Title

Examination of Patient Centered Medical Home Components and Disparities in Mental Health Services Use Among Non-Latino White, Non-Latino Black, and Latino Adults in the U.S.

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Examination of Patient Centered Medical Home Components and Disparities in Mental Health Services Use Among Non-Latino White, Non-Latino Black, and Latino Adults in the U.S.

A dissertation submitted in partial satisfaction of the requirements
for the degree Doctor of Philosophy in Health Services

by

Audrey Lynn Jones

2013

ABSTRACT OF THE DISSERTATION

Examination of Patient Centered Medical Home Components and Disparities in Mental Health Services Use Among Non-Latino White, Non-Latino Black, and Latino Adults in the U.S.

by

Audrey Lynn Jones

Doctor of Philosophy in Health Services

University of California, Los Angeles, 2013

Professor Vickie M. Mays, Chair

Mental health disorders are common but often remain untreated, resulting in a considerable burden of illness in the population. This burden falls most heavily on racial/ethnic minority populations who, compared to Non-Latino Whites, experience significant disparities in mental health services (MHS). Under the Affordable Care Act adults with a mental health disorder will experience new access to the Patient Centered

Medical Home (PCMH). However, it is not yet known if core features of the PCMH will be effective towards improving all patients' access to MHS.

This dissertation consists of three studies that examine core features of the PCMH and disparities in MHS among Non-Latino White, Non-Latino Black, and Latino adults. Components of the PCMH were approximated using patient reports of their healthcare experiences in the Medical Expenditures Panel Survey (2004-2010). Multivariate logistic regression models were employed to estimate the effect of PCMH components on MHS use for Non-Latino White, Non-Latino Black, and Latino populations.

This research found significant disparities in primary care- and specialist-based MHS. Having a designated provider was associated with increased use of primary care-based MHS among Non-Latino White and Black populations. When Black patients had a designated provider who delivered services consistent with the PCMH, these patients appeared more likely than those without a designated provider to receive mental health counseling. Even when Black and Latino patients reported having a designated healthcare provider, they continued to experience significant disparities in MHS.

Spreading the adoption of core features of the PCMH may help to reduce the burden of untreated mental illness among Non-Latino White and Black populations. However, the current healthcare reforms appear insufficient to meaningfully reduce racial/ethnic disparities in MHS. Results indicate a need for culturally targeted programs and interventions to improve MHS delivery for Black and Latino adults with a mental health disorder. In particular, findings suggest a need to develop additional

policies that will strengthen the patient-provider partnership. As new patients enter the primary care system it will be critical that providers are given the training and resources needed to diagnose and treat mental health disorders in racially/ethnically diverse populations.

The dissertation of Audrey Lynn Jones is approved.

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2013

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Chapter 1: Introduction

While the primary care system has emerged as the predominant pathway to treatment for adults with a mental health disorder, Black and Latino adults have had fewer opportunities than Whites to benefit from this pathway. The Affordable Care Act (ACA) will stimulate the adoption of new models of primary care services, such as the Patient Centered Medical Home (PCMH). It is not yet known, however, if these new models of care will improve upon past approaches in regards to mental health services delivery. Moreover, it is not yet known if the PCMH will be equally beneficial for Black and Latino populations who, compared to Whites, have traditionally been underserved in the primary care setting.

This dissertation is comprised of three studies that explore the relationship between the primary care system prior to healthcare reform and racial/ethnic disparities in mental health services use. The first study describes the landscape of disparities in primary care prior to healthcare reform. Using nationally representative data from the Medical Expenditures Panel Survey (MEPS), Study 1 estimates disparities in mental health visits to primary care providers and mental health specialists for Non-Latino Black adults and Latino populations varying in regional origin and U.S. versus foreign-born nativity. The second study examines features of primary care that are indicative of PCMH reforms and that also are likely to impact the delivery of mental health services. Specifically, Study 2 will determine if having a designated provider who delivers comprehensive and patient-centered services is associated with adults' use of primary care- and specialist-based mental health services. Last, Study 3 aims to determine if the adoption of core components of the PCMH Home are likely to influence racial/ethnic disparities in mental health services under the Affordable Care Act. Specifically, Study 3 determines if PCMH components are associated with mental health services use similarly for

Non-Latino White, Non-Latino Black and Latino adults of Mexican, Central/South American and Caribbean ancestry.

This introductory chapter provides the background and rationale for the three dissertation studies. First, I will review the burden of mental health disorders in the U.S. and describe how this burden differs for Non-Latino Black and Latino populations. Next, I will describe the important role of the primary care system as a provider of mental health services and present evidence that this model of care has not been working as well for Black and Latino populations as it has for Non-Latino Whites. Third, I will briefly review healthcare reforms directed at the primary care setting and discuss the patient centered medical home as a model of care for populations with chronic health disorders. The introduction chapter will end with a description of the study aims and hypotheses for the dissertation.

1.1 Burden of Mental Health Disorders in the U.S.

Mental health disorders are common but often go untreated. In the U.S., one quarter of adults (26%) are likely to meet criteria for a mental health disorder in a given year (Kessler et al. 2005b), and the prevalence of these disorders is even higher in populations with chronic conditions, such as diabetes, asthma, and cardiovascular disease (Egede 2007; Moussavi et al. 2007). Although effective treatments are available, half of adults with a mental disorder never receive counseling or medication treatments (Wang et al. 2005a; Wang et al. 2005b). Only one-quarter of adults with a past year mental health disorder receive minimally adequate care (Wang et al. 2005b; Young et al. 2001).

Untreated mental health conditions present a considerable burden for individuals, families, and communities. Mental health disorders contribute to disruptions in education and employment (Chatterji et al. 2007; Fletcher 2010), economic instability (Gresenz and Sturm

2000; Kessler et al. 2008), and premature mortality due to suicide, chronic disease onset, and poor physical health outcomes. Consequently, mental health disorders are among the leading contributors to the global burden of disease (Andrews et al. 2000). Given the significant personal and societal costs of untreated mental health disorders, there is a compelling need to identify models of care that will improve all patients' access to effective mental health treatments.

1.2 Race, Ethnicity, and Nativity: Differences in Mental Health and Mental Health Services Use

In the last twenty years, epidemiologic studies of mental health disorders and mental health services use have revealed important nuances in mental health disparities for Black and Latino populations in the U.S. (Miranda et al. 2008; U.S. Department of Health and Human Services 2001). Non-Latino Blacks often experience a lower lifetime risk of most DSM-IV mental health disorders compared to Non-Latino Whites (Breslau et al. 2006). However, this lower overall prevalence rate is somewhat deceiving as Black Americans experience significant psychological distress even when they fail to meet formal diagnostic criteria for a mental health disorder (Krieger et al. 2011; Okoro et al. 2009). When diagnosed, Blacks experience severe and persistent mental disorders, such as schizophrenia (Bresnahan et al. 2007; Minsky et al. 2003). Moreover, mental health disorders often go untreated in this population (Gonzalez et al. 2010b; Williams et al. 2007a), often have a chronic course, and frequently are rated as severe and disabling (Breslau et al. 2005; Gonzalez et al. 2010a; Williams et al. 2007a). In sum, despite a lower lifetime risk of some mental health disorders, the burden of untreated mental health disorders is often greater in Black populations than in Non-Latino Whites.

When Latino disparities are considered, it is important to recognize the cultural diversity within the Latino population in the U.S. (Alegria et al. 2007a; Alegria et al. 2007b; Cabassa, Zayas, and Hansen 2006). Latinos of Puerto Rican ancestry often report high levels of psychological distress and elevated rates of DSM-IV mental health disorders compared to Cuban and Mexican American populations (Bratter and Eschbach 2005). The largest differences within the Latino population in the U.S. are perhaps observed within immigrant communities. Puerto Rican and Cuban immigrants experience the same elevated rates of disorders as their U.S. mainland-born counterparts (Alegria et al. 2008a; Alegria et al. 2007a; Breslau et al. 2009). In contrast to the findings observed in these Caribbean-origin Latino populations, immigrants of Mexican origin experience low rates of mental health disorders (Alegria et al. 2008a; Alegria et al. 2007a; Breslau et al. 2009). Yet the protective cultural effect observed for Mexican immigrants, often disappears with time spent in the U.S. (Orozco et al. 2013).

Cultural variations also exist in mental health services use. Mexican Americans are less likely than Puerto Rican and Cuban groups to receive mental health services (Alegria et al. 2007b). Mexican American migrants, in particular, have low rates of mental health services use compared to their U.S. born counterparts (Orozco et al. 2013). Using national data from Mexico and the United States, Orozco et al (2013) examined the prevalence of mental health disorders and mental health services use associated with migration and acculturation for Mexican Americans. Their innovative study showed that, while rates of mental health services use increase for Mexican immigrants with time spent in the U.S., the increase in services use occurs more slowly than the rise in services need. That is, the burden of unmet mental health needs increased for Mexican Americans with time spent in the U.S.

In sum, studies to date suggest that some Latinos of Caribbean origin exhibit high rates of psychological distress and elevated rates of mental health disorders. Alternatively, Latinos of Mexican origin experience the greatest disparities in treatment of mental health disorders and the burden of untreated mental illness increases with time spent in the U.S.

It is important to note here that a majority of prior studies have examined mental health and mental health service experiences for Latinos of Puerto Rican, Cuban, and Mexican heritage because these have traditionally comprised the largest Latino populations in the U.S. These patterns, however, may be changing. There is increasing diversity within the Latino population in the U.S. Latinos migrating from Central and South American countries doubled in number and grew as a percentage of the total Latino community from 8.6% to 13.4% during the 2000's (Ennis, Rios-Vargas, and Albert 2011). A gap exists in the literature as little is known about the specific mental health service needs of Central and South American Latino migrants. Moreover, researchers have often selected Puerto Rican adults as a reference population when examining cultural variations in mental health and mental health services use within the Latino population. Thus, there have been few opportunities to learn about disparities in mental health and mental health services for specific Latino populations relative to Non-Latino Whites. Given the rapid growth and increasing heterogeneity within the Latino population (Ennis et al. 2011), it is important for health services planning to determine models of care that best meet the mental health service needs of divergent Latino populations in the U.S.

In reviewing prior studies of disparities in primary care, I will often herein describe mental health service experiences of the collective Non-Latino population relative to Non-Latino Whites because that is the state of the literature to date. In designing the three dissertation studies, however, I examine disparities specifically for Latino populations varying in region of origin (Mexico, Central/South American vs. Spanish Speaking Caribbean) and nativity (U.S. /

mainland vs. foreign/island born) to improve understandings of how primary care based reforms are likely to influence mental health services use and disparities for divergent Latino populations in the U.S.

1.3 Primary Care as a Pathway to Treatment for Mental Health Disorders

In the U.S., the primary care system is considered the de-facto provider of mental health services (Gray, Brody, and Hart 2000; Regier, Goldberg, and Taube 1978). Most adults with a mental health disorder are likely to have had at least one medical visit in the last year (Young et al. 2001), making the primary care setting a critical site of intervention to screen for, diagnose, and refer patients for treatment of a mental health disorder. As our healthcare system has transitioned away from fee-for-service payment arrangements towards managed care models, primary care providers have increasingly been designated as a gatekeeper to medical specialists including psychiatrists. New pharmacologic treatments, moreover, have allowed for patients with a mental health disorder to be treated and managed in the primary care setting. It is not surprising then that more patients with a mental health disorder receive treatments from a primary care provider than from mental health specialists, such as psychiatrists, psychologists, and counselors (Wang et al. 2007b).

But while the primary care system offers potential as a provider of mental health services, gaps in this system have prevented some groups from receiving needed mental health treatments. Insurance coverage, healthcare literacy, and income are important resources needed to navigate the healthcare system and to access medical providers. Adults with low education, low household income, and the uninsured, therefore, experience significant disparities in access to primary care services. Compared to Whites, Black and Latino adults are less likely to be insured, often have fewer years of education, and live in households with lower incomes (Zuvekas and Taliaferro 2003). Thus, there are significant racial/ethnic disparities in access to primary care providers (Mahmoudi and Jensen 2012) and to primary care-based mental health services. Provider shortages also prevent patients in some communities from receiving timely access to high quality primary care services. Predominantly Black neighborhoods, more so than others, experience shortages of primary care providers (Gaskin et al. 2012). Importantly, racial differences in neighborhood resources and provider shortages influence pathways into mental health treatment for adults with a mental health disorder (Cook et al. 2013a; Dinwiddie et al. 2013).

Barriers to mental health services remain even when patients have potential access to primary care providers (Cunningham 2009). Primary care visits are short in duration, and the time devoted to mental health concerns is often considerably less than the proportion of time allocated to physical health concerns (Rost et al. 2000; Tai-Seale, McGuire, and Zhang 2007; Wells et al. 2004). As a result, mental health disorders often go untreated or inadequately treated in this setting (Ettner et al. 2010; Wang et al. 2007b). Black and Latino adults are more likely than Whites to receive primary care services in settings where visits are short in duration and where providers report difficulty in delivering high quality care (Gaskin et al. 2007; Reschovsky and O'Malley 2008). Moreover, cultural and linguistic differences in the reporting of mental health symptoms contribute to low rates of detection and treatment of mental health disorders in primary care for Black and Latino minorities. Thus, Black and Latino patients are less likely than Non-Latino Whites to receive mental health diagnoses and treatment even when they use primary care services (Lagomasino et al. 2005; Miranda and Cooper 2004).

Negative experiences in the primary care setting also prevent racial/ethnic minorities from receiving needed mental health services. Compared to Whites, Black and Latino adults are more likely to report experiences of discrimination due to race, income, or insurance coverage (Hausmann et al. 2008; Macintosh et al. 2013). These negative experiences erode the patient-provider relationship and prevent patients from seeking needed medical and mental health treatments (Hausmann et al. 2011). Indeed, negative experiences of discrimination in the health care setting contribute to low rates of mental health services use in Black communities (Burgess et al. 2008).

Finally, fragmentation between physical and mental health systems of care, as well as shortages of mental health specialists, create barriers to mental health specialist providers for primary care patients (Cunningham 2009). Black and Latino adults are more likely than White to be publicly insured or uninsured and, therefore, to rely on community safety net services for physical and mental health services delivery. In the past, little infrastructure has existed that would allow safety net providers to coordinate services for their shared patients (Cunningham, Felland, and Stark 2012). Because safety net clinics are an important resource for Black and Latino communities, these patients more so than others may experience difficulties in obtaining specialist referrals for mental health conditions. Indeed, the primary care providers who serve in clinics with a majority of racial and ethnic minorities patients report difficulty in obtaining specialist referrals (Reschovsky and O'Malley 2008). Primary care providers also cite shortages of mental health specialists as a barrier to the delivery of high quality mental health services (Cunningham 2009). Latino immigrants and those with limited English proficiency are likely to live in ethnic enclaves where shortages of mental health specialist providers also exist (Dinwiddie et al. 2013) and Latino patients are less likely than Non-Latino Whites to access mental health specialists even when they are diagnosed with a mental health disorder in the primary care setting (Miranda and Cooper 2004).

In sum, while the primary care system offers a potential pathway into mental health treatment, this pathway has not worked as well for Black and Latino populations as it has for

Non-Latino Whites. There are significant racial and ethnic disparities in access to and receipt of mental health services. Black and Latino adults are less likely than Whites to receive mental health services, less likely to receive evidence-based treatments for a mental health disorder, and less likely to receive minimally recommended services, even when mental health services are utilized. When patterns of mental health services use are examined over times, studies find that Non-Latino White adults have more readily capitalized on the availability of primary care-based mental health services than Black and Latino populations (Kessler et al. 2005c). Perhaps, as a result, racial/ethnic disparities have not improved in recent years (Blanco et al. 2007; Cook, McGuire, and Miranda 2007; Stockdale et al. 2008). Indeed, in some cases they are worsening (Ault-Brutus 2012).[1] As our nation looks towards the future of healthcare delivery, it is important to find new models of care that can reverse these disparate trends and ultimately eliminate Black-White and Latino-White disparities in mental health services.

1.4 Healthcare Reform: Implications for Access to Primary Care-Based Mental Health Services

This is a compelling time to investigate mental health services in primary care. Adults with a mental health disorder will have new opportunities to receive mental health services in the primary care setting through the ACA's health insurance expansions, investments in the primary care and safety net systems, and promotion of the Patient Centered Medical Home. Nearly four million adults with a mental health disorder are likely to gain insurance coverage through the ACA's health insurance expansion (Garfield et al. 2011). Coupled with the ACA's

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[1] Black-White disparities have worsened in mental health visits to primary care providers, use of antidepressant treatments, and receipt of minimally adequate care from primary care providers; Latino-White disparities have worsened in recent years in access to mental health specialists.

emphasis on wellness and prevention, the health insurance expansion will enable many patients with a mental health disorder to receive comprehensive primary care services for the first time.

The ACA includes several policies aimed to strengthen capacity of the primary care system and reduce inequities in health care. As discussed in chapter 2, the ACA invests in medical training for primary care providers (PCPs), temporarily raises payments for PCPs that serve Medicaid and Medicare beneficiaries, and expands the number and capabilities of Federally Qualified Health Centers (FQHCs) that deliver comprehensive primary care services to low-income populations (Abrams et al. 2011). The FQHC expansions may provide a designated place of care for uninsured and low-income adults to receive mental health services. Moreover, policies to strengthen the primary care and safety net system are expected to reduce inequities in resources that exist between the systems that serve vulnerable and non-vulnerable populations. Since Black and Latino populations are more likely than Whites to receive physical and mental health services in safety net settings, ACA policies to increase the supply of providers, improve payment parity for the providers who service Medicaid enrollees, and increase FQHC capacity are expected also to reduce racial/ethnic disparities in access to primary care-based services.

In addition to the components of the health reform described above, the ACA promotes adoption of the Patient Centered Medical Home. The PCMH is a model of primary care services delivery that is considered important for improving the quality of care for adults with chronic health disorders, including mental health. The ACA creates new opportunities for adults with a mental health disorder to participate in the PCMH by establishing a new health home option under Medicaid to serve patients with chronic health conditions, including mental health disorders. More than half the states in the nation have already adopted the Home Health option. Since Medicaid is the largest payer of mental health services, these reforms are likely to touch a significant portion of adults with a mental health disorder (Garfield et al. 2011). This is especially true for Black and Latino adults with a mental health disorder who are expected to experience some of the largest gains in Medicaid coverage through the health insurance expansions (Clemans-Cope et al. 2012). Moreover, the ACA allocates resources to train primary care providers in team-based approaches in healthcare delivery, and provides incentives for private and public health plans to report on PCMH services provided (Takach 2012; Thompson and McCabe 2012).

In sum, Non-Latino Black and Latino adults with a mental health disorder are expected to have new opportunities to receive primary care-based mental health services due to the health insurance expansions, investments in the primary care and safety net systems, and promotion of the PCMH as a new model of care for adults with mental and physical health disorders. A need remains to evaluate whether these policies will be sufficient to reduce the longstanding racial/ethnic disparities in mental health services.

1.5 Improving Primary Care Services through the Patient Centered Medical Home

The previous section of this chapter identified shortfalls in the primary care setting that contribute to low rates of mental health services use, particularly for Black and Latino adults with a mental health disorder. Identified factors include unequal access to primary care providers, low rates of providers’ detection of mental health disorders, negative experiences that influence patients’ engagement in the healthcare system and systemic fragmentation that creates barriers to mental health specialists. The PCMH is a model of primary care that is thought to address many of these shortfalls as they relate to physical health disorders (Iglehart 2008; Maeng et al. 2012; O'Toole et al. 2011; Reid et al. 2010; Takach 2012). It is important then to determine if core features of the PCMH can also improve mental health service outcomes for adults with a mental health disorder.

The PCMH is a coordinated and team-based approach to delivering primary care services that are comprehensive in nature, continuous over the life course, patient-centered, and quality-driven. While the exact definition and configuration of the medical home varies across practices (Vest et al. 2010), there is nonetheless a set of common principles that are used to indicate a PCMH. These principles include: 1) a personal physician for each patient, 2) a physician-directed, multidisciplinary team–based medical practice, 3) a whole-person orientation to care, 4) coordinated and integrated services, 5) safe and high-quality care through evidence-based medicine, appropriate use of health information technology, and quality improvement initiatives, 6) expanded access to care, and 7) payment reforms that recognize the added value of the PCMH (American Academy of Family Physicians et al. 2007).

Healthcare organizations and policy-makers are looking to the PCMH as a model of care to finally address issues of access, quality, and cost for adults with chronic health disorders. Results to date have been promising: early demonstration projects have found that the PCMH is associated with enhanced patients' access to providers (Christensen et al. 2013), satisfaction with services (Kern et al. 2013), engagement in treatment (Gabbay et al. 2011), and receipt of specialist services (Reid et al. 2009). In addition, some studies in physical health services have found that PCMH reforms improve the quality of care delivered to high-need populations and reduce patients' need for and use of emergency department services (DeVries et al. 2012; Roby et al. 2010). Thus, the PCMH has potential to improve healthcare access and quality and reduce healthcare costs, particularly for populations with chronic health disorders (Arend et al. 2012).

For adults with a mental health disorder research to support the PCMH as a model of services delivery remains nascent. PCMH demonstration projects have been limited in their spread of adoption and remain in the early phases of evaluation. Questions therefore remain about the extent to which the PCMH will improve patients' access to and use of mental health services. One major concern is that historical fragmentation between physical and mental health systems of care contribute to poor access to evidence-based mental treatments even for patients who utilize primary care services (Cunningham 2009; Sorel and Everett 2011). It is not yet known if the PCMH model will be sufficient to overcome this historical fragmentation. A second concern is that adults with serious mental illness often receive the majority of their care in community mental health centers. More work is needed to determine if a primary care based medical will be effective for adults with serious mental illness (Alakeson, Frank, and Katz 2010). Finally, because PCMH demonstration projects are in early phases of evaluation, it is not yet known if these approaches will be effective for populations traditionally underserved in the primary care setting. Research is therefore needed to determine which components of the PCMH are likely to facilitate the delivery of mental health services for adults with a mental health disorder. As the nation looks to the primary care setting as a provider of mental health services it is especially important to make sure that implementation of PCMH reforms will not contribute to a worsening of racial/ethnic disparities in mental health services.

1.6 Dissertation Aims and Hypotheses

Aim 1: To estimate Black-White and Latino-White disparities in mental health services use among a racially and ethnically diverse sample of adults with psychological distress (i.e., those at risk for a mental health disorder)

Study 1 examines the landscape of Black-White and Latino-White disparities in primary care and specialist-based mental health services use prior to healthcare reform (2005-2009). I will use data available in MEPS to estimate racial/ethnic disparities in mental health services use among a cohort of adults with high psychological distress (i.e., those with a likely need for mental health services). Recognizing diversity in mental health needs and services use within the Latino population, Study 1 estimates disparities separately for Latino populations of Mexican, Central/South American (MCS) and Caribbean origin. Additionally, Study1 examines mental health service disparities for foreign/island born MCS and Caribbean Latinos in comparison with U.S. born Non-Latino Whites. This study uses a conceptual framework informed by the Institute of Medicine's report, Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care.

Hypothesis 1.1) Non-Latino Black, and MCS and Caribbean-origin Latino adults will have a lower probability of reporting any mental health visit to a primary care providers or mental health specialist compared to Non-Latino Whites;

Hypothesis 1.2) Non-Latino Black and MCS and Caribbean-origin Latino adults will receive fewer outpatient mental health visits than Non-Latino Whites, conditional on reporting any mental health visit; and

Hypothesis 1.3) Racial/ethnic disparities in mental health visits will be greater when services are delivered by a primary care provider than a mental health specialist provider.

Aim 2: To determine the effect of PCMH components on mental health services use for adults with high psychological distress.

Study 2 uses the rich data available in MEPS to examine characteristics of primary care that are indicative of a PCMH. Specifically, participants in the MEPS reported if they had a designated provider who delivers comprehensive and patient-centered services. To meet the study aim, I will first examine disparities in access to PCMH components for adults at-risk for a mental health disorder compared to adults with low disorder risk. Then, I will estimate the impact of PCMH components on the probability of mental health services use for adults with high psychological distress. Study 2 hypotheses are informed by studies in physical health services that have tested the effect of PCMH components on patients' access to and use of physical health services.

Hypothesis 2.1) Adults with high psychological distress will be less likely than adults with low-moderate distress to have a designated provider who meets PCMH criteria;

Hypothesis 2.2) Adults with high distress who report having a PCMH will be more likely than distressed adults without a reported PCMH to use mental health services (evidence of access);

Hypothesis 2.3) Adults with high distress who report having a PCMH will be more likely than distressed adults without a reported PCMH to visit with a mental health specialist (evidence of referral); and

Hypothesis 2.4) Adults with high distress who report having a PCMH will receive more mental health visits and more mental health prescription fills than distressed adults who do not report having a PCMH (evidence of treatment engagement).

Aim 3: To determine the impact of PCMH components on mental health services use for Non-Latino White, Non-Latino Black, and Latino adults with high psychological distress.

Study 3 uses data collected prior to healthcare reform to determine how PCMH components will likely influence racial and ethnic disparities in mental health services use. This study builds on the findings from Study 1 and Study 2 to hypothesize the effect of PCMH components on mental health services use for Non-Latino White, Non-Latino Black, MCS and Caribbean-origin Latino populations.

Hypothesis 3.1) Non-Latino Black and MCS and Caribbean-origin Latinos will be less likely than Non-Latino Whites to have a designated provider who delivers services consistent with the PCMH;

Hypothesis 3.2) Distressed Non-Latino White, Non-Latino Black, and MCS and Caribbean-origin Latinos who report having a designated provider will be more likely than those without a designated provider to receive a mental health visit with a primary care provider; and

Hypothesis 3.3) Distressed Non-Latino White, Non-Latino Black, and MCS and Caribbean-origin Latinos who have a designated provider consistent with the PCMH will be more likely than distressed adults without a designated provider to visit with a mental health specialist.

Chapter 2: Racial and Ethnic Disparities in Mental Health Visits to Primary Care and Mental Health Specialist Providers (Study 1)

2.1 Introduction

Primary care physicians play an increasingly important role in diagnosing, treating, and referring patients for treatment of mental health and substance abuse conditions (Wang et al. 2006). Today, more adults see a primary care provider for emotional or substance use concerns than specialty mental health providers (Wang et al. 2007b), and the majority of all psychotropic medications (65%) are prescribed in the primary care setting (Mark, Levit, and Buck 2009). With these new responsibilities, the primary care setting has emerged as a critical site of intervention to improve the treatment of mental health conditions, particularly for racial and ethnic minorities.

While the primary care setting functions as a potential channel to mental health services, not all racial/ethnic groups have realized the benefits of this potential. There are large racial and ethnic disparities in mental health services (MHS) (Agency for Healthcare Research and Quality March 2012; Miranda et al. 2008; U.S. Department of Health and Human Services 2001). Compared to Whites, Blacks and Latinos experience greater barriers to healthcare (Agency for Healthcare Research and Quality March 2012; Kirby, Taliaferro, and Zuvekas 2006; Zuvekas and Taliaferro 2003), are less likely to receive evidence-based treatments for mental health (MH) conditions (Gonzalez et al. 2010b; Kessler et al. 2005c; Miranda and Cooper 2004), and sometimes experience poorer quality MHS (Alegria et al. 2008b; Young et al. 2001). Some racial/ethnic treatment disparities may be attributed to the different service settings where Blacks, Whites, and Latinos seek MHS. For example, Blacks and Latinos are more likely than Whites to rely on primary care providers (PCPs) for treatment of MH conditions (Cabassa et al. 2006; Pingitore et al. 2001). Despite this potential pathway into treatment, the PCPs who serve racial and ethnic minorities for general health concerns often report difficulties in providing high quality care (Bach et al. 2004; Reschovsky and O'Malley 2008; Vargas Bustamante and Chen 2011). Black-White and Latino-White disparities in MHS are sometimes greater when these services are delivered by primary care providers rather than MH providers (Alegria et al. 2008b; Fortuna, Alegria, and Gao 2010; Lagomasino, Stockdale, and Miranda 2011).

Policies that aim to strengthen the primary care system hold promise to improve the quality of health and mental health services in the primary care setting. Several components of the Affordable Care Act (ACA) are targeted towards strengthening the primary care system (Abrams et al. 2011; Russell 2010) and, therefore, offer the potential to meaningfully reduce physical and mental health disparities (Hasnain-Wynia and Beal 2012; Mechanic 2011). To realize this potential, more work is needed to determine how different service settings and provider specialties contribute to Black-White and Latino-White disparities in MHS. This study takes an important step toward this goal by determining pre-reform disparities in mental health visits with primary care providers and mental health specialists for Non-Latino Whites, Non-Latino Blacks, and Latinos of Mexican-Central/South American and Caribbean ancestry.

We used data from the Medical Expenditures Panel Survey (MEPS) to determine disparities in outpatient MH visits provided by primary care and mental health specialist providers between 2004 and 2009 to investigate three questions: 1) Are Blacks and Latinos less likely than Non-Latino Whites to receive a MH visit?; 2) Do Blacks and Latinos receive fewer MH visits than Non-Latino Whites when these services are utilized?; and 3) Are Black-White and Latino-White disparities in MH visits greater when patients are seen by PCPs rather than MH specialists?

2.2 Literature Review

Prior studies have found mixed evidence of Black-White disparities in receipt of a MH visit from a primary care provider. Early findings from the Epidemiologic Catchment Area study (1980-1985) indicated that Blacks were less likely than Whites to receive an outpatient visit for mental health services in both general medical and specialty mental healthcare setting (Snowden 1999). However, Black-White disparities had dissipated in the medical setting by the early 1990's. In both the National Comorbidity Survey (1990-1992) and the Epidemiologic Catchment Area follow-up (1993-1996), Blacks and Whites were equally likely to report a mental health visit with a general medical provider (Alegria et al. 2002; Cooper-Patrick et al. 1999). Despite these apparent gains in medical settings, Black-White disparities re-emerged by the time of the National Comorbidity Survey-Replication in the early 2000's (Ault-Brutus 2012; Roy-Byrne et al. 2009). These trends seem to reveal that improvements in access to MHS during the 1990s, which primarily occurred within the primary care setting (Kessler et al. 2005c; Olfson et al. 2002), were more beneficial for Whites than for Blacks. Indeed Black-White disparities in MHS increased in the medical care setting from 1990-92 to 2001-03 (Ault-Brutus 2012).

There have been few investigations of Black-White disparities in MH visits with primary care providers or MH specialists in the second half of the 2000's. Thus, it has not been clear whether changes in the delivery of services, such as growth of high deductible healthcare plans or constrictions of state budgets, may have impacted Black-White disparities in MHS. This study fills this important gap in the literature by using data from MEPS to determine disparities in MH visits with primary care and mental health specialist providers from 2004-2009.

The pattern of disparities in MHS is different for Latinos than for Non-Latino Black adults. Prior studies have found that Latinos are less likely than non-Latino Whites to receive MHS from a mental health specialist (Alegria et al. 2002; Ault-Brutus 2012; Lagomasino et al. 2011; Roy-

Byrne et al. 2009; Stockdale et al. 2008), but equally likely as Whites to receive an outpatient MH visit with a medical provider (Alegria et al. 2002; Ault-Brutus 2012; Blanco et al. 2007; Kessler et al. 2005c; Miranda and Cooper 2004). It is not clear from these prior studies, however, if mental health service disparities occur uniformly across ethnic and nativity subpopulations of Latinos in the U.S.

Not all Latinos experience the same opportunities to access MHS in primary care settings. For example, nearly 40% of Latinos originating from Mexico and Central South America are uninsured in the U.S. compared to 16-17% of Puerto Rican and Cuban Americans (Wallace et al. 2009). Moreover, nearly half of Latinos from Mexico and Central/South America lack a usual source of care (50%, 43% respectively) compared to one quarter of Latinos from Puerto Rico and Cuba (21%, 31% respectively) (Wallace et al. 2009). Therefore, some Latino groups may be more likely to experience disparities in access to MHS in the primary care setting (Alegria et al. 2007b; Berdahl and Torres Stone 2009). Prior studies have found, for example, that Mexican Americans are less likely than Puerto Rican or Cuban-origin Latinos to receive MHS in the medical setting (Alegria et al. 2007b; Berdahl and Torres Stone 2009). Given the increasing heterogeneity and growth in the Latino population (Ennis et al. 2011), it is important for health services planning to determine how specific Latino populations can best be served by the primary care and specialty mental health system. This is especially needed for those Latino migrants who will be excluded from ACA benefits due to eligibility restrictions (Kaiser Commission On Medicaid And The Uninsured 2012a).

This study uses MEPS to determine Latino-White disparities in mental health (MH) visits with PCPs and mental health specialists for Latinos originating from Mexico and Central/South America (MCS) compared to Latinos from Puerto Rico, Cuba, the Dominican Republic, and Other Latin American heritage. We present estimates for Latinos differing by region of origin (i.e., MCS vs. Spanish Speaking Caribbean) and discuss findings for Latinos by nation of origin (e.g., Mexican Americans, Puerto Ricans) when sample size allows. Moreover, we consider disparities for those MCS and Caribbean migrants who will be less likely than Non-Latino Whites to participate in health reform programs.

2.3 New Contributions

This study builds on prior research regarding disparities in Black-White and Latino-White mental health visits in three ways. First, we used recent data from the MEPS to provide pre-reform estimates of Black-White and Latino-White disparities in visits with primary care providers (PCP) and mental health (MH) specialists. We improved upon existing studies by using prospectively collected data from the MEPS to determine disparities in MH visits following an assessment of psychological distress. Using panel data in this way helps to remove the endogenous relationship between participants' characteristics and treatment seeking behaviors which may bias disparity estimates (Cook, Barry, and Busch 2012a). Second, whereas other studies have often aggregated MH visits across medical care providers (including specialists); we examined disparities specifically for PCP provided services. Finally, we took advantage of the large and ethnically diverse sample of the MEPS to determine MHS disparities separately for Latinos differing by region of origin in order to inform policies for this diverse and rapidly growing population.

2.4 Conceptual Framework

This study used a conceptual framework informed by the 2002 Institute of Medicine's report, Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care (Intitute of Medicine 2002). The IOM committee examined the divergent factors that contribute to racial and ethnic differences in health care. These can be summarized as racial and ethnic differences in clinical need for services and preferences for care (Alegria et al. 2008a; Barnes, Keyes, and Bates 2013; Gonzalez et al. 2009; Zuvekas and Fleishman 2008); system level factors including the organization, financing, and accessibility of services (Alegria et al. 2012; Gresenz, Stockdale, and Wells 2000; Ojeda and McGuire 2006); and factors within the clinical encounter that contribute to poorer quality of care for vulnerable populations (e.g., provider discrimination or bias, patient-provider mistrust, and clinical uncertainty (Alegria et al. 2008c; Balsa and McGuire 2003; Bauer, Chen, and Alegria 2010; Hausmann et al. 2011; Lee, Ayers, and Kronenfeld 2009; Peek et al. 2011)). Not all differences in health care constitute a disparity. For example, Mexican Americans have lower rates of mental health disorders compared to Non-Latino Whites. Lower rates of MHS use for Mexican Americans compared to Non-Latino Whites may, therefore, be partially attributed to ethnic differences in need for treatment. The IOM report helps to provide guidance on which kinds of differences constitute inequity in the healthcare system. The committee concluded that disparities occur when less care is delivered to racial minority populations compared to Non-Latino Whites and these differences are not attributed to patient-level variations in need for care or patients' preferences. That is, disparities include racial/ethnic differences in health care that may be attributed the organization of the healthcare system or provider discrimination/bias within the clinical encounter (Cook, McGuire, and Zaslavsky 2012b; McGuire et al. 2006).

One of the important contributions of the IOM committee's report is that the organization of the healthcare system contributes to racial/ethnic disparities in care. The healthcare system is structured such that populations with resources (healthcare education, income, insurance coverage) experience the greatest ease in obtaining needed health services. Compared to Whites, Black and Latino adults are more likely to be uninsured, to live in low-income households, and to have fewer years of education (Zuvekas and Taliaferro 2003). They are also less likely than Non-Latino Whites to receive needed medical services (Cook, McGuire, and Zuvekas 2009b). That is, healthcare education, income, and insurance coverage are considered important factors that partially mediate the overall racial and ethnic disparities in health care (Zuvekas and Taliaferro 2003). These factors are also considered important in the understanding of racial and ethnic disparities in mental health services use (Alegria et al. 2012).

This study applies the IOM definition of healthcare disparity to determine Black-White and Latino-White disparities in mental health visits (Cook et al. 2007; Cook et al. 2010; McGuire et al. 2006). We controlled for patients' measured indicators of need for MHS and healthcare preferences. Patient characteristics that represent the organization of the health care system (e.g., insurance coverage, healthcare education, ability to pay for services, regional variations in the supply of medical providers) were treated as partial mediators of racial and ethnic disparities in MHS use. In other words, they were excluded from the statistical model in order to determine the overall (mediated and unmediated) effect of race/ethnicity on receipt of needed MHS. This study tested the assumption that health insurance, education, and household income function as partial mediators of disparities in MH visits in supplemental analyses.

Finally, it is important to note that this study included a large, population-based sample of adults to maximize statistical power for determining racial/ethnic disparities in the number of MH visits conditional on any visit with a PCP or MH specialist. This approach may include adults who used MHS without an indicated need for services (Druss et al. 2007). Racial/ethnic disparities may be biased upwards if Non-Latino Whites are more likely than Blacks and Latinos to use MHS for mild or sub-clinical levels of distress. To test this potential bias we conducted a separate analysis for only those adults with high levels of psychological distress (i.e., those likely to meet criteria for serious mental illness (Kessler et al. 2003). We hypothesized that 1) Non-Latino Black, and MCS and Caribbean-origin Latino adults would have a lower probability of reporting any mental health visit to a primary care providers or mental health specialist compared to Non-Latino Whites; 2) Non-Latino Black and MCS and Caribbean-origin Latino adults would receive fewer outpatient mental health visits than Non-Latino Whites, conditional on reporting any mental health visit; and 3) racial/ethnic disparities in mental health visits would be greater when services are delivered by a primary care provider than a mental health specialist provider.

2.5 Methods

Design

We conducted a pooled cross-sectional study of racial/ethnic disparities in mental health service visits from 2005 to 2009.

Data

Data were obtained from the National Health Interview Survey (NHIS) and Medical Expenditures Panel Survey (MEPS). The NHIS is a nationally representative household survey of health conditions, access to care, and health behaviors in the U.S. (Center for Disease Control / National Center for Health Statistics 2011). The NHIS uses a multistage probability sampling design to obtain a representative sample of households and non-institutionalized civilian quarters (e.g., college dormitories) (Center for Disease Control / National Center for Health Statistics 2011). Each year a subsample of NHIS households is recruited to participate in the MEPS, a two-year study of healthcare use, satisfaction with care, and costs of services in the U.S. (Ezzati-Rice, Rohde, and Greenblatt 2008). The annual MEPS response rate is approximately 60 percent each year (WESTAT 2011). Survey weights were used to account for the probability of selection into MEPS, participant non-response, and post-stratification to provide estimates that generalize to the non-institutionalized population in the U.S. Primary sampling unit and sampling strata indicators were also employed to adjust the standard errors for the clustered sampling design.

Sample

The sample included 39,041 adults, age 18 or older, who participated in the two-year longitudinal MEPS and who had complete data on the measure of psychological distress (the K-6). Overall, 51,262 adults, age 18 or older, participated in the full two years of MEPS. We excluded 3,713 adults of Non-Latino Asian, Pacific Island, Native American or Other racial/ethnic heritage due to the small sample sizes of these groups. Next, the Non-Latino Black, Non-Latino White, and Latino samples were restricted to those adults who completed the supplemental paper questionnaire without the assistance of a proxy and who had non-missing data on the measure of psychological distress. The final sample included 22,761 Non-Latino Whites, 6,650 Non-Latino Blacks, 7,972 Latinos of Mexican and Central/South American (MCS) heritage, and 1,658 Latinos originating from the Spanish-speaking Caribbean.

Predictor of Interest

Race/Ethnicity: MEPS asks household respondents to report the race and ethnicity of all household members. Non-Latino adults were grouped according to their reported race: Non-Latino White and Non-Latino Black. The Latino sample included adults from Mexico, Central or South American, Puerto Rico, Cuba, Dominican Republic, and other Latin American heritage. We examined mental health visits separately for Latinos of Mexican and Central/South

American (MCS) and Caribbean heritage (Puerto Rico, Cuba, Dominican Republic, Other Non-MCS Latino heritage).

Outcomes of Interest

The primary outcomes of interest were outpatient visits for a mental health or substance use concern. These services are herein referred to as “mental health visits”. We include in this study visits for mental health and substance use concerns in order to capture a comprehensive range of visits related to mental health issues. We found in preliminary analyses that only a small percentage of all MH visits were for substance abuse treatment/concerns alone. Thus, we refer to these services collectively as MH visits.

MH visits were ascertained from participant responses to the household component of the MEPS. For each healthcare visit, the household respondent described the participant’s reason for visit, the healthcare service setting, type of healthcare provider, and the type of services received during the visit. In addition to participant records, MEPS staff contacted medical providers and pharmacies to fill in information that household respondents were unable to provide. In this study, MH visits include those visits where the reported reason for the visit included a mental health or substance abuse condition or where the visit included counseling/psychotherapy services or alcohol/drug treatment. It is important to note that psychologists, social workers, and other non-physicians were not included in the provider follow-back component of the MEPS, potentially resulting in an under-detection of MHS provided by specialists. In this study, all visits with MH specialists were coded as a visit for a MH concern, regardless of the diagnosis or procedure code associated with the visit.

Reason for MH visit: The household respondent provided up to four reasons for each healthcare visit for all household members. Professional coders converted these open-ended responses to ICD-9 diagnostic codes and Clinical Classification Codes (CCC), a coding formula developed by the Agency for Healthcare Research and Quality. MH visits with a PCP included those where the reported reason for the visit included an ICD-9 classification or CCC for a mental health or substance use concern: mood, anxiety, substance use, or schizophrenic disorder; disorders diagnosed in childhood (e.g., ADHD); personality disorders, gender/sexual disorders, psychophysiological disorders, or adjustment disorders; mental or behavioral problems, or suicide (ICD-9: 294-297, 299-309, 311-315, V40, V70; CCC: 650, 652, 654, 655, 657, 659, 660-662, 670) (Agency for Healthcare Research and Quality 2011).

Provider Type: Respondents were asked to list the type of medical provider seen by the patient for each outpatient visit. This was ascertained by three questions: 1) "*Did (person's name) see a medical doctor during this particular visit*?" If yes, "*what was the doctor's specialty*?" If no, "*what type of medical person did (person's name) talk to on (visit date)*?" We defined primary care MH visits as any visit to a family practitioner, general practitioner, internist, nurse or nurse practitioner, or physician's assistants where 1) the reason for the visit included a mental health condition (described above), or 2) the visit included mental health counseling or drug treatment. MH specialists included psychiatrists, psychologists, and social workers. All visits with a MH specialist were coded as a MH visit, regardless of diagnosis or treatment provided.

MH Treatments: Two MEPS questions were used to determine whether mental health counseling or drug treatment was provided during the outpatient visit. First, respondents were asked to select a service type that best described the care provided during each outpatient visit. Second, respondents were asked to identify all treatments that were received during the outpatient visit. Counseling/psychotherapy visits were coded as “yes” when the household respondent indicated that either: 1) the service provided was best categorized as counseling/psychotherapy, or 2) any of the treatments provided included counseling/psychotherapy. Drug treatment was coded “yes” when the household respondent reported that any of the treatments provided included drug or alcohol treatment.

Covariates of Interest

Indicators of Need for Mental Health Services: This study used the Kessler 6-Item Scale of Psychological Distress (K-6) (Kessler et al. 2002; Kessler et al. 2003) to determine need for MHS. The K-6 is a brief screening tool that measures non-specific psychological distress in the general population (Kessler et al. 2002; Kessler et al. 2003). The scale consists of six items that measure symptoms of anxiety and depression over the past month. “During the past 30 days, how often did you feel ... (nervous, hopeless, restless or fidgety, so sad that nothing could cheer you up, everything was an effort, worthless)”. Participants chose from Likert response categories ranging from “all of the time” (4) to “none of the time” (0), producing a total score ranging from 0-24. We used standard cutoffs to identify participants with low (0-7), moderate (8-12), and high (13-24) levels of psychological distress (Pirraglia et al. 2011; Wang et al. 2007a).

In addition to the K-6, household respondents rated each household member’s mental health status at each interview round. Respondents rated mental health status as “*excellent*”, “*very good*”, “*good*”, “*fair*”, or “*poor*”. We created an indicator variable to identify participants whose mental health status was rated “*fair*” or “*poor*” during the round 1 or 2 (i.e., year one) household interview.

