auditors should review the reimbursement rates for mental health services to ensure they are in compliance with the Mental Health Parity and Addiction Equity Act, which requires mental health services to be covered similarly to physical conditions.

Holding Insurers Accountable to Mental Health Parity Laws

While insurers have dropped limits on the number of therapy visit they will cover and stopped requiring higher co-payments and deductibles for mental health, discrepancies continue to limit access (Meleck, 2017). Recognizing this need for review and enforcement of our federal mental health parity laws, Senator Beall introduced

Senate Bill 1046 in 2014, which would have fined health insurers who defied the Mental Health Parity and Addiction Equity Act up to $2,500 a day. As Senator Beall said, “the benefits of mental health parity will be hollow unless we act to enforce it.’’ Governor Brown vetoed the bill but he approved $2.5 million in funding the following year to allow the Department of Insurance and the Department of Health Care Services to hire additional staff to conduct parity compliance reviews. In 2015, health plans started to be required to provide evidence that they were in compliance with the parity laws. Prior to 2015, the health plans self-certified. This increased oversight, coupled with enhanced care coordination, represents an important step to ensuring access but glaring racial disparities in access continue to persist. My interviews touched on this seemingly intractable challenge.

Racial Disparities Persist

All interviewees agreed that the racial disparities in access are a critical problem within the mental health care delivery system and the health care system as a whole. The Beall staffer summarized the problem, “racial disparities in access exist across the health care delivery spectrum.” These disparities cannot be attributed to any one problem. They may be due to discrimination, distrust, culture, lack of providers of color, and language and financial barriers. Among the numerous recommended policies, she emphasized addressing the diversity of the mental health provider workforce. She noted that state programs in California which provide medical school grants to students of color, such as the Health Professions Education Foundation, do not provide grants to mental health providers of color. With treatment as intimate as mental health, it is likely important to

many individuals to find a provider they believe can relate to their particular struggles. The state and health plans should examine our mental health provider workforce and take steps to encourage a more representative workforce, while also addressing the cultural and language barriers to access.

The interviews with policy experts helped explain why my regression results showed little expansion in access to mental health care for private insurance holders compared with the increased access for public insurance holders. Their feedback also made clear why despite our best efforts, racial disparities in access continue to persist. It is clear from speaking with policy experts that addressing the insurance component of mental health care is an important step, but it must be done in tandem with additional efforts to bolster the mental health provider network, improve awareness, and better coordinate care among providers.

To summarize, although the Affordable Care Act was an important step in expanding mental health care, significant barriers to access remain. Specifically, many individuals are unaware of the services they are eligible to, low provider reimbursement rates disincentivize mental health professionals from contracting with insurers leading to a shortage of in-network providers, and some insurers may not be fully in compliance with federal mental health parity laws. The state has begun taking steps to enforce the Mental Health Parity and Addiction Equity Act by dedicating additional funding to conduct reviews but additional oversight is needed. Finally, the racial disparities in mental health access will require a multifaceted approach, including encouraging more students of color to become mental health providers and addressing issues around

discrimination as well as cost and language barriers. The following chapter will provide a complete summary of my findings, their policy implications, and recommendations for reform.

Chapter Five

FINDINGS AND RECOMMENDATIONS

This thesis sought to understand whether the mental health provisions of the Affordable Care Act have effectively expanded access to mental health care among those who need or want treatment. The regression results suggest that overall, the Affordable Care Act has expanded access to care. However, the degree of impact varied among the independent variables in my regression, and not everyone experienced an increase. Based on my qualitative interviews, these results appear to be fairly consistent with what advocates and policymakers are observing. These findings, which I will describe further below, suggest additional policy reforms may be necessary. In this final chapter, I will summarize the regression and interview results, explain the policy implications, provide recommendations for reforms, and discuss areas for further research.

More Americans Have Health Insurance Following ACA Implementation

Overall, more Americans have health insurance following the Affordable Care Act's implementation. When I compared the National Health Interview Survey responses from the year before the Affordable Care Act went into effect with responses after the ACA was in effect, the number of individuals without health insurance decreased by almost half. The percent of respondents without health insurance was 8.85% in the 2013 dataset, whereas, 5.49% of respondents in 2016 were without health insurance. Respondents with health insurance were twice as likely to access mental health care in 2013 and 2.5 times as likely to access care in 2016. Additionally, the number of respondents who stated that they did not access mental health care because of the cost

declined from 2013 to 2016, but not by much. In the 2013 dataset, 2.31% of respondents agreed that they had not accessed mental health care because of the cost. While 2.08% agreed with the statement in 2016.

