A Retrospective Claims Analysis of the Utilization of Services by Medicaid-Enrolled Adults Seeking Treatment for Major Depressive Disorder (MDD) in Washington State

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Abstract

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Washington State has a shortage of mental health providers and estimates show that the state is only meeting 40% of the need for mental health services for the Medicaid population (The Kaiser Commission on Medicaid and the Uninsured, 2014). This study evaluates whether Medicaid-enrolled adults in Washington State receive adequate treatment for Major Depressive Disorder (MDD) when compared to recommended treatment guidelines. This study used publicly available claims data from September 1, 2014, through September 30, 2015 to conduct an observational retrospective cohort study where a diagnosis of MDD was the eligibility criterion to be included in the study (*N*=11,463). Evaluation of adequate treatment for MDD was separated into three groups that include minimally adequate psychotherapy, minimally adequate pharmacotherapy, and inadequate treatment. In this study 30% of subjects received adequate psychotherapy (95% confidence interval, 29.1% to 30.9%), less than 1% of subjects received adequate pharmacotherapy (95% confidence interval, 0.0004% to 0.002%), and 70% of subjects received inadequate treatment for their diagnoses of MDD (95% confidence interval, 69.1% to 70.8%). This study found statistically significant associations between inadequate depression treatment and age, race/ethnicity, location of initial diagnosis, and depression subtype. These study results are consistent with previous research and confirm that Washington is not immune to the disparities that exist in the mental health services provided to Medicaid-enrolled adults across the United States.

Introduction

Individuals diagnosed with major depressive disorder (MDD) are receiving surprisingly low rates of adequate treatment for their condition. Across the globe more than 300 million people suffer from depression, and it is the number one cause of disability throughout the world (World Health Organization, 2017). Less than 50% of those affected by this illness receive any effective treatments (World Health Organization, 2017). As of 2012, approximately 7.6% of Americans over the age of 12 had depression and only 35% reported interacting with any type of mental health professional (Pratt & Brody, 2014). These realities and others associated with the low rates of adequate treatment need to be explored further.

In Washington, 5.7% of adults aged 18 or older reported having a serious mental illness, which exceeds the national average of 4.0%; research has shown many Washingtonians are not being treated for their mental illnesses (Substance Abuse and Mental Health Services Administration, 2015), which could be associated with the higher than average rate of suicide across the state. A survey conducted in Washington found that less than half of adults with mental illness reported receiving treatment from 2009 to 2013 (Substance Abuse and Mental Health Services Administration, 2015). According to a survey conducted by the U.S. Centers for Disease Control and Prevention, 3.1% of adults living in Washington met criteria for major depression and 7.7% of adults met criteria for depression (Centers for Disease Control and Prevention, 2010). Depression is one of the most common diagnoses of individuals who commit suicide (Sabel, 2013) and more recent statistics about suicide rates in Washington are telling. In 2015, suicide was the eighth leading cause of death in Washington across all age groups and the suicide rate was 21% higher than the national rate at 15.78 per 100,000 residents (Pacific Northwest Suicide Prevention Resource Center, 2017).

Living below the poverty level is associated with a much higher prevalence of depression and many individuals living at or below the poverty level are covered by their state's Medicaid plan. The National Center for Health Statistics (NCHS) found that 15% of people living below the poverty level have depression compared with just 6.2% of people living at or above the poverty level (Pratt & Brody, 2014). Additionally, Medicaid is the primary insurance option utilized by those living at or below the federal poverty level. Previous studies have shown that serious barriers exist for Medicaid-enrolled adults seeking treatment for depression (Teh et al., 2010; Waxmonsky et al., 2012; Wilensky & Gray, 2013). This disparity demonstrates the need for more research about whether an association exists between the policies governing insurance coverage for the poor and the quality of mental health care being provided to this population. Washington is an interesting place to study because it ranked 15th out of 51 states for the highest percentage of residents enrolled in Medicaid, at 24.8% of its population (Table 1, Henry J. Kaiser Family Foundation (2016) and U.S. Census Bureau (2016)). The prevalence of mental illness in Washington is higher than the national average and the suicide rate is one of the highest in the country.

These issues are a problem and in this study I evaluated whether Medicaid-enrolled adults in Washington State receive adequate treatment for major depressive disorder when compared to recommended treatment guidelines. This study also investigated what factors, if any, are associated with Medicaid-enrolled adults receiving adequate treatment for major depressive disorder among this population. This research may contribute to our understanding of how quality of care for MDD is associated with certain state-level Medicaid policies. Additionally, this research could help decision makers consider the influence that certain health policies may have on the quality of mental health care for Medicaid beneficiaries.