Next we included measures of physical health status as proxies of need for MHS. This study conceptualized physical health as a need factor because prior studies have demonstrated that adults with poor physical health are more likely than those with good physical health to have a psychiatric disorder, such as Major Depression (Moussavi et al. 2007). Moreover, adults with co-occurring physical and mental health conditions may have more severe and persisting psychiatric disorders compared to adults with mental health conditions only (Gilmer et al. 2005; Katon et al. 1994; Scott et al. 2009). Physical health status was determined by participant reports of chronic medical conditions, physical health limitations, and overall physical health functioning during year one of MEPS. We controlled for the number of chronic medical conditions that were reported in MEPS: asthma, lung disease, diabetes, heart disease, stroke, hypertension, arthritis, and hypercholesterolemia. Physical health functioning was measured by the physical health composite score (PCS) from the SF-12. The PCS was scored according to published algorithms and ranges from 0-100 (Fleishman et al. 2006). The continuous PCS was converted to quartiles. Physical activity limitations were defined as any limitation in walking, climbing stairs, grasping objects, reaching overhead, lifting, bending, stooping, or standing for long periods of time. Physical activity limitations were evidenced if the household respondent indicated any limitation during the first year of MEPS follow-up (round 1 or 3).

Finally, we controlled for sociodemographic characteristics that are often correlated with psychiatric disorders and are likely associated with need for MHS: age, (18-24, 25-39, 40-54, 55-64, 65 and older), gender, marital status (single and never married, married or cohabitating, previously married), and nativity (U.S. mainland born vs. foreign/island born).

Indicators of Healthcare Preferences: There are no direct measures of preferences for mental health or substance abuse services in MEPS. To partially account for racial/ethnic differences in healthcare preferences, this study used four items from the supplemental adults questionnaire which may reflect attitudes of self-reliance: "*I am healthy enough that I don't need care*"; "*Insurance is not worth the money it costs*"; "*I can overcome illness without help from a medically trained person*"; "*I am more likely than others to take risks*". Prior studies have found these healthcare attitudes to be negatively associated with MHS use (Chen and Vargas-Bustamante 2011; Zuvekas and Fleishman 2008).

Indicators of Socioeconomic Status and Healthcare Access: Blacks and Latinos often experience lower rates of insurance and poorer access to physical and mental health services than Non-Latino Whites (Agency for Healthcare Research and Quality March 2012). According to the definition of a healthcare disparity from the IOM report, racial/ethnic disparities which may be attributed to Black-White or Latino-White disparities in socioeconomic status or access to care should be treated as part of the overall systemic disparity in healthcare (Intitute of Medicine 2002). Therefore, socioeconomic status and health insurance were treated in this study as partial mediators of the Black-White and Latino-White disparities in MHS (Cook et al. 2007; Cook et al. 2010; McGuire et al. 2006). We excluded insurance status, socioeconomic status, and other indicators of access to care from the statistical models in order to determine the total mediated and unmediated effects of race/ethnicity on receipt of MH visits between 2005 and 2009.

Study Design Covariates: Finally, this study controlled for household respondent status during the interview rounds that occurred in year two. We found, in preliminary analyses, that household respondents were more likely than non-respondents to report use of MHS, even after controlling for psychological distress and perceived mental health status. We controlled for survey year to control for fluctuations in use of MHS over time due to economic conditions, changes in mental health policy, or other historical trends. Preliminary analyses have indicated that MHS use appeared to be less frequent in the later MEPS years (2008-2009) than in the earlier years (2005-2007), particularly for racial/ethnic minorities. We therefore used a dummy variable to indicate if the MEPS year was 2008/2009, as well as race*time interaction variables to capture differential changes in MHS use over time for Black, White, and Latino populations.

Statistical Analysis

The analyses were conducted in five steps. First, descriptive statistics were employed to examine racial/ethnic differences in the distribution of clinical need and healthcare preference factors, measured in the first year of the MEPS. We used a design-adjusted Pearson's Chi-Square test to identify racial/ethnic differences in psychological distress, perceived mental health status, and the other sociodemographic characteristics.

Second, we calculated the weighted twelve-month prevalence of any outpatient MH visit for Black, White, and MCS and Caribbean Latino adults. We examined MH visit by provider type (PCP only, MH specialist only, PCP and MH specialists, other). We then examined the mean number of MH visits among the subsample of respondents who reported any MH visit. We determined the average number of visits with a primary care provider among the sample with any PCP visit, and the mean number of specialist visits among the sample with any visit to a MH specialist. These two groups were not mutually exclusive.

In the third step, multivariate logistic regression models were employed to estimate Black-White and Latino-White disparities in the probability of receiving an outpatient mental health visit with a primary care provider or mental health specialist provider. Since the outcomes of interest are rare (less than ten percent in all cases) the odds ratios are likely to closely approximate the relative risks for Blacks compared to Whites and Latinos compared to Whites. The statistical models controlled for the measured indicators of need for MHS and healthcare attitudes. We also included interaction terms for race*psychological distress and race*mental health status. These interactions are included as previous studies have demonstrated cultural variations among Blacks, Whites, and Latinos in translating mental health symptoms into a perceived need for mental health treatment (Zuvekas and Fleishman 2008). That is, these interactions may reflect different help-seeking attitudes and preferences for MHS among Blacks, Whites, and Latinos. We also include interaction terms for gender*psychological distress to capture variations between men and women in mental health help-seeking behaviors. We included interaction terms for race/ethnicity with number of chronic conditions because previous studies have indicated that the presence of comorbid physical health conditions moderates the relationship between race/ethnicity and MHS use (Cook et al. 2011). Finally, we included race*nativity interactions because prior studies have found that foreign/island born nativity is often protective against risk of a psychiatric disorder for some racial/ethnic minorities (i.e., Mexican Americans, Afro-Caribbeans) but not always for others (i.e., Puerto Ricans, Cuban Americans) (Alegria et al. 2008a; Alegria et al. 2006; Williams et al. 2007b).

$$p(\text{MH Visit}) = f(\text{RE} + \text{Need} + \text{RE*Need} + \text{Healthcare Attitudes} + \text{MEPS}) \qquad \text{(Eq. 2.1)}$$

RE = Indicators of racial/ethnic group
Need = age, gender, marital status, psychological distress, perceived mental health, number of chronic medical conditions, physical health functioning, physical limitations, nativity
RE*Need = Interactions of race/ethnicity with gender, psychological distress, perceived mental health status, and number of chronic medical conditions.
MEPS = household respondent status, survey year indicator, interactions of race/ethnicity with survey year indicator

Next, we employed negative binomial regression models to estimate Black-White and Latino-White disparities in the number of outpatient visits among those with any MH visit. This step was repeated for visits to primary care providers separately from visits to mental health specialists. We modeled the mean number of visits on race/ethnicity, mental health needs, general healthcare attitudes, and the MEPS study design variables. We also controlled for diagnoses of schizophrenia or other psychotic disorders.[2]

$$E(\text{MH Visits}|\text{ Any MH Visit}) = f(\text{RE} + \text{Need} + \text{Healthcare Attitudes} + \text{MEPS} + \text{DX}) \qquad \text{(Eq. 2.2)}$$

RE = Indicators of racial/ethnic group
Need = age, gender, marital status, psychological distress, perceived mental health, number of chronic medical conditions, physical health functioning, physical limitations, nativity
MEPS = household respondent status, survey year indicator
DX = Diagnosis of schizophrenia or other psychotic condition

Interpreting Black-White and Latino-White Disparities: We used the method of recycled predictions or predictive margins (Graubard and Korn 1999) to determine Black-White and Latino-White disparities in the number of mental health visits. We estimated the predicted number of visits assuming that Blacks and Latinos had the same distribution of the measured covariates as Whites. This approach answers the hypothetical question: “What would the magnitude of racial and ethnic disparities be if Blacks, Whites, and Latinos had the same distribution of mental health status and preferences for care?” The method of recycled predictions has been widely applied in MHS research (see (Alegria et al. 2008b; Zuvekas and

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[2] We found in preliminary analyses that the mean number of outpatient visits was significantly greater for adults who received services associated with schizophrenia and other psychotic disorders (mean = 16.92, SE = 3.40) compared to adults who received services for a mood disorder (mean = 8.39, SE = 0.42). Moreover there were significant racial/ethnic differences in the likelihood of any mental health services by condition type. Blacks were approximately three times more likely than Whites to receive MHS associated with treatment of schizophrenia or other psychotic disorders (OR = 2.71, 95% CI: 1.63-4.51). For all other mental health conditions (mood disorders, anxiety disorders, substance use disorders, disorders diagnosed in childhood, other mental health conditions) Blacks were less likely than Whites to receive any MHS. We therefore controlled for diagnoses of schizophrenia when estimating racial/ethnic disparities in the number of outpatient visits.

Fleishman 2008)). This method produces disparity estimates that are similar to those obtained from other analytic approaches that are also consistent with the IOM definition of a healthcare disparity (Cook and Manning 2009; Cook et al. 2010). Confidence intervals were simulated using a bootstrap procedure with 2000 iterations.

Interpreting Interactive Effects: Because the coefficients of interaction terms do not have a straightforward interpretation in models with non-linear dependent variables (Ai and Norton 2003; Karaca-Mandic, Norton, and Dowd 2012), we use the method of recycled predictions to determine the additive and interactive effects of race/ethnicity in predicting disparities in MH visits. We modeled each interaction separately. That is, we tested the interactive effect of race and gender while only including main effect terms for the other covariates of interest.

Missing Data Procedures: Approximately 5 percent of participants had missing data on one or more of the covariates of interest. We used multiple imputation procedures to estimate the missing data, assuming that all missing values were missing at random. This study used the ICE program, written for Stata, which employs the method of chained equations to predict missing values based on the distribution of the observed data (Royston 2006; White, Royston, and Wood 2011). We employed the mim package in Stata which averages the model estimates across imputed datasets and produces pooled standard errors according to Rubin's rules (Roysten, Carlin, and White 2009). The mim package was used for the multivariate models. However, we conducted the bootstrap simulations with one randomly selected imputed dataset due to software limitations.

Complex Survey Design: All of the analyses were conducted in Stata 10.0 (StataCorp 2007). We applied MEPS longitudinal survey weights to the estimates to account for differential selection into MEPS, participant dropout during the two-year follow-up period, and post-stratification to provide estimates that generalize to the U.S. population. Additional reweighting was employed to account for non-response on the supplemental paper questionnaire and pooling of participants from panels 9-13. Moreover, due to the multistage sampling of the NHIS-MEPS, analyses were run with the mim: svy package in Stata, which uses a Taylor series approximation technique to estimate variances.

2.6 Results

Racial/Ethnic Differences In Need For MHS and Healthcare Attitudes

Despite being younger and healthier than Whites on average, Black and Latino participants had elevated ratings of psychological distress (see Table 2.1). Nearly 6% of Blacks and 10% of Caribbean Latinos evidenced high psychological distress compared to 4.5% of Whites ($p < .001$). Black adults and Caribbean Latinos were less likely than others to be married or cohabitating. Moreover, Blacks and Caribbean Latinos were more likely than Whites and MCS Latinos to rate household members' mental health status as fair or poor (12-13% vs. 9%, $p < .001$).

When we examined physical health status, which is often correlated with mental health needs, MCS Latinos were younger and healthier than Whites on average. For example, 20% of MCS Latinos reported two or more chronic medical conditions compared to 36% of Blacks, 31% of Caribbean Latinos and 38% of Whites. MCS Latinos were also less likely than the others to report a physical health limitation (10% vs. 18-19%). Both MCS and Caribbean Latinos appeared less likely than the Non-Latino groups to perceive a need for medical services. That is, Latinos were more likely than the Non-Latino Blacks and Whites to endorse attitudes of self-reliance (e.g., “*don’t need insurance*”, “*healthy enough that I don’t need care*”, “*insurance isn’t worth the costs*”). Low rates of MHS use among some Latinos may, therefore, be partially attributed to lower actual need, and lower perceived need, for health services generally.

Mental Health Visits From 2005 to 2010

Next, we examined mental health visits in the U.S. Overall, one in eleven adults (8.5%) in the MEPS received an outpatient MH visit between 2005 and 2009. Three-quarters of MHS users visited with either a primary care provider (3.2%) or a mental health specialist (3.3%), while a small proportion of adults saw both a PCP and MH specialist (1.1%), or neither a PCP nor MH provider (0.8%).

There were significant racial/ethnic variations in the likelihood of any MH visits as well as racial/ethnic differences in the types of providers seen for MH concerns (see Table 2.2). Despite having elevated rates of psychological distress and poorer ratings of mental health, Black and MCS adults were less likely than Whites to receive any outpatient MH visit. Caribbean Latinos, who experienced the highest levels of psychological distress, appeared no more likely than Whites to receive a MH visit. Moreover, even though Black and Latino adults had elevated ratings of psychological distress, there were few differences in the number of MH visits provided to Non-Latino Blacks, Non-Latino Whites, and MCS and Caribbean Latinos.

The proportion of adults who received MH visits to a PCP or MH specialist also varied among racial and ethnic minorities. For Non-Latino Whites, an equal percentage of adults received care from either a PCP or MH specialist (3.5% vs. 3.5%). Alternatively, a greater percentage of MCS Latinos received services from a PCP than a MH specialist (2.4% vs. 1.7%);

Black and Caribbean Latinos more frequently accessed MHS from a specialist than a PCP. Study findings are consistent with others which have argued that Mexican Americans are sometimes more likely than Whites to rely on PCPs for treatment of MH concerns (see review by Cabassa, Zayas et al. 2006). Alternatively, Non-Latino Black and Puerto Rican adults may rely less so than Whites on the primary care setting for treatment of MH needs (Alegria et al. 2007b; Neighbors et al. 2007). Non-Latino Black and Puerto Rican adults more frequently visited with a MH specialist than with a PCP when any MHS were utilized.

Estimating Black-White and Latino White Disparities In MH Visits

Next, we examined the relationship between mental health needs and healthcare attitudes in predicting MH visits. Consistent with the conceptual framework, nearly all measured indicators of mental health status and healthcare attitudes were significantly associated with receipt of a MH visit (see Table 2.3). Women, middle-age adults, non-married individuals, those with high levels of distress, fair/poor ratings of their mental health, and poor physical health status were most likely to receive a MH visit. Moreover, healthcare attitudes of self-reliance were negatively associated with MHS use. That is, those participants who endorsed statements that they did not need health insurance, that health insurance isn't worth the costs, or that they could overcome illness without medical help were less likely to report a MH visit than participants who did not endorse such attitudes. Many of the hypothesized interactions between race/ethnicity and mental health needs were also significant in predicting receipt of a MH visit.

Psychological Distress: Overall, adults with higher levels of psychological distress were more likely than those with lower levels of distress to receive a MH visit. Black and MCS Latinos had the lowest probability of a MH visit across all levels of psychological distress. When racial/ethnic disparities were examined by level of distress, Black-White disparities remained statistically significant, even among adults with high levels of psychological distress (RR = 0.70, 95% CI: 0.53-0.90). For MCS Latinos, however, Latino-White disparities were only statistically significant in the groups with low or moderate levels of psychological distress. Caribbeans with high levels of psychological distress had the greatest probability of any MH visit. Indeed, this group was 50 percent more likely than distressed Non-Latino Whites to receive a MH visit (RR = 1.49, 95% CI = 1.01-2.03).

Gender: There was a significant interaction between race/ethnicity and gender in predicting MH visits. Men and women of Black and MCS Latino heritage were less likely than Whites to receive any MH visit. However, only Caribbean women were significantly less likely than Non-Latina White women to receive a MH visit (RR = 0.74, 95% CI = 0.61-0.88). In contrast, Caribbean men were 35% more likely than Non-Latino White men to receive any MH visit (RR = 1.35, 95% CI = 1.03-1.71).

Mental Health Ratings: There were no interactions between race/ethnicity and mental health ratings in predicting MH visits. Adults whose mental health status was rated as fair or poor were three times more likely than those with excellent, very good, or good mental health ratings to receive a MH visit, and this was true across racial and ethnic groups. Blacks and MCS Latinos were less likely than Non-Latino Whites to receive a MH visit, even among those with fair/poor mental health ratings.

Chronic Medical Conditions: We found a significant interaction between MCS Latino ethnicity and number of chronic medical conditions in predicting any MH visit. For MCS Latinos, having a greater number of chronic medical conditions was associated with a reduction in the Latino-White disparity of any MH visit. Number of chronic medical conditions, however, did not influence the magnitude of Black-White disparities in receipt of a MH visit.

Nativity: After accounting for level of psychological distress and other indicators of MH needs, Latino immigrants experienced the most significant disadvantages in access to PCPs and MH specialists. We found significant interactions between MCS Latino ethnicity and U.S. vs. foreign/island born nativity in predicting a MH visit. U.S. born MCS Latinos were 0.78 times as likely as U.S. born Whites to receive an outpatient MH visit (95% CI: 0.66-0.93), while foreign born MCS Latinos were 0.41 times as likely as U.S. born Whites to receive a MH visits (95% CI: 0.35-0.47). Among the Caribbean Latinos, island-born Caribbeans were only 0.70 times as likely as U.S. born Whites to receive a MH visit (95% CI: 0.57-0.84). However, there was no significant disparity in MH visits between mainland-born Caribbean Latinos and U.S. born Whites (95%CI = 0.70-1.10). U.S. and foreign/island born Black adults were less likely than U.S. born Whites to receive a MH visit.

Survey Year: Finally, there were significant race*time interactions for Non-Latino Blacks. After controlling for the other measured indicators of mental health status and healthcare attitudes, Black-White disparities were larger in the years 2008-09 compared to the earlier survey years (2005-07).

Estimating Black-White and Latino White Disparities In The Number of MH Visits Among Adults With Any MH Visit

In the fourth stage of analysis, we examined the relationship between mental health needs and healthcare attitudes in predicting the number of outpatient MH visits. Adults with greater mental health needs often received more MH visits compared to those with fewer MH needs (see Table 2.4). Unmarried status, high levels of psychological distress, and fair/poor ratings of mental health were associated with a greater number of MH visits, conditional on any visit. Moreover, adults who received MHS for treatment of schizophrenia received approximately twice as many MH visits as adults who did not receive treatment for schizophrenia (IRR = 1.91, 95% CI: 1.33-2.74).

Black-White Disparities In Mental Health Visits To Primary Care Providers and Mental Health Specialists

Disparities in MH visits, which worsened from the early 1990's until the early 2000's (Ault-Brutus 2012), continue to disadvantage Black adults with MH needs. Black-White disparities in MH visits were observed throughout 2005-2009. Importantly, these disparities appeared to be worse in the later MEPS years. After controlling for need, Non-Latino Whites were 1.9 times as likely as Blacks to receive a MH visit from 2005 to 2007 and 2.6 times as likely from 2008 to 2009. For adults with high levels of psychological distress, Black-White disparities in MH visits were only observed in the most recent survey years (RR = 2.10, 95% CI = 1.43-3.41).

Not only were Blacks less likely than Whites to receive any MH visit, they also received fewer MH visits than Whites once services were accessed. We found, for example, that Blacks received approximately three-quarters the number of outpatient mental health visits as Whites (see Table 2.5). This difference represents 2.2 fewer visits for the average Black user of MHS, and 2 million fewer visits for all Black users of MHS in 2009. These disparities, moreover, were observed even in the subsample of adults with high levels of psychological distress. For adults with high psychological distress, Black users of MHS received only three-quarters the number of MH visits as similar Whites (IRR = 0.71, 95% CI: 0.59-0.87).

Visits to Primary Care Providers and MH Specialists: Consistent with the study hypotheses, the significance and magnitude of Black-White disparities differed when examined separately for visits to primary care and specialty MH providers (see Table 2.5). Non-Latino Whites were three times more likely than Blacks to receive a MH visit from a primary care provider (RR = 3.02, 95% CI = 2.12-4.43) and two times more likely than Blacks to see a MH specialist (RR =1.72, 1.24-2.50). Among respondents with high levels of psychological distress, Blacks were less than two-thirds as likely as Whites to access a PCP for MH concerns (see Table 2.6; RR = 0.59, 95% CI = 0.45-0.78).

Black-White disparities in visits with a MH specialist appeared to increase over time. Whites were 1.53 times as likely as Blacks to see a MH provider in 2005-07 (95% CI: 1.26-1.87) and 3.01 times as likely in 2008-09 (95% CI: 2.30-4.05). Among the sample of adults with high psychological distress, Black-White disparities in access of MH specialists were only observed in the more recent survey years (RR = 0.52, 95% CI = 0.30-0.89).

Latino-White Disparities In Mental Health Visits To Primary Care Providers and Mental Health Specialists

Latino-White disparities in MH visits were estimated for Latinos of Mexican and Central/South American (MCS) and Caribbean heritage (see Table 2.5). MCS Latinos were half as likely as Non-Latino whites to receive a MH visit from 2005 to 2009 (RR = 0.61, 95% CI = 0.43-0.84). When we examined interactions between island/foreign born nativity and Latino ethnicity, foreign-born MCS and Caribbean Latinos were significantly less likely than mainland-born Non-Latino Whites to receive a MH visit (RR = 0.41, 0.70 respectively). Among those Latinos with access to a PCP or MH provider, MCS Latinos also received fewer MH visits than Non-Latino Whites. Conditional on any MH visit, Whites received approximately two more visits per year than MCS Latinos with similar MH needs (IRR = 0.75, 95% CI: 0.58-0.96).

Visits to Primary Care Providers and MH Specialists: Latino-White disparities in MH visits also varied when MHS were considered separately for visits with primary care providers and mental health specialists (see Table 2.5). While prior studies have indicated that Latinos are equally likely as Whites to receive MHS in the medical setting, we found that MCS Latinos were less likely than Non-Latino Whites to receive a MH visit with a PCP. These disparities were even more pronounced for foreign-born MCS Latinos. U.S. born MCS Latinos were 0.61 times as likely as Whites to visit a PCP, while foreign born MCS Latinos were only 0.36 times as likely as U.S. born Whites to see a PCP for MH concerns. Both U.S. and foreign born MCS Latinos were also less likely than U.S. born Whites to receive a specialty MH visit (RR = 0.57 and 0.23 respectively).

Among the sample of adults with high levels of psychological distress, MCS Latinos were equally likely as Whites to receive a MH visit with a PCP or MH specialist and Caribbean Latinos were more likely than Non-Latino Whites to visit with a MH specialist (RR = 1.46) (see Table 2.6). That is, there appeared to be no overall MCS Latino-White disparities in mental health visits when the sample was restricted to a population with indicated risk of a MH disorder. These findings assume, however, that access to mental health services occurs uniformly for U.S. and foreign-born Latinos. It may be the case that foreign-born Latinos experience greater disparities than U.S. born Latinos due to citizenship, language, or cultural barriers to care. Indeed, we found significant interactions between Latino ethnicity and island/foreign born nativity in predicting MH visits (see Figure 2.1). Foreign-born MCS Latinos with high psychological distress were only half as likely as mainland-born Non-Latino Whites to receive a MH visit with a PCP (RR = 0.54) or a MH specialist (RR = 0.50). Moreover, within this higher need population, Island-born Caribbeans were nearly twice as likely as U.S. born Non-Latino Whites to visit a MH specialist (RR =1.76).

2.7 Sensitivity Analyses

We conducted five sets of sensitivity analyses. First, we determined if Black-White or Latino-White disparities in the medical setting were influenced by our definition of a primary care provider. Participants in the MEPS were asked to describe the type of healthcare provider that was seen for MHS. Only responses that included mention of a family practitioner, general practitioner, internist, nurse or nurse practitioner, or physician's assistants were counted as a primary care visit. However, patients may not always know their physician's medical specialty. We therefore expanded the definition of a medical care provider to include all non-MH providers, including medical specialists and providers with a missing or unknown provider type.

Changing the definition of a healthcare provider from a PCP to any medical care provider resulted in a small increase in the percent of adults who received a MH visit in the medical setting (5.0% vs. 4.4%). However, this change had no impact on the estimate of Black-White or Latino-Whites disparities in MH visits.

Second, we determined whether the study findings would still be observed if the analyses were restricted to household respondents rather than all household members. Household respondents were more likely to report a MH visit than other household members (9.9% vs. 5.9%, $p < .001$). Importantly, the variation in reporting by respondent status was even greater in Black and MCS Latino households than in White households. When analyses were restricted to household respondents (n=23,607), Black-White disparities in MH visits persisted. Black respondents were half as likely as White respondents to receive a MH visit (OR = 0.52). Even among adults with high levels of psychological distress, Black respondents were only two-thirds as likely as similar Whites to receive a MH visit (OR = 0.68). MCS Latino-White disparities were no longer statistically significant when the analyses were restricted to household respondents. In some cases, the lack of significance may be due to low statistical power. For example, the estimated odds ratios for visits with a MH specialist were nearly the same among the subsample of household respondents compared to the estimate for all Latino household members (OR = 0.58 vs. 0.55). Moreover, MCS-Latino disparities in the number of MH visits remained statistically significant when the sample was restricted only to household respondents (IRR = 0.71). We remain confident in the study conclusions that there are inequities in MH visits for Black and MCS Latino adults compared to Non-Latino Whites.

For the third sensitivity analysis we examined evidence of a mediating vs. moderating role of health insurance coverage in explaining Black-White and Latino-White disparities in MH visits. In this study, health insurance was treated as a partial mediator of the racial/ethnic disparities in MHS. However, it is possible that health insurance may be a proxy for the system of care where Blacks, Whites, and Latinos are likely to receive MHS. There may be important differences in the healthcare experiences of racial/ethnic minorities in the public and private mental health systems. We reran our statistical models controlling for health insurance status to examine evidence of insurance mediation. Controlling for type of health insurance did not alter the magnitude or significance of Black-White or Latino-White disparities in MH visits. These findings suggest that insurance status is likely only a weak mediator of racial/ethnic disparities in MH visits.

Next we stratified the models by type of health insurance to examine the moderating role of insurance coverage in determining racial/ethnic disparities in MH visits. We found that Black-White and Latino-White disparities in MH visits were likely to occur in populations that rely on public mental health services. For example, Black-White disparities in reporting any mental health visit were statistically significant in the publicly insured cohort and the uninsured cohort. Yet, there was little evidence of disparities in MH visits among the privately insured cohort. Findings indicate that MH disparities may differ for populations that receive MHS in the public vs. private mental health system. More work is needed to determine specific factors that contribute to Black-White and Latino-White disparities in MHS among uninsured and publicly insured populations.

Fourth, we sought to determine whether our estimates of Black-White disparities in MH visits would differ if socioeconomic status was included as a measure of need for MHS. To account for racial/ethnic differences in need for MHS, the initial study procedures involved restricting the sample to adults with high levels of psychological distress and controlling for factors that are highly correlated with MH needs (i.e., marital status, gender, chronic health conditions). In addition to these factors, socioeconomic disadvantage is an important determinant of mental illness (Aneshensel and Phelan 1999; Lorant et al. 2007; Lorant et al. 2003). It may, therefore, be important to account for racial/ethnic disparities in socioeconomic status when determining need for MHS (Cook et al. 2009a; Cook et al. 2012b; McGuire et al. 2006). To better control for racial/ethnic differences in MH needs, therefore, we stratified the sample of adults with high ratings of psychological distress by level of education and household income. For adults with high levels of psychological distress, Black-White disparities in any mental health visit were similar for adults with lower and higher education, as well as for those living in households with lower and higher income. Our findings indicate that including socioeconomic status as an indicator of MH needs would not meaningfully alter our estimates of Latino-White or Black-White disparities in MH visits. On average, Black adults had approximately a 35% lower likelihood of receiving a MH visit than Whites with similar MH needs.

Finally, we investigated the possibility that racial/ethnic disparities in reporting of mental health visits may be due to low use of health services overall in Black and Latino populations. We estimated the percentage of Non-Latino White, Non-Latino Black, and MCS and Caribbean-origin Latino adults who reported any health care use (mental health or physical health reason).

We also re-estimated the percentage of Black, White, and Latino adults who received a mental health visit among the sub-sample of respondents with any healthcare use. Findings revealed that most adults with high psychological distress reported at least one healthcare visit during the outcome period. Eighty-five percent of Non-Latino Whites with high distress reported at least one healthcare visit compared to 80% of Caribbean Latinos, 78% of Non-Latino Blacks, and 74% of MCS Latinos. Even though a majority of distressed adults reported some use of health services, only one-third reported a mental health visit. For example, 78% of Non-Latino Blacks with high psychological distress reported any healthcare visit, but only 25% reported a mental health visit. This pattern was similar across racial/ethnic groups. There appeared to be little change in the magnitude of racial/ethnic differences in MH visits when taking use of physical health services into account. Indeed, among the subsample of distressed adults who reported any healthcare use, 38% of Non-Latino Whites reported a mental health visit compared to 32% of Non-Latino Blacks and 19% of MCS Latinos.

2.8 Discussion

This study sought to improve our understandings of MHS disparities in primary care and specialty mental health settings for Black, White, and Latino adults in the U.S. To achieve this end, we employed a conceptual framework based on the IOM Unequal Treatment report to determine racial/ethnic disparities in reported MH visits to primary care providers and MH specialists. Our findings build on prior studies in racial/ethnic disparities in MHS and demonstrate for adults with high distress that Black-White and Latino-White disparities in MHS are not improving. Results indicate instead that Black-White disparities in visits to a MH specialist may be worsening. This study also found that racial/ethnic disparities occur in mental health services even when Black and MCS Latino adults utilize these services. Among adults with high distress, Non-Latino Black adults received fewer mental health visits than Non-Latino Whites, conditional on reporting any visit. Finally, this study contributes new findings on disparities in primary care for Latino subpopulations. We found among adults with high distress that MCS immigrants experience disparities in visits to a primary care provider and mental health specialists. Caribbean immigrants with high distress receive mental health services from mental health specialists but less so from primary care providers. We discuss below implications of the study findings for Non-Latino Black and MCS and Caribbean-origin Latino populations with high distress.

Reducing Black-White Disparities In Mental Health Visits

Disparities in MH visits, which worsened from the early 1990's until the early 2000's (Ault-Brutus 2012), continue to disadvantage Black adults with MH needs. PCP and MH specialists provide an entry point for treatment of MH conditions. To the extent that Black Americans are unable to access their provider or unable to receive timely follow-up visits, they experience fewer chances than Whites to receive evidence-based MH treatments. Missed opportunities, such as these, contribute to the elevated psychiatric morbidity and poorer health outcomes reported for Blacks compared to Whites (Braveman et al. 2010; Breslau et al. 2005; Williams et al. 2007a). In clinical settings, for example, MH treatment outcomes are often worse when patients experience longer durations of untreated mental illness (Altamura et al. 2007; Altamura et al. 2008) or when patients discontinue treatment early (Cohen et al. 2006). Findings from our study suggest that policies that aim to improve both the access and the continuation of MHS will be needed to reduce Black-White treatment disparities.

We found that Black-White disparities were most pronounced in MH visits to a PCP. Such disparities in the primary care setting are likely to occur for several reasons. First, Blacks are more likely than Whites to receive services in resource-strapped settings (e.g., Federally Qualified Health Centers and outpatient hospital clinics) where providers have little time to attend to MH concerns. Blacks are likely to receive MHS from primary care providers who serve a majority of racial/ethnic minority patients (Lagomasino et al. 2011), who are more likely than other providers to report difficulties in obtaining referrals for patients to specialists (Bach et al. 2004), and who are more likely than other providers to report an inability to provide high-quality care to all of their patients (Bach et al. 2004; Reschovsky and O'Malley 2008). Second, the MH services provided by PCPs may be not as well matched to Black patients' treatment preferences as they are to Whites. For examples, studies have found that depressed Blacks have a stronger preference for counseling-based therapies over antidepressant treatments than Whites do (Cooper et al. 2003). Despite this preference, PCPs are rarely given the time or training to provide such counseling-based services. Moreover, PCPs may be deterred from employing brief counseling-based treatments (e.g., problem solving therapy, motivational interviewing) when these services are not reimbursed due to a health plan's contractual arrangement with a managed behavioral healthcare organization (Frank and Garfield 2007).

Our finding that Black-White disparities in mental health visits persist even within insured populations suggests that ACA policies which emphasize expanding access to primary care may not be sufficient to eliminate Black-White disparities. To reduce Black-White disparities in the primary care setting, systemic changes will be needed to strengthen the patient-provider relationship, to incentivize service coordination between PCPs and MH specialists, and to provide PCPs with the training and supportive resources necessary to diagnose, treat, and manage MH conditions in racial/ethnic minority populations. Beyond the ACA, public and private healthcare systems will need to improve the integration of culturally sensitive MH treatments into the primary care setting. Improving the primary care system alone, however, will do little to break the service fragmentation that disadvantages Black patients with mental health needs.

*S*ystemic reforms are also needed to improve the coordination and continuity of services for Black users of MHS. Our finding that there was a less equitable distribution of MH service settings for Blacks compared to Whites indicates there may be greater fragmentation of services for Black adults with a mental health disorder compared to Whites. As states experiment with different delivery models to incentivize the integration of MHS within primary care (Hamblin, Verdier, and Au 2011), the Centers for Medicaid and Medicare Services must ensure that these delivery changes do not impede users' access to MHS that include preferred counseling-based treatments.

It is important to also mention our findings that Black-White disparities in use of MH specialists worsened in the later 2000's. Because Black patients' rely more on public mental health services than Whites, study findings raise concern that Black adults with MH needs are more likely than others to be negatively impacted by public mental health budget cuts (Honberg et al. 2011). As ACA monies are increasingly directed towards the primary care system and support for FQHCs, it will be critical to ensure that local resources are secured for community mental health services. Community engagement efforts are recommended to promote mental health awareness and to assist Black communities in advocating for mental health resources.

Reducing Latino-White Disparities In Mental Health Visits

While prior studies have found that Latinos are often equally likely as Whites to receive MHS in the general medical setting (Alegria et al. 2002; Ault-Brutus 2012; Blanco et al. 2007; Kessler et al. 2005c; Miranda and Cooper 2004), we found significant disparities in MH visits for some Latino groups. MCS Latinos, which comprise the largest and fasting growing Latino populations in the U.S. (Ennis et al. 2011), were only half as likely as Non-Latino Whites to receive a MH visit with a PCP. Such disparities in primary care are concerning because, with the rapid growth of the MCS population, demands for MHS are likely to increase in this population with time. Failure of the healthcare system to adapt to Latinos' MHS needs may result in a worsening of Latino-White mental health disparities.

Previous studies have suggested that MCS Latinos may be more likely than other groups to rely on the PCP for treatment of MH conditions (Cabassa et al. 2006). Findings in this study also indicate that when MCS Latinos use MHS, they are more likely than Whites to do so with a primary care provider. As our nation looks to expand health insurance coverage it will be important therefore to ensure that MCS Latinos experience equal access to primary care services as Non-Latino Whites. In addition to the ACA policies that increase access to insurance, provide funding for FHQC's, and promote culturally competent care, more work is needed to integrate MH treatments into the safety-net settings that often serve Latino minorities. Service integration efforts should include screening for mental health disorders, dissemination of treatment guidelines, collaboration between PCPs and MH providers, and training for PCPs on brief counseling-based approaches that are culturally sensitive and conform to MCS Latino patients' treatment preferences (Ladiere, Jones, and Perez 2011; Sikorski et al. 2012).

Finally, we found that MCS immigrants experience some of the greatest disadvantages in access to MH specialists. MCS immigrants may encounter service barriers as these groups more often are uninsured, have limited English proficiency, carry less knowledge about the healthcare system, and may have greater cultural barriers to MHS than U.S. born MCS Latinos. Findings from this study are worrisome because Latinos immigrants will disproportionately be excluded from ACA policies to expand healthcare insurance (Clemans-Cope et al. 2012). To reduce MHS disparities for Latino immigrants we recommend that state and local healthcare organizations consider partnering with faith-based institutions and charitable organizations to provide outreach and education regarding MH treatment options for low-income Latino immigrants. To reduce Latino-White disparities with MH specialists, specifically, there is a need to increase the training pipeline for Spanish speaking MH providers. This may be particularly true in the Western and Southern regions of the U.S. where MCS immigrants more frequently live (Ennis et al. 2011). We recommend using financial incentives (e.g., loan-forgiveness programs) to attract bilingual specialists to FHQCs that disproportionately serve Latinos with MH needs.

2.9 Strengths and Limitations

There are two important limitations to keep in mind when interpreting the study findings. First, our estimates of MHS use rely on patients' reported reasons for health services use and the coding of these responses into diagnostic codes. The estimates of MH visits may be conservative if respondents did not report MH concerns as the reason for a PCP visit or if the MEPS professional coder did not document a MH diagnosis. Our estimates of MH visits were approximately half the size of those reported in the National Comorbidity Survey-Replication (Wang et al. 2007b), raising some concern about under-reporting in MEPS. The disparity estimates may be biased upward if there is differential under-reporting of MHS for racial/ethnic minorities than for Whites. We found, however, that the lower reporting in MEPS was of a similar magnitude across racial/ethnic groups. Moreover, this study improved upon past approaches to measuring racial/ethnic disparities in MEPS by controlling for respondent status, a MEPS design variable we found to be correlated with reporting of MH services use.

The second limitation is that we were unable to examine MH visits separately for Latinos differing by nation of origin. We examined disparities by region of origin due to sample size limitations for the Cuban, Central/South American, and Dominican samples. However, there are important cultural variations across these groups in patterns of migration, citizenship, geographic location in the U.S., physical and mental health status, and use of MH specialists. Given the rapid growth and diversity within the Latino community, there is a need for health services researchers to better elucidate how specific populations, (e.g., Salvadorans, Dominicans) can best be served by PCPs and MH specialists.

Despite these limitations, this study contributes new findings on the state of MHS provided by PCPs and MH specialists for Black and Latino adults. Black adults, who may be more vulnerable than others to the constriction of public mental health services, experienced increased MHS disparities at the end of the 2000's. Disparities were most pronounced in Black adults' initiation of MHS with a PCP and in the number of mental health visits with a MH specialist. Given that Black adults more frequently access MHS through specialty providers, systemic fragmentation between mental health and physical health services may contribute to poorer health outcomes in this population.

This study also contributes new findings in the area of mental health disparities for Latinos by examining MHS use separately for Latinos originating from Mexico and Central/South America and the Spanish Speaking Caribbean. There have been few opportunities in prior studies to examine the primary care experiences for Latinos of different regional heritage. Yet we found that MCS and Caribbean Latinos differed both in mental health needs and in their access to PCPs and MH specialists. For MCS Latinos, disparities occurred most often in receipt of services from a MH specialist. Foreign-born MCS Latinos experienced disparities in mental health visits to both PCP and MH providers and are also at-risk for remaining uninsured following the ACA.

2.10 Conclusions

Policies in the ACA that expand access to healthcare, reward providers based on quality, increase medical training, and improve the FQHC infrastructure are expected to help to reduce barriers to primary care-based MHS for Black and Latino minorities. However, eliminating disparities in MHS will likely require a multi-targeted approach that includes incorporating brief counseling-based treatments into the primary care setting, increasing the pipeline for Spanish Speaking MH providers, raising awareness of MH conditions and treatment options in minority communities, advocating for public mental health resources, and restructuring private insurance and Medicaid payment arrangements to reduce physical and mental health services fragmentation for Black and Latino minority populations.

2.11 Tables

Table 2.1: Sociodemographic Characteristics of Black, White, and Latino Adults In The Medical Expenditures Panel Survey, 2004-2009

	Non-Latino White	Non-Latino Black	MCS Latino	Caribbean Latino
Unweighted N :	22,761	6,650	7,972	1,658
<u>Proxies Of Need For MHS</u>		<u>Weighted Prevalence (SE)</u>		
Age***				
18-24	9.4 (0.3)	13.4 (0.6)	16.6 (0.6)	14.2 (1.1)
25-39	24.9 (0.4)	32.5 (0.8)	40.4 (0.9)	34.9 (1.8)
40-54	30.4 (0.4)	30.7 (0.7)	28.4 (0.7)	28.1 (1.5)
55-64	16.9 (0.3)	13.7 (0.5)	8.6 (0.4)	11.6 (1.0)
65+	18.3 (0.4)	9.7 (0.4)	5.9 (0.4)	11.2 (1.1)
Female***	54.3 (0.3)	58.4 (0.7)	50.7 (0.7)	55.6 (1.4)
Marital Status***				
Single, Never Married	20.7 (0.5)	40.0 (0.8)	29.2 (0.9)	33.2 (1.5)
Married	58.8 (0.5)	33.7 (0.9)	54.9 (0.9)	45.9 (1.7)
Separated, Divorced, Widowed	20.6 (0.3)	26.3 (0.7)	16.0 (0.6)	20.9 (1.3)
Psychological Distress***				
Low (0-7)	86.5 (0.3)	83.9 (0.6)	85.1 (0.6)	79.9 (1.2)
Moderate (8-12)	8.9 (0.2)	10.3 (0.5)	9.4 (0.4)	10.1 (0.9)
High (13-24)	4.5 (0.2)	5.8 (0.3)	5.5 (0.3)	10.0 (1.0)
Rated Mental Health As Fair/Poor***	9.0 (0.2)	11.5 (0.5)	8.5 (0.4)	13.0 (1.1)
Chronic Medical Conditions				
Diabetes***	8.2 (0.2)	11.4 (0.5)	8.7 (0.4)	9.9 (0.9)
Asthma***	11.7 (0.3)	12.0 (0.5)	6.4 (0.4)	16.7 (1.2)
Heart Disease***	15.2 (0.3)	10.5 (0.5)	5.4 (0.3)	10.2 (0.9)
Stroke***	3.5 (0.1)	3.5 (0.3)	1.2 (0.1)	3.5 (0.6)
Arthritis***	30.2 (0.4)	24.8 (0.7)	12.0 (0.5)	20.1 (1.3)
Emphysema***	2.0 (0.1)	0.7 (0.1)	0.2 (0.1)	0.8 (0.3)
High Blood Pressure***	32.6 (0.4)	39.5 (0.8)	20.8 (0.7)	29.9 (1.4)
High Cholesterol***	34.0 (0.4)	26.5 (0.7)	21.2 (0.7)	27.3 (1.5)
Number of Chronic Medical Conditions***				
Zero	38.0 (0.4)	41.0 (0.8)	60.0 (0.9)	44.3 (1.7)
One	23.9 (0.3)	23.3 (0.7)	20.6 (0.6)	24.9 (1.4)
Two or More	38.1 (0.4)	35.7 (0.8)	19.7 (0.7)	30.8 (1.4)
Reported Physical Health Limitation***	18.7 (0.4)	18.0 (0.6)	8.8 (00.5)	14.4 (1.0)
Physical Health Composite Score (SF-12)***				
Lowest Quartile	25.4 (0.4)	27.9 (0.8)	19.3 (0.6)	23.7 (1.3)
Middle Quartiles	49.4 (0.4)	53.7 (0.8)	57.4 (0.7)	51.3 (1.5)
Highest Quartile	25.3 (0.4)	18.4 (0.6)	23.3 (0.7)	25.0 (1.5)
U.S. Born	95.7 (0.2)	92.1 (0.6)	38.9 (1.3)	45.7 (1.9)
<u>Proxies Of Healthcare Preferences</u>				
Don't need insurance***	9.8 (0.3)	10.7 (0.5)	18.1 (0.6)	12.5 (1.2)
Health insurance not worth the costs***	23.9 (0.4)	23.4 (0.7)	27.0 (0.8)	26.4 (1.5)
More likely than others to take risks***	22.5 (0.3)	23.0 (0.7)	25.5 (0.8)	25.0 (1.6)
Overcome illness without medical***	24.8 (0.4)	20.5 (0.6)	21.1 (0.8)	19.5 (1.3)
MEPS Household Respondent***	62.5 (0.3)	67.8 (0.7)	54.1 (0.7)	62.0 (1.6)

*** p < .001: Significant racial/ethnic differences in sociodemographic characteristics

Abbreviations: MCS – Latinos of Mexican, Central or South American heritage; PCD: Latinos of Puerto Rican, Cuban, or Dominican heritage.

Table 2.2: Racial/Ethnic Differences in Outpatient Mental Health Visits Among Black, White, and Latino Adults In The Medical Expenditures Panel Survey, 2004-2009

		Non-Latino White	Non-Latino Black	MCS Latino	Caribbean Latino
Unweighted N :		21,563	6,018	7,972	1,658
Percent of Adults With Any MH Visit		Weighted Percent (SE)			
Any Outpatient Visit For MH Condition		9.2 (0.2)	5.6 (0.3)	5.1 (03)	9.2 (0.8)
Visit With PCP Only		3.5 (0.1)	1.8 (0.2)	2.4 (0.2)	2.6 (0.5)
Visit With MH Specialist Only		3.5 (0.2)	2.7 (0.2)	1.7 (0.2)	4.3 (0.6)
Visit With PCP And MH Specialist		1.3 (0.1)	0.7 (0.1)	0.5 (0.1)	1.5 (0.3)
Other Provider		0.9 (0.1)	0.4 (0.1)	0.5 (0.1)	0.9 (0.3)
Number of Outpatient Visits Conditional On Any Visit	*N*‡	Weighted Mean (SE)			
All Outpatient MH Visits	3135	6.9 (0.3)	6.6 (0.9)	5.9 (0.3)	8.3 (1.3)
Visit With Primary Care Provider	1692	3.0 (0.1)	3.1 (0.4)	2.6 (0.3)	3.9 (1.1)
Visit With Mental Health Specialist	1614	8.8 (0.4)	7.9 (1.5)	7.8 (1.0)	7.0 (0.9)

‡ Unweighted N with any mental health visit

Abbreviations: MH = Mental Health; MCS – Latinos of Mexican, Central or South American heritage; Caribbean: Latinos of Puerto Rican, Cuban, Dominican, or other non-MCS heritage.