Disparities in Access Depending on Insurance Type

Simply having health insurance has not uniformly led to greater mental health care among all respondents. According to my regression results, there was a negative correlation with accessing mental health care among respondents with private insurance. This was a surprising finding. However, in my interviews, I learned about concerns among mental health policy experts that many individuals are unaware of the mental health benefits to which they are entitled and many may struggle to find an in-network provider.

Individuals with private insurance who struggle to find a mental health provider in their network can end up facing steep out of network costs that discourage them from seeking care. As I mentioned in chapter four, Milliam (2016) found that out of network providers completed 16.7% of behavioral care, while only 4% of out of network providers completed medical and surgical care. This disparity demonstrates that we have not yet achieved full mental health parity with general medical care. This disparity can help explain why individuals with private health insurance covering mental health treatment still struggle to access care. It also indicates that additional oversight and reforms may be necessary.

Despite the negative results among respondents with private insurance, respondents with Medicaid were more likely to access mental health care, according to

my regression results. They were just over 1.26 times more likely to access mental health care in both years. These results, which the literature in chapter 2 supports, are especially important because research suggests that mental illness is more prevalent among low-income residents (Substance Abuse and Mental Health Services Administration, 2015). In a 2015 report, the Substance Abuse and Mental Health Services Administration found that 6.8% of adults living below the poverty level experienced a serious mental illness in the past 12 months, while the rate was 3.5% of those above the poverty level. As I indicated in chapter four, provisions in the Affordable Care Act expanded mental health treatment to Medicaid recipients with mild and moderate mental illness, whereas beneficiaries with severe mental illness have traditionally accessed mental health care. As such, I expected to see a significant increase in mental health access among Medicaid beneficiaries in 2016 over 2013. However, there was not a significant difference between the years, which may be because the 2016 results are only two years after the change went into effect.

My regression results indicate that in statistical terms, Medicare recipients were not more likely to access mental health care than those without health insurance. This is an area for further research as Americans are living longer and the "baby boomer" generation, which comprises 20% of the American population, has started to turn 65. Additionally, the regression results for those who purchased health insurance on the Affordable Care Marketplace were not statistically significant. Almost five percent of the 2016 respondents purchased health insurance on the Affordable Care Act Marketplace. I believe further research into this group is needed because they are some of the most

likely to have experienced a change in their insurance status and access resulting from the ACA. Respondents on the marketplace exchange may have historically faced cost barriers to insurance and care prior to the ACA's enactment. Therefore, it would be helpful to know if these individuals were able to access mental health treatment.

Racial Disparities in Access Persist

According to my regression results, Asian, Hispanic and African American respondents were less likely to access mental health care, even after the Affordable Care Act was implemented. Results for American Indian and mixed race respondents were not statistically significant. Asian respondents were the least likely to access care, followed by Hispanic respondents, and African Americans respondents who were the most likely. However, Hispanic respondents with health insurance were over 61% more likely to access care. The African American respondents with health insurance were 23% more likely to access care. The results for Asian respondents with health insurance were not statistically significant. These findings suggest insurance could help expand access to mental health care among demographic groups that have traditionally been less inclined to access care. However, researchers should examine this issue further, as some of the results were not statistically significant.

The interviews and literature review all supported my findings that there are significant disparities in mental health care access among Asian, Hispanic and African American respondents. As noted in chapter four, racial disparities in access exist all across the health care spectrum. For example, a Kaiser Family Foundation survey in 2014

found that Hispanic, African American, Asian, and American Indian respondents were more likely than white respondents to delay or forgo needed care (Kaiser, 2014).