Primary Care Providers include family practitioners, general practitioners, internists, nurse or nurse practitioners, and physician's assistants

Mental Health Specialists include psychiatrists, psychologists, and social workers
Other Providers include medical specialists (e.g., cardiologist, obstetrician) and unknown providers.

Table 2.3: Mental Health Status and General Healthcare Attitudes Predict Reporting of Mental Health Visits

Multivariate Logistic Regression Results Predicting Any MH Visit

	Odds Ratio (SE)
Race/Ethnicity	
Non-Latino Black	**0.42 (0.07)*****
Mexican or Central/South American (MCS) Latino	**0.59 (0.13)***
Caribbean Latino	0.93 (0.29)
Non-Latino White (ref)	1.0
Age	
18-24	**0.69 (0.08)*****
25-39	1.10 (0.07)
40-54 (ref)	1.0
55-64	**0.80 (0.06)****
65 and Older	**0.47 (0.06)*****
Female Gender	**1.50 (0.10)*****
Black*Female	0.91 (0.14)
MCS Latina*Female	**1.44 (0.25)***
Caribbean Latina*Female	**0.44 (0.11)*****
Marital Status	
Single, Never Married	**1.38 (0.10)*****
Separated, Divorced, Widowed	**1.35 (0.08)*****
Married (ref)	1.0
Psychological Distress	
Low (ref)	1.0
Moderate	**3.10 (0.42)*****
High	**4.00 (0.63)*****
Black*Moderate	1.16 (0.20)
Black*High	**1.55 (0.30)***
MCS Latino*Moderate	**0.69 (0.12)***
MCS Latino*High	1.21 (0.22)
Caribbean Latino*Moderate	1.30 (0.40)
Caribbean Latino*High	1.81 (0.62)
Female*Moderate	1.06 (0.13)
Female*High	**0.67 (0.10)****
Number of Chronic Conditions*Moderate	**0.81 (0.03)*****
Number of Chronic Conditions*High	**0.90 (0.03)****
Mental Health Rated as Fair or Poor	**3.22 (0.24)*****
Black*Fair/Poor Mental Health	1.16 (0.19)
MCS Latino*Fair/Poor Mental Health	0.71 (0.13)
Caribbean Latino*Fair/Poor Mental Health	1.69 (0.49)

* p < .05, ** p < .01, *** p < .001

(Table 2.3 continues on the next page)

Table 2.3 Continued

Multivariate Logistic Regression Results Predicting Any MH Visit	Odds Ratio (SE)
Number of Measured Chronic Conditions (0-7)	1.17 (0.03)***
Black*Number of Chronic Conditions	1.05 (0.04)
MCS Latino*Number of Conditions	1.13 (0.05)**
Caribbean Latino*Number of Conditions	1.17 (0.09)*
Physical Health Limitation	1.26 (0.09)***
Measured Physical Health Functioning (SF-12)	
Lowest Quartile	**0.79 (0.06)*** **
Middle Quartiles	**0.79 (0.05)*** **
Highest Quartile (ref)	1.0
Foreign/Island Born	0.80 (0.12)
Black*Foreign/Island Born	0.99 (0.20)
MCS Latino*Foreign/Island Born	**0.65 (0.14)* **
Caribbean Latino*Foreign/Island Born	0.85 (0.23)
Healthcare Attitudes	
Don't need insurance	**0.74 (0.08)** **
Health insurance not worth the costs	0.92 (0.06)
More likely than others to take risks	0.93 (0.06)
Can overcome illness without medical help	**0.78 (0.05)*** **
MEPS Study Design	
Household Respondent	**1.26 (0.07)*** **
Survey Year 2008-09	1.00 (0.06)
Black* 2008-09 Year	**0.71 (0.11)* **
MCS Latino*2008-09 Year	0.92 (0.14)
Caribbean Latino*2008-09 Year	0.75 (0.17)

* p < .05, ** p < .01, *** p < .001

Abbreviations: MH = Mental Health; MCS – Latinos of Mexican, Central or South American heritage; Caribbean Latino: Latinos originating from of Puerto Rican, Cuban, Dominican, and Other Latino heritage.

Table 2.4: Mental Health Status and General Healthcare Attitudes Predict Number of Mental Health Visits Conditional on Any Mental Health Visit

	Number of MH Visits IRR (SE)
Race/Ethnicity	
Non-Latino Black	**0.72 (0.07)*****
Mexican or Central/South American Latino	**0.75 (0.09)***
Caribbean Latino	0.94 (0.19)
Non-Latino White (ref)	1.0
Age	
18-24	**0.68 (0.10)****
25-39	0.95 (0.08)
40-54 (ref)	1.0
55-64	0.84 (0.08)
65 and Older	**0.72 (0.08)****
Marital Status	
Single, Never Married	**1.40 (0.14)*****
Separated, Divorced, Widowed	**1.19 0.10)***
Married (ref)	1.0
Psychological Distress	
Low (ref)	1.0
Moderate	**1.34 (0.15)***
High	1.27 (0.16)
Mental Health Rated as Fair or Poor	**1.37 (0.12)*****
Number of Measured Chronic Conditions (0-7)	1.00 (0.02)
Physical Health Limitation	1.05 (0.08)
Physical Health Functioning (SF-12)	
Lowest Quartile	0.88 (0.09)
Middle Quartiles	0.91 (0.08)
Highest Quartile (ref)	1.0
U.S. Born	0.78 (0.22)
<u>Proxies Of Healthcare Preferences</u>	
Don't need insurance	0.98 (0.14)
Health insurance not worth the costs	**0.78 (0.06)****
More likely than others to take risks	1.04 (0.09)
Can overcome illness without medical help	0.95 (0.09)
<u>MEPS Study Design</u>	
Household Respondent Rounds 3, 4, and 5	1.06 (0.08)
Survey Year 2008-09	0.96 (0.07)
<u>Diagnoses</u>	
Schizophrenia	**1.88 (0.33)*****

* p < .05, ** p < .01, *** p < .001

Abbreviations: MH = Mental Health; IRR – Incident Rate Ratio; SE – Standard Error; MCS – Latinos of Mexican, Central or South American heritage; Caribbean: Latinos originating from the Spanish Speaking Caribbean: Puerto Rico, Cuba, Dominican Republic, and Other Latino heritage.

Table 2.5: Racial/Ethnic Disparities in Mental Health Visits Among Black, White, and Latino Adults, Medical Expenditures Panel Survey: 2004-2009

All Adults						
Probability of Mental Health Visit						
	Any MH Visit	Minority/White Risk Ratio	PCP Visit	Minority/White Risk Ratio	Specialist Visit	Minority/White Risk Ratio
Non-Latino White	0.100		0.056		0.052	
Non-Latino Black	0.046	**0.413**	0.019	**0.319**	0.028	**0.510**
MCS Latino	0.062	**0.581**	0.031	**0.522**	0.032	**0.579**
Caribbean Latino	0.091	0.898	0.062	1.120	0.036	0.657
Number of Mental Health Visits[‡]						
	All MH Visits	Minority-White Difference	PCP Visits	Minority-White Difference	Specialist Visits	Minority-White Difference
Non-Latino Whit	7.436		3.127		9.107	
Non-Latino Black	5.456	**-1.980**	2.608	**-0.519**	6.795	**-2.312**
MCS Latino	5.761	**-1.675**	2.752	-0.375	8.219	0.895
Caribbean Latino	6.448	-0.987	3.635	0.509	5.789	**-3.319**

[‡] Number of service visits conditional on any mental health visit.
Numbers in **BOLD** are statistically significant.

Abbreviations: MH – Mental Health; PC – Primary Care; MCS – Latinos of Mexican, Central or South American heritage; Caribbean: Latinos originating from the Spanish Speaking Caribbean: Puerto Rico, Cuba, Dominican Republic, and Other Latino heritage

Primary Care Providers include family practitioners, general practitioners, internists, nurse or nurse practitioners, and physician's assistants. Mental Health Specialists include psychiatrists, psychologists, and social workers

Table 2.6: Racial/Ethnic Disparities in Mental Health Visits Among Black, White, and Latino Adults With High Psychological Distress, Medical Expenditures Panel Survey: 2004-2009

Adults With High Psychological Distress						
Probability of Mental Health Visit						
	Any MH Visit	Minority/White Risk Ratio	PCP Visit	Minority/White Risk Ratio	Specialist Visit	Minority/White Risk Ratio
Non-Latino White	0.322		0.180		0.198	
Non-Latino Black	0.258	**0.781**	0.113	**0.613**	0.180	0.895
MCS Latino	0.271	0.825	0.172	0.956	0.145	**0.710**
Caribbean Latino	0.416	**1.341**	0.161	0.888	0.282	**1.498**
Number of Mental Health Visits‡						
	All MH Visits	Minority-White Difference	PCP Visits	Minority-White Difference	Specialist Visits	Minority-White Difference
Non-Latino White	10.159		4.356		11.167	
Non-Latino Black	6.955	**-3.204**	4.175	-0.182	6.921	**-4.246**
MCS Latino	10.808	0.649	4.950	0.594	12.304	1.137
Caribbean Latino	9.233	-0.926	4.808	0.451	8.030	-3.137

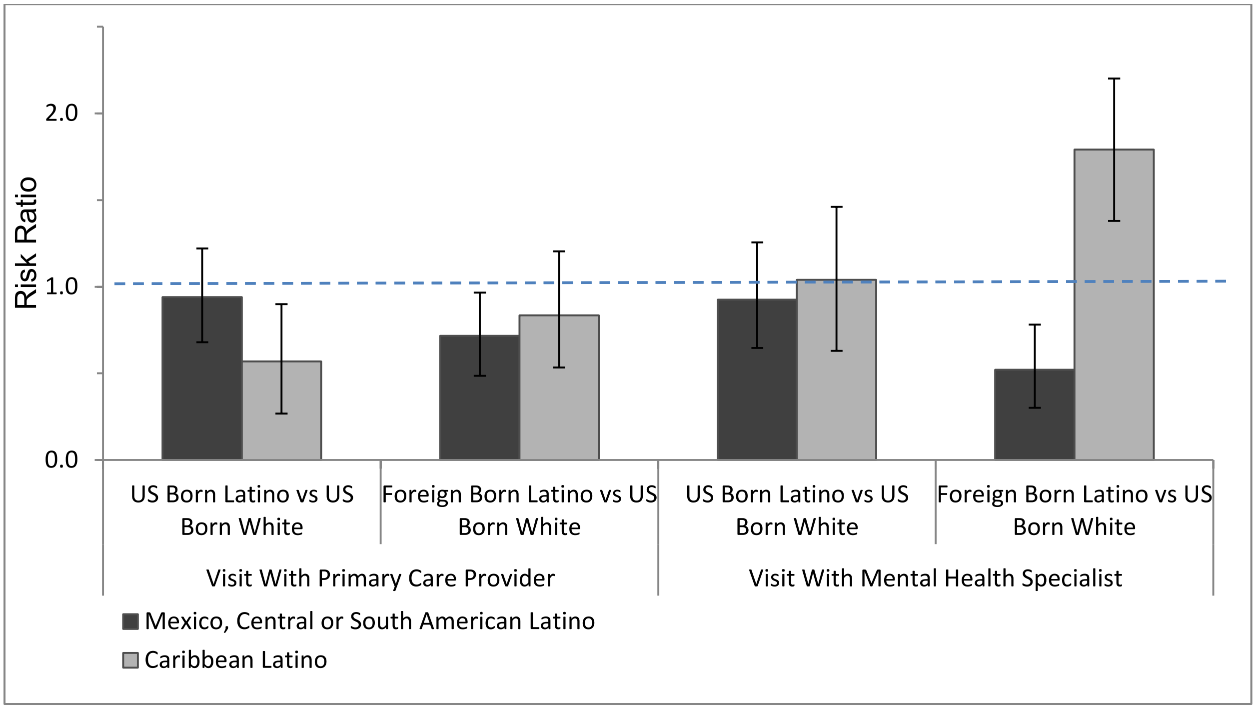
‡ Number of service visits conditional on any mental health visit.
Numbers in **BOLD** are statistically significant.

Abbreviations: MH – Mental Health; PC – Primary Care; MCS – Latinos of Mexican, Central or South American heritage; Caribbean: Latinos originating from the Spanish Speaking Caribbean: Puerto Rico, Cuba, Dominican Republic, and Other Latino heritage

Primary Care Providers include family practitioners, general practitioners, internists, nurse or nurse practitioners, and physician's assistants. Mental Health Specialists include psychiatrists, psychologists, and social workers

2.12 Figures

Figure 2.1: Disparities in The Probability Of A Mental Health Visit For U.S. and Foreign Born Latino Subpopulations Compared To U.S. Born Non-Latino Whites, 2005-2009



Sample includes Non-Latino White and Latino populations with high psychological distress. The reference category for all of the comparisons is U.S. born Non-Latino Whites. The four columns on the left display Latino-White disparities in visits to a primary care provider. The four columns on the right display Latino-White disparities in visits to a psychiatrist, psychologist, or social worker.

Chapter 3: Improving Access To Mental Health Services In Primary Care: The Role of the Patient Centered Medical Home (Study 2)

3.1 Introduction

Mental health disorders are common but often go untreated. In the U.S., one quarter of adults (26%) are likely to meet criteria for a mental health disorder in a given year (Kessler et al. 2005b). The prevalence of these disorders is even higher in populations with chronic conditions, such as diabetes, asthma, and cardiovascular disease (Egede 2007; Moussavi et al. 2007). Although effective treatments are available, half of adults with a mental disorder never receive counseling or medication-based treatments (Wang et al. 2005a; Wang et al. 2005b). Only one-quarter of adults with a past year mental disorder, for example, receive minimally adequate care (Wang et al. 2005b; Young et al. 2001). Without effective treatment, mental health disorders contribute to poor health behaviors, elevated rates of chronic diseases, negative health outcomes, and premature mortality (Druss et al. 2011; Katon, Lin, and Kroenke 2007; Lin et al. 2004; Simon et al. 2000). Consequently, mental health disorders are among the leading contributors to the global burden of disease (Andrews et al. 2000). Because mental health disorders have such negative consequences for physical health and emotional well-being, there is a compelling need to identify systems of care that can improve patients' access to needed mental health services (MHS). Such efforts are especially needed at this time when MHS are increasingly being integrated into the primary care setting.

The Patient Centered Medical Home (PCMH) is increasingly being recognized as promising model of primary care services for adults with chronic health disorders, including mental illness (Iglehart 2008; Maeng et al. 2012; O'Toole et al. 2011; Reid et al. 2010; Takach 2012). The PCMH is a coordinated and team-based approach to delivering primary care services that are comprehensive in nature, continuous over the life course, patient-centered, and quality-driven (American Academy of Family Physicians et al. 2007). The seven hallmark components are: 1) a personal physician for each patient, 2) a physician-directed, multidisciplinary team–based medical practice, 3) a whole-person orientation to care, 4) coordinated and integrated services, 5) safe and high-quality care through evidence-based medicine, appropriate use of health information technology, and quality improvement initiatives, 6) expanded access to care, and 7) payment reforms that recognize the added value of the PCMH (American Academy of Family Physicians et al. 2007).

At the heart of the PCMH is a designated healthcare provider (primary care provider, healthcare team, or clinic) who has a collaborative relationship with the patient and who is responsible for managing all of the patient's healthcare needs. The designated provider works with the patient to develop a treatment plan; is responsible for the delivery of evidence-based treatments; coordinates services with medical specialists; and refers patients to community and social support services when needed. In addition to a strong patient-provider partnership, the PCMH incorporates chronic disease management tools that are thought to enhance the safety, quality, and effectiveness of treatment for populations with chronic health conditions (Austin et al. 2000; Bodenheimer, Wagner, and Grumbach 2002; Gabbay et al. 2011; Wagner, Austin, and Von Korff 1996). Chronic disease management strategies often include decision-support tools for providers; patient education and engagement strategies; disease-management tools such as care coordinators and disease registries; quality improvement initiatives, and health information technology (Rittenhouse et al. 2008). Prior studies have found that the PCMH contributes to improved access to care, reduced service costs, and improved health outcomes for adults with chronic health disorders (Arend et al. 2012; DeVries et al. 2012; Fifield et al. 2013; Savage, Lauby, and Burkard 2013; Yoon et al. 2013). Given these successes in physical health services, the PCMH is also being considered as a model of care for adults with mental health disorders (Alakeson et al. 2010; Bao, Casalino, and Pincus 2013).

Having a medical home may be an important factor in patients' access to and use of MHS. The primary care setting has long been considered the de-facto provider of mental health treatment (Gray et al. 2000; Regier et al. 1978). More patients turn to their primary care provider for treatment of a mental health or substance use concern than to psychiatrists, psychologists, or other mental health specialists (Wang et al. 2007b). Despite the potential pathway to treatment through the primary care setting, not all populations have been able to benefit from the enhanced access of MHS in primary care. The uninsured, adults with poor socioeconomic status, racial minorities, and adults with mental health disorders, have traditionally been underserved in the primary care setting (Agency for Healthcare Research and Quality March 2012; Druss, Rask, and Katon 2008b). These groups are also least likely to have a PCMH (Adams et al. 2013; Beal et al. 2007). Because MHS are increasingly delivered in the primary care setting, policies that enhance access to primary care may also be effective strategies to improve MHS delivery for traditionally underserved populations. More research is needed to determine if there are features of primary care, consistent with the medical home model, which may facilitate patients' access to and use of MHS.

There are at least three features of the PCMH the may influence patients' access to and use of MHS in primary care. First, the PCMH provides all patients with a personal physician (or designated provider). Prior studies in physical health services have found that having a usual healthcare provider is associated with greater receipt of preventive screenings (DeVoe, Tillotson, and Wallace 2009; Nutting et al. 2003; O'Malley et al. 1997; Sambamoorthi and McAlpine 2003; Solberg et al. 2006), fewer unmet service needs (DeVoe et al. 2011) and reduced treatment delays (Sox et al. 1998)). Having a personal physician, moreover, is associated with providers' recognition and treatment of chronic diseases (DeVoe et al. 2008; Koopman et al. 2003), and better chronic disease management (Moy, Bartman, and Weir 1995; Spatz et al. 2010; Winters, Tancredi, and Fiscella 2010). In mental health, the patient-provider relationship is central to the detection and treatment of mental disorders (Thompson and McCabe 2012). It may be the case then that having a designated provider will contribute to an increase in the recognition and treatment of mental health disorders in primary care.

There are features of the PCMH that may also facilitate mental health referrals to specialist providers. The PCMH is a whole-person orientation to care where the provider is responsible for coordinating all of the patients' preventive, acute, and chronic healthcare needs (Beal et al. 2007). This approach, moreover, incentivizes provider communication and coordination of services. Prior studies in physical health services have found that patients who have a PCMH are more likely to visit with medical specialists than patients without a PCMH (Fishman et al. 2012; Reid et al. 2009). It is not yet known if whole-person and coordinated approaches to physical health services will be sufficient to bridge fragmentation between primary care and specialty mental health systems of care. We expect, consistent with the PCMH framework, that comprehensive approaches to healthcare delivery will improve the rate of successful referrals to mental health specialists.

The third feature of a PCMH that may influence patients' use of MHS is patient-centered care. Patient-centeredness is a collaborative approach to treatment where the provider explains treatment options to the patient, works with the patient to develop a treatment plan that meets the patient's goals, and demonstrates respect for the patient's treatment decisions (Martsolf et al. 2012). Prior studies in MHS have found that patient involvement in treatment decision-making is associated with improvements in patients' satisfaction with their MHS (Cooper et al. 2013) and their participation in treatment (Clever et al. 2006; Loh et al. 2007a). One study, for example, found that depressed patients were more likely to receive guideline-concordant care (Clever et al. 2006), to adhere to treatment (Loh et al. 2007a), and to experience improvements in mental health outcomes (Clever et al. 2006; Loh et al. 2007a) when they were involved in treatment decision-making. Another study, conducted in community mental health centers, found that patient-centered approaches to treatment were associated with gains in medication adherence and decreased rates of no-show appointments (Stanhope et al. 2013). It is not yet clear whether patient-centered approaches in general primary care services delivery will be sufficient to enhance patients' experiences with mental health treatments. Based on the findings from specialty MHS, however, we hypothesize that having a designated provider who delivers patient-centered care will contribute to increased engagement of patients in mental health treatment.

Recent changes in our healthcare system present an important moment to consider the potential benefits of the PCMH for adults with a mental health disorder. Nearly four million adults with a mental health disorder are likely to gain health insurance through the private and public insurance expansions (Garfield et al. 2011), enabling many patients to receive MHS through the primary care setting for the first time (Abrams et al. 2011; Russell 2010). The ACA moreover creates opportunities for adults to participate in the PCMH by promoting a Health Home option under Medicaid, training primary care providers in team-based approaches to healthcare delivery, and creating incentives for private and public health plans to report on PCMH services provided (Takach 2012; Thompson and McCabe 2012). With these new opportunities, it is important to determine whether core features of the PCMH can improve upon past models of primary care to facilitate patients' access to and use of MHS.

This study was designed to improve our understanding of the effects of important PCMH components on MHS use for adults with high ratings of psychological distress (i.e., those likely to have a need for mental health services). We used participants' reports of their healthcare experiences to approximate features of primary care that are consistent with the PCMH framework: having a designated provider; whole-person orientation to care; and patient-centered approaches to treatment. These components were selected for investigation because 1) they represent aspects of the patient-provider relationship that are the foundation of the PCMH (Ferrante et al. 2010), 2) they have a theoretical relationship to MHS use, and 3) these components have been collected in nationally representative datasets. There is an opportunity, therefore, to estimate the impact of policies to expand the PCMH on rates of MHS use for traditionally underserved populations.

We hypothesized that 1) adults with high psychological distress would be less likely than adults with low-moderate distress to have a designated provider who meets PCMH criteria; 2) adults with high distress who report having a PCMH would be more likely than distressed adults without a PCMH to use MHS; 3) adults with high distress who report having a PCMH would be more likely than distressed adults without a PCMH to visit with a mental health specialist; and 4) adults with high distress who report having a PCMH would receive more mental health visits and more mental health prescription fills than distressed adults who did not report having a PCMH.

3.2 New Contributions

This study makes two new contributions towards our understandings of the impact of PCMH components on adults' use of MHS. First, this study examines components of the PCMH that have not readily been studied in the area of mental health. Prior studies in MHS have examined the benefits of team-based approaches to treating mental disorders (Gilbody et al. 2006; Hedrick et al. 2003; Kessler 2012; Nutting et al. 2008; Reiss-Brennan et al. 2010;

Woltmann et al. 2012), integrated models of physical and MHS delivery (Haggarty et al. 2012), quality improvement initiatives in the treatment of mental disorders (Asarnow et al. 2005; Asarnow et al. 2009; Wells et al. 2004; Wells et al. 2008), and patient-centered approaches to the treatment of mental disorders (Clever et al. 2006; Cooper et al. 2013; Loh et al. 2007a; Stanhope et al. 2013). Few studies have examined the benefits of having a designated primary care provider who delivers whole-person, patient-centered services on patients' use of MHS. Study findings will provide unique insight into aspects of the patient-provider relationship that may be leveraged to improve patients' access to and use of MHS in the PCMH.

As a second contribution, this study examines how access to a designated provider impacts use of MHS. Prior evidence to support the PCMH for adults with a mental health disorder may be surmised from intervention studies in the primary care setting (i.e., collaborative care interventions and quality improvement initiatives). As a result, many of the previous studies have been conducted with populations that already have access to a primary care provider. This study used a population-based perspective to examine the impact of having a designated provider among a population-based sample of adults with high psychological distress. Study findings will demonstrate how ACA policies to expand core components of the PCMH might influence access to MHS for traditionally underserved populations.

3.3 Conceptual Framework

This study used the Andersen Behavioral Model of Health Services Utilization for Vulnerable Populations to conceptualize the relationship between PCMH components and mental health services utilization (Andersen 1995; Gelberg, Andersen, and Leake 2000; Phillips et al. 1998). The Andersen model is a widely used framework in physical health services to understand patients' access to and use of health services. According to this model, patients' predisposing and enabling characteristics as well as their level of need for treatments determine health services use. Predisposing factors are attitudes and beliefs that underlie an individual's propensity to use health care services. Enabling factors are resources that help patients to receive needed services, such as health insurance, income, and healthcare literacy. Need characteristics include a patient's measured and perceived need for services.

The Andersen model has been adapted over time and validated for use with vulnerable populations (Gelberg et al. 2000), including adults with a mental health disorder (Stockdale et al. 2007). In this study, PCMH components are conceptualized as enabling factors that will enhance patients' access to needed MHS (Adams et al. 2013). We controlled for other predisposing, enabling, and need characteristics that are associated with MHS use. Predisposing characteristics included age, race, gender, U.S. vs. foreign-born nativity, marital status, and general healthcare preferences (Chen and Vargas-Bustamante 2011; Zuvekas and Fleishman 2008). We also controlled for potentially confounding enabling characteristics: insurance status, household income (as a proxy for ability to pay), years of education (as a proxy for mental health literacy), and geographic residence (as a proxy for supply of mental health specialists) (Dhingra et al. 2010; Dobalian and Rivers 2008; Fortney et al. 2010). Need for MHS was determined by participants reported level of psychological distress, ratings of mental health status, number of chronic medical conditions, overall physical health functioning, and ratings of physical health status (Cook et al. 2011).

3.4 Methods

Design

We conducted a pooled cross-sectional study of panel data to estimate the effect of PCMH components on adults' use of MHS.

Data

Data were obtained from the Medical Expenditures Panel Survey (MEPS), a nationally-representative, household-based survey of healthcare use, satisfaction with care, and costs of services in the U.S. (Ezzati-Rice et al. 2008). MEPS has a longitudinal, overlapping panel survey design. Each year a new panel of participants is recruited from the past year's National Health Interview Survey, a nationally representative sample of household members living in non-institutionalized, civilian quarters (Center for Disease Control / National Center for Health Statistics 2011). Once recruited, MEPS participants are interviewed five times (called "rounds") over two calendar years. We used longitudinal data from the household component files to determine the impact of having a PCMH at the round 2 interview on MHS use during the interviews for rounds 3-5. Because the exposure, PCMH status, was measured prior to the outcome of interest, we were able to partially control for reverse-causality bias that is common in cross-sectional research. Data were combined for six panels of participants (panels 9-14) to increase precision of the estimates.

Sample

The sample included 27,877 adults, age 18-64, who participated in the longitudinal MEPS (panels 9-14), who self-reported their experiences with healthcare providers, and who had non-missing data on the measures used to determine need for MHS. Study inclusion and exclusion criteria are described below.

The first inclusion criterion was participants' age, 18-64. The factors that influence MHS use for retired-age (age 65+) adults likely differ from those of working-age (18-64) adults. Retired-age adults experience near universal access to health insurance coverage and to a designated provider through Medicare. In addition, retired age adults often experience elevated rates of chronic conditions and frequent use of health services. Therefore, patients' experiences with the healthcare system are likely to be different for the retired-age population than for the working-age population. We found in preliminary analyses that 94% of retired-age adults reported having a designated healthcare provider compared to 78% of working-age adults. Despite greater potential access to physical health services, retired age adults with psychological distress reported less use of MHS. For example, we found that 40% of retired-age adults with high psychological distress reported use of MHS compared to 49% of working-age adults with high distress. It may be the case, then, that PCMH components differentially impact MHS use for working-age and retired-age adults. Indeed, we found that having a designated provider was associated with increased odds of MHS use in the subsample of working-age respondents (OR = 2.48, 95% CI = 1.83-3.37) but not in the subsample of retired-age respondents (OR = 3.19, 95%, 95% CI = 0.40-25.29).

One approach to capture heterogeneity of healthcare experiences for working-age and retired-age populations would be to estimate MHS use separately for working age and retired age adults. We determined this approach to be infeasible due to sample size limitations for participants age 65 or older with an indicated need for MHS and reported MHS use. A second approach to control for heterogeneity of healthcare experiences for working-age and retired-age adults would be to include interaction terms in the statistical model for participants' age with predisposing, enabling, and need covariates. This approach, while feasible, is limited because the model coefficients for interaction terms do not have an intuitive interpretation in non-linear models. To describe age*PCMH component interaction results for each of the MHS outcomes would distract from the primary objective of the study. We determined, therefore, that an examination of how the PCMH components may operate differently for retired-age adults compared to working-age adults is beyond the scope of the current study.

Overall, 52,487 adults, age 18 to 64, participated in the full two years of MEPS. Within each household, one respondent was selected by MEPS staff to describe the healthcare use and healthcare experiences for all members of the family. Because we hypothesized that participants would be more accurate in rating their own experiences with healthcare providers than those of other family members, we restricted analyses to the 29,653 adults who were the household respondent during the round 2 interview. That is, the sample only included adults who reported their own healthcare experiences.

In addition to the household component interview, all adults in the household were given a paper survey with instructions to mail back after the round 2 and round 4 interviews. The Supplemental Adult Questionnaire (SAQ) inquires about patients' physical and mental health status and healthcare experiences. Within the sample of household respondents, we excluded data from participants who failed to return the SAQ (n=1,021, 3.4%) or who had missing data on the K-6 measure of psychological distress (n=755, 2.5%). The final sample, therefore, included 27,877 working-age household respondents.

Defining Core Components of the Patient Centered Medical Home

We used participants' ratings of their experiences with healthcare providers to identify individuals likely to receive primary care services consistent with the PCMH framework. In this study, the PCMH was defined as having a designated healthcare provider who the patient would see for a comprehensive range of healthcare needs and who delivers patient-centered services.

A designated provider is a primary care provider, healthcare team, or practice who has an ongoing relationship with the patient and who is responsible for managing all of the patient's healthcare needs. The MEPS asks participants if they had a regular doctor or place of care that they would go to when sick or in need of medical advice. The designated provider indicator was coded "yes" if participants reported that they had a usual provider or usual place of care and this source of usual care was a primary care provider or outpatient clinic. The designated provider indicator was coded "no" for participants who reported the emergency room as a source of usual care.

Comprehensiveness is a whole-person orientation to care where the designated provider is responsible for managing the patients' preventive, acute, and chronic care needs. MEPS asks participants about the type of services that they receive from their usual care provider. We coded services as "comprehensive" if 1) the designated provider asks about treatments or medications provided by other doctors; and 2) the patient goes to this provider for preventive services, treatment for new health conditions, treatment for ongoing health conditions, and referrals to specialists.

Patient-Centeredness is a collaborative approach to treatment where the provider asks about the patients' goals and treatment preferences, explains the treatment options available, and works with the patient to develop a treatment plan to meet their goals. We coded services as "patient-centered" if the provider "*usually*" or "*always*" 1) explains treatment options to the patient, 2) asks the patient to help make treatment decisions, and 3) shows respect for the patients’ preferred treatments.

Unfortunately, MEPS does not measure other components of the PMCH that likely contribute to patients’ access to and use of MHS (e.g., coordination of services between primary care providers and medical specialists; use of decision-support tools, case management services, or health information technology; or receipt of payments that recognize the added-value of the PCMH). However, the three PCMH components that are measured in the survey are central to the patient-provider partnership that we hypothesized to be important for adults’ use of MHS.

Outcomes of Interest:

Mental health service outcomes were ascertained in the household component of MEPS. All household members were asked to keep detailed records of their healthcare visits and prescription medications during the study. At the time of each interview, the household respondent describes all healthcare events that had occurred since the past interview (approximately 5 months). The respondent reports the reason for each healthcare visit, the healthcare service setting, the type of healthcare provider seen, and the type of services received during the visit. The respondent also reports on each medication they were taking and the reason the medication was prescribed. In addition to participant records, MEPS staff contact medical providers and pharmacies to fill in information that household respondents are unable to provide. We used ICD-9 and Clinical Classification Codes to determine mental health visits and prescriptions related to a mental health condition: ICD-9: 294-297, 299-309, 311-315, V40, V70; Clinical Classification Code: 650, 652, 654, 655, 657, 659, 660-662, 670) (Agency for Healthcare Research and Quality 2011).

Mental Health Visits To A Primary Care Provider: Respondents are also asked to list the type of medical provider seen by the patient for each outpatient visit. We defined primary care visits as any visit to a family practitioner, general practitioner, internist, nurse or nurse practitioner, or physician's assistants where the reason for visit included either a mental health condition or the visit included mental health counseling or drug treatment.

Mental Health Visits To A Mental Health Specialist: included all visits to a psychiatrist, psychologist, or social worker. MEPS does not specifically ask participants if they were referred to a mental health specialist for treatment. In this study, visits to a mental health specialist were considered evidence of a successful mental health referral.

Counseling Visits: were coded "yes" if the household respondent indicated that either 1) the service provided was best categorized as counseling/psychotherapy, or 2) any of the treatments provided during the visit included counseling/psychotherapy.

Mental Health Prescriptions: were coded "yes" if participant was taking a medication that belonged to a psychotropic drug class AND the medication was prescribed for a mental health condition. Psychotropic drug classes included antidepressants; anxiolytics, sedatives, and hypnotics; antipsychotics; stimulants; and anticonvulsants. Mental health conditions were determined by the ICD-9 and Clinical Classification codes associated with participant's reported reason for taking the medication (listed above). We included ICD-9 and Clinical Classification Codes associated with mood, anxiety, substance use, and psychotic disorders; disorders often diagnosed in childhood (such as ADHD); and other mental health disorders (adjustment disorders; personality, gender, or sexual disorders; and other mental health symptoms not classified as a mental health disorder).

Any Mental Health Services Use: was defined as any visit to a primary care provider where the reported reason for visit included a mental health concern, visits to mental health specialists, any receipt of counseling or psychotherapy services, or any psychotropic medication that was prescribed for a mental health condition.

Number of Service Encounters: were indicated by the participants' self-reported number of counseling/psychotherapy sessions and number of mental health prescriptions during the rounds 3-5 interviews.

Covariates

Indication of Need for Mental Health Services: was estimated by participants' responses to the Kessler 6-Item Scale of Psychological Distress (K-6) (Kessler et al. 2002; Kessler et al. 2003). The K-6 is a brief screening tool that measures non-specific psychological distress in the general population (Kessler et al. 2002; Kessler et al. 2003). The scale consists of six items that measure symptoms of anxiety and depression over the past month. "During the past 30 days, how often did you feel .. (nervous, hopeless, restless or fidgety, so sad that nothing could cheer you up, everything was an effort, worthless)". Participants chose from Likert response categories ranging from "all of the time" (4) to "none of the time" (0), producing a total score ranging from 0-24. We used standard cutoffs to identify participants with low (0-7), moderate (8-12) and high (13-24) levels of psychological distress (Pirraglia et al. 2011; Wang et al. 2007a). Those with high levels of distress (score of 13 or greater) have an increased likelihood of meeting criteria for serious mental illness (Kessler et al. 2002; Kessler et al. 2003). In addition to distress ratings, we controlled for participants' ratings of their mental health status at the round 2 interview. Respondents' were asked to rate their mental health as "*excellent*", "*very good*", "*good*", "*fair*", or "*poor*". We created an indicator variable to identify participants whose mental health status was rated "*fair*" or "*poor*" during the round 2 interview.

Measures of physical health status were included as proxies of need for mental health services. This study conceptualized physical health as a 'need' factor because adults with poor physical health are more likely than those with good physical health to have a psychiatric disorder, such as Major Depression (Moussavi et al. 2007). Moreover, adults with co-occurring physical and mental health conditions may have more severe and persisting psychiatric disorders compared to adults with mental health conditions only (Gilmer et al. 2005; Katon et al. 1994; Scott et al. 2009). In this study, physical health status was determined by participant reports of chronic medical conditions, physical health limitations, and overall physical health functioning at the round 2 interview. MEPS asks participants if a doctor has told them that they have a chronic medical condition: asthma, lung disease, diabetes, heart disease, stroke, hypertension, arthritis, and hypercholesterolemia (0-8). Physical health functioning was measured by the physical health composite score (PCS) from the SF-12 (Fleishman et al. 2006). We converted the continuous PCS score into quartiles to identify participants with low, moderate, and high physical health functioning. Physical activity limitations were defined as any limitation in walking, climbing stairs, grasping objects, reaching overhead, lifting, bending, stooping, or standing for long periods of time. A physical activity limitations indicator was coded "yes" if the household respondent reported any limitation during the first year of MEPS follow-up (round 1 or 3).

Predisposing Characteristics: We controlled for participant characteristics that are associated with use of physical and mental health services: age, gender, race/ethnicity, nativity (U.S. mainland born vs. foreign/island born), and marital status. We also controlled for general healthcare preferences that are associated with mental health services use: "*I am healthy enough that I don't need care*"; "*Insurance is not worth the money it costs*"; "*I can overcome illness without help from a medically trained person*"; "*I am more likely than others to take risks*". Prior studies indicated that these healthcare attitudes were negatively associated with mental health services use (Chen and Vargas-Bustamante 2011; Zuvekas and Fleishman 2008). MEPS does not include any direct measures of preferences for mental health treatments.

Enabling Characteristics: In estimating the effect of having a PCMH on mental health services outcomes we controlled for indicators of access that are highly correlated with use of mental health services: geographic region of the country, living within a metropolitan statistical area, linguistic barriers to care (indicated by preferred language on the written questionnaire), healthcare literacy (indicated by years of education), and household income relative to the Federal Poverty Level. We also examined the role of insurance status (publicly insured, privately insured, uninsured) in predicting PCMH status and mental health service outcomes.

Study Design Covariates: Finally, we controlled for household respondent status and survey year. Preliminary analyses revealed that household respondents were more likely than non-respondents to report use of MHS even after controlling for psychological distress and perceived mental health status. Moreover, respondent status was also a significant predictor of MHS use after controlling for insurance status, education, and household income. We concluded that respondent status likely represents an unmeasured proclivity to use MHS or to report use of services. Therefore, we created a variable to indicate if the survey participant was the household respondent throughout the entire outcome period (rounds 3-5). Moreover, we controlled for the survey year to account for fluctuations in use of MHS that may be due to economic conditions, changes in mental health policy, or other historical trends.

Statistical Analysis:

All statistical analyses were conducted in Stata 10.0 (StataCorp 2007). We applied MEPS longitudinal survey weights included in the public use files to account for participants' differential selection into MEPS, dropout during the two-year follow-up period, and post-stratification to provide estimates that generalize to the U.S. population. The longitudinal weights included in the MEPS public use files were adjusted to account for non-response on the Supplemental Adult Questionnaire and to account for the pooling of participants from panels 9-14. All analyses were run with the svy package in Stata, which uses a Taylor series approximation technique to estimate variances.

The analyses were conducted in four stages. In the first stage, we examined the distribution of the survey items used to approximate PCMH components. We estimated the weighted percent of adults who met each of the three PCMH criteria available in MEPS: designated provider, comprehensiveness, and patient-centered care.

In the second stage, we sought to determine if there were gaps in the availability of PCMH components for vulnerable populations. We examined the distribution of sociodemographic characteristics, physical and mental health service needs, healthcare preference, and healthcare access variables for adults with and without the measured PCMH components. Design-adjusted Pearson's Chi-Square tests were used to examine significant differences in participants' characteristics for adults with and without a reported PCMH.

Because we were particularly interested in determining whether distressed adults experience gaps in the availability of the PCMH, we used a multivariate logistic regression to examine the association between mental health status and having a PCMH. Covariates were added to the model in a stepped manner. We first examined differences in PCMH reporting for adults with psychological distress controlling for predisposing and need covariates. Second, we added the enabling covariates to the model. This procedure allowed us to consider the potential mediating effects of health insurance, education, and household income in understanding gaps in patients' access to the PCMH for adults at-risk for a mental health disorder.

p(PCMH) = f(Psychological Distress + Predisposing + Need + XB) (Eq. 3.1)

p(PCMH) = f(Psychological Distress + Predisposing + Enabling + Need + XB) (Eq. 3.2)

Predisposing = age, race / ethnicity, gender, nativity, marital status, healthcare attitudes
Enabling = insurance status, geographic residence, urban residence, interview language, level of education, household income
Need =, perceived mental health, number of chronic medical conditions, physical health functioning, physical limitations
XB = respondent status during the outcome period, survey year

In the third stage of analysis we examined the relationship between the reporting of PCMH components and use of MHS. Analyses were restricted to the subsample of respondents with high psychological distress (n=2,032), i.e., those likely to experience a need for MHS. Among the sample of adults with high levels of distress ("distressed"), we estimated the weighted percent of adults who used each type of MHS. We then estimated the mean number of mental health visits and mean number of prescription records among the subsample of distressed participants who reported any mental health visit or any mental health prescription.

Multivariate logistic regression models were used to estimate the association of having a PCMH on any MHS use after controlling for other predisposing, enabling, and need covariates. Because insurance status is a direct predictor of having a PCMH, including insurance status in the model may result in endogeneity bias. As a sensitivity analysis, we examined the effect of having a PCMH on MHS use both with and without controlling for insurance status.

p(MHS) = f(PCMH + Predisposing + Enabling + Need + XB) (Eq. 3.3)

p(MHS) = f(PCMH + Predisposing + Enabling + Need + Insurance + XB) (Eq. 3.4)

MHS: mental health services use
PCMH: patient centered medical home
Predisposing = age, race / ethnicity, gender, nativity, marital status, healthcare attitudes
Enabling = geographic residence, urban residence, interview language, level of education, household income
Need =, perceived mental health, number of chronic medical conditions, physical health functioning, physical limitations
XB = respondent status during the outcome period, survey year

We used the method of recycled predictions, or predicted margins, to interpret the results of the nonlinear regression models (Alegria et al. 2008b; Zuvekas and Fleishman 2008). After each of the logistic regression models we calculated the predicted probabilities of the outcome variable assuming that everyone in the distressed sample had all of the measured PCMH components. We then repeated the analysis assuming that no one in the distressed sample had all of the measured PCMH components. Finally, we calculated the mean difference in the standardized probabilities of using MHS associated with having a reported PCMH vs. no reported PCMH. This approach answers the hypothetical question: "how much more likely are adults with PCMH components to use mental health services than adults without a reported PCMH, assuming that these populations have the same distribution of predisposing, enabling, and need characteristics?" Confidence intervals were simulated using a bootstrap procedure with 2000 iterations.

Fourth, and last, we examined the incremental benefit associated with having a PCMH vs. having a Designated Provider who did not meet PCMH criteria. PCMH status was divided into three cohorts: distressed adults with no designated provider (i.e., no medical home), distressed adults with a designated provider who did not meet PCMH criteria, and distressed adults with a designated provider who met PCMH criteria. Procedures from Step 3 were then repeated to examine the effect of having all measured PCMH components above and beyond the effect of having a designated provider only on MHS use.

$$p(\text{MHS}) = f(\text{PCMH Indicators} + \text{Predisposing} + \text{Enabling} + \text{Need} + \text{XB}) \qquad \text{(Eq. 3.5)}$$

PCMH Indicators: PCMH, Designated Provider Only, No Designated Provider (reference)
Predisposing = age, race / ethnicity, gender, nativity, marital status, healthcare attitudes
Enabling = geographic residence, urban residence, interview language, level of education, household income
Need =, perceived mental health, number of chronic medical conditions, physical health functioning, physical limitations
XB = respondent status during the outcome period, survey year

Eleven percent of participants (3,069) had missing data on one or more of the covariates of interest. We used multiple imputation procedures to estimate the missing data, assuming that all missing values were missing at random. This study used the ICE program, written for Stata, which employs the method of chained equations to predict missing values based on the distribution of the observed data (Royston 2006; White et al. 2011). Analyses were conducted using the mim package in Stata which averages the model estimates across imputed datasets and produces pooled standard errors according to Rubin's rules (Roysten et al. 2009). One imputed dataset was selected at random for the simulation analyses.

3.5 Results

Patient Centered Medical Home Components

While some PCMH components are experienced frequently, fewer than half of working-age adults in the MEPS (44%) were likely to have a medical home that met all three of the measured PCMH components (e.g., designated provider, comprehensive, patient-centered). Study criteria used to estimate the PCMH components are presented in Table 3.1. The first component was having a designated provider. Seventy percent of working-age respondents in the MEPS reported that they had a primary care provider or outpatient clinic where they would go when sick or in need of medical advice. Thirty percent of adults failed to meet the first PCMH component of having a designated healthcare provider.

The second measured component was services comprehensiveness. Nearly all participants with a designated provider (97-98%) reported that they would go to this provider for new health problems, preventive services, ongoing health problems, or referrals to a specialist. Only 82%, however, reported that their designated provider usually asks about prescription medications or treatments that other doctors may have given. Overall, three-quarters of working-age adults with a designated provider met the second PCMH component of service comprehensiveness.

The third measured PCMH component was patient-centeredness. When each of the criteria used to define patient-centeredness were considered, there were notable gaps in treatment involvement. For example, nearly nine in ten adults reported that their designated provider presents and explains all the treatment options to them (94%) and shows respect for the patient's treatment decisions (90%). Only 84% of participants with a designated provider reported that their provider asks them to help make treatment decisions. One in six working-age adults (16%), therefore, failed to meet PCMH criteria as defined in this study because their designated provider did not deliver patient-centered services. When all three of the measured PCMH components were considered, only 44% of working-age adults in the U.S. received primary care services consistent with the PCMH framework.