The reasons for the disparities are not certain or clear cut. One reason may be due to discrimination. As noted in the literature review, numerous studies have found that patients who report experiencing discrimination are less likely to utilize formal mental health services (Spencer, 2010; Meyer 2015). The disparities may also be due to language barriers, lack of providers of color, and cultural stigma. Given the vast disparity in care among Asian, Hispanic and African American respondents, it is critical that researchers study this issue further. The National Health Interview Survey may consider adding questions to explore why individuals have not accessed care, such as asking respondents about discrimination and perception of mental health care in general. Beyond asking respondents whether they accessed treatment, we need to find out why.

Results Have Policy Implications

My results have important implications for federal policymakers who are considering repealing the Affordable Care Act. As noted earlier, the Affordable Care Act has reduced the number of Americans without health insurance, and generally expanded access to mental health care. While the expansion in access was not universal through all the groups in my study, my results indicate that the individuals most likely to access care were those covered under the Medicaid program, our lowest income residents and arguably those most in need. As noted earlier, research indicates that rates of mental illness are higher among those living in poverty. Dismantling the Affordable Care Act could jeopardize care for individuals in this group. If policymakers seriously consider

repealing the ACA, they must consider the impact that would have on low-income residents with a mental illness. However, the ACA is not a silver bullet solution to addressing disparities in mental health access and additional reforms could have a significant impact on mental health access.

The Affordable Care Act and the Mental Health Parity and Addiction Equity Act of 2008, were critical first steps toward expanding access to mental health care. However, as indicated in my regression results and qualitative data, we still have a long way to go. Individuals with private insurance that covers mental health care may not be fully aware of the benefits available to them, and many may struggle to find suitable in-network providers. These challenges within the private insurance market suggest government intervention is necessary.

Policymakers should assess whether insurers are complying with the Mental Health Parity and Addiction Equity Act and designate funding to enforce it. Data suggest that despite laws like the Mental Health Parity and Addiction Equity Act, a greater percentage of behavioral health services are out of network than general medical services (Meleck, 2017). Additionally, the Affordable Care Act's implementation was fairly recent, and many individuals may simply be unaware that they are entitled to mental health care through their insurance. Further research could help determine whether this is a significant barrier to care and if so, insurers should be required to better inform individuals of the mental health care they are entitled to and where they can find in-network providers. Policymakers should also assess whether individuals are able to access providers in their insurance network that meet their needs.

In addition, while policymakers have worked to address the racial disparities in the health care industry for decades, we are still far from solving the racial treatment gap. With the passage of the Mental Health Services Act (MHSA), which places stigma and discrimination reduction at its center, California has taken concrete steps to address the cultural stigma that prevents many from seeking treatment (Clark, 2013). Specifically, the MHSA funds over 25 stigma and discrimination reduction programs such as social media and marketing campaigns, cultural competence training, and outreach programs (Clark, 2013). Other states should consider adopting cultural stigma and discrimination reduction programs as well. Additionally, policymakers should consider expanding programs such as the Health Professions Education Foundation, which offers medical school grants to individuals from underserved populations, to encourage more providers from underserved populations to become mental health providers.

Further Research Needed

My regression results indicate that while the ACA has been a crucial step in closing the treatment gap, additional reforms are necessary. I recommend further analysis into the reasons for the racial disparities in access to mental health care. Further, we cannot address the cost barrier in isolation. The National Health Interview Survey may consider adding questions to probe the barriers to care among respondents, such as discrimination, language, lack of in-network providers, or cultural stigma. Additionally, it would be helpful to have more information about each respondent's health insurance plans, including what he or she believes is covered under the plan.

It would also be interesting to break apart this data by state and region to analyze how access varies across states. I would expect to see states like California that dedicated funding for insurance company oversight and stigma reduction programs, to have a greater percentage increase in access than states that have not prioritized mental health policy. Additionally, I would expect rural regions to experience mental health provider shortages, which would also impact access to care.

Multi-faceted Approach to Mental Illness Needed

American interest in closing the mental health treatment gap appears to have grown in recent years with more and more headlines of teen suicides, homelessness, and addiction. However, mental illness is an incredibly complex issue with symptoms ranging from mild to severe and debilitating. Additionally, the reasons individuals refrain from care can range from cost and convenience to discrimination or cultural stigma. Any efforts to expand access to mental illness will require a multi-faceted approach. There will not be an isolated solution to closing the mental health treatment gap.