Characteristics of Adults With and Without a Patient Centered Medical Home

In the second stage of analysis, we examined the distribution of sociodemographic factors, physical and mental health status, and health insurance status of adults with and without a reported PCMH (see Table 3.2). Adults who reported having a designated provider who met PCMH criteria were more frequently older, Non-Latino White, married, female, and U.S. born than adults without a reported PCMH ($p < .001$). In contrast to those with a reported PCMH, adults without a PCMH were often uninsured, and had low levels of education and low household incomes, $p < .001$. Adults without a reported PCMH also appeared to be more vulnerable to linguistic barriers to care. This group, compared to those with a reported PCMH, more frequently preferred a Spanish language version of the MEPS interview, $p < .001$.

Overall, adults with poorer physical health were most likely to report having a designated provider who met all of the PCMH criteria. Adults with a reported PCMH often reported having two or more chronic medical conditions, physical health limitations, and fair/poor physical health functioning compared to the sample of adults without a reported PCMH, p < .001. Adults with a reported PCMH less frequently endorsed attitudes of self-reliance, such as "*I do not need health insurance*", "*health insurance isn't worth the cost*", "*I'm more likely than others to take risks*", and "*I can overcome illness without medical assistance*", than adults without all of the measure PCMH components.

Finally, we examined the mental health status indicators in relation to participants' reporting of PCMH criteria. In contrast to the findings observed for markers of physical health, the mental health status measures were not associated in the unadjusted models with having a reported PCMH. Forty-three percent of adults with high distress reported having a designated provider who met all of the PCMH criteria compared to 44% of adults with low-moderate distress, p > .05.

Adults With High Psychological Distress Were Less Likely Than Those With Low-Moderate Distress To Have A Patient Centered Medical Home

Multivariate logistic regression models were used to examine potential disparities in reporting of the PCMH components after controlling for sociodemographic characteristics and need for physical and mental health services. Nearly all of the measured sociodemographic characteristics were associated with reporting a PCMH (see Table 3.3, Model 1). Older adults, women, and married adults were more likely than young adults, men, and non-married individuals to have a designated provider who met PCMH criteria, p < .05. After controlling for physical and mental health status, Latino, Non-Latino Black, and minorities of Other Non-Latino heritage were significantly less likely than Non-Latino Whites to report having a PCMH (adj. OR = 0.84, 0.89, and 0.73, respectively). Foreign-born respondents were also less likely than their U.S. born counterparts to report having a PCMH (OR = 0.70, 95% CI = 0.63-0.76).

There were significant gaps in the availability of the PCMH components for adults at-risk for a mental disorder. After controlling for chronic health conditions and physical health status, adults with high levels of psychological distress had 0.8 times the odds of having a provider who met all of the measured PCMH criteria as adults with low levels of distress (OR = 0.79, 95% CI = 0.71-0.88).

Next, we added indicators of health insurance status, income, and education to the statistical model to examine the potentially mediating effects of insurance, ability to pay, and healthcare literacy in explaining disparities in the PCMH (see Table 3.3, Model 2). Health insurance, household income, and education appeared to be important factors in predicting PCMH status. Publicly and privately insured adults experienced 1.7 times the odds of having a PCMH as uninsured adults. Adults living in high-income households (400% FPL) were more likely than adults living in households with low income (0-133% FPL) to have a reported PCMH, $p < .05$. Moreover, adults with high school, some college, or four or more years of college education were more likely than adults with less than a high school education to have a reported PCMH, $p < .05$. High psychological distress was no longer statistically associated with reporting of a PCMH when the group differences in health insurance status, ability to pay, and healthcare literacy were controlled in the statistical models.

Supplemental Analyses

We conducted additional analyses to better understand disparities in the reporting of PCMH components for adults with high psychological distress. First, we examined the percent of adults with low, moderate, and high levels of distress that reported each of the PCMH criteria. Overall, adults with high distress more frequently reported having a designated provider compared to adults with low-moderate levels of distress (78.6% vs. 74.1% and 75.3%, $p < .001$). However, within the subsample of respondents who had a designated provider, adults with high distress appeared less likely than those with low-moderate levels of distress to report that this provider delivered patient-centered services (67.9% vs. 77.5% and 71.5%, $p < .001$).

In supplemental analyses (not shown) multivariate logistic regression models were used to examine whether the mental health status variables were associated with each of the PCMH criteria after controlling for physical health status and other participant characteristics. After controlling for physical health status and other patient characteristics, adults with high distress had the same likelihood as those with low levels of distress of reporting that they had a designated provider (adj. OR = 1.01. S.E. = 0.08). Within the subsample of respondents who had a designated provider, however, adults with high distress were significantly less likely than those with low levels of distress to report that their provider delivered patient-centered services (adj. OR = 0.72, 95% CI = 0.61-0.85). Findings suggest that disparities in access to the PCMH components may be due both to differences in insurance status as well as to differences in patient experiences within the primary care setting.

Having A Patient Centered Medical Home Was Associated With Use Of Mental Health Services

Next we examined use of MHS by adults with and without a reported PCMH (see Table 3.4). Analyses were restricted to the subsample of 2,032 respondents with high psychological distress (i.e., those with a probable need for MHS).

Overall, distressed adults who reported having all of the PCMH components experienced higher rates of MHS use during the outcome period (rounds 3-5) than distressed adults who did not have a reported PCMH ($p < .01$). Significant differences in MHS were observed in specialty MHS, such as visits to a psychiatrist, psychologist, or social worker ($p < .05$). Distressed adults who reported having all of the measured PCMH components more frequently received medication and counseling treatments than distressed adults without all of the measured PCMH components, $p < 01$. In sum, 56% of distressed adults with a reported PCMH reported use of MHS compared to just 44% of distressed adults without a reported PCMH.

Once MHS were utilized, having a PCMH was not associated with a greater intensity of MHS use. To illustrate this point, distressed adults with all PCMH components who utilized any mental health counseling received the same number of therapy visits as distressed adults without all of the measured PCMH components, $p > .05$.

Predictors Of Mental Health Services Use Among Adults With High Psychological Distress

Next, multivariate logistic regression models were used to determine if the PCMH components measured in this study were associated with use of MHS after controlling for predisposing, enabling, and need characteristics among the subsample of adults with high psychological distress. Results are presented in Table 3.5. After controlling for predisposing, enabling, and need factors, participants with a designated provider who delivered comprehensive and patient-centered services were equally likely as participants without these resources to report use of MHS (OR = 1.18, 95% CI = 0.91-1.53).

Other indicators of healthcare access were associated with receipt of MHS. Insured adults were more likely than uninsured adults to report use of MHS and this was particularly true for those with public insurance (OR = 2.55, 1.88-3.47). Educational status was also associated with MHS use. Adults with four or more years of college had 2.4 times the odds of adults with less than a high school education of receiving needed MHS (95% CI = 1.52-3.80).

Many of the predisposing characteristics were also associated with MHS. Distressed women had 1.5 times the odds receiving any MHS as distressed men (OR = 1.48, 95% CI = 1.12-1.97). Distressed adults with poor mental health ratings and chronic medical conditions also had elevated odds of receiving MHS. Non-Latino Black adults and foreign born respondents had lower odds than Non-Latino Whites and U.S. born respondents to receive needed MHS ($p < .05$). Finally, distressed adults who agreed with healthcare attitudes of self-reliance (e.g., "*can overcome illness without medical help*") less frequently reported use of MHS than distressed adults who did not agree with these statements (OR = 0.77, 95% CI = 0.61-0.98).

3.6 Supplemental Analyses

We conducted additional analyses to better understand the role of the PCMH components in contributing to patients' use of MHS.

First, we examined the effect of having all of the measured PCMH components on MHS use before and after including insurance covariates in the model. To date, the PCMH has primarily been adopted within insured populations, such as the Veterans Healthcare Administration, State Medicaid programs, and some Health Maintenance Organizations.[3] In this study, three-quarters of distressed adults who reported having a PCMH were insured, compared with two-thirds of distressed adults who did not have a PCMH. Because insurance status is such a strong indicator of having a PCMH, adding this variable to the model may discount the potential benefit of having a PCMH for traditionally underserved populations. As a supplemental analysis, therefore, we estimated the effect of having a PCMH on use of MHS before and after controlling for insurance status.

We found in the additional analysis that excluding insurance covariates from the statistical model resulted in a larger odds ratio estimate associated with having a PCMH. For example, the odds ratio associated with a PCMH was 1.27 before controlling for insurance and 1.18 after. Results suggest that the mental health service benefits associated with having a PCMH may be primarily attributed to health insurance coverage.

To explore this issue further, we considered an alternate specification of PCMH status where the effect of having a designated provider was examined separately from the effect of comprehensive and patient-centered care. Participants were grouped into three cohorts: distressed adults with no designated provider, distressed adults with a designated provider only, distressed adults with a provider who delivered comprehensive and patient-centered services. We found that distressed adults with a designated provider only had two times the odds of receiving MHS as distressed adults without a designated provider (adj. OR = 2.16, 95% CI = 1.54-3.03). Distressed adults with a provider who met all PCMH criteria were also twice as likely as distressed adults without a designated provider to receive MHS (adj. OR = 2.01, 95% CI = 1.44-2.81). There appeared to be no added benefit of having designated provider who

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[3] It should be noted also that there are efforts to include uninsured populations within the PCMH. Moreover, PCMH assignment has been linked to improved health service outcomes for uninsured populations (Roby, Pouret et al, 2010).

delivered comprehensive and patient-centered services over having a usual healthcare provider only (Wald Test: OR = 0.97, 95% CI = 0.73-1.27). In light of these findings, we reported the results associated with having a designated provider only as well as the results associated with having a designated provider who met all measured PCMH criteria in subsequent analyses.

3.7 Effect of Patient Centered Medical Home Components On Mental Health Services Use

Finally, we determined the marginal probabilities of each type of MHS use associated with the measured PCMH components (see Table 3.6). Having a PCMH was associated with increased likelihood that adults with high distress would receive mental health treatments. For example, having a PCMH was associated with a 5.5 percentage point increase in the probability of receiving counseling treatments (RR = 1.31, 95% CI = 1.02-1.60), and a 5.2 percentage point increase in the probability of receiving pharmacologic treatment for a mental health concern (RR = 1.19, 95% CI = 1.00-1.39). Moreover, having a reported PCMH was associated with a 5.2 percentage point increase in the probability of visiting with a mental health specialist (RR = 1.28, 95% CI = 1.02-1.60). There was no statistically significant association between having a reported PCMH and mental health visits to a primary care provider.

We also examined the effects of having a designated provider separately from the other PCMH components (see Table 3.7). Having a designated provider only was associated with an increased probability of receiving MHS from a primary care provider. For example, distressed adults who reported a designated provider only were more likely than adults with no designated provider to receive a mental health visit with a primary care provider (risk difference = 0.09, 95% CI = 0.03-0.15). Distressed adults who had a designated provider only were also more likely than distressed adults with no designated provider to receive pharmacologic treatments for a mental health concern (risk difference = 0.142, 95% CI = 0.08-0.21). It was only participants who reported all PCMH components, however, that were more likely than those without a designated provider to receive specialist-based MHS. Distressed adults who reported all PCMH components were 45% more likely than distressed adults with no designated provider to visit with a mental health specialist. Having a provider who delivered comprehensive and patient-centered services was associated with a 50% increase in the probability of receiving counseling or medication treatments.

3.8 Discussion

This study was designed to examine the effect of PCMH components on adults' receipt of needed MHS. Building upon a foundation from the physical health services literature, we found that having a designated provider who delivers comprehensive and patient centered services was associated with receipt of needed mental health treatments, such as psychotherapy and pharmacotherapy. Of the measured PCMH components, having a designated provider increased patients' use of MHS in the primary care setting while the additional components of comprehensive and patient centered services were associated with patients' receipt of MHS in the specialty mental health setting. Collectively, study findings suggest that ACA policies that expand access to a designated provider who delivers care consistent with the PCMH may reduce the burden of untreated mental illness in the population.

Adults with a mental health disorder experience significant gaps in the availability of high quality primary are services. While primary care providers often serve as a gateway for patients to receive treatment for mental health disorders, not all populations have been able to access this resource. Vulnerable populations, such as the uninsured, adults with low socioeconomic status, and racial/ethnic minorities have traditionally been underserved in the primary care setting (Beal et al. 2007). We found, prior to health reform, that only 80% of working-age adults were likely to have a usual primary care provider or outpatient clinic, and fewer than half reported having a designated provider who delivers comprehensive and patient-centered services. Consistent with our study hypothesis, adults at-risk for a mental disorder (indicated by high distress) were even less likely than adults with lower disorder risk to have a provider who met all of the measured PCMH criteria.

Prior studies have found that insurance status, ability to pay, and healthcare literacy are important factors in determining who is likely to receive to high quality primary care services. Consistent with previous studies, we found that the low rates of reporting of a PCMH for adults with high psychological distress were attenuated when the models controlled for insurance status, household income, and years of education. Study findings suggest that health reform efforts that expand insurance coverage and reduce financial barriers to services will be critical for reducing barriers to healthcare providers for adults at-risk of a mental health disorder.

In physical health services, prior studies have found that having a PCMH is associated with perceived access to care (Christensen et al. 2013; Kern et al. 2013; Savage et al. 2013), increased use of primary care services (O'Toole et al. 2011), receipt of preventive screenings (DeVries et al. 2012), and treatment for chronic diseases (Ferrante et al. 2010). We found that having a designated provider who met PCMH criteria was associated with a 30 percent increase in the probability of receiving needed mental health treatments, such as counseling services. Thus, our findings suggest that ACA policies that strengthen the primary care system and provide patients with some of the core features of a PCMH may be critical for improving patients’ access to needed MHS.

Our study findings have important implications for adults’ mental health outcomes. Mental health disorders are among the leading contributors to the global burden of disease

(Organization 2008) because they are common (Demyttenaere et al. 2004), have an early age of onset (Kessler et al. 2005a), and often remain untreated (Andrews et al. 2000). Policies that enhance patients' access to needed mental health treatments are therefore urgently needed to reduce the global burden of disease and improve physical and mental health outcomes.

Prior studies have found that general policies which promote access to primary care services are associated with improvements in mental health outcomes such as better mental health ratings, lower depressive symptoms, and reduced rates of suicide (Li et al. 2011; Starfield, Shi, and Macinko 2005). Results from this study illustrate the mechanisms of primary care that may help to improve mental health outcomes. We found that access to a primary care provider was associated with improved rates of mental health treatment.

This study also provides insight into some of the PCMH components that might be operating to influence patient's access to MHS. One of the hypothesized mechanisms through which the PCMH may facilitate treatment of mental health disorders in primary care is by enhancing the coordination of services between primary care and mental health specialist providers. Within the PCMH, primary care providers often have responsibility for managing all of the patients' healthcare needs, including coordinating services with specialist and ancillary providers. Having a PCMH may therefore create linkages for patients to receive needed services from medical specialists (Fishman et al. 2012; Reid et al. 2009). In support of this hypothesis, we found that distressed adults who reported having a designated provider who delivers comprehensive and patient-centered services were more likely than distressed adults with no designated provider to visit with a mental health specialist. Having a designated provider only was not statistically associated with visits to a mental health specialist. While we were unable in the MEPS to measure mental health referrals directly, results nonetheless suggest that comprehensive approaches to treatment in the primary care setting may help to increase the rate of completed referrals to mental health specialist providers.

Our study findings also build upon a foundation from the physical health services literature and demonstrate the value of having a usual source of care. When we looked at the measured components of the PCMH, we found that having a designated provider (as indicated by patients' source of usual care) was associated with a two-fold increase in the probability of using MHS. This finding was observed even when controlling for insurance status, suggesting there is an added value of having a continuous relationship with a healthcare provider above and beyond traditional access factors.

It is important to note that there may be unmeasured factors that help to explain the study findings. Prior studies in physical health services have found that patients who report having a usual source of care report higher levels of satisfaction and trust in their providers (Fan et al. 2005; Kao et al. 1998) and better communication with their provider (Christensen et al. 2013; DeVoe et al. 2008) than adults without a usual source of care. Provider trust and satisfaction are associated with receipt of sensitive and personal services, such as prostate cancer screenings (Carpenter et al. 2009). Because there is such stigma associated with use of mental health treatments, the quality of the patient-primary care provider relationship may be a critical factor in understanding patients' likelihood of seeking mental health treatment. Indeed, we found that adults who had a designated provider were more likely than adults without a designated provider to report a mental health visit with a primary care provider. More work is needed to determine if interventions that enhance patient-provider trust and satisfaction in the PCMH may also be effective strategies for reducing help-seeking barriers to mental health treatments in this setting.

In examining the components of the PCMH, we found that adults with high distress were less likely than adults with low distress to report receipt of patient-centered services in the primary care setting. One potential explanation for this finding is that participants' ratings of the services delivered by their designated provider may be influenced by their affect at the time of the interview. Contrary to this hypothesis, we found that adults with high distress were equally likely as adults with low distress to rate their primary care services as comprehensive. Results in this study were consistent with those in the pediatric literature as well. Adams et al attributed low rates of PCMH attainment for adolescents with mental health disorders to gaps in receipt of family-centered care as well as lack of effective care coordination (Adams et al. 2013). Collectively, findings from our study and the previous research suggest that adults at-risk for a mental disorder may be less likely than adults with lower disorder risk to receive patient-centered care in the primary care setting. Unfortunately, negative services experiences in primary care may also discourage patients from participating in treatment.

Prior studies have found that patient-centered approaches to the treatment of mental health disorders are associated with reduced treatment delays, better treatment adherence, and improved mental health outcomes (Cooper et al. 2013; Loh et al. 2007b). Patient-centered approaches to the treatment of mental disorders in primary care, therefore, may help to engage patients in mental health services. In support of this hypothesis we found that receipt of comprehensive and patient-centered care in the primary care setting was associated with receipt of counseling and pharmacologic mental health treatments. Policies that enhance the collaborative relationship between patients and primary care providers, therefore, may help to reduce unmet treatment needs and improve mental health outcomes. Our results lay a foundation for additional research to examine how patient-centered approaches to the treatment of mental disorders can most effectively be incorporated within the PCMH to improve the treatment of mental disorders in this setting (Stanhope et al. 2013).

Finally, we found that having a designated provider who delivers comprehensive and patient-centered care was associated with receipt of counseling services. Results suggest that when patients are involved in treatment decision-making they are more likely to receive services that coincide with their treatment preferences. Several studies have found when asked about treatment preferences, depressed adults often report a greater preference for counseling based treatments over pharmacologic treatments. While we were unable in this study to measure patients' preferences for mental health treatments directly, results from our study nonetheless suggest that when patients receive patient-centered services they are more likely to receive the kinds of services that are often preferred. Policies that enhance the collaborative relationship between patients and primary care providers, therefore, may help to reduce unmet treatment needs and improve mental health outcomes for adults with a mental health disorder.

3.9 Strengths And Limitations

There are three important limitations to keep in mind when interpreting the study findings. First, MEPS does not measure some components of the PCMH that may improve the treatment of mental disorders in primary care: integration of primary care and specialty care services, as well as practice reforms that enhance the quality of care delivered in primary care settings (e.g., use of case managers, health information technology, and payment reforms). Efforts to integrate mental health services into primary care have been shown to improve patients' engagement in treatment and contribute to enhanced mental health outcomes (Bohnert et al. 2013; Kessler 2012; Reiss-Brennan et al. 2010; Szymanski et al. 2013; Woltmann et al. 2012). Primary care-based quality improvement initiatives and payment reforms, moreover, have been shown to improve the treatment of mental disorders in primary care (Fortney et al. 2012; Fortney et al. 2013; Unutzer et al. 2012; Wells et al. 2004). Because unmeasured PCMH components are likely to enhance patients' access to and use of MHS, results from the current study are likely conservative. That is, having a designated provider may have an even greater impact on patients' access to and engagement in mental health treatments in settings that include additional practice-level reforms. It will be important as additional primary care practice reforms are implemented to track the ongoing benefits associated with PCMH components on patients' access to and use of mental health services.

Second, we were unable to determine the causal direction associated with having a designated provider on patients reported use of MHS. It may be the case that patients who use MHS may be more likely than those who do not use MHS to describe their provider as a usual source of care. It may also be the case that adults who are more active in using MHS may describe their healthcare provider as patient-centered. This study partially controls for reverse causality bias such as this by using lagged panel data to measure PCMH components prior to MHS use. Nevertheless, concerns of reverse causality can't be fully ruled out.

Finally, study findings may not generalize to the most vulnerable populations with serious mental illness. The NHIS-MEPS sampling frame is based on household residences. Adults who are homeless, institutionalized, or living in military quarters are excluded from the current study. Unfortunately, these excluded populations often have the greatest need for mental health services (Diamond et al. 2001; Pratt 2012; Van Dorn et al. 2013). Moreover, our study was designed to examine primary care-based PMCH components. Adults with serious mental illness may receive services from community mental health centers and other specialty mental health settings (Johnson-Lawrence et al. 2012; McAlpine and Mechanic 2000; Smith and Sederer 2009) where there is a shortage of primary care services (Druss et al. 2008a). Despite this limitation, our study contributes to an ongoing dialogue about the appropriateness of new delivery models used to treat mental health disorders in the primary care setting. Subsequent research is needed to determine how best to integrate primary and specialty mental health services for adults receiving mental health treatments in community mental health settings.

Despite these limitations, this study contributes new findings regarding the benefit associated with PCMH components for adults with MHS needs. While previous investigations of PCMH components have occurred within individual practices, our study included a nationally representative sample that includes patients from all types of practices. Moreover, we used an innovative approach to measure components of the PCMH that have not been readily studied in MHS: having a designated provider who delivers comprehensive and patient-centered services. In doing so, we found that comprehensive, patient-centered approaches to treatment was even more beneficial than having a designated provider only for linking patients to specialty mental health services, such as visits to a psychiatrist, psychologist, or social worker. Our findings have important implications as they suggest that the PCMH may help to link patients to preferred mental health treatments and to reduce the pervasive fragmentation that exists between the physical and mental health systems of care. Moreover, this study demonstrates the value of having a usual healthcare provider. Study findings suggest that ACA policies that provide patients with a usual healthcare provider (e.g., insurance expansions, investments in primary care workforce, and expanded number of Federally Qualified Health Centers) may improve the rate of MHS use for vulnerable populations.

3.10 Conclusions

As Christensen (2013) and others have pointed out, there is no single definition of a PCMH, but rather a set of guiding principles that are being adopted across healthcare organizations and cultures to improve primary care services delivery for diverse populations (Christensen et al. 2013; Vest et al. 2010). This study examined three guiding PCMH principles as they related to addressing MHS needs in primary care. We found, overall, that adults at-risk for a mental health disorder experience barriers to the primary care based PCMH. Gaps in the PCMH, moreover, contribute to low rates of MHS use for adults at-risk of a mental health disorder. Findings suggest that providing patients with a designated healthcare provider will improve access to mental health treatments within primary care. Without additional efforts to overcome physical and mental health services fragmentation, however, having a designated provider only will have little impact on adults' access to specialty MHS. Our findings suggest that comprehensive and patient-centered approaches to treatment are important for creating linkages to specialty mental health services. Incorporating patient-centered approaches to the treatment of mental disorders within the PCMH, moreover, may be one strategy needed to enhance patients' treatment experiences and foster engagement in mental health counseling.

3.11 Tables

Table 3.1: Percent Of Working-Age Adults (Age 18-64) Who Reported Having A Patient Centered Medical Home In The Medical Expenditures Panel Survey, Panels 9-14 (N = 27,877)

Patient Centered Medical Home Criteria	Percent of Adults Who Met PCMH Criteria
	Weighted % (SE)
1. Participant Has a Designated Provider: A Primary Care Provider Or Outpatient Clinic Where They Usually Go When Sick Or In Need Of Medical Advice	70.3 (0.4)
2. Designated Provider Delivers Comprehensive Services	
a. Is this the place/provider that you would go to for new health problems?	*97.9 (0.1)*
b. Is this the place/provider that you would go to preventive health services?	*97.3 (0.2)*
c. Is this the place/provider that you would go to for ongoing health problems?	*97.1 (0.2)*
d. Is this the place/provider that you would go to for referral to a specialist?	*96.9 (0.2)*
e. Does this place/provider usually ask about prescription medication and treatments other doctors may have given?	*81.5 (0.4)*
Designated Provider Meets All 5 Above Criteria For Comprehensiveness	77.2 (0.4)
3. Designated Provider Delivers Patient-Centered Services	
a. Does this place/provider present and explain all options to you?	*94.4 (0.2)*
b. If there were a choice between treatments, how often would the place/provider ask you to help make the decision?	*83.7 (0.4)*
c. How often does the place/provider show respect for medical, traditional and alternative treatments that you are happy with?	*89.9 (0.3)*
Designated Provider Meets All 3 Above Criteria For Patient-Centered Care	77.5 (0.4)
Percent Of Adults With A Designated Provider Who Delivers Comprehensive And Patient-Centered Services	44.2 (0.5)

Table 3.2: Characteristics of Working-Age Adults (Age 18-64) With and Without A Patient Centered Medical Home In The Medical Expenditures Panel Survey, Panels 9-14 (N = 27,877)

	Patient Centered Medical Home Status		
	Did Not Meet PCMH Criteria	Met PCMH Criteria	
Unweighted N:	*15,312*	*10,415*	
	Weighted Percent (SE)		X^2
Race/Ethnicity			
Non-Latino White	63.7 (0.7)	71.8 (0.7)	
Latino	15.8 (0.6)	10.7 (0.5)	
Non-Latino Black	13.3 (0.5)	12.4 (0.5)	
Non-Latino Asian	4.7 (0.3)	3.1 (0.2)	
Non-Latino Other	2.6 (0.2)	1.9 (0.2)	39.9***
Age			
18-29	27.6 (0.6)	16.0 (0.6)	
30-44	35.3 (0.5)	34.6 (0.6)	
45-54	22.0 (0.4)	26.8 (0.5)	
55-64	15.2 (0.4)	22.6 (0.5)	122.7***
Female Gender	59.0 (0.6)	71.6 (0.6)	256.7***
Foreign/Island Nativity	18.1 (0.6)	11.2 (0.4)	141.4***
Marital Status			
Single, Never Married	33.5 (0.6)	21.3 (0.6)	
Married	42.9 (0.6)	56.1 (0.7)	
Separated, Divorced, Widowed	23.6 (0.5)	22.6 (0.5)	167.3***
Psychological Distress			
Low	82.9 (0.4)	84.0 (0.4)	
Moderate	10.7 (0.4)	10.0 (0.4)	
High	6.4 (0.3)	6.1 (0.3)	1.7
Mental Health Rated Fair/Poor	7.5 (0.3)	7.4 (0.3)	0.1
Chronic Health Conditions			
Zero	50.6 (0.6)	36.5 (0.6)	
One	24.5 (0.5)	26.5 (0.5)	
Two or More	24.9 (0.5)	37.0 (0.6)	175.3***
Physical Health Functioning			
Lowest Quartile	20.1 (0.5)	24.2 (0.5)	
Middle Quartiles	50.9 (0.5)	51.0 (0.6)	
Highest Quartile	29.0 (0.5)	24.8 (0.6)	26.2***

* $p < .05$, ** $p < .01$, *** $p < .001$

Measured PCMH criteria were 1) having a designated provider, 2) services comprehensiveness, and 3) patient-centered care

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Table 3.2 Continued …

	Patient Centered Medical Home Status		
	Did Not Meet PCMH Criteria	Met PCMH Criteria	
Unweighted N:	*15,312*	*10,415*	
	Weighted Percent (SE)		X^2
Any Physical Health Limitation	13.9 (0.4)	18.2 (0.5)	54.0***
Education			
Less Than High School	15.8 (0.4)	10.9 (0.4)	
High School	29.5 (0.5)	20.1 (0.6)	
Some College	26.1 (0.5)	27.5 (0.6)	
Four or More Years of College	28.6 (0.6)	32.5 (0.7)	29.3***
Spanish Interview Language	7.3 (0.4)	3.8 (0.2)	127.0***
Insured	68.5 (0.5)	84.4 (0.5)	494.9***
Type of Health Insurance (among insured)			
Private Insurance	86.0 (0.5)	86.2 (0.4)	
Medicaid Only	9.6 (0.4)	8.4 (0.3)	
Medicaid + Medicare	1.6 (0.2)	2.0 (0.2)	
Medicare Only	2.8 (0.2)	3.4 (0.2)	4.5**
Household Income Relative To Poverty Level			
Poor (0-133% FPL)	20.5 (0.5)	14.8 (0.4)	
Low Income (133-200% FPL)	15.6 (0.4)	11.9 (0.4)	
Middle Income (200-400% FPL)	31.4 (0.5)	30.8 (0.6)	
High Income (More than 400% FPL)	32.6 (0.6)	42.5 (0.7)	66.8***
Geographic Region			
Northeast	14.3 (0.5)	21.0 (0.8)	
Midwest	22.1 (0.7)	23.7 (0.8)	
South	39.3 (0.8)	34.6 (1.0)	
West	24.3 (0.7)	20.7 (0.7)	35.9***
Live In Metropolitan Statistical Area	84.9 (0.8)	83.3 (1.0)	5.7*
Healthcare Attitudes			
Don't need insurance	15.6 (0.4)	7.3 (0.3)	264.7***
Health insurance not worth the costs	29.3 (0.5)	21.3 (0.5)	115.3***
More likely than others to take risks	26.6 (0.5)	19.1 (0.5)	115.7***
Overcome illness without medical assistance	29.3 (0.5)	19.6 (0.5)	194.6***
Household Respondent Rounds 2-5	88.7 (0.3)	90.5 (0.4)	12.3***

* p < .05, ** p < .01, *** p < .001

Measured PCMH criteria included 1) having a designated provider, 2) services comprehensiveness, and 3) patient-centered care

Table 3.3: Adults With High Psychological Distress Are Less Likely Than Adults With Low Distress To Have A Patient Centered Medical Home In The Medical Expenditures Panel Survey, Panels 9-14 (N=2,032).

	Model 1: Controls For Predisposing & Need Factors Only	Model 2: Controls For Predisposing, Enabling & Need Factors
	Odds Ratio (SE)	*Odds Ratio (SE)*
Psychological Distress		
Low	1.0	1.0
Moderate	0.85 (0.05)**	0.89 (0.05)*
High	0.82 (0.06)**	0.88 (0.06)
Race/Ethnicity		
Non-Latino White	1.0	1.0
Latino	0.84 (0.04)**	1.02 (0.06)
Non-Latino Black	0.89 (0.04)*	0.98 (0.05)
Non-Latino Asian	0.89 (0.08)	0.82 (0.08)*
Non-Latino Other	0.73 (0.08)**	0.78 (0.09)*
Age		
18-29	1.0	1.0
30-44	1.32 (0.06)***	1.24 (0.06)***
45-54	1.41 (0.07)***	1.30 (0.06)***
55-64	1.56 (0.09)***	1.43 (0.09)***
Female Gender	1.41 (0.05)***	1.40 (0.05)***
Foreign/Island Nativity	0.70 (0.04)***	0.76 (0.04)***
Marital Status		
Married	1.0	1.0
Single, Never Married	0.75 (0.03)***	0.78 (0.03)***
Separated, Divorced, Widowed	0.74 (0.03)***	0.80 (0.03)***
Mental Health Rated Fair or Poor	0.89 (0.06)	0.91 (0.06)
Chronic Health Conditions		
Zero	1.0	1.0
One	1.23 (0.05)***	1.19 (0.05)***
Two or More	1.48 (0.07)***	1.43 (0.06)***
Any Physical Health Limitation	1.06 (0.05)	1.09 (0.05)
Physical Health Functioning		
Lowest Quartile	0.94 (0.04)	1.00 (0.05)
Middle Quartiles	1.02 (0.04)	1.06 (0.04)
Highest Quartile	1.0	1.0
Healthcare Attitudes		
Don't need insurance	0.72 (0.04)***	0.76 (0.04)***
Health insurance not worth the costs	0.81 (0.03)***	0.86 (0.03)***
More likely than others to take risks	0.91 (0.03)**	0.93 (0.04)
Overcome illness without medical assistance	0.79 (0.03)***	0.79 (0.03)***
Survey Year 2008-2010	0.98 (0.04)	0.99 (0.04)
Household Respondent Rounds 2-5	1.09 (0.06)	1.06 (0.06)

* p < .05, ** p < .01, *** p < .001

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Table 3.3 Continued …

	Model 1: Controls For Predisposing & Need Factors Only	Model 2: Controls For Predisposing, Enabling & Need Factors
	Odds Ratio (SE)	*Odds Ratio (SE)*
Insurance		
Uninsured		1.0
Public Insurance		1.72 (0.10)***
Private Insurance		1.64 (0.07)***
Household Income Relative To Poverty Level (FPL)		
Poor		1.0
Low Income		1.01 (0.06)
Middle Income		1.10 (0.06)
High Income		1.16 (0.07)*
Education		
Less Than High School		1.0
High School		1.13 (0.06)*
Some College		1.21 (0.07)**
Four or More Years of College		1.18 (0.07)**
Spanish Interview Language		0.93 (0.07)
Geographic Region		
Northeast		1.0
Midwest		0.79 (.0.05)***
South		0.68 (0.04)***
West		0.71 (0.04)***
Live In Metropolitan Statistical Area		0.95 (0.05)

* p < .05, ** p < .01, *** p < .001

Table 3.4: Percent of Distressed Adults Who Reported Use Of Mental Health Services In The Medical Expenditure Panel Survey, Panels 9-14 (N=2,032)

	Distressed[‡] Adults Without A PCMH	Distressed[‡] Adults With A PCMH	
Unweighted N:	*1,167*	*865*	
	Weighted % (SE)		*X^2, p-value*
Mental Health Visit With Primary Care Provider	18.6 (1.5)	22.9 (1.9)	2.72, p = .10
Mental Health Visit With Mental Health Specialist	21.1 (1.5)	27.7 (1.9)	7.27, p < .01
Any Counseling or Psychotherapy	21.0 (1.5)	28.2 (1.9)	8.74, p < .01
Any Mental Health Prescription	32.1 (1.8)	42.2 (2.4)	11.67, p < .001
Any Mental Health Services Use	44.2 (2.0)	56.0 (2.3)	15.24, p < .001
Mean Number of Mental Health Encounters, Conditional On Any Encounter			
	Weighted % (SE)		*X^2, p-value*
Mental Health Visit s With A Primary Care Provider	12.2 (1.1)	13.7 (1.5)	0.67, n.s.
Mental Health Visits With A Mental Health Specialist	5.2 (0.7)	5.9 (0.7)	0.36, n.s.
Counseling or Psychotherapy Visits	13.1 (1.4)	12.9 (1.5)	0.01, n.s.
Mental Health Prescription Encounters	13.93 (1.31)	14.8 (1.8)	0.16, n.s.

[‡] Met criteria for high psychological distress on the Kessler 6-Item Scale of Psychological Distress (K6 >=13)

PCMH = Patient Centered Medical Home

Measured PCMH criteria included 1) having a designated provider, 2) services comprehensiveness, and 3) patient-centered care

Table 3.5: Participant Characteristics Associated With Mental Health Services Use Among Adults With High Psychological Distress In The Medical Expenditures Panel Survey, Panels 9-14 (N=2,032)

	Any Mental Health Services Use
	Odds Ratio (SE)
Have All PCMH Criteria (Yes/No)	1.18 (0.15)
Age	
18-29	1.0
30-44	0.98 (0.21)
45-54	1.22 (0.28)
55-64	0.84 (0.21)
Female Gender	1.48 (0.21)**
Race/Ethnicity	
Non-Latino White	1.0
Latino	1.12 (0.25)
Non-Latino Black	0.67 (0.11)*
Non-Latino Other	0.78 (0.22)
Foreign/Island Nativity	0.43 (0.12)***
Marital Status	
Married	1.0
Single, Never Married	0.76 (0.13)
Separated, Divorced, Widowed	1.01 (0.16)
Mental Health Rated Fair/Poor	2.54 (0.31)***
Chronic Health Conditions	
Zero	1.0
One	1.06 (0.21)
Two or More	2.01 (0.35)***
Any Physical Health Limitation	1.10 (0.17)
Lowest Quartile of Physical Health Functioning	1.22 (0.18)
Any Self-Reliant Healthcare Attitude	0.76 (0.09)*
Geographic Region	
Northeast	1.0
Midwest	0.74 (0.18)
South	0.58 (0.12)
West	0.66 (0.16)
Live In Metropolitan Statistical Area	0.92 (0.16)
Level of Education	
Less than High School	1.0
High School	1.32 (0.20)
Some College	1.25 (0.21)
Four or More Years of College	2.40 (0.56)***
Spanish Interview Language	1.28 (0.40)
Insurance	
Uninsured	1.0
Public Insurance	2.55 (0.40)***
Private Insurance	1.60 (0.26)**

* p < .05, ** p < .01, *** p < .001

(Table Continues On Next Page)

Table 3.5 Continued …

	Any Mental Health Services Use
	Odds Ratio (SE)
Household Income	
0-133% FPL	1.0
133-200% FPL	1.13 (0.26)
200-400% FPL	0.90 (0.21)
> 400% FPL	1.26 (0.28)

* p < .05, ** p < .01, *** p < .001

Not shown in table, indicators for survey year, household respondent status

Table 3.6: Marginal Probability of Mental Health Services Use Associated With Having A Patient Centered Medical Home For Adults With High Psychological Distress (N=2,032)

	Predicted Probability Of Mental Health Services Use [‡]		Marginal Probability Of Mental Health Services Use Associated With Having A PCMH	
	With A PCMH	*Without A PCMH*	$p(MHS \mid PCMH) - p(MHS \mid No\ PCMH)$	*95 % CI*
Any Mental Health Service	0.515	0.463	0.052	(-0.004-0.101)
Visit With Primary Care Provider	0.218	0.197	0.021	(-0.023-0.062)
Visit To Mental Health Specialist	0.261	0.209	**0.052**	**(0.006-0.098)**
Any Counseling or Psychotherapy	0.261	0.206	**0.055**	**(0.009-0.097)**
Any Mental Health Prescription	0.392	0.341	**0.052**	**(0.002-0.100)**

MHS = Mental Health Service Use
PCMH = Patient Centered Medical Home

Results in **BOLD** are statistically significant.

[‡] Standardized estimates adjusting for age, gender, race, foreign/island nativity, marital status, mental health ratings, chronic medical conditions, physical health functioning, physical limitations, geographic region, urban/rural residence, education, household income, attitudes of self-reliance, survey year, and respondent status. Estimates do not adjust for insurance status.

Table 3.7: Marginal Probabilities Of Mental Health Services Use Associated With Having A Patient Centered Medical Home, A Designated Healthcare Provider Only, Or No Designated Provider Among Adults With High Psychological Distress (N=2,032)

	Predicted Probability Of Mental Health Services Use[‡]			Marginal Probability Of Mental Health Services Use Associated With PCMH Components		
Type Of Mental Health Service	No DP	DP Only	PCMH	p(MHS | DP Only) -p(MHS | No DP)	p(MHS | PCMH)- p(MHS | No DP)	p(MHS | PCMH)- p(MHS | DP, Only)
Any Mental Health Service	0.348	0.522	0.519	**0.174** (.103-.284)	**0.171** (.099-.234)	-0.003 (-.059-0.053)
Visit With Primary Care Provider	0.136	0.225	0.220	**0.089** (0.032-0.147)	**.084** (0.028-0.134)	-0.004 (-0.054-0.043)
Visit To Mental Health Specialist	0.182	0.223	0.263	0.040 (-0.021-0.102)	**0.081** (0.022-0.143)	0.040 (-0.009-0.089)
Any Counseling or Psychotherapy	0.176	0.220	0.262	0.045 (-0.014-0.104)	**0.087** (0.025-0.151)	0.042 (-0.009-0.090)
Any Mental Health Prescription	0.245	0.384	0.396	**0.142** (0.077-0.212)	**0.151** (0.086-0.214)	0.010 (-0.045-0.065)

Abbreviations: DP = Designated Provider; PCMH = Patient Centered Medical Home; MHS = Mental Health Services Use;
CI: Confidence Interval

Results in **BOLD** are statistically significant.

[‡] Standardized estimates adjusting for age, gender, race, foreign/island nativity, marital status, mental health ratings, chronic medical conditions, physical health functioning, physical limitations, geographic region, urban/rural residence, education, household income, attitudes of self-reliance, survey year, and respondent status. Estimates do not adjust for insurance status.

Chapter 4: Investigating the Patient Centered Medical Home as a Model of Mental Health Services Delivery for Black and Latino Populations: Implications for Racial/Ethnic Disparities in Mental Health Services (Study 3)

4.1 Introduction

The Patient Centered Medical Home (PCMH) is considered a promising model of primary care services delivery with potential to improve access to needed services and reduce disparities in healthcare for racial/ethnic minorities (Iglehart 2008; Maeng et al. 2012; O'Toole et al. 2011; Reid et al. 2010; Takach 2012). The PCMH is a coordinated and team-based approach to delivering primary care services that are comprehensive in nature, continuous over the life course, patient-centered, and quality-driven (American Academy of Family Physicians et al. 2007). While the exact definition and configuration of the medical home varies across practices (Vest et al. 2010), there is nonetheless a set of common principles that are used to indicate a PCMH. These principles include: 1) a personal physician for each patient, 2) a physician-directed, multidisciplinary team–based medical practice, 3) a whole-person orientation to care, 4) coordinated and integrated services, 5) safe and high-quality care through evidence-based medicine, appropriate use of health information technology, and quality improvement initiatives, 6) expanded access to care, and 7) payment reforms that recognize the added value of the PCMH (American Academy of Family Physicians et al. 2007).

Many of the principles that form the PCMH are thought to address gaps in the access to and quality of care for vulnerable populations, including racial and ethnic minorities. Indeed, prior studies have found that having a PCMH is associated with improved access to physical health services, more favorable healthcare ratings, and improved health outcomes for low-income, uninsured, and racial/ethnic minority adults (Beal et al. 2007; Berenson et al. 2012; Lee et al. 2011). Importantly, prior studies have found that racial/ethnic disparities in physical health service experiences can be reduced when Black, White, and Latino adults have access to a PCMH (Beal et al. 2007; Berenson et al. 2012). Given these successes in physical health services, it is important to consider whether expanding minority patients' access to the PCMH may also be effective towards reducing Black-White and Latino-White disparities in mental health services (MHS).

Linking PCMH Components To Mental Health Services Use For Racial Minority Populations

Several PCMH components are likely to facilitate Black and Latino patients' access to and use of MHS in the primary care setting. The first important component of the PCMH is the designation of a provider who has a collaborative relationship with the patient and who is responsible for managing all of the patient's healthcare needs. Prior studies have demonstrated the benefits of having a designated healthcare provider in the realm of physical health services. Having a usual source of care, for example, promotes access to needed services (Beal, Hernandez, and Doty 2009; Corbie-Smith et al. 2002; Sambamoorthi and McAlpine 2003), facilitates the patient-provider relationship (Carpenter et al. 2009; DeVoe et al. 2008), and is associated with improved health service outcomes for Black and Latino minorities (Beal et al. 2009; Shi, Green, and Kazakova 2004). Additionally, patients who have a usual healthcare provider are more likely than those without this resource to receive diagnoses and treatment for chronic diseases, such as diabetes (Spatz et al. 2010). Having a designated provider, therefore, may be a critical factor in the diagnosis and treatment of mental health disorders in primary care.

Compared to Non-Latino Whites, Black and Latino adults are less likely to have a personal healthcare physician (Blewett et al. 2008; Mahmoudi and Jensen 2012). Lack of provider continuity prevents providers and patients from developing the trusting relationships that may be needed to facilitate the detection of mental health disorders in primary care. As a result, even when Black and Latino patients visit with a medical provider, they are less likely than Whites to receive timely and accurate mental health diagnoses (Alegria et al. 2008c; Borowsky et al. 2000). It may be the case then that Black and Latino adults who have a designated healthcare provider will be more likely than Black and Latino adults without a designated provider to receive needed MHS.

Second, comprehensive and coordinated approaches to primary care services delivery may help to reduce physical and mental health services fragmentation and improve Black and Latino patients' access to mental health specialist providers. In the PCMH, the designated provider is responsible for managing all of the patients' preventive, acute, and chronic healthcare needs, and providing referrals to medical specialists and community services when needed (Beal et al. 2007). The PCMH, moreover, incentivizes the coordination of care across providers and healthcare settings through the use of information technology and alternate payment arrangements. This coordinated and whole-person approach to primary care services delivery is thought to enhance patients' access to specialist services, improve the management of chronic health conditions, and reduce the use of costly emergency department services (DeVries et al. 2012).

Early findings from medical home demonstration projects suggest that the PCMH enhances collaboration among providers and facilitates the referral pathway to specialist services (Fishman et al. 2012; Reid et al. 2009). Moreover, having a PCMH is associated with reductions in avoidable hospitalizations and use of the emergency room among vulnerable populations (Roby et al. 2010; Yoon et al. 2013). Given these successes in the realm of physical health services, we hypothesize that comprehensive and coordinated approaches to primary care services delivery will also improve Black and Latino patients' access to mental health specialist providers.