This thesis sought to address one facet in the mental health delivery system: cost, specifically health insurance. I chose this approach considering on-going federal debate over repealing the Affordable Care Act. Overall, I found that access to mental health care among those with health insurance grew after the ACA went into effect. Additionally, those with Medicaid were the most likely to access care, which is important because rates of mental illness are higher among low-income residents.

However, disparities in access among Asian, Hispanic and African American individuals persisted, and private insurers did not experience an increase in access. As

such, policymakers must take concrete steps to address the racial disparities in mental health access and ensure individuals with private insurance are able to access care. It is my hope that research such as this thesis will help inform policies that begin to chip away at the persistent barriers to mental health care access. Expanding access to mental health care will not only save lives and dollars. It will raise the quality of life for countless Americans.

Appendix A: Literature Review

Authors	Data Used	Dependent variable	Key Explanatory variables	Statistically significant effect for primary dependent variable
Chow (2003)	New York State Office of Mental Health Patient Characteristic Survey with the 1990 U.S. Census	Mental Health Service Utilization	Race, income, and neighborhood	In low-poverty neighborhoods, whites were most likely to have accessed care (57% were service users), while in high-poverty neighborhoods Hispanics were the most likely to have access care (41% were service users). In high-poverty areas, the odds of Asians using emergency services were twice that of the white patients.
Cook (2007)	Medical Expenditure Panel Survey	Mental health visits and total mental health care expenditures in the past year	Mental health status, race and ethnicity, income, education level, region of the country, and insurance coverage	African Americans had a 12% probability of mental health spending while whites had 18%. Hispanics were 38% less likely than whites to have utilized mental health care.
Dinwiddie (2013)	2006 Medical Expenditure Panel Survey, 2006 American Medical Association Area Research File and the 2000 Census	Mental health service utilization	Race	Latino-isolated regions were 2.3 times more likely to be psychiatrist shortage areas.
Duong (2014)	California Health Interview Survey	Use of specialty mental health care	Insurance status and type, cost	Uninsured respondents were the most likely to respond that cost was a barrier to mental health care (3.57 odds ratio) and

				the publicly insured group was the least likely to cite cost as a barrier to care (.20 odds ratio).
McAlpine (2000)	The Healthcare for Communities survey.	Use of specialty mental health care	Demographics, need, insurance, and risk.	With every unit increase in having private insurance there was a 2.5 unit increase in receiving mental health treatment.
Meyer (2015)	National Comorbidity Study from 2001 to 2002	Patient reports of doctor's assessment of alcohol and drug use, mental health, and recommendations for specialty care.	Sociodemographic factors, such as race and ethnicity, age, gender, age, income and insurance coverage.	Asians were the least likely to report being asked about their mental health (11.6%) and substance use (22.3%), and the least likely to be treated compared to all other groups.
Mojtabai (2005)	National Health Interview Survey data from 1997 to 2002	Mental health service utilization	Cost, age, race, and income	The prevalence of nonuse of services because of cost increased from 15.6% to 20.0% for mental health care and from 27.7% to 34.1% for medication from 1997 to 2002.
Reid (2008)	Medical Expenditure Panel Survey (MEPS), the National Health Interview Survey (NHIS), the National Survey of America's Families (NSAF) and the National Survey of Homeless Assistance Providers and Clients (NSHAPC).	Access to health care	Economic and housing instability	Among the general population, the rate of not having access to care was 14%, while the rate was 26.1% among those with unstable housing. There was a 3.4% increase in the not having access to care variable for each increase in the housing instability variable.

Rowan (2013)	National Health Interview Survey from 1999 to 2010	Mental health service utilization	Type and status of insurance	The study finds that although access to specialty care remained relatively stable for people with a mental illness, self-reported cost barriers to care increased among the privately insured and the uninsured who had a serious mental illness.
Slaunwhite (2015)	2002 Canada Community Health Survey (CCHS)	Mental health service utilization	Income and gender	Women were more likely to report barriers to care, including demands on their time (1.63 times), income (1.01 times), and family responsibilities (1.51 times), as well as not having access to a provider nearby (1.42 times).
Spencer (2010)	2002-2003 National Latino and Asian American Study	Service use	Race, perceived discrimination	Perceived discrimination was associated with more use of informal services, with respondents who perceived discrimination 2.35 times as likely to utilize informal services. Respondents without insurance were 2.36 times as likely to use informal services.

Appendix B: Correlation Coefficients 2013

	Mental health access	Black	Amer Indian	Asian	Multi Race	Hispanic	Age	Male
Mental health access	1.00							
Black	-0.01	1.00						
American Indian	0.01	-0.04	1.00					
Asian	-0.04	-0.11	-0.03	1.00				
mulitplerace	0.03	-0.06	-0.01	-0.04	1.00			
Hispanic	-0.03	-0.15	0.05	-0.09	0.01	1.00		
Age	-0.05	-0.03	-0.01	-0.06	-0.04	-0.15	1.00	
Male	-0.04	-0.03	0.00	0.01	0.00	0.00	-0.05	1.00
Widowed	0.06	0.02	0.01	-0.06	0.01	-0.05	0.14	-0.03
Divorced	0.03	0.06	0.00	-0.02	0.01	0.06	-0.01	-0.02
Seperated	0.05	0.14	0.01	0.01	0.03	0.01	-0.43	0.05
Nevermarry	0.01	0.00	0.01	-0.03	0.03	0.05	-0.15	0.02
Livingwpartner	-0.01	0.01	0.00	0.00	0.00	0.00	0.01	-0.01
Hsnodiploma	0.00	0.06	0.01	-0.04	0.00	0.13	0.05	-0.01
Eduhsgrad	-0.03	0.06	0.00	-0.05	0.00	0.02	0.07	0.00
Edusomecollege	0.01	0.04	0.01	-0.04	0.02	0.00	-0.08	-0.02
Edubachelordegree	-0.01	-0.07	-0.02	0.07	-0.01	-0.09	-0.07	0.03
Edumasters	0.02	-0.08	-0.02	0.11	-0.02	-0.11	0.02	0.01
Unemployed	0.07	0.01	0.01	-0.02	0.00	-0.05	0.47	-0.12
Lookingforwk	0.03	0.07	0.01	0.00	0.03	0.03	-0.14	0.01
Incme35to75	-0.03	-0.02	0.00	-0.02	-0.02	0.00	-0.02	0.02
Incme75to99	-0.02	-0.05	-0.01	0.01	0.00	-0.04	-0.04	0.02
Incme100andover	-0.01	-0.10	-0.02	0.05	-0.02	-0.10	-0.02	0.04
Health Ins	0.03	-0.02	-0.03	0.00	-0.01	-0.10	0.13	-0.08
Private Ins	-0.05	-0.11	-0.05	0.03	-0.03	-0.17	-0.06	0.02
Medicare	0.00	-0.02	0.00	-0.05	-0.02	-0.11	0.67	-0.05
Medicaid	0.08	0.14	0.03	-0.01	0.04	0.18	-0.11	-0.09
Cantaffordmental	0.17	0.00	0.01	-0.02	0.02	0.01	-0.05	-0.03
Emotinteralot	0.22	0.01	-0.01	-0.02	0.04	0.02	0.00	-0.02
Emotintersome	0.12	0.01	0.02	0.00	0.02	0.01	-0.01	-0.04
Emotinteraltle	0.08	0.00	0.00	-0.02	0.01	-0.01	-0.04	-0.02