Finally, the PCMH may help to reduce racial/ethnic disparities in MHS by promoting the adoption of patient-centered approaches to treatment within the primary care setting. Patient-centeredness is a collaborative approach to treatment where the provider explores the patients' preferences and values; explains treatment options to the patient; works with the patient to develop a treatment plan that meets the patients' goals; and enables patients to follow through with behavioral changes to maximize their health outcomes (Epstein and Street 2011; Martsolf et al. 2012). Patient-centered approaches to treatment are considered important for building caring relationships that help to overcome social, demographic, and economic differences between patients and providers (Epstein and Street 2011). These approaches may be particularly important for Black and Latino minorities who report negative healthcare experiences more frequently than Whites due to race, socioeconomic status, and insurance status (Hausmann et al. 2011; Lee et al. 2009; Macintosh et al. 2013). Incorporating patient-centered approaches to treatment in the primary care setting may thus be important for improving the primary care experiences of Black and Latino patients and for reducing racial/ethnic disparities in MHS.

This is an important time to examine core features of primary care services delivery for racial and ethnic minorities. Nearly ten million Black and Latino adults are likely to gain health insurance through the private and public insurance expansions (Garfield et al. 2011), enabling many patients to receive MHS through the primary care setting for the first time (Abrams et al. 2011; Russell 2010). The Affordable Care Act moreover creates opportunities for Black and Latino minorities to participate in the PCMH by promoting a Health Home option under Medicaid, training primary care providers in team-based approaches to healthcare delivery, and creating incentives for private and public health plans to report on PCMH services provided

(Takach 2012; Thompson and McCabe 2012). With these new opportunities, it is important to determine whether the PCMH will improve upon past models of primary care service delivery to improve Black and Latino patients' access to and use of MHS. Moreover, more work is needed to determine whether ACA policies to promote the PCMH may also help to reduce the long-standing racial/ethnic disparities in MHS.

Study Objectives

This study was designed to examine the effect of PCMH components on mental health services use for Non-Latino White, Non-Latino Black, and Latino adults with high psychological distress (i.e., those with a likely need for MHS). We used nationally representative data from the Medical Expenditures Panel Survey (MEPS) to identify features of primary care that are consistent with the PCMH framework: having a designated provider; whole-person orientation to care; enhanced access to providers; and patient-centered approaches to treatment. These components were selected for investigation because they represent aspects of the patient-provider relationship that are the considered central to the PCMH (Ferrante et al. 2010), they are hypothesized to contribute to racial/ethnic disparities in physical and mental health services delivery, and they can be measured using publicly available, nationally representative datasets. There is an opportunity, therefore, to anticipate the impact of ACA policies to expand core features of the PCMH on mental health services use in a large and ethnically diverse sample of adults with mental health service needs. The study objectives were to 1) to estimate racial/ethnic disparities in PCMH components and MHS use; 2) to determine whether patients' reporting of PCMH components was associated with use of MHS in racial/ethnic minority populations; and 3) to examine whether Black-White and Latino-White disparities in MHS may be reduced by ACA policies to strengthen the primary care system and promote adoption of the PCMH.

4.2 New Contributions

This study makes three new contributions towards our understandings of the impact of having a PCMH on Black and Latino patients' use of MHS. First, this study examines how PCMH components differentially influence MHS for Black, White, and Latino populations. PCMH demonstration projects remain in the early stages of evaluation and, depending on the practice, may not include large numbers of racial/ethnic minorities. Consequently, there have been few opportunities to examine the potential benefit of the PCMH for Black and Latino adults in the U.S. One study, conducted by the Commonwealth Foundation, found that having a PCMH was differentially associated with physical health services outcomes for Black, White, and Latino adults (Beal et al. 2007). Our study examines components of the PCMH that may influence MHS use separately for Black, White, and Latino populations because it is not known whether the benefits of the PCMH will extend equally across racial/ethnic groups. In doing so, we contribute new findings regarding the potential impact of core components of the PCMH on MHS use in Black and Latino minority populations.

This study also examines the impact of PCMH components on MHS use separately for Latinos of Mexican and Central/South American heritage and Latinos of Caribbean heritage. Within the Latino population, there is heterogeneity in the use of MHS and pathways to treatment (Alegria et al. 2007b). Puerto Ricans, for example, are likely to use specialty MHS whereas Mexican Americans tend to rely on primary care providers for treatment of mental health disorders (Alegria et al. 2007b). Prior studies have found that Latinos of Mexican and Central/South American heritage are more likely than other Latinos to experience disparities in access to the PCMH (Beal et al. 2009). This study, therefore, examines patients' reporting of PCMH components and MHS use separately for Latinos of Mexican, Central/South American (MCS) heritage from Latinos of Caribbean origin. Our study findings will help to elucidate how primary care reforms may affect pathways into treatment and MHS disparities for Latino populations in the U.S.

Finally, this study examines the potential impact of the PCMH towards reducing racial/ethnic disparities in MHS. Prior studies, which have linked the PCMH to healthcare disparities to date, have been conducted within the realm of physical health services. For example, one study found that racial/ethnic disparities in receipt of physical health services were reduced when Black, White, and Latino adults experienced access to a PCMH (Beal et al. 2007). The current study builds on this important work in physical health services to determine disparities in reporting of PCMH components and subsequent use of MHS. In testing these pathways, this study will draw conclusions about the potential implications of PCMH expansions on Black-White and Latino-White disparities in MHS.

4.3 Conceptual Framework

This study takes a contextual approach to examining the effects of PCMH components on MHS for Non-Latino White, Non-Latino Black, and MCS and Caribbean Latino populations in the U.S. Drawing from the Andersen Behavioral Model of Health Services Utilization For Vulnerable Populations, we recognize that individual and cultural factors contribute to a patient's need for mental health care and their decision to seek treatment for a mental health disorder (Andersen 1995; Gelberg et al. 2000; Phillips et al. 1998). Enabling factors also contribute to a patient's ability to access physical and mental health services when needed. At the individual level, enabling factors include health insurance coverage, healthcare literacy, and ability to pay for services (Alegria et al. 2012). At the community level, the supply of primary care and mental health specialist providers as well as the presence of community mental health centers and other safety net services are likely to influence where racial/ethnic minority populations go to receive physical and mental health treatments (Cook et al. 2013a; Dinwiddie et al. 2013; Gaskin et al. 2007). Where a patient goes, in turn, is likely to influence their experiences with providers and the quality of care they are likely to receive (Interian et al. 2011).

This study takes a new approach to define usual source of care based on participants' reporting of their provider and practice characteristics consistent with the PCMH model of care. Participants are grouped into three cohorts based on provider and practice characteristics: no designated provider, designated provider only, designated provider with enhanced access to physicians (evening/weekend availability, translation services), whole-person orientation to care, and patient-centered approaches to treatment (i.e., PCMH). Results from previous studies conducted in physical and mental health services inform our hypotheses about the effects of having a PCMH on patients' access to and use of MHS. These hypothesized relationships are presented in Figure 4.1.

First, we hypothesize that Non-Latino Black and Latino adults will be less likely than Non-Latino Whites to report having a designated provider who delivers care consistent with the PCMH. We expect moreover that Non-Latino Black and MCS and Caribbean Latino adults will be less likely than Non-Latino Whites to report use of MHS.

The second study hypothesis draws on the findings from studies conducted in physical health services as well as findings presented in Chapter 3 of the current dissertation. Prior studies have found in physical health services that having a designated provider (i.e., usual place of care or personal physician) contributes to enhanced detection and treatment of chronic diseases, such as diabetes. It is likely the case, then, that having a designated provider will also contribute to enhanced detection and treatment of mental health disorders in primary care. We found in Chapter 3 that having a designated provider was associated with an increase in patients' use of primary care-based MHS. We expect, therefore, that Non-Latino Black and MCS and Caribbean Latino adults who have a designated provider will be more likely than those without a designated provider to receive a mental health visit with a primary care provider.

The third study hypothesis draws on the findings from studies conducted in physical health services as well as findings presented in Chapter 3 of the current dissertation. Previous studies conducted in physical health services have found that comprehensive and coordinated approaches to primary care services delivery contribute to an increase in patients' use of medical specialists. Prior studies have also found that patient-centered approaches to treatment of mental health disorder are associated with patients' participation in mental health treatment and improved mental health service outcomes. We found in Chapter 3 that having a designated provider who delivered comprehensive and patient-centered care was associated with an increased probability that adults with high distress would receive specialist-based MHS. Having a designated provider only, however, was not associated with visits to a mental health specialist. Building off of these prior findings, we hypothesize that Non-Latino Black and MCS and Caribbean Latino adults who have all of the measured PCMH components will be more likely than those without a designated provider to receive a mental health visit with a mental health specialist. Having a designated provider only will not be associated with visits to a mental health specialist for Non-Latino White, Non-Latino Black, MCS and Caribbean Latinos..

Finally, we recognize that MHS occur within a cultural context. Pathways into treatment are driven not only by patients' preferences and enabling resources, but also by historical relationships between minority communities and the healthcare system (Intitute of Medicine 2002). Thus, the mechanisms that drive MHS use may differ for Non-Latino Black, Non-Latino White, and MCS and Caribbean Latino populations. This study examines PCMH components and MHS use separately for Non-Latino White, Non-Latino Black, and MCS and Caribbean Latino populations. By taking this approach, study findings will improve understandings of the specific effects of having a PCMH on MHS use in racial/ethnic minority populations. Collectively the findings will elucidate how healthcare reforms directed at the primary care setting may influence current Black-White and Latino-White disparities in MHS.

4.4 Methods

Design

We conducted a pooled cross-sectional study of panel data to estimate the effect of PCMH components on MHS use for Non-Latino Black, Non-Latino White, and MCS and Caribbean origin Latino adults.

Data

Data were obtained from the National Health Interview Survey (NHIS) and Medical Expenditures Panel Survey (MEPS). The NHIS is a nationally representative household survey of health conditions, access to care, and health behaviors in the U.S. (Center for Disease Control / National Center for Health Statistics 2011). The NHIS uses a multistage probability sampling design to obtain a representative sample of households and non-institutionalized civilian quarters (e.g., college dormitories) (Center for Disease Control / National Center for Health Statistics 2011). Each year a subsample of NHIS households are recruited to participate in MEPS, a two-year study of healthcare use, satisfaction with care, and costs of services in the

U.S. (Ezzati-Rice et al. 2008). The annual MEPS response rate is approximately 60 percent each year (WESTAT 2011).

Once recruited, MEPS participants are interviewed five times (called “rounds”) over two calendar years. We used longitudinal data from the household component files to determine the impact of having a PCMH at the round 2 interview on mental health services use during the rounds 3-5 interviews. Because the exposure, PCMH status, was measured prior to the outcome of interest, we were able to partially control for the reverse-causality bias that is common in cross-sectional research. Data were combined for six panels of participants (panels 9-14) to increase precision of the estimates.

Survey weights were used to account for the probability of selection into the MEPS, participant non-response, and post-stratification to provide estimates that generalize to the non-institutionalized population in the U.S. Primary sampling unit and sampling strata indicators were also employed to adjust the standard errors for the clustered sampling design.

Sample

The sample included 1,914 Non-Latino White, Non-Latino Black, and Latino adults, age 18-64, who self-reported their experiences with healthcare providers and who evidenced high distress on the K-6 Measure of Psychological Distress. Study inclusion and exclusion criteria are described below.

Overall, 52,478 adults, age 18 to 64, participated in the full two years of MEPS (panels 9-14). Within each household, one respondent was selected by MEPS staff to describe the healthcare use and healthcare experiences for all members of the family. Because we hypothesized that participants would be more accurate in rating their own experiences with healthcare providers than those of other family members, we restricted analyses to the 29,653 adults who were the household respondent during the round 2 interview. That is, the sample only includes adults who reported their own healthcare experiences.

In addition to the household component interview, all adults in the household were given a paper survey with instructions to mail back after the round 2 and round 4 interviews. The Supplemental Adult Questionnaire (SAQ) inquires about patients' physical and mental health status. Within the sample of household respondents, we excluded data from participants who failed to return the SAQ (n=1,021, 3.4%) or who had missing data on the K-6 measure of psychological distress (n=755, 2.6%).

Next we examined ratings of psychological distress to determine potential need for MHS. The K-6 is a brief screening tool that measures non-specific psychological distress in the general population (Kessler et al. 2002; Kessler et al. 2003). The scale consists of six items that measure symptoms of anxiety and depression over the past month. "During the past 30 days, how often did you feel .. (nervous, hopeless, restless or fidgety, so sad that nothing could cheer you up, everything was an effort, worthless)". Participants chose from Likert response categories ranging from "all of the time" (4) to "none of the time" (0), producing a total score ranging from 0-24. We used standard cutoffs to identify participants with high (13-24) levels of psychological distress (Pirraglia et al. 2011; Wang et al. 2007a). Those with high distress (score of 13 or greater) have an increased likelihood of meeting criteria for serious mental illness (Kessler et al. 2002; Kessler et al. 2003). The sample for this study is therefore restricted to household respondents who scored in the high range of psychological distress on the K-6 (n=2,032).

Finally, we excluded 118 adults of Non-Latino Asian, Pacific Island, Native American or Other racial/ethnic heritage due to sample size restrictions. The final sample included 1,000

Non-Latino White and 402 Non-Latino Black adults, 363 Latino adults of Mexican, Central/South American ancestry, and 149 Latinos of Puerto Rican, Cuban, Dominican, or other Caribbean ancestry.

Predictors of Interest

Race/Ethnicity

MEPS asks household respondents to report the race and ethnicity of all household members. Non-Latino adults were grouped according to their reported race: Non-Latino White and Non-Latino Black. The Latino sample included adults from Mexican, Central or South American, Puerto Rican, Cuban, Dominican, and other Latin American heritage. To address heterogeneity within the Latino population, we examined reporting of PCMH components and MHS use separately for Latinos by two regions of origin: Mexico or Central/South America (MCS), and the Spanish speaking Caribbean (Puerto Rico, Cuba, Dominican Republic, Other Non-MCS Latino heritage).

Defining Core Components of A Patient Centered Medical Home[4]

We used participants' ratings of their experiences with healthcare providers to identify individuals likely to receive primary care services consistent with the PCMH framework. In this study, the PCMH is estimated as having a designated healthcare provider who the patient would

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[4] The definition of a PCMH changed from study 2 to study 3. After the completion of study 2, I discovered additional items in MEPS that I hypothesized to be important in consideration of primary care services delivery for racial/ethnic minority patients: access to evening/weekend services and availability of language/translation services.

see for a comprehensive range of healthcare needs, who delivers patient-centered services, and provides enhanced access to physicians.

A designated provider is a primary care provider, healthcare team, or practice who has an ongoing relationship with the patient and who is responsible for managing all of the patient's healthcare needs. MEPS asks a participant if they have a regular doctor or place of care that they would go to when sick or in need of medical advice. The designated provider was coded "yes" if participants reported that they had a usual provider or usual place of care and this source of usual care was a primary care provider or outpatient clinic. The designated provider variable was coded "no" for participants who reported the emergency room as a source of usual care.

Comprehensiveness is a whole-person orientation to care where the designated provider is responsible for managing the patient's preventive, acute, and chronic care needs. MEPS asks participants about the type of services that they receive from their usual care provider. We coded services as "comprehensive" if 1) the designated provider asks about treatments or medications provided by other doctors; and 2) the patient goes to this provider for preventive services, treatment for new health conditions, treatment for ongoing health conditions, and referrals to specialists.

Patient-Centeredness is a collaborative approach to treatment where the provider asks about the patient's goals and treatment preferences, explains the treatment options available, and works with the patient to develop a treatment plan to meet their goals. We coded services as "patient-centered" if the provider "*usually*" or "*always*" 1) explains treatment options to the patient, 2) asks the patient to help make treatment decisions, and 3) shows respect for the patients' preferred treatments.

The PCMH aims to provide patients with enhanced access to physician care. We examined three components of enhanced access for patients: ability to contact their provider during regular business hours, ability to contact their provider on the evenings/weekends, and the availability of translation services. We coded enhanced access as “yes” if 1) patients reported little or no difficulty in contacting a medical provider during regular business hours, 2) patients reported little or no difficulty in contacting a medical provider on the evenings or weekends, and 3) the provider speaks the patient’s preferred language or offers translation services.

The MEPS does not measure other components of the PMCH that likely contribute to patients’ access to and use of MHS (e.g., coordination of services with specialists; use of decision-support tools, case management services, or health information technology; or receipt of payments that recognize the added-value of the PCMH).

Outcomes of Interest

Mental health service outcomes were ascertained in the household component of MEPS. All household members were asked to keep detailed records of their healthcare visits and prescription medications during the study. At the time of each interview, the household respondent described all healthcare events that had occurred since the past interview for all household members (approximately 5 months). The respondent reported the reason for each healthcare visit, the healthcare service setting, the type of healthcare provider seen, and the type of services received during the visit. The respondent also reported on each medication they were taking and the reason the medication was prescribed. In addition to participant records, MEPS staff contacted medical providers and pharmacies to fill in information that household respondents were unable to provide. We used ICD-9 and Clinical Classification

Codes to determine mental health visits and prescriptions related to a mental health condition: ICD-9: 294-297, 299-309, 311-315, V40, V70; Clinical Classification Code: 650, 652, 654, 655, 657, 659, 660-662, 670 (Agency for Healthcare Research and Quality 2011).

Mental Health Visits To A Primary Care Provider: Respondents are asked to list the type of medical provider seen by the patient for each outpatient visit. We defined primary care visits as any visit to a family practitioner, general practitioner, internist, nurse or nurse practitioner, or physician’s assistants where the reason for visit included either a mental health condition or the visit included mental health counseling or drug treatment.

Mental Health Visits To A Mental Health Specialist: included all visits to a psychiatrist, psychologist, or social worker. MEPS does not specifically ask participants if they were referred to a mental health specialist for treatment. In this study, visits to a mental health specialist were considered evidence of a successful mental health referral.

Counseling Visits: were coded “yes” if the household respondent indicated that either 1) the service provided was best categorized as counseling/psychotherapy, or 2) any of the treatments provided during the visit included counseling or psychotherapy.

Mental Health Prescriptions: were coded “yes” if the participant reported taking a medication that belonged to a psychotropic drug class and the medication was prescribed for a mental health condition. Psychotropic drug classes include antidepressants; anxiolytics, sedatives, and hypnotics; antipsychotics; stimulants; and anticonvulsants.

Emergency Room Services: included any visit to the emergency department for treatment of a mental health condition.

Any Mental Health Services Use: was defined as any visit to a primary care provider where the reported reason for visit included a mental health concern, visits to mental health specialists, any receipt of counseling, psychotherapy services, any psychotropic medication that was prescribed for a mental health condition, or any visit to the emergency room for mental health concerns.

Covariates

Predisposing Characteristics: We controlled for participant characteristics that are associated with use of physical and mental health services: age, gender, race/ethnicity, nativity (U.S. mainland born vs. foreign/island born), and marital status. We also controlled for general healthcare preferences that are associated with mental health services use: "*I am healthy enough that I don't need care*"; "*Insurance is not worth the money it costs*"; "*I can overcome illness without help from a medically trained person*"; "*I am more likely than others to take risks*". Prior studies indicate that these healthcare attitudes are negatively associated with mental health services use (Chen and Vargas-Bustamante 2011; Zuvekas and Fleishman 2008). MEPS does not include any direct measures of preferences for mental health treatments.

Enabling Characteristics: In estimating the effect of having a PCMH on MHS outcomes we controlled for enabling factors that are highly correlated with the use of mental health services: geographic region of the country (proxy for supply of providers), living within a metropolitan statistical area (proxy for the presence of safety-net services), linguistic barriers to care (indicated by patients' reports that they are not comfortable speaking English), healthcare literacy (indicated by years of education), and household income relative to the Federal Poverty Level (proxy for ability to pay).

Indicators of Need for Mental Health Services: MHS needs were indicated in this study by participants' responses to the Kessler 6-Item Scale of Psychological Distress (K-6) (Kessler et al. 2002; Kessler et al. 2003). In addition to distress ratings, we controlled for participants' ratings of their mental health status at the round 2 interview. Respondents' were asked to rate their mental health as "*excellent*", "*very good*", "*good*", "*fair*", or "*poor*". We created an indicator variable to identify participants whose mental health status was rated "*fair*" or "*poor*" during the round 2 interview.

Measures of physical health status were also included as proxies for need for MHS. This study conceptualizes physical health as a 'need' factor because adults with poor physical health are more likely than those with good physical health to have a psychiatric disorder, such as Major Depression (Moussavi et al. 2007). Moreover, adults with co-occurring physical and mental health conditions may have more severe and persisting psychiatric disorders compared to adults with mental health conditions only (Gilmer et al. 2005; Katon et al. 1994; Scott et al. 2009). In this study, physical health status was determined by participant reports of chronic medical conditions and overall physical health functioning at the round 2 interview. MEPS asks participants if they have been told by a doctor that they have a chronic medical condition: asthma, lung disease, diabetes, heart disease, stroke, hypertension, arthritis, and hypercholesterolemia (0-8). Physical health functioning was measured by the physical health composite score (PCS) from the SF-12 (Fleishman et al. 2006). We converted the continuous PCS score into quartiles to identify participants with low, moderate, and high physical health functioning.

Other Covariates: We controlled for the MEPS survey year to account for fluctuations in MHS over time due to economic conditions, changes in mental health policy, or other historical trends.

Statistical Analysis

All statistical analyses were conducted in Stata 10.0 (StataCorp 2007). We applied MEPS longitudinal survey weights included in the public use files to account for participants' differential selection into MEPS, dropout during the two-year follow-up period, and post-stratification to provide estimates that generalize to the U.S. population. The longitudinal weights included in the MEPS public use files were adjusted to account for non-response on the Supplemental Adult Questionnaire and to account for the pooling of participants from panels 9-14. All analyses were run with the svy package in Stata, which uses a Taylor series approximation technique to estimate variances.

The analyses were conducted in six stages. In the first stage, we examined racial/ethnic differences in use of MHS, physical and mental health status, healthcare attitudes of self-reliance, socioeconomic status, and indicators of access to care. Racial/ethnic differences were determined using design-adjusted Pearson's Chi-Square tests.

Second, we examined the distribution of the survey items used to define a patient-centered medical home. We estimated the percent of Black, White, and Latino adults who met each of the four PCMH criteria: designated provider, comprehensiveness, patient-centered care, and enhanced access to providers.

In the third step, multivariate logistic regression models were employed to estimate Black-White and Latino-White differences in the likelihood of having a PCMH. Covariates were added to the model in a stepped manner. We first examined differences in PCMH components for Black and Latino adults while controlling for indicators of need for MHS and predisposing characteristics. This approach is consistent with the IOM framework for determining racial disparities in health care (McGuire et al. 2006). Second, we added enabling covariates to the model. This approach allowed us to consider the roles of insurance status, healthcare literacy, ability to pay, and linguistic barriers to care in understanding gaps in the PCMH for Black and Latino minorities.

$$p(PCMH) = f(RE + Predisposing + Need + Survey\ Year) \quad \text{(Eq. 4.1)}$$

$$p(PCMH) = f(RE + Predisposing + Enabling + Need + Survey\ Year) \quad \text{(Eq. 4.2)}$$

RE = Indicators of racial/ethnic group
Predisposing = age, gender, nativity, marital status, healthcare attitudes
Enabling = insurance status, geographic residence, urban residence, interview language, level of education, household income
Need = perceived mental health, number of chronic medical conditions, physical health functioning

For the fourth stage of analysis, we examined racial/ethnic disparities in MHS. Multivariate logistic regressions were used to examine racial/ethnic differences in services use while controlling for participants' predisposing and need characteristics. Post-estimation techniques were employed to convert the odds ratios obtained from the logistic regression model to predicted probabilities and risk ratios (described below). Procedures in step 4 were conducted separately for each type of MHS: outpatient visits with primary care and specialty mental health providers, receipt of counseling or therapy, pharmacotherapy, and mental health visits to the emergency department.

$$p(MHS) = f(RE + Predisposing + Need + Survey\ Year) \quad \text{(Eq. 4.3)}$$

RE = Indicators of racial/ethnic group (reference = Non-Latino Whites)
Predisposing = age, gender, nativity, marital status, healthcare attitudes
Enabling = insurance status, geographic residence, urban residence, interview language, level of education, household income
Need = perceived mental health, number of chronic medical conditions, physical health functioning

For the fifth stage of analysis, we examined the relationship between having the measured PCMH components and use of MHS for Non-Latino White, Non-Latino Black, and Latino respondents. We divided participants into three cohorts based on their PCMH status: distressed adults with no designated provider (i.e., no medical home), distressed adults with a designated provider who did not meet all of the measured PCMH criteria, and distressed adults who reported having a designated provider who met all of the measured PCMH criteria. These procedures allowed us to examine the incremental benefit of having all measured PCMH components above and beyond policies that only provide patients with a usual source of care. Multivariate logistic regression models were used to estimate the effects of PCMH status on each type of MHS after controlling for patients' predisposing, enabling, and need covariates. Moreover, the logistic regression models were run separately for each racial/ethnic group in order to determine if policies to expand the PCMH would be beneficial for addressing the mental health service needs of Non-Latino White, Non-Latino Black, and MCS and Caribbean-origin Latino populations.

$$p(\text{MHS} \mid \text{RE}) = f(\text{PCMH} + \text{Predisposing} + \text{Enabling} + \text{Need} + \text{Survey Year}) \qquad \text{(Eq. 4.4)}$$

MHS = vector of mental health service outcomes
RE = racial/ethnic group (Non-Latino White, Non-Latino Black, MCS Latino, Caribbean Latino)
PCMH: indicators for PCMH components (reference = no designated provider)
Predisposing = age, gender, nativity, marital status, healthcare attitudes
Enabling = insurance status, geographic residence, urban residence, interview language, level of education, household income
Need = perceived mental health, number of chronic medical conditions, physical health functioning

In the sixth and final analysis, we re-examined racial/ethnic disparities in MHS after controlling for group differences in PCMH status. Multivariate logistic regression models were used to estimate racial/ethnic disparities in MHS. Covariates were then added to the logistic regression models in a stepped fashion. We examined changes in the race coefficients before and after controlling for PCMH status. Moreover, we examined changes in the race coefficients before and after adding other enabling covariates to the statistical models.

$$p(\text{MHS}) = f(\text{RE} + \text{Predisposing} + \text{Need} + \text{Survey Year}) \qquad \text{(Eq. 4.5)}$$

$$p(\text{MHS}) = f(\text{RE} + \text{PCMH} + \text{Predisposing} + \text{Need} + \text{Survey Year}) \qquad \text{(Eq. 4.6)}$$

$$p(\text{MHS}) = f(\text{RE} + \text{PCMH} + \text{Predisposing} + \text{Enabling} + \text{Need} + \text{Survey Year}) \qquad \text{(Eq. 4.7)}$$

MHS: mental health services use
RE = Indicators of racial/ethnic group (reference = Non-Latino Whites)

PCMH: indicators for designated provider and PCMH (reference = no designated provider)
Predisposing = age, gender, nativity, marital status, healthcare attitudes
Enabling = insurance status, geographic residence, urban residence, interview language, level of education, household income
Need = perceived mental health, number of chronic medical conditions, physical health functioning

Interpreting Black-White and Latino-White Disparities In Mental Health Services

We used the method of recycled predictions or predictive margins (Graubard and Korn 1999) to determine Black-White and Latino-White disparities in the probability of mental health services use. We estimated the probability of services use assuming that Blacks and Latinos had the same distribution of the measured covariates as Whites. This approach answers the hypothetical question: "What would the magnitude of racial and ethnic disparities be if Blacks, Whites, and Latinos had the same distribution of predisposing, enabling, and need characteristics?" The method of recycled predictions has been widely applied in mental health services research (see (Alegria et al. 2008b; Zuvekas and Fleishman 2008)). Confidence intervals were simulated using a bootstrap procedure with 2000 iterations.

Missing Data Procedures

Four percent of participants (971) had missing data on one or more of the covariates of interest. We used multiple imputation procedures to estimate the missing data, assuming that all missing values were missing at random. This study used the ICE program, written for Stata, which employs the method of chained equations to predict missing values based on the distribution of the observed data (Royston 2006; White et al. 2011). Analyses were conducted using the mim package in Stata which averages the model estimates across imputed datasets and produces pooled standard errors according to Rubin's rules (Roysten et al. 2009). One imputed dataset was selected at random for the simulation analyses.

4.5 Results

Black and Latino Adults With High Psychological Distress Report More Potential Barriers To Physical And Mental Health Services Compared To Non-Latino Whites

Sample characteristics of adults with high psychological distress are presented in Table 4.1. There were significant racial/ethnic differences in physical and mental health status for adults with high psychological distress. Half of Non-Latino Black and White adults rated their mental health status as "*fair*" or "*poor*" compared to only one-in-three MCS Latinos. Compared to these groups, MCS Latinos reported fewer chronic medical conditions (p = .016), and less frequently reported having a physical health limitation (p < .001). Non-Latino Black adults with high psychological distress were more likely than the other racial/ethnic groups to report being single and never married (p < .001). Both Caribbean and Non-Latino Black adults with high distress reported disability income more frequently than Non-Latino Whites (p < .001).

When we examined enabling factors that might facilitate the receipt of MHS, we found gaps in education, income, and health insurance coverage across racial/ethnic groups. Distressed Non-Latino Whites appeared generally to have more enabling resources than the Non-Latino Black or Latino respondents. We found, for example, that distressed Non-Latino White respondents reported the most education, the highest household incomes, and the highest rate of private insurance coverage. Twenty-two percent of distressed Non-Latino Whites had fewer than 12 years of education compared to 34% of Non-Latino Blacks, 34% of Caribbean-origin Latinos, and 46% of MCS Latinos. Black and Latino racial/ethnic minorities reported less health insurance coverage and household income than Non-Latino Whites. Nearly one-in-three distressed adults were uninsured and lack of insurance was most evident for MCS Latinos (41% for MCS Latinos, 31% for Non-Latino Whites and Blacks, and 28% for Caribbean Latinos). Among those with insurance coverage, distressed Black and Caribbean respondents were more likely than the others to have public insurance coverage compared to private insurance coverage (45% of Black and 60% of Caribbean respondents were publicly insured compared to 33% of Whites and 28% of MCS respondents). Finally, half of distressed Black and Caribbean adults lived near the poverty level (60%, 53%) compared to 38% of Non-Latino Whites and 42% of MCS Latinos.

Latino adults at-risk for a mental health disorder may be even more likely than Non-Latino adults to experience cultural and linguistic barriers to care. We found, for example, that over half of distressed Latino respondents were foreign born compared to less than five percent of Non-Latino Whites and Blacks ($p < .001$). Half of MCS and Caribbean respondents reported speaking a Non-English language at home, and one-in four MCS and Caribbean Latinos reported Limited English Proficiency (LEP).

Only One In Three Black and Latino Adults With Serious Psychological Distress Have A Patient Centered Medical Home

Next we examined the percentage of distressed Non-Latino White, Non-Latino Black, and MCS and Caribbean-origin Latinos who reported each of the core features of a PCMH. A summary of racial/ethnic differences in each of the PCMH criteria is presented in Table 4.2. There were significant gaps in the availability of PCMH components for adults with psychological distress. Only three-quarters (78%) of all adults in our sample reported having a designated healthcare provider. Distressed Non-Latino Black and MCS Latino adults, moreover, less frequently reported having a designated provider compared to Non-Latino Whites (77%, 66%, and 80% respectively), $p < .001$. Even for patients with a designated healthcare provider, gaps in primary care remained. Only three-quarters of distressed respondents indicated that their provider delivers comprehensive primary care services (74%).

Gaps were also observed in the area of patient-centeredness. Ninety percent of distressed adults reported that their provider explained treatment options to them, 75% reported that their provider asked them to help make treatment decisions, and 83% reported that the provider respects their treatment decisions. Collectively, only two-thirds of distressed adults received patient-centered services (68%). Among distressed adults, MCS Latinos appeared less likely than the other racial/ethnic groups to report patient-centered services (58% vs. 69-73%, p = .086).

Finally, we found significant gaps in distressed adults' access to services. Only three-quarters of distressed adults reported it was not difficult or only a little difficult to reach their provider during regular daytime hours (74%). Moreover, only half reported it was not difficult or only a little difficult to reach their providers on the evenings or weekends (55%). The third indicator of enhanced access to care is language services. Ninety-eight percent of adults who reported having a designated healthcare provider were able to receive services from this provider in their preferred language. Even within the subsample of respondents with LEP, 89% of Latinos with LEP reported that their designated provider spoke their preferred language or offered translation services (not shown in table). When these indicators of access were combined, 55% of distressed adults experienced enhanced access to services (50-60% across racial/ethnic groups, p > .05).

Finally all of the measured primary care components were combined to determine the percent of distressed Black, White, and Latino adults who receive primary care services consistent with the PCMH framework. Less than one in three distressed adults (28%) reported all of the measured PCMH components. While the reporting of PCMH components was low across racial/ethnic groups, MCS Latinos experienced the poorest access to the PCMH. Only 19% of MCS-origin Latinos reported primary care services consistent with the PCMH framework compared to 29% of Non-Latino White and Black respondents, and 35% of Caribbean-origin Latinos (p = .003).

MCS Latinos With High Psychological Distress Experience Disparities In Access To The Patient Centered Medical Home

Multivariate logistic regression models were used to estimate racial/ethnic disparities in the reporting of PCMH components while controlling for participants' predisposing and need characteristics (see Table 4.3). There were significant ethnic differences in the reporting of PCMH components for Latinos of MCS heritage. After controlling for physical health conditions and other indicators of mental health status, MCS Latinos were two-thirds as likely as Non-Latino Whites to have all four PCMH components (RR = 0.63, 95% CI = 0.46-0.83).[5] Within the MCS Latino population, we found that MCS Latino disparities were concentrated within the subpopulation of MCS immigrants. Foreign-born respondents with high distress appeared less likely than U.S. born respondents to have a PCMH (OR = 0.60, 95% CI = 0.38-0.96). When nativity status was added to the statistical model, the overall MCS Latino-White disparities were no longer statistically significant at the .05 level (OR = 0.71, 95% CI = 0.46-1.09).[6]

Next, indicators of socioeconomic status, health insurance status, and other enabling covariates were added to the statistical models to investigate the potential mediating role of these variables in explaining Latino-White disparities in the PCMH (see Table 3, model 2). The findings demonstrate that health insurance coverage is an important predictor of reporting a PCMH among distressed populations (OR = 1.48, 95% CI = 1.07-2.04). Geographic residence was also associated with reporting of the PCMH components. Distressed adults residing in the

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[5] OR = 0.55, 95% CI = 0.37-80; RR = 0.63, 95% CI = 0.46-0.83

[6] OR = 0.71, 95% CI = 0.46-1.09; RR = 0.75, 95% CI = 0.55-1.07

South, for example, appeared less likely than distressed adults living in other areas of the country to have a provider who met all of the measured PCMH components (OR = .71, 95% CI = 0.53-0.95). Moreover, foreign-born participants with LEP were less likely than U.S. born participants to have a PCMH (95% CI = 0.13-0.49). Ethnicity and nativity status were not statistically associated with PCMH components after controlling for insurance status and LEP.

Non-Latino Black and MCS Latino Adults With Serious Psychological Distress Have Low Rates Of Mental Health Services Use

Next we examined racial/ethnic differences in MHS use (see Table 4.4). Over half of distressed Non-Latino White and Caribbean Latinos (53%, 52%) reported use of MHS, compared to just 42% of Non-Latino Blacks and 37% of MCS Latinos. Compared to Non-Latino Whites, Black adults with distress experienced low rates of MHS in the primary care setting. For example, only 15% of Black adults with distress reported a mental health visit with a primary care provider and only 30% of distressed Blacks reported use of medication treatments for a mental health disorder. Black participants appeared more likely than the other racial/ethnic groups to receive MHS from the emergency department (6% among Non-Latino Blacks, 3% for the other racial/ethnic groups).

The pattern of MHS use was different for MCS Latino minorities than for Non-Latino Blacks. MCS Latinos had similar rates of mental health visits in primary care as Whites, but appeared less likely than Whites to receive specialty MHS. Just one in six (17%) distressed MCS Latinos visited with a mental health specialist or received counseling/psychotherapy treatments compared to nearly one in four (24%) of Non-Latino Whites. Like Black minorities, MCS Latinos had low rates of pharmacotherapy use (24% of MCS Latinos, 30% for Non-Latino Blacks, 41% for Non-Latino Whites).

Latinos with ties to the Spanish Speaking Caribbean had similar rates of MHS use compared to Non-Latino Whites overall (53% vs. 54%). Pathways into treatment, however, appeared different for Caribbean Latinos relative to Non-Latino Whites. Caribbean Latinos had lower rates of mental health visits to a primary care provider compared to Non-Latino Whites (15% vs. 23%). Alternatively, Caribbean Latinos appeared most likely to receive specialty MHS. Forty percent of Caribbean Latinos visited with a mental health specialist compared to 24% of Non-Latino Whites.

Racial/ethnic differences in MHS may not be indicative of a healthcare disparity if there are unmeasured racial/ethnic differences in need for care or patients' preferences for treatment. To examine potential disparities in MHS, therefore, we used multivariate logistic regression models to control for measured predisposing and need characteristics (see Table 4.5). Black and MCS Latino adults with high distress were less likely than similar Non-Latino Whites to receive needed MHS. After controlling for physical and mental health status, Black adults were 79% as likely as Non-Latino Whites to report use of MHS (RR = 0.79, 95% CI = 0.68-0.91); MCS Latinos were 82% as likely to receive MHS (RR = 0.82, 95% CI = 0.67-0.97).

For Latinos of Mexican, Central/South American heritage, racial/ethnic disparities in MHS were particularly evident for recent immigrants. We found that foreign-born Latinos with high distress experienced two-thirds the likelihood of U.S. born Whites of using MHS (OR= 0.61, 95% CI = 0.38-0.98). After controlling for ethnic differences in nativity, there was no overall disparity in MHS use for Non-Latino White and MCS Latino adults (OR = 0.86, 95% CI = 0.58-1.28). Moreover, MCS Latinos with LEP were even less likely than other immigrants to receive needed MHS (OR = 0.53, 95% CI = 0.31-0.89).

Women, adults with two or more chronic health conditions, and adults with fair/poor self-reported mental health status were more likely than others to receive needed MHS.

Non-Latino Black and MCS Latino Adults With Serious Psychological Distress Experience Disparities In Mental Health Services

Racial/ethnic disparities were next examined for each type of MHS outcome. The standardized probability of MHS use by type of service is presented in Table 4.6. Non-Latino Black adults with high levels of psychological distress were two-thirds as likely as Whites to receive an outpatient mental health visit with a primary care provider (RR = 0.63, 95% CI = 0.45-0.86) and three-quarters as likely as Non-Latino Whites to receive medication treatment for a mental health condition (RR = 0.73, 95% CI = 0.59-0.89). In contrast to these findings in outpatient MHS, distressed Non-Latino Blacks were more likely than Non-Latino Whites to have an emergency mental health visit (RR = 2.67, 95% CI = 1.23-5.71).

For MCS Latinos, Latino-White disparities were only statistically significant in the area of pharmacotherapy (RR = 0.72, 95% CI = 0.55-0.90). For Latinos with ties to the Caribbean, MHS disparities were particularly evident in those services likely to be delivered in the primary care setting. For example, Caribbean-origin Latinos were less likely than Non-Latino Whites to receive a mental health visit with a primary care provider (RR = 0.64, 95% CI = 0.37-1.01) or to receive medication treatment for a mental health disorder (RR = 0.76, 95% CI = 0.53-1.01). Alternatively, Caribbean-origin Latinos were more likely than Non-Latino Whites to visit with a mental health specialist (RR = 1.76, 95% CI = 1.27-2.31) and to receive counseling treatments for a mental health disorder (RR = 1.59, 95% CI = 1.09-2.13).

Having A Designated Provider Who Meets PCMH Criteria Is Associated With Receipt Of Mental Health Services For Non-Latino White And Non-Latino Black Adults With Psychological Distress

Next, we examined the effect of PCMH components on MHS use for Black, White, and MCS and Caribbean Latino adults with high psychological distress. Multivariate logistic regression results are presented in Table 4.7.

For Non-Latino White and Black adults, having a designated healthcare provider was associated with a three-fold increase in the odds of receiving mental health services (OR = 2.92, 2.93, respectively). Moreover, Black and White participants who reported all PCMH components appeared twice as likely as Black and White participants with no designated provider to report use of MHS (OR = 2.44, 2.54 respectively).

In examining other patient-level factors associated with mental health services use, we found that White women were more likely than White men to report MHS (OR = 1.72, 95% CI = 1.20-2.47). Non-Latino White adults with two or more chronic health conditions were also more likely than Whites with no chronic conditions to report MHS (OR = 2.52, 95% CI = 1.64-3.89).

For Non-Latino Black adults, having only one chronic medical condition was associated with reduced odds of MHS compared to no chronic medical conditions (OR = 0.35, 95 % CI = 0.14-0.88). Distressed Black adults who rated their mental health as "*fair*" or "*poor*" had five times the odds of other distressed Black adults of receiving needed MHS (OR = 5.65, 95% CI = 3.19-10.02).

There was no statistically significant association between having a designated provider and MHS use for MCS or Caribbean Latinos. Other factors associated with MHS use among Latino participants included mental health ratings, poor physical health functioning, and English language proficiency. MCS Latinos with LEP experienced one-half the odds of using mental health services as MCS Latinos without LEP, (OR = 0.50, 95% CI = 0.25-0.98). There was no statistical association between reporting of PCMH components and MHS use for MCS or Caribbean-origin Latinos.

Impact of Medical Home Components On Each Type Of Mental Health Services Use

Next we examined the relative probability of each type of MHS for adults with and without the measured PCMH components among Non-Latino White, Non-Latino Black, and MCS and Caribbean-origin Latino adults. Results are presented in Table 4.8 and 4.9.

Non-Latino Whites: For distressed Non-Latino Whites, participants who had a designated provider were more likely than distressed Whites without a provider to receive MHS (see Table 4.8). Having a designated provider was associated with an 80 percent increase in the probability of receiving any MHS (Risk Ratio. = 1.78, 95% CI = 1.37-2.35). Having a designated provider was also associated with an 80 percent increase in the probability of receiving a mental health visit with a primary care provider (Risk Ratio = 1.78, 95% CI = 1.14-3.08), and a two-fold increase in the probability of receiving a mental health prescription (Risk Ratio, = 1.99, 95% CI = 1.39-2.94).

Having a designated provider who met all of the PCMH criteria was also associated with an increased probability of receiving MHS. Non-Latino Whites with a reported PCMH were 80% more likely to receive a mental health visit with a primary care provider than Non-Latino Whites without a reported PCMH (Risk Ratio = 1.78, 95% CI = 1.14-3.08). Moreover, having a reported PCMH was associated with a nearly two-fold increase in the probability of receiving a mental health prescription (Risk Ratio = 1.87, 95% CI = 1.28-2.79). There was no statistical difference in the probability of MHS associated with having all of the measured PCMH components vs. having a designated provider only for White adults.

Non-Latino Blacks: In examining the effect of a PCMH for Black minorities, the pattern of results is different from that of Non-Latino Whites (see Table 4.8). Among distressed Black adults, having a designated provider was associated with nearly a three-fold increase in the probability of receiving a mental health visit with a primary care provider (Risk Ratio = 2.73, 95% CI = 1.03-7.24), and a two-fold increase in the probability of receiving medication treatment for a mental health condition (Relative Risk = 2.07, 95% CI = 1.14-4.08).

For Non-Latino Blacks, there was a marginally significant trend associated with having a provider who met all PCMH criteria. Black participants who have a provider who met all of the measured PCMH criteria were twice as likely as Black participants with no designated provider to receive mental health counseling services (Risk Ratio = 2.32, 95% CI = 0.93-5.77). Having a designated provider only was not statistically associated with Black adults' receipt of counseling, suggesting that PCMH components of enhanced access to providers, whole-person orientation to care, and patient-centered approaches to treatment may be more beneficial than having a designated provider only for counseling services.

It is important here to mention findings related to emergency psychiatric services use. Distressed Black adults with no designated provider had a .070 probability of reporting a visit to the emergency department for mental health concerns. We found that when Black adults had a provider who met all PCMH criteria, their probability of reporting an emergency department visit for mental health concerns was cut in half. While this difference was not statistically significant, the results nonetheless suggest that PCMH components may help to reduce the need for costly emergency services for Black adults with a mental health disorder. Additional studies that benefit from a larger sample size are needed to further investigate this promising finding.

Latinos: In contrast to our findings for Non-Latino White and Black populations, having a PCMH was not associated with MHS use for Latinos of MCS or Caribbean origin (see Table

4.9). Within the MCS sample, there was evidence that having a designated provider (but no PCMH) was associated with visits to a mental health specialist (OR = 3.01) as well as receipt of counseling treatments (OR = 2.97). These relationships, however, were not statistically significant after controlling for Latino-White differences in nativity and language proficiency.