	Widowed	Divorced	Seper	Never marry	Livingw partner	Hsnodiploma	Eduhsgrad
Widowed	1.00						
Divorced	-0.07	1.00					
Seperated	-0.23	-0.10	1.00				
Nevermarry	-0.10	-0.04	-0.14	1.00			
Livingwpartner	-0.02	-0.01	-0.03	-0.01	1.00		
Hsnodiploma	0.01	0.07	0.01	-0.01	-0.01	1.00	
Eduhsgrad	0.02	0.02	0.00	0.01	-0.01	-0.14	1.00
Edusomecollege	0.03	0.00	0.06	0.02	0.00	-0.14	-0.24
Edubachelordegree	-0.04	-0.05	0.02	-0.01	0.00	-0.14	-0.25
Edumasters	-0.05	-0.04	-0.06	-0.03	0.00	-0.11	-0.20
Unemployed	0.00	-0.01	-0.14	-0.08	-0.01	0.11	0.08
Lookingforwk	-0.01	0.01	0.11	0.03	-0.01	0.01	0.03
Incme35to75	0.01	-0.03	-0.03	0.04	-0.01	-0.08	0.01
Incme75to99	-0.04	-0.03	-0.07	0.01	-0.01	-0.08	-0.07
Incme100andover	-0.10	-0.06	-0.13	-0.01	-0.02	-0.11	-0.16
Health Ins	-0.03	-0.05	-0.12	-0.01	-0.02	-0.05	-0.05
Private Ins	-0.07	-0.08	-0.06	-0.01	-0.01	-0.20	-0.12
Medicare	0.04	-0.04	-0.19	-0.09	-0.01	0.06	0.09
Medicaid	0.01	0.07	0.06	0.09	-0.01	0.16	0.08
Cantaffordmental	0.04	0.02	0.04	0.02	0.01	0.02	0.00
Emotinteralot	0.05	0.06	0.01	0.01	0.00	0.05	0.01
Emotintersome	0.04	0.03	0.01	0.01	-0.01	0.03	0.00
Emotinteraltle	0.00	0.01	0.03	0.02	-0.01	0.01	0.00

	Edu somecollege	Edubachelor degree	Edu masters	Enemployed	Looking forwk	Incme 35to75	Incme75to99
Edusomecollege	1.00						
Edubachelor degree	-0.25	1.00					
Edumasters	-0.20	-0.21	1.00				
Unemployed	-0.01	-0.11	-0.07	1.00			
Lookingforwk	0.02	-0.03	-0.05	-0.18	1.00		
Incme35to75	0.03	0.05	-0.05	-0.08	-0.03	1.00	
Incme75to99	-0.03	0.09	0.07	-0.09	-0.04	-0.20	1.00
Incme100andover	-0.11	0.13	0.33	-0.15	-0.06	-0.27	-0.14
Health Ins	-0.02	0.06	0.08	0.12	-0.13	0.04	0.07
Private Ins	-0.01	0.18	0.19	-0.22	-0.14	0.16	0.17
Medicare	-0.03	-0.09	-0.03	0.54	-0.08	-0.02	-0.07
Medicaid	0.02	-0.14	-0.15	0.13	0.09	-0.10	-0.10
Cantaffordmental	0.01	-0.02	-0.03	0.01	0.07	-0.02	-0.03
Emotinteralot	0.02	-0.06	-0.05	0.10	0.05	-0.04	-0.03
Emotintersome	0.03	-0.03	-0.04	0.06	0.03	-0.02	-0.03
Emotinteraltle	0.01	0.00	-0.01	0.00	0.04	0.00	-0.02

	iIncme 100 andover	Health Ins	Private Ins	Medicare	Medicaid	Can't afford ment	Emo alot	Emot Inter some	Emo altle
Incme100and over	1.00								
Health Ins	0.12	1.00							
Private Ins	0.26	0.41	1.00						
Medicare	-0.12	0.20	-0.15	1.00					
Medicaid	-0.17	0.15	-0.38	0.00	1.00				
Cantafford mental	-0.05	-0.08	-0.08	-0.02	0.05	1.00			
Emotinteralot	-0.06	-0.02	-0.11	0.03	0.11	0.23	1.00		
Emotintersome	-0.06	-0.02	-0.07	0.01	0.08	0.09	-0.06	1.00	
Emotinteraltle	-0.02	-0.02	-0.03	-0.02	0.03	0.02	-0.07	-0.09	1.00

Appendix C: Correlation Coefficients 2016

	Mental access	Black	Amer	Asian	Mult Race	Hispanic	Age	Male	Widow	Divorce
Mentalaccess	1.00									
Black	-0.02	1.00								
Amer	0.00	-0.04	1.00							
Asian	-0.03	-0.08	-0.02	1.00						
Racemultp	0.02	-0.05	-0.02	-0.03	1.00					
Hispanic	-0.02	-0.09	0.03	-0.05	0.00	1.00				
Age	-0.08	-0.04	-0.03	-0.05	-0.05	-0.13	1.00			
Male	-0.05	-0.05	0.00	0.01	0.00	-0.01	-0.03	1.00		
Widowed	-0.04	0.00	-0.01	-0.03	-0.01	-0.05	0.41	-0.15	1.00	
Divorced	0.05	0.02	0.00	-0.04	0.00	-0.03	0.14	-0.02	-0.13	1.00
Seperated	0.04	0.06	0.01	-0.02	0.00	0.05	-0.01	-0.02	-0.05	-0.07
Nevermarry	0.07	0.13	0.01	0.02	0.03	0.03	-0.44	0.05	-0.18	-0.22
Livewpart	0.02	-0.01	0.03	-0.03	0.01	0.03	-0.15	0.01	-0.08	-0.10
Wthjobnotwrk	0.01	-0.02	-0.01	-0.01	0.02	0.00	-0.04	-0.01	-0.02	-0.01
Lkingforwrk	0.04	0.06	0.02	0.00	0.02	0.02	-0.12	0.02	-0.04	0.00
Notwrknotlook	0.04	0.00	0.00	-0.01	-0.02	-0.05	0.48	-0.12	0.29	0.01
Incme35to74	-0.02	-0.02	0.00	-0.02	0.00	0.01	0.01	0.02	-0.04	0.02
Incme75to99	-0.01	-0.04	-0.01	0.01	0.00	-0.02	-0.02	0.03	-0.07	-0.03
Incme100andover	-0.03	-0.10	-0.03	0.05	-0.02	-0.08	-0.04	0.05	-0.12	-0.12
Edu9to12nodip	-0.01	0.08	0.02	-0.03	0.00	0.08	0.07	-0.01	0.09	0.03
Hsgrad	-0.03	0.04	0.02	-0.04	0.00	0.03	0.08	0.00	0.10	0.02
Edusmecollege	0.02	0.03	0.01	-0.04	0.02	0.00	-0.10	-0.01	-0.02	0.03
Edubachelor	0.00	-0.06	-0.03	0.05	-0.01	-0.06	-0.07	0.02	-0.07	-0.04
Edumasters	0.01	-0.06	-0.02	0.08	-0.02	-0.08	0.02	0.01	-0.08	-0.06
Noaffrdmental	0.17	0.00	0.00	-0.01	0.02	0.00	-0.05	-0.04	-0.02	0.04
Health Ins	0.02	-0.03	-0.04	0.00	-0.02	-0.07	0.11	-0.06	0.05	-0.03
Private Ins	-0.06	-0.11	-0.06	0.03	-0.02	-0.10	-0.13	0.03	-0.11	-0.09
Medicare	-0.02	-0.02	-0.02	-0.04	-0.02	-0.10	0.69	-0.05	0.35	0.05
Medicaid	0.10	0.13	0.06	-0.01	0.03	0.17	-0.13	-0.08	-0.03	0.03
Emotion	0.15	0.01	0.01	-0.02	0.02	0.01	-0.07	-0.04	-0.01	0.03
Emoalot	0.23	0.01	0.01	-0.02	0.02	0.00	-0.01	-0.03	0.01	0.04
Emosome	0.13	0.00	0.01	-0.01	0.00	0.01	-0.03	-0.04	0.02	0.03
Emoalttle	0.09	0.00	0.01	-0.02	0.02	-0.01	-0.06	-0.03	0.00	0.00