Impact Of PCMH Components On Black-White and Latino-White Disparities In Mental Health Visits To Primary Care Providers and Mental Health Specialists

In the final analysis, we examined racial/ethnic disparities in mental health visits to a primary care provider or mental health specialist while controlling for group differences in reported PCMH status. Mental health visits were selected for this analysis due to our previous findings that Black-White and Caribbean-White disparities are greatest in the primary care setting (Study 3) and MCS Latino-White disparities are greatest in the specialty mental health setting (Study 1). Examining racial/ethnic disparities in these settings, therefore, may provide insights regarding the potential impact of ACA policies to promote components of the PCMH on Black-White and Latino-White disparities in MHS.

Logistic regression models were used to examine Black-White and Caribbean-White disparities in mental health visits to a primary care provider (see Table 4.10). After controlling for racial/ethnic differences in the measured indicators of physical and mental health status, Black and Caribbean-origin Latinos were less likely than Non-Latino Whites to receive a primary care mental health visit (OR = 0.56, 95% CI = 0.39-0.80; OR = 0.58, 95% CI = 0.32-1.04 respectively). There was no change in the coefficients associated with Black and Caribbean racial/ethnic status after controlling for patients' reported PCMH components (designated provider, all PCMH components). Moreover, Black-White and Caribbean-White disparities in mental health visits remained statistically significant after controlling for education, household income, geographic residence, and health insurance status.

We also used logistic regression models to examine MCS Latino-White disparities in visits to a mental health specialist (see Table 4.11). MCS Latino-White disparities were examined separately for MCS immigrants with and without LEP. The reference population is the subsample of 973 distressed Non-Latino White adults who were U.S. born and English proficient. We found significant ethnic disparities in access to mental health specialist providers for MCS Latinos with LEP. LEP Latinos had one-fifth the odds of Non-Latino Whites to visit with a mental health specialist (OR = 0.21, 95% CI = 0.06-0.77). Having a designated provider who met all of the measured PCMH criteria appeared at first to be associated with mental health specialist visit for Latino and Non-Latino White adults with high psychological distress (OR = 1.65, 95% CI = 1.01-2.73). However, we found that PCMH status was no longer statistically significant after controlling for other enabling covariates (e.g., education, household income, geographic residence, and health insurance status). Moreover, ethnic disparities in visits to a mental health specialist remained statistically significant for LEP Latinos after controlling for education, household income, geographic residence, and health insurance status (Odds Ratio = 0.26, 95% CI = 0.07-0.92).

4.6 Sensitivity Analysis

We were concerned that some of the null findings in this study might have been partially attributed to low statistical power given the small number of Black and Latino participants with high psychological distress. Many of the coefficients associated with having a designated healthcare provider were large in magnitude but not statistically significant, particularly in the sample of MCS-origin Latinos. As a sensitivity analysis, we repeated the analysis including the

MHS data for all working-age adults who reported high psychological distress. That is, we expanded the study eligibility to include both the household respondent (n=1,914) as well as other adults living in the household who also experienced high levels of distress (n=858). The new sample included 1,417 Non-Latino Whites, 564 Non-Latino Blacks, 577 Latinos of MCS origin, and 214 Latinos of Caribbean origin. Results are presented in Appendix 4.1.

In most cases increasing the sample size had little effect on the point estimate for the odds ratio associated with the PCMH components, but nonetheless resulted in increased statistical significance. For Non-Latino Black adults, we found that having a provider who met all of the measured PCMH criteria was associated with an increased likelihood of reporting a visit to a mental health specialist, counseling services, and medication treatment ($p < .05$). When the sample was restricted to respondents only, having a provider who met PCMH criteria was only marginally associated with visits to a mental health specialist and receipt of counseling or medication treatments ($p < .10$). The results suggest that with a larger sample size, we may have greater power to detect an association between the PCMH components and mental health services use for Black adults. It was only in the area of counseling services, however, that having a reported PCMH appeared to be more beneficial than having a designated provider only for Non-Latino Black adults.

In the case of MCS Latinos, we found also that increasing the sample to include respondents as well as other household members resulted in statistically significant findings. For MCS Latinos, having a designated provider was associated with an increase in the odds of receiving a mental health visit with a primary care provider. There were no other statistically significant associations between having PCMH components on the likelihood of MHS use among MCS Latinos. Our results suggest that the null findings observed in this study are likely to be observed even with the inclusion of a larger sample size.

4.7 Discussion

This study was designed to examine the effect of PCMH components on mental health services use in racial/ethnic minority populations. In doing so, we contribute new findings regarding the potential benefits of ACA policies to strengthen the primary care system and to promote the PCMH model of care on Black-White and Latino-White disparities in MHS. We found that having a designated provider was associated with the receipt of needed MHS among a nationally representative sample of Non-Latino White and Non-Latino Black adults with high psychological distress. For Black adults having a designated healthcare provider was associated with these patients' receipt of mental health visits to a primary care provider and medication treatments for a mental health disorder. Moreover, Black patients whose designated healthcare provider delivered services consistent with the PCMH framework appeared even more likely than other Black patients to receive mental health counseling services. For Latinos, we found that Mexican and Central/South American immigrants experienced more barriers to the PCMH than the other racial/ethnic groups due to foreign-born nativity and LEP. Even when MCS immigrants reported having a designated provider, however, MHS use remained low for this population. Findings indicate that both structural and cultural barriers to care will need to be addressed in order to reduce Black-White and Latino-White disparities in MHS.

Non-Latino Black and Latino adults with a mental health disorder may be even more in need than Whites for improvements in the primary care system. We found that Non-Latino Black and Latino adults with high distress were often publicly insured or uninsured and frequently receive physical and mental health services in community and hospital-based clinic settings. Providers in safety net settings, such as these, have traditionally operated independently without the health information technology and other resources needed to effectively coordinate services for shared patients across clinics and providers (Cunningham et al. 2012). Indeed, the providers who serve a majority of Black or Latino patients report difficulty in obtaining referrals for specialist providers (Reschovsky and O'Malley 2008). Thus, Black and Latino adults with a mental health disorder may experience an even greater need than Whites for integrated models of primary care, such as the PCMH, that improve services coordination and facilitate patients' access to needed services.

While Black and Latino adults with a mental health disorder may experience a need for effective systems of primary care, our study finding suggest these groups are not receiving optimal primary care services. Within a population at-risk for a mental health disorder, we found that less than one in three Non-Latino Blacks and one in five MCS-origin Latinos received primary care services consistent with the PCMH framework. While overall reporting of the PCMH components was low among adults with high psychological distress, we found that distressed MCS Latinos were even less likely than Non-Latino Whites to have a provider who met all of the PCMH criteria. These healthcare disadvantages were particularly pronounced for MCS Latinos with LEP.

Results from the current study suggest that efforts are needed to promote the adoption of PCMH components in the community settings that serve Black and Latino adults with a mental health disorder. For Non-Latino Black adults, this includes the designation of a healthcare provider and adoption of other PCMH components in community mental health centers and other specialty mental health settings that serve adults with serious mental illness. States should also consider the use of promotoras and healthcare navigators to help Black and Latino adults with a mental health disorder navigate the insurance exchanges and enroll in public/private health plans that meet PCMH criteria. It may be useful, for example, to incorporate a brief mental health screen in the online enrollment procedures for the state-based insurance exchanges. As an example, screening results could prompt an onscreen message that informs patients of health plans that include PCMH services. Additional community outreach efforts will be particularly needed to assist Latino migrants who, compared to others, have less familiarity with the U.S. healthcare system, experience more linguistic barriers to care, and will have fewer opportunities to participate in Medicaid-sponsored medical homes due to citizenship and residency restrictions in the ACA (Clemans-Cope et al. 2012; Kaiser Commission On Medicaid And The Uninsured 2012a).

Our study contributes new findings on the benefit of having a designated healthcare provider for Black adults with a mental health disorder. Prior studies have found that Black adults are more likely to receive preventive screenings, treatment for chronic diseases, and more favorable health outcomes when they have a designated healthcare provider (indicated by usual source of care) (Blewett et al. 2008; Carpenter et al. 2009; Corbie-Smith et al. 2002; Shi et al. 2004). Our study builds on this prior work in physical health services and demonstrates that, for Black adults with high psychological distress, having a designated provider is associated with a two-fold increase in the probability of receiving a mental health visit with a primary care provider and receipt of pharmacologic treatments for a mental health condition. These findings are meaningful, for it is in the area of primary care that Non-Latino Blacks experience the greatest disparities in use of MHS.

Findings from our study also shed light on some of the factors that contribute to low rates of MHS use in primary care for Black adults. We found that Black adults are less likely than Whites to receive a mental health visit from a primary care provider, but equally likely as Whites to receive a mental health visit from a mental health specialist. Several factors have been hypothesized to contribute to the low rates of mental health treatment within the primary care setting for Black Americans: mental health stigma in racial minority communities (Nadeem et al. 2007), cultural differences in the presentation of mental health symptoms in primary care (Das et al. 2006), racial differences in preferences for mental health treatment (Cooper et al. 2003); primary care provider shortages in African American communities (Cook et al. 2013a); and clinician bias and uncertainty in the diagnosis and treatment of physical and mental health disorders for racial/ethnic minorities (McGuire et al. 2008). In addition to these factors, our study suggests that not having an ongoing relationship with a provider may be a contributing factor in Black-White disparities in MHS. Because the ACA provides a pathway into primary care for Black Americans with a mental health disorder, these policies may also improve rates of mental health treatment in Black communities.

We found some evidence of an added effect of PCMH components over having a usual source of care only for Black-adults at-risk for a mental health disorder. Prior studies have found that patient-centered approaches to MHS delivery contribute to increases in patient and provider satisfaction with treatment, increased engagement in treatment for adults with a mental health disorder, and enhanced mental health outcomes (Cooper et al. 2013; Deen, Fortney, and Pyne 2011; Loh et al. 2007b). Our study builds on this important literature and demonstrates that, for Black adults, having a designated provider who delivers comprehensive and patient-centered services contributed to an increase in use of mental health counseling services. Having a designated provider only was not associated with receipt of counseling. Our results suggest that when providers are able to spend time with Non-Latino Black patients and include these patients in treatment decision-making, there is a greater uptake of preferred counseling services.

Prior studies have found that depressed Black patients report a stronger preference for counseling or therapy treatments than antidepressant treatments (Cooper et al. 2003; Dwight-Johnson et al. 2000; Nadeem, Lange, and Miranda 2008). Our found that having a designated provider who delivers comprehensive, patient-centered care was associated with an increase in Black adults' receipt of counseling services, but no change in Black adults' receipt of medication treatment. While we were unable to measure patient preferences directly in this study, our findings nonetheless suggest that when Black patients receive comprehensive and patient-centered services, they are more likely to receive the kinds of treatment determined in prior research to be preferred.

Our findings complement those from a recent comparative effectiveness evaluation of standard vs. patient-centered collaborative care interventions for the treatment of depression among African Americans (Cooper et al. 2013). Cooper et al (2012) examined two types of collaborative care (CC) interventions for depressed African Americans: a standard CC model that included use of care depression managers and an enhanced CC model that additionally trained the care manager in patient-centered approaches to treatment. The researchers found that both the standard and patient-centered CC models were associated with improved treatment of depression for African Americans overall. The patient-centered CC model was associated with initiation of counseling treatments while the standard CC model was not. Patients who received the patient-centered CC treatment reported more favorable treatment experiences and better adherence to treatment (Cooper et al. 2013). Results from our study, in combination with those reported in the literature, therefore lead us to conclude that incorporating patient-centered approaches to treatment in the primary care setting may be important for linking minority patients to preferred treatments, enhancing patients' mental health service experiences, and also for reducing Black-White disparities in premature treatment dropout. These promising findings lay a foundation for future research to determine how patient-centered approaches to the treatment of mental health disorders can best be integrated into FQHCs and other settings likely to serve Black adults with a mental health disorder.

The benefits associated having a designated provider and the other PCMH components did not extend to all populations in need of MHS. Even though the ACA will improve MCS Latinos' access to the PCMH through the insurance expansions, this increase in potential access may not contribute to an increase in MHS use for MCS immigrants.

There may be several explanations for this finding. First, MHS use may remain low in MCS immigrant populations with potential access to services due to cultural norms and fear of stigma in their community. Prior studies have found that Latinos report greater shame and embarrassment associated with mental health conditions than Non-Latino Whites (Jimenez et al. 2013). Some Latino immigrants also report stigma associated with use of mental health treatments, such as antidepressants (Cabassa and Zayas 2007). Importantly, prior studies have found that stigmatizing beliefs and attitudes towards treatment contribute to low engagement in MHS and long-term decrements in mental health for Latino migrants with a mental health disorder (Parcesepe and Cabassa 2013). In addition to these factors previously identified in the literature, our findings suggest that MCS Latinos experience more difficulty than Non-Latino populations in maximizing the clinical encounter to receive needed services due to linguistic barriers to care.

Mental health disorders are sensitive and, at times, experienced as shameful. It can be difficult to put feelings into words and even native English speakers are likely to experience trouble in describing their symptoms and concerns to a primary care provider. For MCS immigrants, describing mental health concerns may be even more difficult due to shame or embarrassment (Jimenez et al. 2013). Adding to these difficulties, language and cultural differences in the description of mental health symptoms can influence providers’ ability to accurately diagnose mental health conditions in Latino populations (Alegria et al. 2008c). We found in this study that having a designated provider was associated with MHS use for Non-Latino Black and White populations, but not for MCS Latinos. In comparing the study results related to having a designated healthcare provider across racial/ethnic groups, our findings suggest that MCS immigrants are less able than U.S. born Non-Latino Whites to utilize their designated provider as a channel to MHS.

Our findings also have important implications for Latino-White disparities in MHS. Because Non-Latino White patients experience greater access to a designated provider than MCS Latinos, and also receive greater benefit from having a designated provider compared to MCS Latinos, there is concern that Latino-White disparities in MHS may worsen over time. Strategies and solutions are therefore needed to remove cultural barriers to treatment, to improve MCS Latino engagement in MHS and, ultimately, to enhance physical and mental health outcomes for MCS Latinos in the U.S.

Contrary to the study hypothesis, we found no statistical association between the measured PCMH components and visits to a mental health specialist for distressed Black or Latino adults. Our findings suggest that fragmentation between physical and mental health systems of care may preclude Black and Latino adults from accessing mental health specialists even when they report having PCMH components considered important in the area of physical health.

Several factors contribute to additional barriers to mental health specialists that are absent with regard to access to physical health specialists for Black and Latino adults with a mental health disorder. First, there are often separate billing and payment structures for physical and mental health services. MHS, for example, are often “carved out” and managed separately from physical health services by a managed behavioral healthcare organization (Frank and Garfield 2007; Kaiser Commission On Medicaid And The Uninsured 2012b). Indeed, primary care providers often cite “health plan barriers” as an important factor in contributing to their difficulty in obtaining needed mental health treatments for their patients (Cunningham 2009). Medicaid policies that prohibit the same day scheduling of physical and mental health visits also contribute to increased barriers to mental health specialists for adults with a mental health disorder (SAMHSA-HRSA Center for Integrated Health Solutions 2009). Because Black adults with a mental health disorder are more likely than other racial/ethnic groups to be insured through Medicaid (as opposed to private insurance coverage) they may be adversely affected by these policies. Shortages of mental health specialist providers contribute to low rates of specialty mental health services use, and this association is even greater in Latino communities than in Non-Latino communities (Cook et al. 2013a). Findings from our study suggest that the PCMH components of whole person orientation to care, patient-centered approaches to treatment, and enhanced evening/weekend access to providers were not sufficient to bridge the fragmentation between primary care and specialty mental health providers for Black and Latino minorities.

As public and private health plans move towards the adoption of medical homes, it will be important to incorporate other PCMH components that have demonstrated success at reducing physical and mental health services fragmentation. Results from collaborative care interventions suggest that use of depression care managers can facilitate communication between primary care and mental health specialist providers and also improve depression outcomes in racial/ethnic minority populations (Arean et al. 2005; Cooper et al. 2013). Collocating mental health providers in primary care clinics is another strategy needed to provide a warm hand-off of patients between primary care and specialty mental health providers (Haggarty et al. 2012; Kessler 2012). As more adults with a mental health disorder are included in the PCMH, our study suggests it will be important for practices to include policies that specifically address coordination with mental health specialist providers. The National Center for Quality Assurance can facilitate these efforts by encouraging public and private healthcare plans to report on coordination efforts specifically related to mental health/substance abuse services when applying for designation as a PCMH.

4.8 Strengths and Limitations

There are three important limitations to keep in mind when interpreting the study findings. First, this study was limited in statistical power to detect some associations that may be observed with larger sample sizes. Supplemental analyses revealed that statistical power may have influenced our findings for Non-Latino Blacks. Subsequent research efforts in this area would benefit from a larger sample size.

Second, the estimates in this study are based on participants' self-report of their primary care experiences and MHS use. Our estimates of MHS disparities may be biased upward if Black and Latino participants were less likely than Whites to report MHS use due to fear of stigma or other cultural factors. Additionally, participants' perceptions and reporting of their healthcare experiences may be influenced by individual characteristics as well as by the quality of care provided in the clinical setting. Consequently, some participants may have been misclassified in the assignment of PCMH components due to the limitation of self-report data. Future studies would benefit from the inclusion of patient reports as well as provider and practice level data in their examination of the effect of PCMH components on MHS use.

Third, we were unable to measure some components of the PCMH that may improve the treatment of mental health disorders in primary care: integration of primary care and specialty care services, practice reforms that enhance the quality of care delivered in primary care settings (e.g., use of case managers, health information technology, and payment reforms). Because these unmeasured PCMH components are likely to enhance patients' access to and use of MHS, results from the current study are likely conservative. That is, the PCMH may have an even greater impact on Black and Latino patients' access to and engagement in mental health treatments with implementation of additional practice-level reforms.

Despite these limitations, this study contributes new findings on the benefits of having a designated provider and other PCMH components for racial/ethnic minority populations with mental health service needs. We used an innovative approach to measure components of the PCMH that are considered important in understanding racial/ethnic disparities in MHS: access to a usual provider, whole-person orientation of care, patient-centered approaches to treatment, and enhanced access to services through evening/weekend services and translation services. In doing so we found that having a designated provider was associated with improved access to primary care-based mental health services for Non-Latino White and Black patients. In addition, we found some evidence that other measured PCMH criteria may improve Black patients access to counseling treatments. Our findings have important implications as they suggest that policies to spread the adoption of core PCMH components may improve the treatment experiences and mental health outcomes of Black adults in the U.S.

In contrast to our findings for Non-Latino Black patients, MCS Latinos with LEP experience significant disparities in the reporting of PCMH components. In addition to this healthcare disadvantage, having a reported medical home did not improve MHS use for MCS Latinos. More work is needed to identify strategies and solutions within the primary care setting that may aid in the treatment of mental health disorders for Latino immigrants. Without such efforts, results from our study suggest that Latino-White disparities may worsen over time.

4.9 Tables

Table 4.1: Weighted Distribution of Sample Characteristics Among Non-Latino White, Non-Latino Black, and Latino Respondents With High Psychological Distress In The Medical Expenditures Panel Survey, Panels 9-14, (N=1,914).

	Non-Latino		Latino	
	White	Black	MCS	Caribbean
Unweighted N:	*1,000*	*402*	*363*	*149*
		Weighted % (SE)		
Age***				
18-30	20.6 (0.5)	22.9 (0.8)	29.0 (0.9)	24.3 (1.8)
31-45	32.5 (0.5)	36.6 (0.8)	42.6 (1.0)	39.8 (1.8)
46-54	25.7 (0.4)	24.2 (0.7)	18.3 (0.7)	20.7 91.4)
55-64	21.2 (0.4)	16.4 (0.7)	10.1 (0.5)	15.1 (1.3)
Female	64.8 (0.5)	65.5 (0.9)	62.8 (1.1)	66.0 (1.9)
Marital Status***				
Single, Never Married	22.6 (1.6)	48.5 (3.0)	26.9 (3.3)	27.4 (5.1)
Married	36.6 (1.8)	21.4 (2.2)	38.2 (3.4)	26.8 (4.4)
Separated, Divorced, Widowed	40.9 (1.8)	30.1 (2.5)	34.9 (3.3)	45.6 (5.4)
Rated Mental Health As Fair/Poor***	55.0 (1.9)	47.0 (2.9)	33.1 (3.0)	56.4 (5.5)
Number of Chronic Medical Conditions*				
Zero	23.4 (1.7)	23.1 (2.8)	34.7 (3.0)	21.2 (4.8)
One	19.8 (1.6)	19.3 (2.2)	22.7 (2.8)	23.8 (4.6)
Two or More	56.8 (1.9)	57.6 (3.1)	42.6 (3.2)	55.0 (4.9)
Reported Physical Health Limitation***	51.0 (1.8)	49.3 (2.8)	32.6 (3.3)	44.1 (5.2)
Social Security Income for Disability***	10.8 (1.0)	19.0 (2.2)	7.2 (1.5)	25.3 (4.2)
Physical Health Composite Score (SF-12)				
Lowest Quartile	66.8 (1.8)	67.4 (2.8)	58.6 (3.6)	65.9 (5)
Middle Quartiles	10.4 (1.2)	14.2 (2.3)	15.5 (2.4)	9.7 (2.6)
Highest Quartile	22.8 (1.6)	18.4 (2.4)	26.0 (3.3)	24.4 (4.7)
Geographic Region***				
Northeast	15.4 (1.6)	14.4 (2.5)	5.2 (1.5)	56.7 (5.7)
Midwest	26.1 (1.6)	20.9 (2.6)	6.6 (1.9)	5.4 (2.2)
South	38.9 (1.9)	55.7 (3.5)	31.3 (4.0)	27.3 (4.6)
West	19.6 (1.6)	9.1 (1.8)	56.9 (4.0)	10.6 (4.0)
Live In Metropolitan Statistical Area?***	75.2 (1.9)	87.6 (2.3)	91.7 (2.2)	96.2 (2.4)
Healthcare Attitudes				
Don't need insurance	4.0 (0.8)	5.9 (1.3)	9.1 (2.3)	3.9 (3.0)
Health insurance not worth the costs	24.3 (1.6)	22.3 (2.6)	23.9 (3.0)	19.4 (4.0)
More likely than others to take risks	19.5 (1.5)	22.0 (2.3)	23.6 (2.6)	25.5 (4.3)
Overcome illness without medical help	13.5 (1.3)	9.6 (1.7)	14.8 (2.7)	8.8 (2.1)
Years Of Education***				
Less Than 12 Years	22.3 (1.4)	33.7 (2.9)	45.9 (3.1)	34.1 (4.9)
High School Diploma or GED	39.4 (1.8)	37.6 (3.0)	24.6 (2.9)	33.0 (4.5)
Some College	25.5 (1.8)	20.3 (2.4)	21.5 (3.0)	25.1 (4.9)
Four or More Years Of College	12.9 (1.4)	8.4 (2.0)	7.9 (2.2)	7.9 (2.5)

* p < .05, ** p < .01, *** p < .001

Abbreviations: MCS = Mexican, Central/South American origin heritage; Caribbean = Puerto Rican, Cuban, Dominican, Other Spanish-Speaking Caribbean heritage; SE = Standard Error

(Table 4.1 Continues On Next Page)

Table 4.1 Continued: Weighted Distribution Of Sample Characteristics By Race/Ethnicity

	Non-Latino		Latino	
	White	Black	MCS	Caribbean
Unweighted N:	*1,000*	*402*	*363*	*149*
	Weighted % (SE)			
Income Relative To Federal Poverty Level***				
Less Than 133% FPL	38.1 (1.8)	60.2 (3.1)	42.0 (3.1)	53.3 (5.2)
133-200% FPL	17.9 (1.5)	16.0 (2.2)	24.1 (3.0)	15.9 (3.1)
200-400% FPL	27.3 (1.8)	18.3 (2.5)	26.5 (3.1)	24.5 (4.6)
More Than 400% FPL	16.8 (1.5)	5.5 (1.4)	7.5 (1.5)	6.4 (2.7)
Employment Status*				
Unemployed	9.1 (1.1)	12.3 (1.7)	10.1 (1.8)	10.4 (3.3)
Out Of Work Force	47.9 (1.9)	49.6 (2.8)	39.6 (3.3)	60.1 (5.3)
Employed	43.0 (1.9)	38.1 (2.9)	50.3 (3.3)	29.5 (5.1)
Type of Health Insurance***				
Uninsured	30.6 (1.7)	30.5 (2.7)	41.4 (3.3)	27.8 (4.3)
Private Insurance (Including TriCare)	34.1 (2.0)	23.2 (2.9)	30.4 (3.3)	13.2 (3.6)
Medicaid Only	16.1 (1.3)	28.4 (2.6)	20.0 (2.4)	42.1 (5.1)
Medicaid + Medicare	5.8 (0.8)	9.8 (1.9)	3.6 (1.1)	9.6 (3.4)
Medicare Only	10.7 (1.1)	6.9 (1.3)	3.9 (1.3)	8.3 (3.2)
Any Usual Source Of Care***	80.8 (1.4)	77.7 (2.4)	66.4 (2.9)	82.1 (4.1)
Type Of Designated Provider***				
Hospital-Based Clinic	13.3 (1.5)	21.9 (2.5)	25.9 (3.7)	27.6 (5.4)
Non-Hospital Office or Clinic	41.6 (2.1)	42.7 (3.4)	43.8 (4.2)	31.7 (5.3)
Primary Care Provider	45.1 (2.1)	35.4 (3.4)	30.3 (3.7)	40.7 (5.8)
U.S. Born***	3.5 (0.8)	4.8 (1.2)	57.1 (3.4)	56.6 (5.4)
U.S. Citizen***	99.4 (0.3)	98.4 (0.6)	62.7 (3.2)	88.1 (3.4)
Non-English Language Spoken At Home***	1.7 (0.5)	1.3 (0.6)	48.1 (3.3)	51.6 (5.3)
Not Comfortable Speaking English***	0.4 (0.2)	0.3 (0.3)	27.7 (2.7)	23.0 (4.1)

* $p < .05$, ** $p < .01$, *** $p < .001$

Abbreviations: MCS = Mexican, Central/South American origin heritage; Caribbean = Puerto Rican, Cuban, Dominican, Other Spanish-Speaking Caribbean heritage; SE = Standard Error

Table 4.2: Weighted Percent of Black, White, and Latino Adults With High Psychological Distress Who Met Patient Centered Medical Home Criteria In The Medical Expenditures Panel Survey, Panels 9-14, (N=1,914).

		Non-Latino		Latino		
	Total	White	Black	MCS	Caribbean	
Unweighted N:	1,914	1,000	402	363	169	
Patient Centered Medical Home Criteria		*Weighted Percent (SE)*				*p-value*
1.) Participant Has a Usual Primary Care Provider Or Outpatient Clinic (i.e., A Designated Provider)	78.3 (1.1)	80.4 (1.4)	76.7 (2.4)	66.1 (3.0)	81.3 (4.2)	p < .001
2.) Designated Provider Meets Criteria For Comprehensiveness	74.2 (1.5)	73.4 (1.9)	78.2 (2.9)	71.1 (3.8)	79.6 (4.0)	p = .274
3.) Designated Provider Meets Criteria For Patient-Centered Care	68.3 (1.5)	68.9 (1.9)	70.0 (3.3)	58.3 (4.1)	72.9 (5.0)	p = .086
4.) Designated Provider Meets Criteria For Enhanced Access	54.9 (1.7)	55.4 (2.2)	53.9 (3.2)	49.9 (4.2)	60.2 (5.3)	p = .482
Percent Of Distressed Adults With Reported Patient Centered Medical Home	28.5 (1.4)	29.4 (1.8)	28.1 (2.8)	18.9 (2.7)	34.6 (5.4)	p = .003

Abbreviations: MCS = Mexican, Central/South American origin heritage; Caribbean = Puerto Rican, Cuban, Dominican, Other Spanish-Speaking Caribbean heritage; SE = Standard Error

Table 4.3: Disparities In Reporting Of Patient Centered Medical Home Criteria Among Black, White, and Latino Adults With High Psychological Distress In The Medical Expenditures Panel Survey, Panels 9-14, (N=1,914).

	Logistic Regression Model To Predict Having A Patient Centered Medical Home	
	Model 1: Disparity Model Controls for Predisposing and Need Covariates	Model 2: Disparity Model Also Controlling For Enabling Covariates
	Odds Ratio (SE)	Odds Ratio (SE)
Race/Ethnicity		
Non-Latino White	1.0	1.0
Non-Latino Black	0.94 (0.16)	1.04 (0.18)
Latino - Mexico, Central/South American origin	0.55 (0.11)**	0.79 (0.17)
Latino - Spanish Speaking Caribbean origin	1.33 (0.32)*	1.84 (0.48)*
Age		
18-30	1.0	1.0
31-45	1.23 (0.28)	1.21 (0.27)
46-54	1.10 (0.26)	1.11 (0.26)
55-64	1.27 (0.33)	1.31 (0.34)
Female Gender	1.35 (0.21)	1.38 (0.22)*
Married Marital Status	1.20 (0.18)	1.19 (0.19)
Mental Health Rated “Fair” or “Poor”	0.08 (0.11)	0.77 (0.10)
Number of Chronic Medical Conditions		
Zero	1.0	1.0
One	1.05 (0.23)	0.99 (0.21)
Two or More	1.16 (0.23)	1.07 (0.21)
Lowest Quartile of Physical Health Functioning	1.03 (0.17)	1.14 (0.18)
Agreed With Attitudes Of Self-Reliance	0.61 (0.09)	0.66 (0.1)**
Survey Year	0.70 (0.10)*	0.69 (0.1)**
Live In The South		0.71 (0.1)*
12 Or Fewer Years Of Education		1.00 (0.16)
Household Income More Than 200% FPL		1.22 (0.22)
Any Health Insurance Coverage		1.48 (0.24)*
Nativity and English Language Proficiency		
U.S. Born (ref)		1.0
Foreign/Island Born, comfortable speaking English		0.76 (0.19)
Foreign/Island Born, Limited English Proficiency		0.25 (0.09)***

* p < .05, ** p < .01, *** p < .001

Table 4.4: Weighted Percent of Black, White, and Latino Adults With High Psychological Distress Who Reported Use Of Mental Health Services In The Medical Expenditures Panel Survey, Panels 9-14, (N=1,914).

	Latino		Non-Latino	
	White	Black	MCS	Caribbean
Unweighted N:	*1,000*	*402*	*363*	*149*
Type of Mental Health Services Use		*Weighted Percent (SE)*		
Mental Health Visit With PCP	22.7 (1.5)$_{a}$	14.5 (1.8)$_{b}$	20.8 (2.7)$_{a}$	15.1 (3.7)$_{a,b}$
Mental Health Visit With Specialist	23.5 (1.4)$_{a}$	24.1 (2.8)$_{a,b}$	16.7 (2.7)$_{b}$	39.7 (5.1)$_{c}$
Counseling/Psychotherapy	23.9 (1.4)$_{a}$	23.4 (2.7)$_{a}$	17.0 (2.8)$_{a}$	37.1 (5.2)$_{b}$
Pharmacotherapy	40.9 (1.9)$_{a}$	30.3 (2.9)$_{b}$	24.4 (2.7)$_{b}$	31.1 (4.3)$_{b}$
Mental Health Visit To Emergency Department	2.5 (0.7)$_{a}$	6.0 (1.9)$_{b}$	2.5 (0.8)$_{a,b}$	3.4 (1.3)$_{a,b}$
Any Of The Above Mental Health Services Use	53.2 (1.9)$_{a}$	41.7 (2.9)$_{b}$	36.6 (3.1)$_{b,c}$	51.5 (5.1)$_{a,b}$

Abbreviations: MCS = Mexican, Central/South American origin heritage; Caribbean = Puerto Rican, Cuban, Dominican, Other Spanish-Speaking Caribbean heritage; SE = Standard Error

Subscripts indicate unadjusted pairwise comparison results. Groups with different subscripts are statistically different from each other at the $p < .05$ level. For example, Non-Latino Black adults less frequently reported a mental health visit with a primary care provider than Non-Latino Whites and MCS Latinos. Non-Latino Black adults reported a mental health visit with a PCP as frequently as Caribbean Latinos.

Table 4.5: Disparities in Mental Health Services Use Among Black, White, and Latino Adults With High Psychological Distress In The Medical Expenditures Panel Survey, Panels 9-14, (N=1,914).

	Logistic Regression Model To Predict Any Mental Health Services Use		
	Model 1	Model 2	Model 3
Race/Ethnicity	*Odds Ratio (SE)*	*Odds Ratio (SE)*	*Odds Ratio (SE)*
Non-Latino White	1.0	1.0	1.0
Non-Latino Black	0.62 (0.09)**	0.62 (0.10)**	0.62 (0.10)**
Latino - MCS	0.66 (0.11)*	0.86 (0.18)	0.88 (0.18)
Latino - Caribbean	0.91 (0.23)	1.20 (0.35)	1.23 (0.36)
Foreign/Island Born		0.61 (0.15)*	0.65 (0.18)
Limited English Proficiency			0.53 (0.14)*
Age			
18-30	1.0	1.0	1.0
31-45	1.22 (0.26)	1.24 (0.27)	1.24 (0.27)
46-54	1.39 (0.31)	1.43 (0.32)	1.43 (0.32)
55-64	1.07 (0.25)	1.10 (0.26)	1.11 (0.26)
Female	1.57 (0.23)**	1.60 (0.24)**	1.60 (0.24)**
Married Marital Status	1.00 (0.12)	1.01 (0.13)	1.02 (0.13)
Fair/Poor Ratings Of Mental Health	2.72 (0.34)***	2.68 (0.34)***	2.68 (0.34)***
Number of Chronic Medical Conditions			
Zero	1.0	1.0	1.0
One	1.20 (0.24)	1.21 (0.24)	1.20 (0.24)
Two or More	2.26 (0.38)***	2.23 (0.38)***	2.22 (0.38)***
Physical Health Functioning (Lowest Quartile)	1.23 (0.18)	1.25 (0.18)	1.26 (0.18)
Self-Reliant Healthcare Attitudes	0.66 (0.08)***	0.67 (0.08)**	0.67 (0.08)**
Survey Year	0.86 (0.11)	0.86 (0.11)	0.86 (0.11)

* p < .05, ** p < .01, *** p < .001

Abbreviations: MCS = Mexican, Central/South American origin heritage; Caribbean = Puerto Rican, Cuban, Dominican, Other Spanish-Speaking Caribbean heritage; SE = Standard Error

Model 1: Logistic regression of mental health services use on race/ethnicity
Model 2: Logistic regression of mental health services use on race/ethnicity and U.S. vs. Foreign nativity
Model 3: Logistic regression of mental health services use on race/ethnicity, nativity, and English language proficiency

Table 4.6: Racial/Ethnic Disparities in Mental Health Services Use Among Black, White, and Latino Adults With High Psychological Distress In The Medical Expenditures Panel Survey, Panels 9-14, (N=1,914).

	Probability of Mental Health Services Use By Type Of Service And Race/Ethnicity									
	MH Visit With PCP		MH Visit With Specialist		Counseling Treatment		Medication Treatment		MH Visit To ED	
Race/Ethnicity	Predicted Probability	RR (95% CI)	Predicted Probability	RR (95% CI)	Predicted Probability	RR (95% CI)	Predicted Probability	RR (95% CI)	Predicted Probability	RR (95% CI)
Non-Latino White	0.228		0.231		0.235		0.415		0.024	
Non-Latino Black	0.146	**0.628** (0.45-0.86)	0.240	1.039 (0.78-1.34)	0.231	0.982 (0.76-1.28)	0.313	**0.726** (0.59-0.89	0.063	**2.670** (1.23-5.71)
MCS Latino	0.248	1.089 (0.81-1.44)	0.210	0.899 (0.61-1.27)	0.211	0.891 (0.62-1.24)	0.310	**0.718** (0.55-0.90	0.026	1.106 (0.35-2.54)
Caribbean Latino	0.149	0.641 (0.37-1.01)	0.383	**1.756** (1.27-2.31)	0.357	**1.592** (1.09-2.13)	0.326	0.759 (0.53-1.01	0.036	1.526 (0.41-3.68)

Disparity calculated as: p(MHS | Racial-Ethnic Minority) / p(MHS | Non-Latino White)

Numbers in **BOLD** are statistically significant at the .05 level

Abbreviations: MH = Mental Health; ED = Emergency Department; RR = Risk Ratio (p(MHS|racial minority)/p(MHS|Non-Latino White)); CI = Confidence Interval; MCS = Mexican, Central/South American country of origin; Caribbean = Puerto Rican, Cuban, Dominican, Other Spanish-Speaking Caribbean country of origin

Statistical models control for age, gender, mental health ratings, marital status, chronic medical conditions, physical health functioning, healthcare attitudes of self-reliance, and the MEPS survey year.

Table 4.7: Effect Of Having A Patient Centered Medical Home Components On Mental Health Services Use For Black, White, and Latino Adults With High Psychological Distress In The Medical Expenditures Panel Survey, Panels 9-14, (N=1,914).

	Logistic Regression Of Mental Health Services Use On Patient Centered Medical Home Components By Race/Ethnicity			
	Non-Latino		Latino	
	White	Black	MCS	Caribbean
Unweighted N:	*1,000*	*402*	*363*	*149*
	Odds Ratio (SE)			
Patient Centered Medical Home Components				
No Designated Provider (ref)	1.0	1.0	1.0	1.0
Designated Provider Only	2.92 (0.67)***	2.93 (0.93)**	2.20 (0.89)	1.07 (0.82)
Patient Centered Medical Home	2.44 (0.58)***	2.54 (0.84)**	1.62 (0.81)	1.02 (0.66)
Age				
18-30 (ref)	1.0	1.0	1.0	1.0
31-45	1.12 (0.30)	0.93 (0.36)	1.49 (0.93)	0.42 (0.29)
46-54	1.22 (0.36)	1.24 (0.49)	1.19 (0.67)	0.74 (0.59)
55-64	0.88 (0.27)	0.70 (0.31)	1.29 (0.97)	0.65 (0.54)
Female	1.72 (0.32)**	1.54 (0.47)	1.77 (0.75)	0.88 (0.42)
Married Marital Status	1.11 (0.20)	0.81 (0.29)	0.63 (0.19)	0.24 (0.12)**
Fair/Poor Ratings Of Mental Health	2.51 (0.39)***	5.65 (1.64)***	3.47 (1.01)***	3.13 (1.28)**
Number of Chronic Medical Conditions				
Zero (ref)	1.0	1.0	1.0	1.0
One	1.28 (0.33)	0.35 (0.16)*	2.06 (0.83)	1.21 (0.84)
Two or More	2.52 (0.55)***	1.18 (0.43)	1.30 (0.59)	1.77 (1.31)
Low Physical Health Functioning	1.44 (0.28)	0.85 (0.27)	2.42 (1.05)*	0.53 (0.31)
Self-Reliant Healthcare Attitudes	0.67 (0.11)*	0.48 (0.13)**	1.03 (0.36)	1.12 (0.51)
Southern Geographic Region of U.S.	0.77 (0.13)	0.66 (0.17)	0.91 (0.25)	0.83 (0.44)
12 Or Fewer Years Of Education	0.89 (0.16)	0.61 (0.19)	0.58 (0.22)	1.41 (0.73)
Income Above 200 % Poverty Level	1.21 (0.21)	0.72 (0.26)	1.02 (0.31)	0.50 (0.29)
Survey Year	0.93 (0.15)	0.69 (0.17)	0.52 (0.14)*	1.06 (0.43)
Nativity and English Language Proficiency				
U.S. Born (ref)			1.0	1.0
Foreign/Island Born, comfortable speaking English			0.74 (0.24)	1.53 (0.90)
Foreign/Island Born AND Limited English Proficiency			0.50 (0.17)*	1.80 (1.12)

* p < .05, ** p < .01, *** p < .001

Abbreviations: MCS = Mexican, Central/South American origin heritage; Caribbean = Puerto Rican, Cuban, Dominican, Other Spanish-Speaking Caribbean heritage; SE = Standard Error

Table 4.8: Estimated Effect Of Patient Centered Medical Home Components On The Probability of Mental Health Services Use Among Non-Latino- White and Non-Latino-White Black Adults With High Psychological Distress In The Medical Expenditures Panel Survey, Panels 9-14

	Predicted Probability Of MHS Use			Relative Risk Of MHS Use	
Non-Latino White	No Designated Provider	Designated Provider Only	All PCMH Components	DP Only‡	All PCMH‡ Components
Any MHS Use	0.370	0.603	0.562	**1.78** **(1.37-2.35)**	**1.64** **(1.24-2.21)**
MH Visit With Primary Care Provider	0.143	0.254	0.247	**1.83** **(1.18-3.26)**	**1.78** **(1.14-3.08)**
Visit With MH Specialist	0.203	0.231	0.271	1.14 (0.79-1.85)	1.37 (0.88-2.12)
Counseling/Psychotherapy	0.185	0.238	0.265	1.31 0.88-2.09)	1.13 (0.83-1.51)
MH Prescription	0.260	0.478	0.453	**1.99** **(1.39-2.94)**	**1.87** **(1.28-2.79)**
MH Visit To Emergency Department	.032	.028	.015	0.87 (0.22-5.03)	0.45 (0.09-2.43)
	Predicted Probability Of MHS Use			Relative Risk Of MHS Use	
Non-Latino Black	No Designated Provider	Designated Provider Only	All PCMH Components	DP Only‡	All PCMH‡ Components
Any MHS Use	0.274	0.462	0.427	**2.00** **(1.24-3.32)**	**1.79** **(1.01-3.10)**
MH Visit With Primary Care Provider	0.69	0.183	0.130	**2.73** **(1.03-7.24)**	1.91 (0.67-6.13)
Visit With MH Specialist	0.144	0.244	0.252	1.85 (0.86-4.47)	1.93 (0.79-4.51)
Counseling/Psychotherapy	0.137	0.217	0.272	1.74 (0.73-4.72)	2.32 (0.93-5.68)
MH Prescription	0.187	0.345	0.296	**2.07** **(1.14-4.08)**	1.71 (0.56-4.22)
MH Visit To Emergency Department	.070	.069	.030	0.99 (0.22-7.92)	0.43 (0.06-3.70)

Abbreviations: MH = Mental Health; MHS = Mental Health Services
‡ Risk Ratio calculated as: p(MHS | PCMH component) - p(MHS | No Designated Provider); No designated provider is the reference category for all
Numbers in **BOLD** are statistically significant at the .05 level

Statistical models control for age, gender, mental health ratings, marital status, chronic medical conditions, physical health functioning, healthcare attitudes of self-reliance, education, household income, geographic region, U.S. vs. foreign nativity, English proficiency, and the MEPS survey year. Statistical models do NOT control for insurance status.

Table 4.9: Estimated Effect Of Patient Centered Medical Home Components On The Probability of Mental Health Services Use Among Mexican, Central or South American, and Caribbean Origin Latino Adults With High Psychological Distress In The Medical Expenditures Panel Survey, Panels 9-14

	Predicted Probability Of MHS Use			Relative Risk Of MHS Use	
MCS Latino	No Designated Provider	Designated Provider Only	All PCMH Components	DP Only[‡]	All PCMH[‡] Components
Any MHS Use	0.290	0.437	0.385	1.66 (0.89-3.01)	1.42 (0.69-2.68)
MH Visit With Primary Care Provider	0.144	0.254	0.190	1.92 (0.82-5.55)	1.37 (0.44-4.41)
Visit With MH Specialist	0.100	0.192	0.155	2.17 (0.73-8.75)	1.66 (0.49-5.80)
Counseling/Psychotherapy	0.101	0.196	0.148	2.15 (0.75-7.95)	1.54 (0.37-5.36)
MH Prescription	0.200	0.295	0.268	1.61 (0.77-4.22)	1.43 (0.56-4.22)
	Predicted Probability Of MHS Use			Relative Risk Of MHS Use	
Caribbean Latino	No Designated Provider	Designated Provider Only	All PCMH Components	DP Only[‡]	All PCMH[‡] Components
Any MHS Use	0.513	0.526	0.518	1.03 (0.51-4.23)	1.01 (0.52-4.40)
MH Visit With Primary Care Provider	0.254	0.169	0.089	n.s.	n.s.
Visit With MH Specialist	0.405	0.351	0.454	0.82 (0.31-7.13)	1.19 (0.39-6.94)
Counseling/Psychotherapy	0.440	0.289	0.421	0.56 (0.25-6.11)	0.94 (0.39-8.91)
MH Prescription	0.347	0.303	0.312	0.86 (0.33-6.49)	0.89 (0.32-6.79)

Abbreviations: MH = Mental Health; MHS = Mental Health Service; MCS = Mexican, Central/South American origin heritage; Caribbean = Puerto Rican, Cuban, Dominican, Other Spanish-Speaking Caribbean country of origin

[‡] Risk Ratio calculated as: p(MHS | PCMH component) - p(MHS | No Designated Provider); No designated provider is the reference category for all

n.s. Simulations did not converge.

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Statistical models control for age, gender, mental health ratings, marital status, chronic medical conditions, physical health functioning, healthcare attitudes of self-reliance, education, household income, geographic region, U.S. vs. foreign nativity, English proficiency, and the MEPS survey year. Statistical models do NOT control for insurance status.

Mental health visits to emergency department not estimated due to limitations in sample size

Table 4.10: Racial/Ethnic Disparities In Mental Health Visits To A Primary Care Provider Among Non-Latino White, Non-Latino Black, and Latino Adults With High Psychological Distress (N=1,914)

	Logistic Regression Model To Predict Racial/Ethnic Disparities In Mental Health Visits With A Primary Care Provider			
	Model 1	Model 2	Model 3	Model 4
Medical Home Status	*OR (SE)*	*OR (SE)*	*OR (SE)*	*OR (SE)*
No Designated Provider		1.0	1.0	1.0
Designated Provider		2.11 (0.46)***	2.21 (0.51)**	1.89 (0.43)**
Patient Centered Medical Home		n.a.	1.93 (0.46)**	1.63 (0.40)*
Race/Ethnicity				
Non-Latino White	1.0	1.0	1.0	1.0
Non-Latino Black	0.56 (0.10)**	0.57 (0.10)**	0.57 (0.10)**	0.59 (0.11)**
Latino - MCS	1.10 (0.21)	1.17 (0.23)	1.16 (0.17)	1.14 (0.22)
Latino - Caribbean	0.58 (0.17)	0.56 (0.17)	0.56 (0.17)	0.48 (0.15)*
Age				
18-30	1.0	1.0	1.0	
31-45	1.32 (0.32)	1.23 (0.30)	1.24 (0.30)	1.20 (0.29)
46-54	1.25 (0.31)	1.16 (0.29)	1.16 (0.29)	1.19 (0.30)
55-64	0.83 (0.24)	0.76 (0.22)	0.76 (0.22)	0.76 (0.23)
Female	1.38 (0.24)	1.36 (0.24)	1.37 (0.24)	1.36 (0.24)
Married Marital Status	0.91 (0.13)	0.89 (0.13)	0.89 (0.13)	0.96 (0.15)
Fair/Poor Ratings Of Mental Health	1.94 (0.29)***	1.95 (0.29)***	1.94 (0.29)***	1.85 (0.28)***
Number of Chronic Medical Conditions				
Zero (ref)	1.0	1.0	1.0	1.0
One	1.35 (0.32)	1.30 (0.31)	1.30 (0.31)	1.26 (0.31)
Two or More	1.80 (0.41)*	1.64 (0.38)*	1.64 (0.38)*	1.60 (0.38)*
Low Physical health Functioning	1.33 (0.22)	1.31 (0.22)	1.31 (0.22)	1.31 (0.22)
Self-Reliant Healthcare Attitudes	0.75 (0.11)	0.76 (0.11)	0.77 (0.11)	0.82 (0.12)
Survey Year	1.09 (0.16)	1.10 (0.16)	1.11 (0.16)	1.07 (0.15)
Southern Region				0.65 (0.09)**
Twelve Or Fewer Years Of Education				0.87 (0.13)
Income Above 200 % Poverty Level				0.95 (0.16)
Health Insurance Coverage				
Public				1.79 (0.34)**
Private				1.26 (0.28)
Uninsured (ref)				1.0

* p < .05, ** p < .01, *** p < .001

Abbreviations: MCS = Mexican, Central/South American origin heritage; Caribbean = Puerto Rican, Cuban, Dominican, Other Spanish-Speaking Caribbean heritage; OR = Odds Ratio; SE = Standard Error

Model 1: Controls for indicators of mental health service needs.
Model 2: Controls for indicators of mental health service needs and having a designated provider.
Model 3: Controls for indicators of mental health service needs and PCMH status.
Model 4: Controls for indicators of mental health service needs, PCMH status, and other enabling characteristics (insurance, income, education, and geographic region),

Table 4.11: Latino Ethnicity, Nativity, and Linguistic Disparities In Visits To A Mental Health Specialist Among Distressed Non-Latino White and Latino Adults of Mexican or Central/South American Origin (n=1,336)

	Logistic Regression Model To Predict Ethnic Disparities In Visits To A Mental Health Specialist			
	Model 1	Model 2	Model 3	Model 4
Medical Home Status	*OR (SE)*	*OR (SE)*	*OR (SE)*	*OR (SE)*
No Designated Provider		1.0	1.0	1.0
Designated Provider		1.51 (0.34)x	1.44 (0.34)	1.20 (0.28)
Patient Centered Medical Home		n.a.	1.65 (0.42)*	1.42 (0.37)
Nativity And English Proficiency				
U.S. Born Non-Latino White (ref)	1.0	1.0	1.0	1.0
U.S. Born MCS Latino	1.11 (0.32)	1.12 (0.32)	1.13 (0.32)	1.23 (0.37)
Foreign Born, English Proficient	1.05 (0.46)	1.07 (0.47)	1.08 (0.48)	0.89 (0.42)
Foreign Born, Limited English	0.21 (0.46)*	0.23 (0.15)*	0.24 (0.15)*	0.24 (0.15)*
Age				
18-30	1.0	1	1	1
31-45	1.19 (0.33)	1.14 (0.32)	1.14 (0.32)	1.05 (0.29)
46-54	0.86 (0.25)	0.81 (0.23)	0.81 (0.23)	0.79 (0.22)
55-64	0.81 (0.26)	0.76 (0.24)	0.76 (0.24)	0.70 (0.22)
Female	0.96 (0.17)	0.94 (0.17)	0.93 (0.17)	0.95 (0.17)
Married Marital Status	0.90 (0.15)	0.89 (0.16)	0.89 (0.16)	0.94 (0.17)
Fair/Poor Ratings Of Mental Health	2.85 (0.56)***	2.87 (0.57)***	2.91 (0.58)***	2.91 (0.59)***
Number of Chronic Medical Conditions				
Zero (ref)	1.0	1.0	1.0	1.0
One	1.02 (0.29)	1.01 (0.28)	1.01 (0.28)	0.94 (0.27)
Two or More	1.50 (0.40)	1.43 (0.38)	1.43 (0.38)	1.35 (0.37)
Low Physical health Functioning	1.46 (0.30)	1.44 (0.29)	1.44 (0.29)	1.47 (0.30)
Self-Reliant Healthcare Attitudes	0.86 (0.15)	0.88 (0.15)	0.89 (0.15)	0.98 (0.17)
Survey Year	0.99 (0.15)	1.00 (0.15)	1.01 (0.15)	0.96 (0.15)
Southern Region				0.92 (0.15)
Twelve Or Fewer Years Of Education				0.56 (0.10)**
Income Above 200 % Poverty Level				1.43 (0.28)x
Health Insurance Coverage				
Public				2.06 (0.43)***
Private				0.99 (0.23)
Uninsured (ref)				1.0

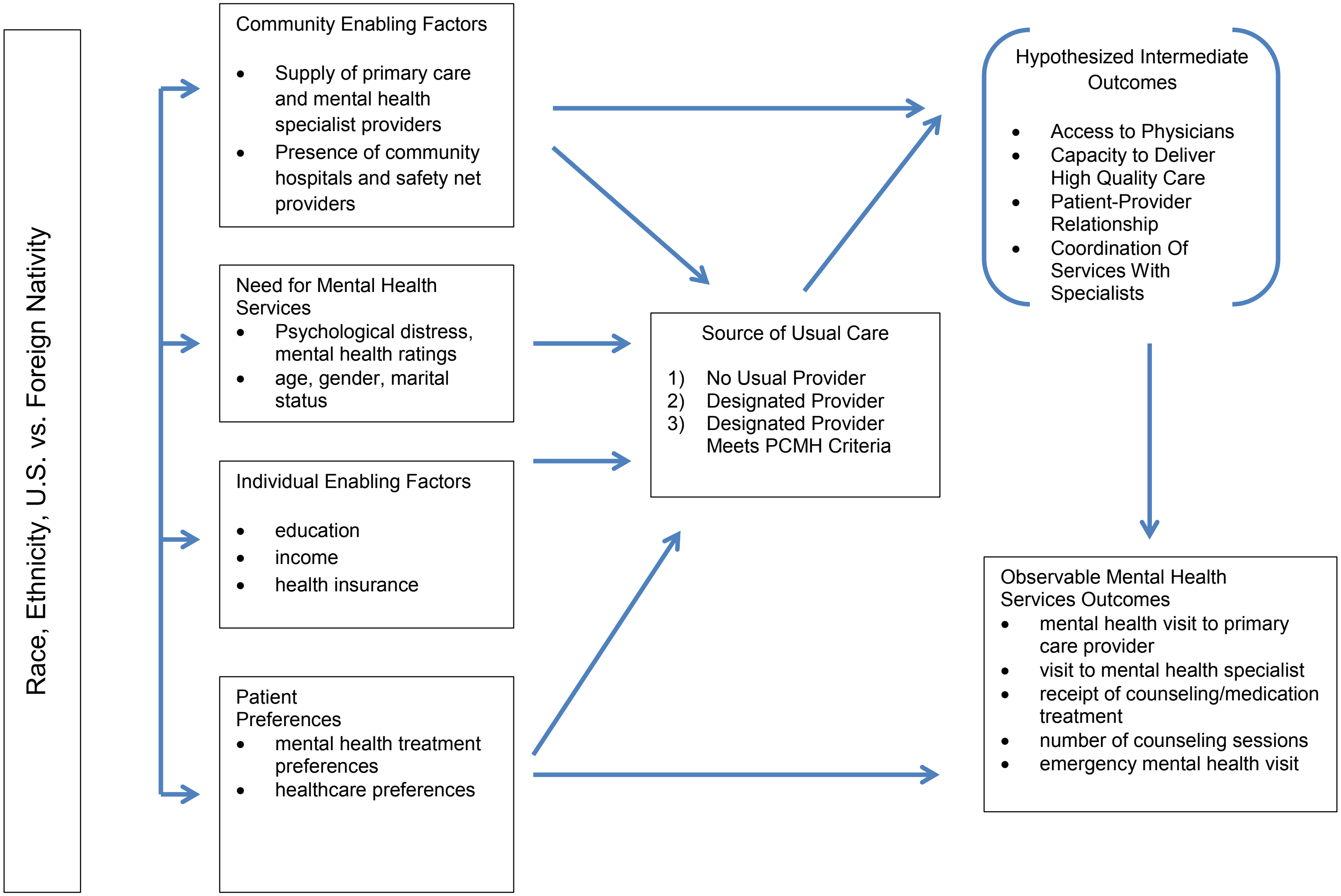
* p < .05, ** p < .01, *** p < .001

Abbreviations: OR = Odds Ratio; SE = Standard Error

Model 1: Controls for indicators of mental health service needs.
Model 2: Controls for indicators of mental health service needs and having a designated provider.
Model 3: Controls for indicators of mental health service needs and PCMH status.
Model 4: Controls for indicators of mental health service needs, PCMH status, and other enabling characteristics (insurance, income, education, and geographic region),

4.10 Figures

Figure 4.1 Conceptual Model Of The Expected Relationships Between Patient Centered Medical Home Components and Mental Health Services Use for Divergent Racial/Ethnic Populations In The U.S.



4.11 Appendices

Appendix 4.1: Change in Estimated Effect Of PCMH On MHS Use When The Sample of Distressed Adults Was Expanded To Include Both Household Respondents And Other Household Members With Psychological Distress

Sample Definition:	Respondents and Other Household Members		Respondents Only	
	Having A Designated Provider vs. No Designated Provider	Having A PCMH vs. No Designated Provider	Having A Designated Provider vs. No Designated Provider	Having A PCMH vs. No Designated Provider
Results For Non-Latino Blacks				
	Odds Ratio (CI)	Odds Ratio (CI)	Odds Ratio (CI)	Odds Ratio (CI)
Any Mental Health Services Use	2.53 (1.43-4.48)**	2.48 (1.36-4.50)**	2.93 (1.57-5.46)***	2.54 (1.33-4.86)**
Mental Health Visit to PCP	3.45 (1.35-8.85)*	2.39 (0.83-6.90)	3.20 (1.11-9.21)*	2.03 (0.63-6.49)
Specialist Mental Health Visit	2.21 (1.03-4.75)	2.51 (1.01-6.21)*	2.01 (0.90-4.53)	2.37 (0.93-6.03)
Counseling Services	2.12 (0.95-4.75)	3.25 (1.28-8.27)*	1.85 (0.79-4.37)	2.99 (1.15-7.73)*
Medication Treatment	2.43 (1.29-4.61)**	2.02 (1.03-3.97)*	3.01 (1.45-6.27)**	2.11 (0.99-4.46)
Emergency Mental Health Visit	0.95 (0.23-3.96)	0.36 (0.08-1.68)	0.99 (0.19-5.11)	0.32 (0.06-1.80)
Results For MCS Latinos				
Any Mental Health Services Use	2.22 (1.14-4.35)*	1.56 (0.68-3.60)	2.20 (0.99-4.89)	1.62 (0.60-4.33)
Mental Health Visit to PCP	2.75 (1.02-7.45)*	1.38 (0.43-4.43)	2.33 (0.78-6.95)	1.40 (0.40-4.93)
Specialist Mental Health Visit	2.11 (0.82-5.42)	1.41 (0.46-4.32)	2.40 (0.82-7.08)	1.63 (0.45-5.96)
Counseling Services	2.34 (0.92-5.99)	1.27 (0.41-3.96)	2.39 (0.87-6.57)	1.46 (0.42-5.08)
Medication Treatment	1.82 (0.91-3.61)	1.41 (0.56-3.54)	1.78 (0.75-4.20)	1.47 (0.48-4.49)
Emergency Mental Health Visit	2.76 (0.35-21.89)	1.88 (0.22-16.39)	2.76 (0.35-21.89)	1.88 (0.22-16.39)

* p < .05, ** p < .01, *** p < .001

Chapter 5: Discussion of Dissertation Findings

The Affordable Care Act creates new opportunities for Black and Latino adults with a mental health disorder to receive mental health services in the primary care setting for the first time. As we look towards the future of healthcare, this is a critical time to determine how the primary care system can best meet the service needs of these new patient populations. My dissertation sheds light on these issues through the design of three studies examining the relationship between primary care-based services and disparities in MHS for Non-Latino White, Non-Latino Black, and Latino populations in the U.S. A summary of the main findings is included in Table 5.1.

Collectively, findings from my dissertation reveal that systemic reforms are needed to enhance patients' access to primary-care based MHS, and to reduce the systemic fragmentation that contributes to low rates of follow-up care and barriers to mental health specialist services for Non-Latino Black and MCS Latino populations, respectively. I found that core features of the PCMH, measured prior to healthcare reform, were likely to address many of these areas in need of improvement for adults with a mental health disorder. Specifically, I found that the components of a designated provider, whole-person orientation to care, and patient-centered approaches to treatment were associated with 1) reduced barriers in access to primary care-based MHS, 2) receipt of mental health treatments, and 3) reduced barriers to mental health specialist providers. Despite these promising findings, the benefits of the core features of the PCMH may not reach equally to Non-Latino White, Non-Latino Black, and MCS and Caribbean-origin Latino populations in the U.S. Moreover, Black-White and Latino-White disparities in MHS remained statistically significant even after considering racial/ethnic differences in the measured PCMH components. My findings indicate that, in addition to primary care reforms planned in the ACA, additional policies will be needed in order to reduce racial/ethnic disparities in MHS. Results suggest there is a need to shift focus away from universal approaches of expanded access and towards culturally informed policies that can address the specific needs of divergent racial and ethnic populations in the U.S.

5.1 Reforms are Needed to Reduce Disparities in Mental Health Services

Gaps in primary care exist for all adults with a mental health disorder but especially for Non-Latino Black adults and recent MCS Latino immigrants. Study1 used an innovative approach to examine MHS use following an assessment of potential need, indicated by psychological distress. My findings built on others in the literature and demonstrated that when adults experience risk for a mental health disorder, just one in three are likely to visit with a primary care or mental health specialist provider in the following year. Non-Latino Black and MCS Latino adults were even less likely than Non-Latino Whites to receive a mental health visit. Importantly, I found that racial/ethnic disparities in MHS were not improving in the years leading up to healthcare reform (2005-2009).

Results from Study 1 contribute to an ongoing debate about the policies needed to reduce racial/ethnic disparities in MHS use. A number of recent studies in mental health have reported that Black-White disparities in MHS are primarily attributed to racial/ethnic disparities in services initiation (Cook et al. 2010; Cook et al. 2013b). Researchers have concluded that the key to reducing racial/ethnic disparities in MHS is the adoption of policies aimed at improving healthcare access and reducing help-seeking barriers in Black and Latino populations. My dissertation, which used a prospective study design and also controlled for racial/ethnic differences in patterns of mental health diagnoses, found that even when MHS were utilized, distressed Non-Latino Black adults received fewer visits than Non-Latino Whites. Findings confirmed that Black-White disparities were not relegated to access alone. Rather, a confluence of factors contributes to disparities in both the access to and continuation of mental health treatments for Non-Latino Blacks. Moreover, my finding that Black-White disparities in MHS are particularly evident in publicly insured populations indicates that the Medicaid and private insurance expansions alone will do little to address Black-White disparities in use of MHS. The findings indicate that additional programs and policies are needed to address racial disparities, particularly in safety-net settings. .

Study 1 also contributed new findings regarding ethnic and nativity disparities in MHS for Latino populations in the U.S. In the past, researchers have found that Latino-White disparities in MHS primarily occur in access to mental health treatments and specialist-based services. The majority of studies, which did not consider variations among Latinos in nativity and cultural heritage, found that Latinos were equally likely as Whites to receive MHS from a primary care provider. In contrast to prior literature, results of study 1 revealed that some Latino groups do experience disparities in primary care-based MHS. MCS Latinos, especially those who were foreign born or who experienced LEP, were less likely than Non-Latino Whites to receive a primary care-based mental health visit. The study's multivariate analyses revealed that disparities in primary-care based mental health visits for MCS Latinos with LEP existed even after controlling for traditional access factors such as insurance status, level of education, and household income.

Collectively, findings of Latino-White disparities in visits to primary care providers have important research and policy implications. First, my dissertation results demonstrate that ignoring cultural variations within the Latino population will likely mask important disparities in MHS use and outcomes. Second, one-quarter of Latino immigrants will be unable to benefit from the insurance expansions and other health reform policies aimed at the primary care setting. Consequently, my findings suggest that Latinos-White disparities in primary care-based

MHS may increase in the future. At this time when some racial/ethnic minorities will experience improved access to MHS, my findings reveal a need to reduce structural and cultural barriers to mental health treatments for MCS migrant populations.

5.2 Patient Centered Medical Home Components and Mental Health Services Use

The second part of my dissertation provided new findings on the expected benefits associated with core features of the PCMH for adults with a mental health disorder. Results from study 2 reinforced previously held ideas about the benefits of a strong patient-provider partnership. I found, for example, that having a designated healthcare provider was associated with an increased probability of receiving a mental health visit to a primary care provider and an increased likelihood of reporting a mental health prescription. Findings suggest that establishing a continuous relationship with a healthcare provider, clinic, or team of providers may aid in the detection and treatment of mental health disorders in primary care. Of all the PCMH components measured, I found that having a designated provider had the strongest effect on patients' probability of reporting MHS use. My findings therefore suggest that expanding health insurance coverage may help to improve rates of mental health treatment, particularly in the primary care setting.

This research additionally provides new information on the added benefit associated with other important PCMH components. I found that having a designated provider who delivers comprehensive, patient centered services was associated with an increased likelihood of specialist-based MHS. That is, while having a designated provider was associated with visits to a primary care provider, the additional PCMH components of a whole-person and patient-centered approach to treatment contributed to patients' likelihood of receiving counseling services and visits to mental health specialists.

Findings from my dissertation reveal that comprehensive and patient-centered approaches to primary care services delivery may help to overcome some of the historical fragmentation between physical and mental health services by creating a channel to mental health specialist providers. It is likely, however, that this potential channel to mental health specialists will only be effective in those communities where mental health specialists practice. In support of this conclusion I found that Latinos were unlikely to benefit from the PCMH components of comprehensive, patient-centered care and enhanced access to physicians. One hypothesized reason for this finding is that Latinos, compared to other groups, live in communities with the greatest shortages of mental health specialist providers. It may then be the case that the PCMH reforms will need to occur in tandem with programs to increase the supply of mental health specialist providers, particularly in Latino migrant communities.

Results from study 2 also help to shed light on the benefits of having a primary care based medical home for adults at-risk for serious mental illness (indicated by high psychological distress). One of the concerns of the PCMH model is that it may not be optimal for adults with serious mental illness because this population is likely to receive the majority of their treatments in community mental health settings. Patients who have traditionally received mental health treatments in community mental health settings, in turn, may not want the disruption of relocating their services to a primary care setting. The current study contributes to this debate by examining PCMH components and subsequent MHS use among a nationally, representative sample of adults with an indicated risk for serious mental illness. In Study 2, I found that adults with high psychological distress (an indicator of serious mental illness) were more likely to receive needed mental health treatments when they had a designated provider who delivers comprehensive, patient-centered services than when they did not have a designated provider. Thus, my findings indicate that adoption of core features of the PCMH, such as providing patients with a designated provider, will help to reduce the burden of untreated mental illness for patients who have traditionally been underserved in the primary care setting. For patients who predominantly receive care in community mental health settings, however, more work is needed to determine how both primary care and mental health needs can be addressed in this setting.

5.3 An Evolving Framework for Understanding Disparities in Mental Health Services

I started this dissertation with a conceptual framework informed by the 2002 Institute of Medicine's report, Unequal Treatment: Confronting Racial and Ethnic Disparities In Health Care (Intitute of Medicine 2002). One of the important findings the IOM committee's report is that the organization of the healthcare system contributes to racial/ethnic disparities in care. Using an analytic framework consistent with the Institute of Medicine's definition of a health care disparity, supplemental analyses in Study 1 tested the assumption that healthcare education, income, insurance coverage partially mediate Black-White and Latino-White disparities in mental health services use. Findings revealed that Black-White disparities in mental health visits could not be attributed to group differences in insurance coverage, education, or household income. Rather, Black-White disparities were *greatest* in disadvantaged populations. Findings suggest that the systems of care where Black and MCS Latinos are likely to receive services moderate racial and ethnic disparities. Systemic reforms are therefore needed, particularly within safety net settings, to reduce racial/ethnic disparities in MHS. Moreover, traditional approaches to eliminate healthcare disparities, such as expanding insurance coverage, may not be sufficient to reduce MHS disparities. My results point to a need for culturally specific policies in order to reduce Black-White and Latino-White disparities in MHS.

In study 3, I explored the implications of new models of primary care delivery for racial/ethnic disparities in MHS. Rather than using a mediation-based disparities framework (i.e., study 1), I used a contextual model to understand how different PCMH components are likely to influence MHS use for specific Non-Latino White, Non-Latino Black, and MCS and Caribbean-origin Latino populations. Based on findings from Study 1 I hypothesized that these processes may differ for racial/ethnic minority populations than for Non-Latino Whites. Indeed, I found that the core components of the PCMH facilitated use of MHS for some, but not all, racial/ethnic groups.

An important contribution of study 3 was my finding that having a designated provider was associated with mental health visits to a primary care provider for Non-Latino Black adults. Moreover, distressed Black patients who reported all of the PCMH components (enhanced access to physicians, whole-person orientation, and patient-centered services) appeared more likely than Black adults without a designated provider to receive mental health counseling. My findings indicate that when providers are afforded the time to discuss treatment options with patients and involve them in treatment decision-making, Black adults are more likely to receive preferred counseling services. Because the PCMH components measured in this study collectively work to foster healing relationships between patients and providers, the findings suggest that the patient-provider relationship is an important target for future interventions aimed at reducing Black-White disparities in MHS.

For Latinos, the findings in Study 3 were quite different. Having a designated provider was only marginally associated with receiving a mental health visit with a primary care provider for MCS Latinos. None of the other PCMH components were associated with receipt of primary care or specialist-based MHS for MCS or Caribbean populations. My findings suggest that cultural barriers, such as mental health stigma, may be impeding MHS use in MCS Latino communities. Moreover, our finding those MCS disparities are greatest for LEP Latinos suggest that this group is less able than Non-Latino Whites to use their primary care provider as a conduit to MHS. MCS Latino-White disparities in visits to mental health specialists remained statistically significant even when controlling for ethnic differences in access to a designated provider. Results from this research indicate that, in addition to general policies that address health insurance coverage, programs are needed to address mental health stigma and linguistic barriers to care in MCS migrant communities.

5.4 Implications for Policies and Programs Directed at Primary Care Settings

Results of my three dissertation studies indicate that additional strategies and solutions are needed to reduce disparities in MHS, particularly within the primary care setting.

As a first step, there is a need to get patients in the door. Only one-third of adults with an indicated risk for serious mental illness reported having a designated provider who met all of the measured PCMH criteria. Low rates of reporting the PCMH components were also observed for Non-Latino Black and MCS Latino minorities. As health plans continue to adopt core features of the PCMH, strategies are needed to help Black and Latino adults with a mental health disorder enroll in public/private health plans that include PCMH reforms. For Non-Latino Black adults, this includes the expansion of the PCMH components to community mental health centers and other specialty mental health settings that serve adults with serious mental illness. States may consider the use of promotoras and healthcare navigators to help Black and Latino adults with a mental health disorder navigate the insurance exchanges and enroll in public/private health plans that meet PCMH criteria. It may be useful to incorporate a brief mental health screening tool in the online enrollment procedures for the state-based insurance exchanges. Additional community outreach efforts will be particularly needed to assist Latino migrants who, compared to others, have less familiarity with the U.S. healthcare system, experience more linguistic barriers to care, and also will have fewer opportunities to participate in Medicaid-sponsored medical homes due to citizenship and residency restrictions in the ACA.

As a second strategy, it will be important for practices adopting the PCMH to include the organizational and practice-level reforms that have demonstrated success in serving minority populations. My results suggest the adoption of policies that strengthen the patient-provider relationship may be one fruitful avenue to reduce Black-White disparities in MHS. However, findings from prior research indicate that it will also be important that the PCMH include practice-level reforms, such as use of depression care managers, collaborative treatment planning, and quality improvement initiatives. Moreover, as Black and Latino adults with a mental health disorder are included in the PCMH, it will be important for healthcare practices to include policies that specifically address coordination with mental health specialist providers.

Third, my dissertation findings suggest that racial/ethnic disparities may continue even after implementation of ACA policies that provide patients with a usual healthcare provider, such as the insurance expansions, investments in primary care workforce, and FQHC expansions. In addition to the ACA policies, more work is needed to integrate mental health treatments into the safety-net settings that serve Non-Latino Black and MCS Latino minorities. Service integration efforts should include screening for mental health disorders, dissemination of treatment guidelines, and training for primary care providers on brief counseling-based treatments that are culturally sensitive and conform to Black and Latino patients' treatment preferences.

Finally, a need exists for additional strategies to link MCS Latino immigrants to MHS. One recommended strategy is for state and local healthcare organizations to partner with faith-based institutions and charitable organizations in Latino communities to provide outreach and education of mental health treatment options for low-income Latino immigrants. To reduce Latino-White disparities with mental health specialists, specifically, there is a need to increase the training pipeline for Spanish-speaking mental health providers. Financial incentives (e.g., loan-forgiveness programs) may be employed to attract bilingual specialists to the FHQCs that disproportionately serve MCS Latinos.

5.5 Implications for Policies Directed At Specialty Mental Health Settings

As our nation looks towards health reform, it will be important that states do not divert resources away from public MHS that often serve in racial/ethnic minority communities. Results from Study 1 suggest there has been a decrease in recent years in visits to mental health specialists. These decreases were only statistically significant for Non-Latino Black adults. While I cannot draw firm conclusions about the cause of these historical trends, the results are nonetheless consistent with patterns of state funding for public mental health services that coincided with the U.S. recession. Because policies in the Affordable Care Act are primarily directed towards the primary care system and support for FQHCs, it will be critical to ensure that resources are secured for community mental health services.

Policies are needed at the local, state, and federal levels to buttress community mental health centers and ensure that they do not lag further behind in resources to those of community health centers (including FHQCs). Block grants may be needed to support health information technology infrastructure that will allow for a shared medical record with other safety net providers, such as FQHCs. It will also be important to co-locate primary care providers in community mental health centers to reduce fragmentation of services and ensure that Black and Latino patients with a mental health disorder experience access to high quality physical and mental health services.

5.6 Conclusions

Black and Latino adults experience significant disparities in MHS. For Non-Latino Blacks, these disparities are most evident in the primary care setting. My dissertation findings suggest that Black-White disparities have potential to be reduced by ACA policies that provide patients with a usual healthcare provider, such as the insurance expansions, investments in primary care workforce, and expanded number of FQHC. However, I found that Black-White disparities continue to be observed even when these patients have access to a designated health care provider. To eliminate Black-White disparities in mental health services, it will be important for primary care reforms to include the organizational features that have demonstrated success in serving minority populations. Results also point to a need for the adoption of patient-centered approaches to the treatment of mental health disorders in the primary care and safety net settings that serve Black adults with a mental health disorder.

For MCS Latinos, MHS disparities were most evident in visits to mental health specialists. MCS Latinos also experience disparities in access to a designated provider. Unfortunately, we found that having a designated provider did not improve primary care or specialist-based MHS for MCS Latinos. Other cultural and linguistic barriers to care are likely to prevent MCS immigrants from receiving needed MHS. More work is needed to increase the supply and distribution of mental health specialist providers in the U.S. Moreover, there is an urgent need to identify strategies within the primary care setting that may aid in the treatment of mental health disorders for Latino immigrants. Without such endeavors, results here suggest that Latino-White disparities in MHS may worsen over time.

5.7 Tables

Table 5.1 Summary of Dissertation Hypotheses and Main Findings

Hypothesis	Finding
1.1 Non-Latino Black, and MCS and Caribbean-origin Latino adults will have a lower probability of reporting any mental health visit to a primary care providers or mental health specialist compared to Non-Latino Whites.	Non-Latino Blacks were less likely than Non-Latino Whites to report a mental health visit with a PCP; MCS Latinos were less likely than Non-Latino Whites to visit with a mental health specialist. Foreign-born MCS and Caribbean-origin Latinos were less likely than U.S. born Non-Latino Whites to report a mental health visit with a PCP.
1.2 Non-Latino Black and MCS and Caribbean-origin Latino adults will receive fewer outpatient mental health visits than Non-Latino Whites, conditional on reporting any mental health visit.	Non-Latino Blacks receive fewer mental health visits than Non-Latino Whites, conditional on reporting any mental health visit.
1.3 Racial/ethnic disparities in mental health visits will be greater when services are delivered by a primary care provider than a mental health specialist provider.	Black-White disparities in the probability of any mental health visit were greater when services were delivered by a PCP.
2.1 Adults with high psychological distress will be less likely than adults with low-moderate distress to have a designated provider who delivers comprehensive, patient-centered services.	Adults with high psychological distress were less likely than adults with low-moderate levels of distress to have a designated provider who delivers comprehensive, patient-centered services.
2.2 Adults with high distress who report having a PCMH will be more likely than distressed adults without a reported PCMH to use mental health services (evidence of access).	Adults with high distress who reported all PCMH components were equally likely as distressed adults without all PCMH components to use mental health services.
	Adults with high distress who have a designated healthcare provider were more likely than distressed adults without a designated provider to receive a MH visit with a primary care provider and to receive a mental health prescription.
2.3 Adults with high distress who report having a PCMH will be more likely than distressed adults without a reported PCMH to visit with a mental health specialist (evidence of referral).	Adults with high distress who have a designated provider who delivers comprehensive and patient-centered services were more likely than adults no designated provider to receive a MH visit with a primary care provider, to visit with a mental health specialist, to receive MH counseling, and to receive a mental health prescription.

2.4 Adults with high distress who report having a PCMH will receive more mental health visits and more mental health prescription fills than distressed adults who do not report having a PCMH (evidence of treatment engagement).	None of the PCMH components were associated with number of mental health visits or number of mental health prescription records, conditional on any MH visit or prescription.
3.1 Non-Latino Black and MCS and Caribbean-origin Latinos will be less likely than Non-Latino Whites to have a designated provider who delivers services consistent with the PCMH.	MCS-origin Latinos were less likely than Non-Latino Whites to have a provider who meets all of the measured PCMH criteria
3.2 Distressed Non-Latino White, Non-Latino Black, and MCS and Caribbean-origin Latinos who report having a designated provider will be more likely than those without a designated provider to receive a mental health visit with a primary care provider	Having a designated provider was associated with an increased probability of receiving a primary care-based MH visit for Non-Latino White and Black adults with high distress. The finding was not observed for Latino adults with high distress.
3.3 Distressed Non-Latino White, Non-Latino Black, and MCS and Caribbean-origin Latinos who have a reported PCMH will be more likely than those distressed adults without a designated provider to visit with a mental health specialist.	This finding was only statistically significant when sample size was increased to include both the household respondent and other adults in the household with high psychological distress. The finding was observed for Non-Latino White and Non-Latino Black adults with high psychological distress.

Chapter 6: References

Abrams, M., R. Nuzum, S. Mika, and G. Lawlor. 2011. Realizing health reform's potential: How the Affordable Care Act will strengthen primary care and benefit patients, providers, and payers. *Commonwealth Fund* 1466(1): 1-27.

Adams, S. H., P. W. Newacheck, M. J. Park, C. D. Brindis, and C. E. Irwin, Jr. 2013. Medical home for adolescents: low attainment rates for those with mental health problems and other vulnerable groups. *Academic Pediatrics* 13(2): 113-21.

Agency for Healthcare Research and Quality. 2011. *MEPS HC-128: 2009 Medical Conditions*. Rockville, MD.

Agency for Healthcare Research and Quality. March 2012. *National Healthcare Disparities Report, 2011*. Rockville, MD.

Ai, C. and E. C. Norton. 2003. Interaction terms in logit and probit models. *Economic Letters* 80: 123-29.

Alakeson, V., R. G. Frank, and R. E. Katz. 2010. Specialty care medical homes for people with severe, persistent mental disorders. *Health Affairs* 29(5): 867-73.

Alegria, M., G. Canino, R. Rios, M. Vera, J. Calderon, D. Rusch, and A. N. Ortega. 2002. Inequalities in use of specialty mental health services among Latinos, African Americans, and non-Latino whites. *Psychiatric Services* 53(12): 1547-55.

Alegria, M., G. Canino, P. E. Shrout, M. Woo, N. Duan, D. Vila, M. Torres, C. N. Chen, and X. L. Meng. 2008a. Prevalence of mental illness in immigrant and non-immigrant U.S. Latino groups. *American Journal of Psychiatry* 165(3): 359-69.

Alegria, M., G. Canino, F. S. Stinson, and B. F. Grant. 2006. Nativity and DSM-IV psychiatric disorders among Puerto Ricans, Cuban Americans, and non-Latino Whites in the United States: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Journal of Clinical Psychiatry* 67(1): 56-65.

Alegria, M., P. Chatterji, K. Wells, Z. Cao, C. N. Chen, D. Takeuchi, J. Jackson, and X. L. Meng. 2008b. Disparity in depression treatment among racial and ethnic minority populations in the United States. *Psychiatric Services* 59(11): 1264-72.

Alegria, M., J. Lin, C. N. Chen, N. Duan, B. Cook, and X. L. Meng. 2012. The impact of insurance coverage in diminishing racial and ethnic disparities in behavioral health services. *Health Services Research* 47(3 Pt 2): 1322-44.

Alegria, M., N. Mulvaney-Day, M. Torres, A. Polo, Z. Cao, and G. Canino. 2007a. Prevalence of psychiatric disorders across Latino subgroups in the United States. *American Journal of Public Health* 97(1): 68-75.

Alegria, M., N. Mulvaney-Day, M. Woo, M. Torres, S. Gao, and V. Oddo. 2007b. Correlates of past-year mental health service use among Latinos: results from the National Latino and Asian American Study. *American Journal of Public Health* 97(1): 76-83.

Alegria, M., O. Nakash, S. Lapatin, V. Oddo, S. Gao, J. Lin, and S. L. Normand. 2008c. How missing information in diagnosis can lead to disparities in the clinical encounter. *Journal of Public Health Management and Practice* 14 Suppl: S26-35.

Altamura, A. C., B. Dell'Osso, E. Mundo, and L. Dell'Osso. 2007. Duration of untreated illness in major depressive disorder: a naturalistic study. *International Journal of Clinical Practice* 61(10): 1697-700.

Altamura, A. C., B. Dell'osso, S. Vismara, and E. Mundo. 2008. May duration of untreated illness influence the long-term course of major depressive disorder? *European Psychiatry* 23(2): 92-6.

American Academy of Family Physicians, American Academy of Pediatrics, American College of Physicians, and American Ostiopathic Association. 2007. Joint principles of the Patient-Centered Medical Home.

Andersen, R. M. 1995. Revisiting the behavioral model and access to medical care: does it matter? *Journal of Health and Social Behavior* 36(1): 1-10.

Andrews, G., K. Sanderson, T. Slade, and C. Issakidis. 2000. Why does the burden of disease persist? Relating the burden of anxiety and depression to effectiveness of treatment. *Bulletin of the World Health Organization* 78(4): 446-54.

Aneshensel, C. S. and J. C. Phelan. 1999. Handbook of the sociology of mental health. *Handbook of Sociology and Social Research.* H. B. Kaplan, pp. 628. New York: Springer.

Arean, P. A., L. Ayalon, E. Hunkeler, E. H. Lin, L. Tang, L. Harpole, H. Hendrie, J. W. Williams, Jr., and J. Unutzer. 2005. Improving depression care for older, minority patients in primary care. *Medical Care* 43(4): 381-90.

Arend, J., J. Tsang-Quinn, C. Levine, and D. Thomas. 2012. The patient-centered medical home: history, components, and review of the evidence. *The Mount Sinai Journal of Medicine, New York* 79(4): 433-50.

Asarnow, J. R., L. H. Jaycox, N. Duan, A. P. LaBorde, M. M. Rea, P. Murray, M. Anderson, C. Landon, L. Tang, and K. B. Wells. 2005. Effectiveness of a quality improvement intervention for adolescent depression in primary care clinics: a randomized controlled trial. *JAMA* 293(3): 311-9.

Asarnow, J. R., L. H. Jaycox, L. Tang, N. Duan, A. P. LaBorde, L. R. Zeledon, M. Anderson, P. J. Murray, C. Landon, M. M. Rea, and K. B. Wells. 2009. Long-term benefits of short-term quality improvement interventions for depressed youths in primary care. *American Journal of Psychiatry* 166(9): 1002-10.

Ault-Brutus, A. A. 2012. Changes in racial-ethnic disparities in use and adequacy of mental health care in the United States, 1990-2003. *Psychiatric Services* 63(6):531-40.

Austin, B., E. Wagner, M. Hindmarsh, and C. Davis. 2000. Elements of Effective Chronic Care: A Model for Optimizing Outcomes for the Chronically Ill. *Epilepsy & Behavior* 1(4): S15-S20.

Bach, P. B., H. H. Pham, D. Schrag, R. C. Tate, and J. L. Hargraves. 2004. Primary care physicians who treat blacks and whites. *New England Journal of Medicine* 351(6): 575-84.

Balsa, A. I. and T. G. McGuire. 2003. Prejudice, clinical uncertainty and stereotyping as sources of health disparities. *Journal of Health Economics* 22(1): 89-116.

Bao, Y., L. P. Casalino, and H. A. Pincus. 2013. Behavioral health and health care reform models: patient-centered medical home, health home, and accountable care organization. *The Journal of Behavioral Health Services & Research* 40(1): 121-32.

Barnes, D. M., K. M. Keyes, and L. M. Bates. 2013. Racial differences in depression in the United States: how do subgroup analyses inform a paradox? *Social Psychiatry and Psychiatric Epidemiology* 48(12):1941-9.

Bauer, A. M., C. N. Chen, and M. Alegria. 2010. English language proficiency and mental health service use among Latino and Asian Americans with mental disorders. *Medical Care* 48(12): 1097-104.

Beal, A., S. Hernandez, and M. Doty. 2009. Latino access to the patient-centered medical home. *Journal of General Internal Medicine* 24 Suppl 3: 514-20.

Beal, A. C., M. M. Doty, S. E. Hernandez, K. K. Shea, and K. Davis. 2007. *Closing the Divide: How Medical Homes Promote Equity In Health Care. Results From The Commonwealth Fund 2006 Health Care Quality Survey*: The Commonwealth Fund.

Berdahl, T. A. and R. A. Torres Stone. 2009. Examining Latino differences in mental healthcare use: the roles of acculturation and attitudes towards healthcare. *Community Mental Health Journal* 45(5): 393-403.

Berenson, J., M. M. Doty, M. K. Abrams, and A. Shih. 2012. Achieving better quality of care for low-income populations: the roles of health insurance and the medical home in reducing health inequities. *Issue Brief(Commonwealth Fund)* 11: 1-18.

Blanco, C., S. R. Patel, L. Liu, H. Jiang, R. Lewis-Fernandez, A. B. Schmidt, M. R. Liebowitz, and M. Olfson. 2007. National trends in ethnic disparities in mental health care. *Medical Care* 45(11): 1012-9.

Blewett, L. A., P. J. Johnson, B. Lee, and P. B. Scal. 2008. When a usual source of care and usual provider matter: adult prevention and screening services. *Journal of General Internal Medicine* 23(9): 1354-60.

Bodenheimer, T., E. H. Wagner, and K. Grumbach. 2002. Improving primary care for patients with chronic illness. *JAMA* 288(14): 1775-9.

Bohnert, K. M., P. N. Pfeiffer, B. R. Szymanski, and J. F. McCarthy. 2013. Continuation of care following an initial primary care visit with a mental health diagnosis: differences by receipt of VHA Primary Care-Mental Health Integration services. *General Hospital Psychiatry* 35(1): 66-70.

Borowsky, S. J., L. V. Rubenstein, L. S. Meredith, P. Camp, M. Jackson-Triche, and K. B. Wells. 2000. Who is at risk of nondetection of mental health problems in primary care? *Journal of General Internal Medicine* 15(6): 381-8.

Bratter, J. L. and K. Eschbach. 2005. Race/Ethnic differences in nonspecific psychological distress: Evidence from the National Health Interview Survey. *Socical Science Quarterly* 86(3): 620-44.

Braveman, P. A., C. Cubbin, S. Egerter, D. R. Williams, and E. Pamuk. 2010. Socioeconomic disparities in health in the United States: what the patterns tell us. *American Journal of Public Health* 100 Suppl 1: S186-96.

Breslau, J., S. Aguilar-Gaxiola, K. S. Kendler, M. Su, D. Williams, and R. C. Kessler. 2006. Specifying race-ethnic differences in risk for psychiatric disorder in a USA national sample. *Psychological Medicine* 36(1): 57-68.

Breslau, J., G. Borges, Y. Hagar, D. Tancredi, and S. Gilman. 2009. Immigration to the USA and risk for mood and anxiety disorders: variation by origin and age at immigration. *Psychological Medicine* 39(7): 1117-27.

Breslau, J., K. S. Kendler, M. Su, S. Gaxiola-Aguilar, and R. C. Kessler. 2005. Lifetime risk and persistence of psychiatric disorders across ethnic groups in the United States. *Psychological Medicine* 35(3): 317-27.

Bresnahan, M., M. D. Begg, A. Brown, C. Schaefer, N. Sohler, B. Insel, L. Vella, and E. Susser. 2007. Race and risk of schizophrenia in a US birth cohort: another example of health disparity? *International Journal of Epidemiology* 36(4): 751-8.

Burgess, D. J., Y. Ding, M. Hargreaves, M. van Ryn, and S. Phelan. 2008. The association between perceived discrimination and underutilization of needed medical and mental health care in a multi-ethnic community sample. *Journal of Health Care for the Poor and Underserved* 19(3): 894-911.

Cabassa, L. J. and L. H. Zayas. 2007. Latino immigrants' intentions to seek depression care. *American Journal of Orthopsychiatry* 77(2): 231-42.

Cabassa, L. J., L. H. Zayas, and M. C. Hansen. 2006. Latino adults' access to mental health care: a review of epidemiological studies. *Administration and Policy in Mental Health* 33(3): 316-30.

Carpenter, W. R., P. A. Godley, J. A. Clark, J. A. Talcott, T. Finnegan, M. Mishel, J. Bensen, W. Rayford, L. J. Su, E. T. Fontham, and J. L. Mohler. 2009. Racial differences in trust and regular source of patient care and the implications for prostate cancer screening use. *Cancer* 115(21): 5048-59.

Center for Disease Control / National Center for Health Statistics. 2011. About the National Health Interview Survey [accessed on 07/04/2011, 2011]. Available at: http://www.cdc.gov/nchs/nhis/about_nhis.htm#sample_design.

Chatterji, P., M. Alegria, M. Lu, and D. Takeuchi. 2007. Psychiatric disorders and labor market outcomes: evidence from the National Latino and Asian American Study. *Health Economics* 16(10): 1069-90.

Chen, J. and A. Vargas-Bustamante. 2011. Estimating the effects of immigration status on mental health care utilizations in the United States. *Journal of Immigrant and Minority Health* 13(4): 671-80.

Christensen, E. W., K. A. Dorrance, S. Ramchandani, S. Lynch, C. C. Whitmore, A. E. Borsky, L. G. Kimsey, L. M. Pikulin, and T. A. Bickett. 2013. Impact of a patient-centered medical home on access, quality, and cost. *Military Medicine* 178(2): 135-41.