	Seperated	Never marry	Livewpart	Wthjob notwrk	Lking forwrk	Notwrk notlook	Incme35to74	Incme75to99
Seperated	1.00							
Nevermarry	-0.09	1.00						
Livewpart	-0.04	-0.14	1.00					
Wthjobnotwrk	0.00	-0.01	0.01	1.00				
Lkingforwrk	0.01	0.10	0.02	-0.03	1.00			
Notwrknotlook	-0.01	-0.12	-0.09	-0.12	-0.15	1.00		
Incme35to74	-0.02	-0.03	0.03	-0.01	-0.03	-0.05	1.00	
Incme75to99	-0.02	-0.07	0.03	0.02	-0.03	-0.09	-0.21	1.00
Incme100andover	-0.06	-0.15	-0.01	0.05	-0.06	-0.19	-0.31	-0.17
Edu9to12nodip	0.04	0.01	-0.02	-0.02	0.03	0.10	-0.06	-0.07
Hsgrad	0.02	0.00	0.02	-0.02	0.00	0.10	0.02	-0.06
Edusmecollege	0.01	0.11	0.01	0.00	0.03	0.02	0.03	-0.03
Edubachelor	-0.04	-0.01	0.01	0.02	-0.02	-0.11	0.02	0.07
Edumasters	-0.04	-0.07	-0.03	0.03	-0.04	-0.07	-0.06	0.06
Noaffrdmental	0.03	0.02	0.02	0.00	0.04	0.00	-0.01	-0.02
Health Ins	-0.04	-0.10	0.01	0.00	-0.10	0.08	0.03	0.05
Private Ins	-0.07	-0.03	0.02	0.04	-0.10	-0.27	0.10	0.14
Medicare	-0.03	-0.20	-0.10	-0.05	-0.08	0.56	0.01	-0.05
Medicaid	0.08	0.06	0.10	-0.02	0.11	0.08	-0.06	-0.10
Emotion	0.04	0.02	0.02	0.01	0.04	0.01	-0.02	-0.03
Emoalot	0.04	0.02	0.01	0.00	0.06	0.09	-0.03	-0.03
Emosome	0.03	0.03	0.00	0.00	0.04	0.05	-0.01	-0.02
Emoalttle	0.01	0.04	0.02	0.01	0.03	0.00	0.00	-0.01

	Incme100 andover	**Edu9to12 nodip**	**Hsgrad**	**Edusme college**	**Edu bachelor**	**Edu masters**	**Notaffrd mental**
Incme100and over	1.00						
Edu9to12nodip	-0.11	1.00					
Hsgrad	-0.17	-0.11	1.00				
Edusmecollege	-0.14	-0.12	-0.23	1.00			
Edubachelor	0.15	-0.13	-0.25	-0.27	1.00		
Edumasters	0.33	-0.11	-0.21	-0.22	-0.24	1.00	
Noaffrdmental	-0.04	0.00	0.00	0.02	-0.01	-0.02	1.00
Health Ins	0.09	-0.05	-0.03	-0.02	0.04	0.07	-0.06
Private Ins	0.26	-0.18	-0.11	-0.03	0.14	0.16	-0.06
Medicare	-0.15	0.06	0.09	-0.03	-0.09	-0.03	-0.04

Medicaid	-0.19	0.14	0.09	0.04	-0.12	-0.16	0.06
Emotion	-0.05	0.03	0.01	0.04	-0.03	-0.06	0.13
Emoalot	-0.06	0.04	0.01	0.02	-0.04	-0.05	0.20
Emosome	-0.06	0.03	0.01	0.02	-0.03	-0.04	0.11
Emoalttle	-0.03	0.01	-0.01	0.03	-0.01	-0.02	0.03

	Health Ins	**Private Ins**	**Medicare**	**Medicaid**	**Emotion**	**Emoalot**	**Emosome**	**Emoalttle**
Health Ins	1.00							
Private Ins	0.33	1.00						
Medicare	0.16	-0.21	1.00					
Medicaid	0.11	-0.38	-0.03	1.00				
Emotion	-0.03	-0.08	-0.03	0.11	1.00			
Emoalot	-0.02	-0.11	0.03	0.12	0.29	1.00		
Emosome	-0.02	-0.07	0.01	0.08	0.16	-0.05	1.00	
Emoalttle	-0.01	-0.02	-0.03	0.05	0.11	-0.06	-0.09	1.00

Appendix D: Interview Questions

1. What is the state of mental health care in California and at the federal level?
2. Have you seen any changes in mental health access since the Affordable Care Act went into effect?
3. How can policymakers reduce the cost of mental health treatment, or address the cost barrier to care?
4. Has California implemented any policies that you think are making a positive difference to the cost barrier?
5. What could we be doing differently?
6. What mental health policy reforms do you recommend?
7. Are there any domestic or global mental health models that California could replicate?
8. What are some of the challenges to implementing mental health policy reforms?
9. My regression results indicate that having health insurance is correlated with mental health access, and this correlation increased following the Affordable Care Act's implementation but with two caveats. 1. Mental health access increased the most among those with public insurance. Respondents with private insurance are slightly less likely to access mental health care than those with public insurance. 2. There was still a significant treatment gap among Asian, African American and Hispanic respondents. What are your thoughts? And is this supported by your research and experiences in the field?
10. Anything I missed? Or anything you want to add?

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