Clemans-Cope, L., G. M. Kenney, M. Buettgens, C. Carroll, and F. Blavin. 2012. The Affordable Care Act's coverage expansions will reduce differences in uninsurance rates by race and ethnicity. *Health Affairs* 31(5): 920-30.

Clever, S. L., D. E. Ford, L. V. Rubenstein, K. M. Rost, L. S. Meredith, C. D. Sherbourne, N. Y. Wang, J. J. Arbelaez, and L. A. Cooper. 2006. Primary care patients' involvement in decision-making is associated with improvement in depression. *Medical Care* 44(5): 398-405.

Cohen, L. S., L. L. Altshuler, B. L. Harlow, R. Nonacs, D. J. Newport, A. C. Viguera, R. Suri, V. K. Burt, V. Hendrick, A. M. Reminick, A. Loughead, A. F. Vitonis, and Z. N. Stowe. 2006. Relapse of major depression during pregnancy in women who maintain or discontinue antidepressant treatment. *JAMA* 295(5): 499-507.

Cook, B. L., C. L. Barry, and S. H. Busch. 2012a. Racial/Ethnic Disparity Trends in Children's Mental Health Care Access and Expenditures from 2002 to 2007. *Health Services Research* 48(1):129-49.

Cook, B. L., T. Doksum, C. N. Chen, A. Carle, and M. Alegria. 2013a. The role of provider supply and organization in reducing racial/ethnic disparities in mental health care in the U.S. *Social Science & Medicine* 84: 102-9.

Cook, B. L. and W. G. Manning. 2009. Measuring racial/ethnic disparities across the distribution of health care expenditures. *Health Services Research* 44(5 Pt 1): 1603-21.

Cook, B. L., T. McGuire, and J. Miranda. 2007. Measuring trends in mental health care disparities, 2000 2004. *Psychiatric Services* 58(12): 1533-40.

Cook, B. L., T. G. McGuire, M. Alegria, and S. L. Normand. 2011. Crowd-out and exposure effects of physical comorbidities on mental health care use: implications for racial-ethnic disparities in access. *Health Services Research* 46(4): 1259-80.

Cook, B. L., T. G. McGuire, K. Lock, and A. M. Zaslavsky. 2010. Comparing methods of racial and ethnic disparities measurement across different settings of mental health care. *Health Services Research* 45(3): 825-47.

Cook, B. L., T. G. McGuire, E. Meara, and A. M. Zaslavsky. 2009a. Adjusting for Health Status in Non-Linear Models of Health Care Disparities. *Health Services & Outcomes Research Methodology* 9(1): 1-21.

Cook, B. L., T. G. McGuire, and A. M. Zaslavsky. 2012b. Measuring Racial/Ethnic Disparities in Health Care: Methods and Practical Issues. *Health Services Research* 47(3 Pt 2):1232-54.

Cook, B. L., T. G. McGuire, and S. H. Zuvekas. 2009b. Measuring trends in racial/ ethnic health care disparities. *Medical Care Research and Review* 66(1): 23-48.

Cook, B. L., S. H. Zuvekas, N. Carson, G. F. Wayne, A. Vesper, and T. G. McGuire. 2013b. Assessing racial/ethnic disparities in treatment across episodes of mental health care. *Health Services Research*.

Cooper-Patrick, L., J. J. Gallo, N. R. Powe, D. M. Steinwachs, W. W. Eaton, and D. E. Ford. 1999. Mental health service utilization by African Americans and Whites: the Baltimore Epidemiologic Catchment Area Follow-Up. *Medical Care* 37(10): 1034-45.

Cooper, L. A., B. K. Ghods Dinoso, D. E. Ford, D. L. Roter, A. B. Primm, S. M. Larson, J. M. Gill, G. J. Noronha, E. K. Shaya, and N. Y. Wang. 2013. Comparative effectiveness of standard versus patient-centered collaborative care interventions for depression among African Americans in primary care settings: the BRIDGE Study. *Health Services Research* 48(1): 150-74.

Cooper, L. A., J. J. Gonzales, J. J. Gallo, K. M. Rost, L. S. Meredith, L. V. Rubenstein, N. Y. Wang, and D. E. Ford. 2003. The acceptability of treatment for depression among African-American, Hispanic, and white primary care patients. *Medical Care* 41(4): 479-89.

Corbie-Smith, G., E. W. Flagg, J. P. Doyle, and M. A. O'Brien. 2002. Influence of usual source of care on differences by race/ethnicity in receipt of preventive services. *Journal of General Internal Medicine* 17(6): 458-64.

Cunningham, P., L. Felland, and L. Stark. 2012. Safety-net providers in some US communities have increasingly embraced coordinated care models. *Health Affairs* 31(8): 1698-707.

Cunningham, P. J. 2009. Beyond parity: primary care physicians' perspectives on access to mental health care. *Health Affairs* 28(3): w490-501.

Das, A. K., M. Olfson, H. L. McCurtis, and M. M. Weissman. 2006. Depression in African Americans: breaking barriers to detection and treatment. *The Journal of Family Practice* 55(1): 30-9.

Deen, T. L., J. C. Fortney, and J. M. Pyne. 2011. Relationship between satisfaction, patient-centered care, adherence and outcomes among patients in a collaborative care trial for depression. *Adminstration and Policy in Mental Health* 38(5): 345-55.

Demyttenaere, K., R. Bruffaerts, J. Posada-Villa, I. Gasquet, V. Kovess, J. P. Lepine, M. C. Angermeyer, S. Bernert, G. de Girolamo, P. Morosini, G. Polidori, T. Kikkawa, N. Kawakami, Y. Ono, T. Takeshima, H. Uda, E. G. Karam, J. A. Fayyad, A. N. Karam, Z. N. Mneimneh, M. E. Medina-Mora, G. Borges, C. Lara, R. de Graaf, J. Ormel, O. Gureje, Y. Shen, Y. Huang, M. Zhang, J. Alonso, J. M. Haro, G. Vilagut, E. J. Bromet, S. Gluzman, C. Webb, R. C. Kessler, K. R. Merikangas, J. C. Anthony, M. R. Von Korff, P. S. Wang, T. S. Brugha, S. Aguilar-Gaxiola, S. Lee, S. Heeringa, B. E. Pennell, A. M. Zaslavsky, T. B. Ustun, and S. Chatterji. 2004. Prevalence, severity, and unmet need for treatment of mental disorders in the World Health Organization World Mental Health Surveys. *JAMA* 291(21): 2581-90.

DeVoe, J. E., C. J. Tillotson, S. E. Lesko, L. S. Wallace, and H. Angier. 2011. The case for synergy between a usual source of care and health insurance coverage. *Journal of General Internal Medicine* 26(9): 1059-66.

DeVoe, J. E., C. J. Tillotson, and L. S. Wallace. 2009. Usual source of care as a health insurance substitute for U.S. adults with diabetes? *Diabetes Care* 32(6): 983-9.

DeVoe, J. E., L. S. Wallace, N. Pandhi, R. Solotaroff, and G. E. Fryer, Jr. 2008. Comprehending care in a medical home: a usual source of care and patient perceptions about healthcare communication. *Journal of the American Board of Family Medicine* 21(5): 441-50.

DeVries, A., C. H. Li, G. Sridhar, J. R. Hummel, S. Breidbart, and J. J. Barron. 2012. Impact of medical homes on quality, healthcare utilization, and costs. *The American Journal of Managed Care* 18(9): 534-44.

Dhingra, S. S., M. Zack, T. Strine, W. S. Pearson, and L. Balluz. 2010. Determining prevalence and correlates of psychiatric treatment with Andersen's behavioral model of health services use. *Psychiatric Services* 61(5): 524-8.

Diamond, P. M., E. W. Wang, C. E. Holzer, 3rd, C. Thomas, and C. des Anges. 2001. The prevalence of mental illness in prison. *Administration and Policy in Mental Health* 29(1): 21-40.

Dinwiddie, G. Y., D. J. Gaskin, K. S. Chan, J. Norrington, and R. McCleary. 2013. Residential segregation, geographic proximity and type of services used: evidence for racial/ethnic disparities in mental health. *Social Science & Medicine* 80: 67-75.

Dobalian, A. and P. A. Rivers. 2008. Racial and ethnic disparities in the use of mental health services. *The Journal of Behavioral Health Services & Research* 35(2): 128-41.

Druss, B. G., S. C. Marcus, J. Campbell, B. Cuffel, J. Harnett, C. Ingoglia, and B. Mauer. 2008a. Medical services for clients in community mental health centers: results from a national survey. *Psychiatric Services* 59(8): 917-20.

Druss, B. G., K. Rask, and W. J. Katon. 2008b. Major depression, depression treatment and quality of primary medical care. *General Hospital Psychiatry* 30(1): 20-5.

Druss, B. G., P. S. Wang, N. A. Sampson, M. Olfson, H. A. Pincus, K. B. Wells, and R. C. Kessler. 2007. Understanding mental health treatment in persons without mental diagnoses: results from the National Comorbidity Survey Replication. *Archives of General Psychiatry* 64(10): 1196-203.

Druss, B. G., L. Zhao, S. Von Esenwein, E. H. Morrato, and S. C. Marcus. 2011. Understanding excess mortality in persons with mental illness: 17-year follow up of a nationally representative US survey. *Medical Care* 49(6): 599-604.

Dwight-Johnson, M., C. D. Sherbourne, D. Liao, and K. B. Wells. 2000. Treatment preferences among depressed primary care patients. *Journal of General Internal Medicine* 15(8): 527-34.

Egede, L. E. 2007. Major depression in individuals with chronic medical disorders: prevalence, correlates and association with health resource utilization, lost productivity and functional disability. *General Hospital Psychiatry* 29(5): 409-16.

Ennis, S. R., M. Rios-Vargas, and N. G. Albert. 2011. The Hispanic Population: 2010. *2010 Census Briefs.* U.S. Census Bureau.

Epstein, R. M. and R. L. Street, Jr. 2011. The values and value of patient-centered care. *Annals of Family Medicine* 9(2): 100-3.

Ettner, S. L., F. Azocar, R. B. Branstrom, L. S. Meredith, L. Zhang, and M. K. Ong. 2010. Association of general medical and psychiatric comorbidities with receipt of guideline-concordant care for depression. *Psychiatric Services* 61(12): 1255-9.

Ezzati-Rice, T., F. Rohde, and J. Greenblatt. 2008. Sample design of the Medical Expenditures Panel Survey Household Component 1998-2007. Rockville, MD: Agency for Healthcare Resesarch and Quality.

Fan, V. S., M. Burman, M. B. McDonell, and S. D. Fihn. 2005. Continuity of care and other determinants of patient satisfaction with primary care. *Journal of General Internal Medicine* 20(3): 226-33.

Ferrante, J. M., B. A. Balasubramanian, S. V. Hudson, and B. F. Crabtree. 2010. Principles of the patient-centered medical home and preventive services delivery. *Annals of Family Medicine* 8(2): 108-16.

Fifield, J., D. D. Forrest, J. A. Burleson, M. Martin-Peele, and W. Gillespie. 2013. Quality and Efficiency in Small Practices Transitioning to Patient Centered Medical Homes: A Randomized Trial. *Journal of General Internal Medicine* 28(6):778-86.

Fishman, P. A., E. A. Johnson, K. Coleman, E. B. Larson, C. Hsu, T. R. Ross, D. Liss, J. Tufano, and R. J. Reid. 2012. Impact on seniors of the patient-centered medical home: evidence from a pilot study. *The Gerontologist* 52(5): 703-11.

Fleishman, J. A., J. W. Cohen, W. G. Manning, and M. Kosinski. 2006. Using the SF-12 health status measure to improve predictions of medical expenditures. *Medical Care* 44(5 Suppl): I54-63.

Fletcher, J. M. 2010. Adolescent depression and educational attainment: results using sibling fixed effects. *Health Economist* 19(7): 855-71.

Fortney, J., M. Enderle, S. McDougall, J. Clothier, J. Otero, L. Altman, and G. Curran. 2012. Implementation outcomes of evidence-based quality improvement for depression in VA community based outpatient clinics. *Implementation Science : IS* 7: 30.

Fortney, J. C., M. A. Enderle, J. L. Clothier, J. M. Otero, J. S. Williams, and J. M. Pyne. 2013. Population level effectiveness of implementing collaborative care management for depression. *General Hospital Psychiatry* .

Fortney, J. C., J. S. Harman, S. Xu, and F. Dong. 2010. The association between rural residence and the use, type, and quality of depression care. *The Journal of Rural Health* 26(3): 205-13.

Fortuna, L. R., M. Alegria, and S. Gao. 2010. Retention in depression treatment among ethnic and racial minority groups in the United States. *Depression and Anxiety* 27(5): 485-94.

Frank, R. G. and R. L. Garfield. 2007. Managed behavioral health care carve-outs: past performance and future prospects. *Annual Review of Public Health* 28: 303-20.

Gabbay, R. A., M. H. Bailit, D. T. Mauger, E. H. Wagner, and L. Siminerio. 2011. Multipayer patient-centered medical home implementation guided by the chronic care model. *Joint Commission Journal on Quality and Patient Safety* 37(6): 265-73.

Garfield, R. L., S. H. Zuvekas, J. R. Lave, and J. M. Donohue. 2011. The impact of national health care reform on adults with severe mental disorders. *American Journal of Psychiatry* 168(5): 486-94.

Gaskin, D. J., J. J. Arbelaez, J. R. Brown, H. Petras, F. A. Wagner, and L. A. Cooper. 2007. Examining racial and ethnic disparities in site of usual source of care. *Journal of the National Medical Association* 99(1): 22-30.

Gaskin, D. J., G. Y. Dinwiddie, K. S. Chan, and R. R. McCleary. 2012. Residential segregation and the availability of primary care physicians. *Health Services Research* 47(6): 2353-76.

Gelberg, L., R. M. Andersen, and B. D. Leake. 2000. The Behavioral Model for Vulnerable Populations: application to medical care use and outcomes for homeless people. *Health Services Research* 34(6): 1273-302.

Gilbody, S., P. Bower, J. Fletcher, D. Richards, and A. J. Sutton. 2006. Collaborative care for depression: a cumulative meta-analysis and review of longer-term outcomes. *Archives of Internal Medicine* 166(21): 2314-21.

Gilmer, W. S., M. H. Trivedi, A. J. Rush, S. R. Wisniewski, J. Luther, R. H. Howland, D. Yohanna, A. Khan, and J. Alpert. 2005. Factors associated with chronic depressive episodes: a preliminary report from the STAR-D project. *Acta Psychiatrica Scandinavia* 112(6): 425-33.

Gonzalez, H. M., W. Tarraf, K. E. Whitfield, and W. A. Vega. 2010a. The epidemiology of major depression and ethnicity in the United States. *Journal of Psychiatric Research* 44(15): 1043-51.

Gonzalez, H. M., W. A. Vega, D. R. Williams, W. Tarraf, B. T. West, and H. W. Neighbors. 2010b. Depression care in the United States: too little for too few. *Archives of General Psychiatry* 67(1): 37-46.

Gonzalez, J. M., M. Alegria, T. J. Prihoda, L. A. Copeland, and J. E. Zeber. 2009. How the relationship of attitudes toward mental health treatment and service use differs by age, gender, ethnicity/race and education. *Social Psychiatry and Psychiatric Epidemiology* 46(1):45-57.

Graubard, B. I. and E. L. Korn. 1999. Predictive margins with survey data. *Biometrics* 55(2): 652-9.

Gray, G. V., D. S. Brody, and M. T. Hart. 2000. Primary care and the de facto mental health care system: improving care where it counts. *Managed Care Interface* 13(3): 62-5.

Gresenz, C. R., S. E. Stockdale, and K. B. Wells. 2000. Community effects on access to behavioral health care. *Health Services Research* 35(1 Pt 2): 293-306.

Gresenz, C. R. and R. Sturm. 2000. New dimensions of economic well-being among people with mental illness: evidence from Healthcare for Communities. *Health Services Research* 35(5 Pt 3): 32-42.

Haggarty, J. M., J. A. Jarva, Z. Cernovsky, K. Karioja, and L. Martin. 2012. Wait time impact of co-located primary care mental health services: the effect of adding collaborative care in northern Ontario. *Canadian Journal of Psychiatry* 57(1): 29-33.

Hamblin, A., J. Verdier, and M. Au. 2011. State Options for Integrating Physical and Behavioral Health Care. Rockville, MD: Center for Medicaid and Mediare Servies Integrated Care Resource Center.

Hasnain-Wynia, R. and A. C. Beal. 2012. The path to equitable health care. *Health Services Research* 47(4): 1411-7.

Hausmann, L. R., M. J. Hannon, D. M. Kresevic, B. H. Hanusa, C. K. Kwoh, and S. A. Ibrahim. 2011. Impact of perceived discrimination in healthcare on patient-provider communication. *Medical Care* 49(7): 626-33.

Hausmann, L. R., K. Jeong, J. E. Bost, and S. A. Ibrahim. 2008. Perceived discrimination in health care and health status in a racially diverse sample. *Medical Care* 46(9): 905-14.

Hedrick, S. C., E. F. Chaney, B. Felker, C. F. Liu, N. Hasenberg, P. Heagerty, J. Buchanan, R. Bagala, D. Greenberg, G. Paden, S. D. Fihn, and W. Katon. 2003. Effectiveness of collaborative care depression treatment in Veterans' Affairs primary care. *Journal of General Internal Medicine*18(1): 9-16.

Honberg, R., S. Diehl, A. Kimball, D. Gruttadaro, and M. Fitzpatrick. 2011. *State Mental Health Cuts: A National Crisis*: National Alliance on Mental Illness.

Iglehart, J. K. 2008. No place like home--testing a new model of care delivery. *New England Journal of Medicine* 359(12): 1200-2.

Interian, A., A. Ang, M. A. Gara, M. A. Rodriguez, and W. A. Vega. 2011. The long-term trajectory of depression among Latinos in primary care and its relationship to depression care disparities. *General Hospital Psychiatry* 33(2): 94-101.

Intitute of Medicine. 2002. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. Washington DC: National Academies Press.

Jimenez, D. E., S. J. Bartels, V. Cardenas, and M. Alegria. 2013. Stigmatizing attitudes toward mental illness among racial/ethnic older adults in primary care. *International Journal of Geriatric Psychiatry* 28(10):1061-8.

Johnson-Lawrence, V. D., B. R. Szymanski, K. Zivin, J. F. McCarthy, M. Valenstein, and P. N. Pfeiffer. 2012. Primary care-mental health integration programs in the veterans affairs health system serve a different patient population than specialty mental health clinics. *The Primary Care Companion to CNS Disorders* 14(3).

Kaiser Commission On Medicaid And The Uninsured. 2012a. Key Facts on Health Coverage for Low-Income Immigrants Today and Under Health Reform. Washington D.C.: Kaiser Family Foundation.

Kaiser Commission On Medicaid And The Uninsured. 2012b. Medicaid Managed Care: Key Data, Trends, and Issues. Washington D.C.: Kaiser Family Foundation.

Kao, A. C., D. C. Green, N. A. Davis, J. P. Koplan, and P. D. Cleary. 1998. Patients' trust in their physicians: effects of choice, continuity, and payment method. *Journal of General Internal Medicine*13(10): 681-6.

Karaca-Mandic, P., E. C. Norton, and B. Dowd. 2012. Interaction terms in nonlinear models. *Health Services Research* 47(1 Pt 1): 255-74.

Katon, W., E. Lin, M. von Korff, T. Bush, E. Walker, G. Simon, and P. Robinson. 1994. The predictors of persistence of depression in primary care. *Journal of Affective Disorders* 31(2): 81-90.

Katon, W., E. H. Lin, and K. Kroenke. 2007. The association of depression and anxiety with medical symptom burden in patients with chronic medical illness. *General Hospital Psychiatry* 29(2): 147-55.

Kern, L. M., R. V. Dhopeshwarkar, A. Edwards, and R. Kaushal. 2013. Patient experience over time in patient-centered medical homes. *The American Journal of Managed Care* 19(5): 403-10.

Kessler, R. 2012. Mental health care treatment initiation when mental health services are incorporated into primary care practice. *Journal of the American Board of Family Medicine* 25(2): 255-9.

Kessler, R. C., G. Andrews, L. J. Colpe, E. Hiripi, D. K. Mroczek, S. L. Normand, E. E. Walters, and A. M. Zaslavsky. 2002. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine* 32(6): 959-76.

Kessler, R. C., P. R. Barker, L. J. Colpe, J. F. Epstein, J. C. Gfroerer, E. Hiripi, M. J. Howes, S. L. Normand, R. W. Manderscheid, E. E. Walters, and A. M. Zaslavsky. 2003. Screening for serious mental illness in the general population. *Archives of General Psychiatry* 60(2): 184-9.

Kessler, R. C., P. Berglund, O. Demler, R. Jin, K. R. Merikangas, and E. E. Walters. 2005a. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry* 62(6): 593-602.

Kessler, R. C., W. T. Chiu, O. Demler, K. R. Merikangas, and E. E. Walters. 2005b. Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry* 62(6): 617-27.

Kessler, R. C., O. Demler, R. G. Frank, M. Olfson, H. A. Pincus, E. E. Walters, P. Wang, K. B. Wells, and A. M. Zaslavsky. 2005c. Prevalence and treatment of mental disorders, 1990 to 2003. *New England Journal of Medicine* 352(24): 2515-23.

Kessler, R. C., S. Heeringa, M. D. Lakoma, M. Petukhova, A. E. Rupp, M. Schoenbaum, P. S. Wang, and A. M. Zaslavsky. 2008. Individual and societal effects of mental disorders on earnings in the United States: results from the national comorbidity survey replication. *American Journal of Psychiatry* 165(6): 703-11.

Kirby, J. B., G. Taliaferro, and S. H. Zuvekas. 2006. Explaining racial and ethnic disparities in health care. *Medical Care* 44(5 Suppl): I64-72.

Koopman, R. J., A. G. Mainous, 3rd, R. Baker, J. M. Gill, and G. E. Gilbert. 2003. Continuity of care and recognition of diabetes, hypertension, and hypercholesterolemia. *Archives of Internal Medicine* 163(11): 1357-61.

Krieger, N., A. Kosheleva, P. D. Waterman, J. T. Chen, and K. Koenen. 2011. Racial discrimination, psychological distress, and self-rated health among US-born and foreign-born Black Americans. *American Journal of Public Health* 101(9): 1704-13.

Ladiere, M. R., E. Jones, and M. Perez. 2011. *2010 Assessment of Behavioral Health Services Provided In Federally Qualified Health Centers*: National Association of Community Health Centers.

Lagomasino, I. T., M. Dwight-Johnson, J. Miranda, L. Zhang, D. Liao, N. Duan, and K. B. Wells. 2005. Disparities in depression treatment for Latinos and site of care. *Psychiatric Services* 56(12): 1517-23.

Lagomasino, I. T., S. E. Stockdale, and J. Miranda. 2011. Racial-ethnic composition of provider practices and disparities in treatment of depression and anxiety, 2003-2007. *Psychiatric Services* 62(9): 1019-25.

Lee, C., S. L. Ayers, and J. J. Kronenfeld. 2009. The association between perceived provider discrimination, healthcare utilization and health status in racial and ethnic minorities. *Ethnicity & Disease* 19(3): 330-7.

Lee, K., C. Palacio, I. Alexandraki, E. Stewart, and A. D. Mooradian. 2011. Increasing access to health care providers through medical home model may abolish racial disparity in Diabetes Care: evidence from a cross-sectional study. *Journal of the National Medical Association*103(3): 250-6.

Li, C., A. W. Dick, K. Fiscella, Y. Conwell, and B. Friedman. 2011. Effect of usual source of care on depression among Medicare beneficiaries: an application of a simultaneous-equations model. *Health Services Research* 46(4): 1059-81.

Lin, E. H., W. Katon, M. Von Korff, C. Rutter, G. E. Simon, M. Oliver, P. Ciechanowski, E. J. Ludman, T. Bush, and B. Young. 2004. Relationship of depression and diabetes self-care, medication adherence, and preventive care. *Diabetes Care* 27(9): 2154-60.

Loh, A., R. Leonhart, C. E. Wills, D. Simon, and M. Harter. 2007a. The impact of patient participation on adherence and clinical outcome in primary care of depression. *Patient Education and Counseling* 65(1): 69-78.

Loh, A., D. Simon, C. E. Wills, L. Kriston, W. Niebling, and M. Harter. 2007b. The effects of a shared decision-making intervention in primary care of depression: a cluster-randomized controlled trial. *Patient Education and Counseling* 67(3): 324-32.

Lorant, V., C. Croux, S. Weich, D. Deliege, J. Mackenbach, and M. Ansseau. 2007. Depression and socio-economic risk factors: 7-year longitudinal population study. *British Journal of Psychiatry* 190: 293-8.

Lorant, V., D. Deliege, W. Eaton, A. Robert, P. Philippot, and M. Ansseau. 2003. Socioeconomic inequalities in depression: a meta-analysis. *American Journal of Epidemiology* 157(2): 98-112.

Macintosh, T., M. M. Desai, T. T. Lewis, B. A. Jones, and M. Nunez-Smith. 2013. Socially-assigned race, healthcare discrimination and preventive healthcare services. *PloS one* 8(5): e64522.

Maeng, D. D., J. Graham, T. R. Graf, J. N. Liberman, N. B. Dermes, J. Tomcavage, D. E. Davis, F. J. Bloom, and G. D. Steele, Jr. 2012. Reducing long-term cost by transforming primary care: evidence from Geisinger's medical home model. *The American Journal of Managed Care* 18(3): 149-55.

Mahmoudi, E. and G. A. Jensen. 2012. Diverging racial and ethnic disparities in access to physician care: comparing 2000 and 2007. *Medical Care* 50(4): 327-34.

Mark, T. L., K. R. Levit, and J. A. Buck. 2009. Datapoints: psychotropic drug prescriptions by medical specialty. *Psychiatric Services* 60(9): 1167.

Martsolf, G. R., J. A. Alexander, Y. Shi, L. P. Casalino, D. R. Rittenhouse, D. P. Scanlon, and S. M. Shortell. 2012. The patient-centered medical home and patient experience. *Health Services Research* 47(6): 2273-95.

McAlpine, D. D. and D. Mechanic. 2000. Utilization of specialty mental health care among persons with severe mental illness: the roles of demographics, need, insurance, and risk. *Health Services Research* 35(1 Pt 2): 277-92.

McGuire, T. G., M. Alegria, B. L. Cook, K. B. Wells, and A. M. Zaslavsky. 2006. Implementing the Institute of Medicine definition of disparities: an application to mental health care. *Health Services Research* 41(5): 1979-2005.

McGuire, T. G., J. Z. Ayanian, D. E. Ford, R. E. Henke, K. M. Rost, and A. M. Zaslavsky. 2008. Testing for statistical discrimination by race/ethnicity in panel data for depression treatment in primary care. *Health Services Research* 43(2): 531-51.

Mechanic, D. 2011. Behavioral health and health care reform. *Journal of Health Politics, Policy and Law* 36(3): 527-31.

Minsky, S., W. Vega, T. Miskimen, M. Gara, and J. Escobar. 2003. Diagnostic patterns in Latino, African American, and European American psychiatric patients. *Archives of General Psychiatry* 60(6): 637-44.

Miranda, J. and L. A. Cooper. 2004. Disparities in care for depression among primary care patients. *Journal of General Internal Medicine* 19(2): 120-6.

Miranda, J., T. G. McGuire, D. R. Williams, and P. Wang. 2008. Mental health in the context of health disparities. *American Journal of Psychiatry* 165(9): 1102-8.

Moussavi, S., S. Chatterji, E. Verdes, A. Tandon, V. Patel, and B. Ustun. 2007. Depression, chronic diseases, and decrements in health: results from the World Health Surveys. *Lancet* 370(9590): 851-8.

Moy, E., B. A. Bartman, and M. R. Weir. 1995. Access to hypertensive care. Effects of income, insurance, and source of care. *Archives of Internal Medicine* 155(14): 1497-502.

Nadeem, E., J. M. Lange, D. Edge, M. Fongwa, T. Belin, and J. Miranda. 2007. Does stigma keep poor young immigrant and U.S.-born Black and Latina women from seeking mental health care? *Psychiatric Services* 58(12): 1547-54.

Nadeem, E., J. M. Lange, and J. Miranda. 2008. Mental health care preferences among low-income and minority women. *Archives of Women's Mental Health* 11(2): 93-102.

Neighbors, H. W., C. Caldwell, D. R. Williams, R. Nesse, R. J. Taylor, K. M. Bullard, M. Torres, and J. S. Jackson. 2007. Race, ethnicity, and the use of services for mental disorders: results from the National Survey of American Life. *Archives of General Psychiatry* 64(4): 485-94.

Nutting, P. A., K. Gallagher, K. Riley, S. White, W. P. Dickinson, N. Korsen, and A. Dietrich. 2008. Care management for depression in primary care practice: findings from the RESPECT-Depression trial. *Annals of Family Medicine* 6(1): 30-7.

Nutting, P. A., M. A. Goodwin, S. A. Flocke, S. J. Zyzanski, and K. C. Stange. 2003. Continuity of primary care: to whom does it matter and when? *Annals of Family Medicine* 1(3): 149-55.

O'Malley, A. S., J. Mandelblatt, K. Gold, K. A. Cagney, and J. Kerner. 1997. Continuity of care and the use of breast and cervical cancer screening services in a multiethnic community. *Archives of Internal Medicine* 157(13): 1462-70.

O'Toole, T. P., P. A. Pirraglia, D. Dosa, C. Bourgault, S. Redihan, M. B. O'Toole, and J. Blumen. 2011. Building care systems to improve access for high-risk and vulnerable veteran populations. *Journal of General Internal Medicine* 26 Suppl 2: 683-8.

Ojeda, V. D. and T. G. McGuire. 2006. Gender and racial/ethnic differences in use of outpatient mental health and substance use services by depressed adults. *The Psychiatric Quarterly* 77(3): 211-22.

Okoro, C. A., T. W. Strine, L. S. Balluz, J. E. Crews, S. Dhingra, J. T. Berry, and A. H. Mokdad. 2009. Serious psychological distress among adults with and without disabilities. *International Journal of Public Health* 54 Suppl 1: 52-60.

Olfson, M., S. C. Marcus, B. Druss, L. Elinson, T. Tanielian, and H. A. Pincus. 2002. National trends in the outpatient treatment of depression. *JAMA* 287(2): 203-9.

Organization, W. H. 2008. *The Global Burden Of Disease: 2004 Update*. Geneva: WHO.

Orozco, R., G. Borges, M. E. Medina-Mora, S. Aguilar-Gaxiola, and J. Breslau. 2013. A cross-national study on prevalence of mental disorders, service use, and adequacy of treatment among mexican and mexican american populations. *American Journal of Public Health* 103(9): 1610-8.

Parcesepe, A. M. and L. J. Cabassa. 2013. Public stigma of mental illness in the United States: a systematic literature review. *Administration and Policy in Mental Health* 40(5): 384-99.

Peek, M. E., J. Wagner, H. Tang, D. C. Baker, and M. H. Chin. 2011. Self-reported racial discrimination in health care and diabetes outcomes. *Medical Care* 49(7): 618-25.

Phillips, K. A., K. R. Morrison, R. Andersen, and L. A. Aday. 1998. Understanding the context of healthcare utilization: assessing environmental and provider-related variables in the behavioral model of utilization. *Health Services Research* 33(3 Pt 1): 571-96.

Pingitore, D., L. Snowden, R. A. Sansone, and M. Klinkman. 2001. Persons with depressive symptoms and the treatments they receive: a comparison of primary care physicians and psychiatrists. *International Journal of Psychiatry In Medicine* 31(1): 41-60.

Pirraglia, P. A., J. M. Hampton, A. B. Rosen, and W. P. Witt. 2011. Psychological distress and trends in healthcare expenditures and outpatient healthcare. *The American Journal of Managed Care* 17(5): 319-28.

Pratt, L. A. 2012. Characteristics of adults with serious mental illness in the United States household population in 2007. *Psychiatric Services* 63(10): 1042-6.

Regier, D. A., I. D. Goldberg, and C. A. Taube. 1978. The de facto US mental health services system: a public health perspective. *Archives of General Psychiatry* 35(6): 685-93.

Reid, R. J., K. Coleman, E. A. Johnson, P. A. Fishman, C. Hsu, M. P. Soman, C. E. Trescott, M. Erikson, and E. B. Larson. 2010. The Group Health medical home at year two: cost savings, higher patient satisfaction, and less burnout for providers. *Health Affairs* 29(5): 835-43.

Reid, R. J., P. A. Fishman, O. Yu, T. R. Ross, J. T. Tufano, M. P. Soman, and E. B. Larson. 2009. Patient-centered medical home demonstration: a prospective, quasi-experimental, before and after evaluation. *The American Journal of Managed Care* 15(9): e71-87.

Reiss-Brennan, B., P. C. Briot, L. A. Savitz, W. Cannon, and R. Staheli. 2010. Cost and quality impact of Intermountain's mental health integration program. *Journal of Healthcare Management* 55(2): 97-113; discussion 13-4.

Reschovsky, J. D. and A. S. O'Malley. 2008. Do primary care physicians treating minority patients report problems delivering high-quality care? *Health Affairs* 27(3): w222-31.

Rittenhouse, D. R., L. P. Casalino, R. R. Gillies, S. M. Shortell, and B. Lau. 2008. Measuring the medical home infrastructure in large medical groups. *Health Affairs* 27(5): 1246-58.

Roby, D. H., N. Pourat, M. J. Pirritano, S. M. Vrungos, H. Dajee, D. Castillo, and G. F. Kominski. 2010. Impact of patient-centered medical home assignment on emergency room visits among uninsured patients in a county health system. *Medical Care Research and Review* 67(4): 412-30.

Rost, K., P. Nutting, J. Smith, J. C. Coyne, L. Cooper-Patrick, and L. Rubenstein. 2000. The role of competing demands in the treatment provided primary care patients with major depression. *Archives of Family Medicine* 9(2): 150-4.

Roy-Byrne, P. P., J. M. Joesch, P. S. Wang, and R. C. Kessler. 2009. Low socioeconomic status and mental health care use among respondents with anxiety and depression in the NCS-R. *Psychiatric Services* 60(9): 1190-7.

Roysten, P., J. B. Carlin, and I. R. White. 2009. Multiple imputation of missing values: New features of mim. *The Stata Journal* 9(2): 252-64.

Royston, P. 2006. ICE: Stata module for mulitiple imputation of missing values. *Statistical Software Components S446602.* Boston College Department of Economics.

Russell, L. 2010. *Mental health care services in primary care: Tacking the issues in the context of health care reform*. Washington, D.C.: Center for American Progress.

Sambamoorthi, U. and D. D. McAlpine. 2003. Racial, ethnic, socioeconomic, and access disparities in the use of preventive services among women. *Preventive Medicine* 37(5): 475-84.

SAMHSA-HRSA Center for Integrated Health Solutions. 2009. States Paying For Behavioral Health Visits On Same Day As Medical Visit.

Savage, A. I., T. Lauby, and J. F. Burkard. 2013. Examining selected patient outcomes and staff satisfaction in a primary care clinic at a military treatment facility after implementation of the patient-centered medical home. *Military medicine* 178(2): 128-34.

Scott, K. M., M. Von Korff, J. Alonso, M. C. Angermeyer, E. Bromet, J. Fayyad, G. de Girolamo, K. Demyttenaere, I. Gasquet, O. Gureje, J. M. Haro, Y. He, R. C. Kessler, D. Levinson, M. E. Medina Mora, M. Oakley Browne, J. Ormel, J. Posada-Villa, M. Watanabe, and D. Williams. 2009. Mental-physical co-morbidity and its relationship with disability: results from the World Mental Health Surveys. *Psychological Medicine* 39(1): 33-43.

Shi, L., L. H. Green, and S. Kazakova. 2004. Primary care experience and racial disparities in self-reported health status. *The Journal of the American Board of Family Practice* 17(6): 443-52.

Sikorski, C., M. Luppa, H. H. Konig, H. van den Bussche, and S. G. Riedel-Heller. 2012. Does GP training in depression care affect patient outcome? - A systematic review and meta-analysis. *BMC Health Services Research* 12: 10.

Simon, G. E., D. Revicki, J. Heiligenstein, L. Grothaus, M. VonKorff, W. J. Katon, and T. R. Hylan. 2000. Recovery from depression, work productivity, and health care costs among primary care patients. *General Hospital Psychiatry* 22(3): 153-62.

Smith, T. E. and L. I. Sederer. 2009. A new kind of homelessness for individuals with serious mental illness? The need for a mental health home. *Psychiatric Services* 60(4): 528-33.

Snowden, L. R. 1999. African American service use for mental health problems. *Journal of Community Psychology* 27(3): 303-313.

Solberg, L. I., A. L. Crain, J. M. Sperl-Hillen, M. C. Hroscikoski, K. I. Engebretson, and P. J. O'Connor. 2006. Effect of improved primary care access on quality of depression care. *Annals of Family Medicine* 4(1): 69-74.

Sorel, E. and A. Everett. 2011. Psychiatry and primary care integration: challenges and opportunities. *International Review of Psychiatry* 23(1): 28-30.

Sox, C. M., K. Swartz, H. R. Burstin, and T. A. Brennan. 1998. Insurance or a regular physician: which is the most powerful predictor of health care? *American Journal of Public Health* 88(3): 364-70.

Spatz, E. S., J. S. Ross, M. M. Desai, M. E. Canavan, and H. M. Krumholz. 2010. Beyond insurance coverage: usual source of care in the treatment of hypertension and hypercholesterolemia. Data from the 2003-2006 National Health and Nutrition Examination Survey. *American Heart Journal* 160(1): 115-21.

Stanhope, V., C. Ingoglia, B. Schmelter, and S. C. Marcus. 2013. Impact of person-centered planning and collaborative documentation on treatment adherence. *Psychiatric Services* 64(1): 76-9.

Starfield, B., L. Shi, and J. Macinko. 2005. Contribution of primary care to health systems and health. *The Milbank Quarterly* 83(3): 457-502.

StataCorp. 2007. *Stata statistical software: Release 10.0* (release. College Station, TX: StataCorp LP.

Stockdale, S. E., I. T. Lagomasino, J. Siddique, T. McGuire, and J. Miranda. 2008. Racial and ethnic disparities in detection and treatment of depression and anxiety among psychiatric and primary health care visits, 1995-2005. *Medical Care* 46(7): 668-77.

Stockdale, S. E., L. Tang, L. Zhang, T. R. Belin, and K. B. Wells. 2007. The effects of health sector market factors and vulnerable group membership on access to alcohol, drug, and mental health care. *Health Services Research* 42(3 Pt 1): 1020-41.

Szymanski, B. R., K. M. Bohnert, K. Zivin, and J. F. McCarthy. 2013. Integrated care: treatment initiation following positive depression screens. *Journal of General Internal Medicine*28(3): 346-52.

Tai-Seale, M., T. G. McGuire, and W. Zhang. 2007. Time allocation in primary care office visits. *Health Services Research* 42(5): 1871-94.

Takach, M. 2012. About half of the states are implementing patient-centered medical homes for their Medicaid populations. *Health Affairs* 31(11): 2432-40.

Thompson, L. and R. McCabe. 2012. The effect of clinician-patient alliance and communication on treatment adherence in mental health care: a systematic review. *BMC Psychiatry* 12: 87.

U.S. Department of Health and Human Services. 2001. *Mental Health: Culture, Race, and Ethnicity. A Supplement to Mental Health: A Report to the Surgeon General*. Bethesda, MD: Department of Health and Human Services.

Unutzer, J., Y. F. Chan, E. Hafer, J. Knaster, A. Shields, D. Powers, and R. C. Veith. 2012. Quality improvement with pay-for-performance incentives in integrated behavioral health care. *American Journal of Public Health* 102(6): e41-5.

Van Dorn, R. A., S. L. Desmarais, J. Petrila, D. Haynes, and J. P. Singh. 2013. Effects of Outpatient Treatment on Risk of Arrest of Adults With Serious Mental Illness and Associated Costs. *Psychiatric Services* 64(9):856-62.

Vargas Bustamante, A. and J. Chen. 2011. Physicians cite hurdles ranging from lack of coverage to poor communication in providing high-quality care to latinos. *Health Affairs* 30(10): 1921-9.

Vest, J. R., J. N. Bolin, T. R. Miller, L. D. Gamm, T. E. Siegrist, and L. E. Martinez. 2010. Medical homes: Where you stand on definitions depends on where you sit. *Medical Care Research and Review* 67(4): 393-411.

Wagner, E. H., B. T. Austin, and M. Von Korff. 1996. Organizing care for patients with chronic illness. *The Milbank Quarterly* 74(4): 511-44.

Wallace, L. S., J. E. DeVoe, E. S. Rogers, J. Protheroe, G. Rowlands, and G. E. Fryer, Jr. 2009. Digging deeper: quality of patient-provider communication across Hispanic subgroups. *BMC Health Services Research* 9: 240.

Wang, P. S., P. Berglund, M. Olfson, H. A. Pincus, K. B. Wells, and R. C. Kessler. 2005a. Failure and delay in initial treatment contact after first onset of mental disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry* 62(6): 603-13.

Wang, P. S., O. Demler, M. Olfson, H. A. Pincus, K. B. Wells, and R. C. Kessler. 2006. Changing profiles of service sectors used for mental health care in the United States. *American Journal of Psychiatry* 163(7): 1187-98.

Wang, P. S., M. J. Gruber, R. E. Powers, M. Schoenbaum, A. H. Speier, K. B. Wells, and R. C. Kessler. 2007a. Mental health service use among hurricane Katrina survivors in the eight months after the disaster. *Psychiatric Services* 58(11): 1403-11.

Wang, P. S., M. Lane, M. Olfson, H. A. Pincus, T. L. Schwenk, K. B. Wells, and R. C. Kessler. 2007b. The primary care of mental disorders in the United States. In *Mental Health, United States, 2004*, edited by R. Manderscheid and J. T. Berry. Bethesda, MD: U.S. D.H.H.S. Substance Abuse and Mental Health Services Administration.

Wang, P. S., M. Lane, M. Olfson, H. A. Pincus, K. B. Wells, and R. C. Kessler. 2005b. Twelve-month use of mental health services in the United States: results from the National Comorbidity Survey Replication. *Archives of General Psychiatry* 62(6): 629-40.

Wells, K., C. Sherbourne, M. Schoenbaum, S. Ettner, N. Duan, J. Miranda, J. Unutzer, and L. Rubenstein. 2004. Five-year impact of quality improvement for depression: results of a group-level randomized controlled trial. *Archives of General Psychiatry* 61(4): 378-86.

Wells, K. B., L. Tang, J. Miranda, B. Benjamin, N. Duan, and C. D. Sherbourne. 2008. The effects of quality improvement for depression in primary care at nine years: results from a randomized, controlled group-level trial. *Health Services Research* 43(6): 1952-74.

WESTAT. 2011. MEPS Annual Methodology Report. Rockville, MD: Agency for Healthcare Research and Quality.

White, I. R., P. Royston, and A. M. Wood. 2011. Multiple imputation using chained equations: Issues and guidance for practice. *Statistics In Medicine* 30: 377-99.

Williams, D. R., H. M. Gonzalez, H. Neighbors, R. Nesse, J. M. Abelson, J. Sweetman, and J. S. Jackson. 2007a. Prevalence and distribution of major depressive disorder in African Americans, Caribbean blacks, and non-Hispanic whites: results from the National Survey of American Life. *Archives of General Psychiatry* 64(3): 305-15.

Williams, D. R., R. Haile, H. M. Gonzalez, H. Neighbors, R. Baser, and J. S. Jackson. 2007b. The mental health of Black Caribbean immigrants: Results from the national survey of American life. *American Journal of Public Health* 97(1): 52-59.

Winters, P., D. Tancredi, and K. Fiscella. 2010. The role of usual source of care in cholesterol treatment. *Journal of the American Board of Family Medicine* 23(2): 179-85.

Woltmann, E., A. Grogan-Kaylor, B. Perron, H. Georges, A. M. Kilbourne, and M. S. Bauer. 2012. Comparative effectiveness of collaborative chronic care models for mental health conditions across primary, specialty, and behavioral health care settings: systematic review and meta-analysis. *American Journal of Psychiatry* 169(8): 790-804.

Yoon, J., D. E. Rose, I. Canelo, A. S. Upadhyay, G. Schectman, R. Stark, L. V. Rubenstein, and E. M. Yano. 2013. Medical Home Features of VHA Primary Care Clinics and Avoidable Hospitalizations. *Journal of General Internal Medicine 28(9):1188-94*.

Young, A. S., R. Klap, C. D. Sherbourne, and K. B. Wells. 2001. The quality of care for depressive and anxiety disorders in the United States. *Archives of General Psychiatry* 58(1): 55-61.

Zuvekas, S. H. and J. A. Fleishman. 2008. Self-rated mental health and racial/ethnic disparities in mental health service use. *Medical Care* 46(9): 915-23.

Zuvekas, S. H. and G. S. Taliaferro. 2003. Pathways to access: health insurance, the health care delivery system, and racial/ethnic disparities, 1996-1999. *Health Affairs* 22(2): 139-53.