Literature Review

Introduction

In this study I focused on the relationship between type of coverage and quality of care. Washington's Medicaid Program, Apple Health, covers over 1.9 million residents in the state (Washington State Health Care Authority, 2017). I evaluated this program's quality of care by reviewing whether adult Medicaid beneficiaries enrolled in Apple Health receive services that adhere to the recommended treatment guidelines for individuals diagnosed with depression. According to Teh et al., "…little data exist on the extent to which Medicaid-enrolled adults receive depression care that reflects treatment guidelines" (2010, p. 303).

After reviewing the existing literature, three major areas of research emerged that discuss the relationship between Medicaid plans, Medicaid policies, and the quality of care received by Medicaid beneficiaries. The first area of research relates to the unique challenges and barriers that exist in providing care to Medicaid beneficiaries. The second discusses factors associated with Medicaid beneficiaries consistently receiving a lower quality of care when compared with commercial insurance. The third area of research focuses on the variations in quality of care under different state Medicaid plans.

Methods

This literature review was focused on evaluating the most recent and relevant available peer-reviewed journal articles on quality of care for Medicaid beneficiaries in one or more of these 50 United States. The online University of Washington library system was the primary resource used for this literature review. Database searches included the use of the following keywords: depression, Medicaid, and quality of care. These research methods found several very relevant studies that evaluated quality of depression care within a state-Medicaid program, but there was not a plethora of research available on this topic. Much of the existing research on quality of care within the Medicaid population is focused on comparing Medicaid and commercial health plans rather than comparing quality of care to the recommended treatment guidelines for a particular disease.

Findings

After reviewing the existing literature, three major areas of research emerged that discuss the relationship between Medicaid plans, Medicaid policies, and the quality of care received by Medicaid beneficiaries and these findings are summarized below. The first area of research relates to the unique challenges and barriers that exist in providing care to Medicaid beneficiaries. The second discusses factors associated with Medicaid beneficiaries consistently receiving a lower quality of care when compared with commercial insurance. The third area of research focuses on the variations in quality of care under different state Medicaid plans.

Challenges Providing Care to Medicaid Beneficiaries

Existing literature shows the primary barriers to care were lack of information about how beneficiaries can use their insurance coverage, inability to find a provider, poor experiences with providers, and lack of understanding about the benefits of preventative services (Allen, Wright, & Baicker, 2014; The Medicaid Access Study Group, 1994). Medicaid beneficiaries encounter barriers and challenges while trying to utilize health care services; several studies have found that access to care, complex medical co-morbidities, and confusion about coverage are a few of the issues preventing Medicaid beneficiaries from receiving adequate care (Allen et al., 2014; The Medicaid Access Study Group, 1994; Waxmonsky et al., 2012; Wilensky & Gray, 2013). Allen et al. (2014) interviewed 120 recently enrolled Medicaid beneficiaries and found multiple barriers associated with the beneficiaries' poor utilization of health care services. The Medicaid Access Study Group (1994) conducted a telephone survey of 953 ambulatory care sites across 10 cities to evaluate the accessibility of health care services for Medicaid beneficiaries. As shown in Table 1, Allen et al. (2014) and The Medicaid Access Study Group (1994) both found barriers to accessing care for Medicaid beneficiaries, including difficulties with accessing providers who addressed both the beneficiaries' psychiatric issues and co-morbid medical issues.

Barriers and challenges for Medicaid beneficiaries accessing health care services

Table 1

Study	Barriers/Challenges	%	(N)
Allen et al. (2014)	Confused about coverage	30%	(48)
Allen et al. (2014)	Dissatisfied with care received	21%	(48)
Allen et al. (2014)	Experienced access to barriers	15%	(48)
Allen et al. (2014)	Used coverage for complex needs with mixed success	44%	(72)
The Medicaid Access Study Group (1994)	Not accepting Medicaid at private doctors' offices	63%	(395)
The Medicaid Access Study Group (1994)	Not accepting Medicaid at urgent care centers	48%	(25)
The Medicaid Access Study Group (1994)	Can't manage patient's particular problem at private doctors' offices	6%	(395)
The Medicaid Access Study Group (1994)	Can't manage patient's particular problem at urgent care centers	8%	(25)

Allen et al. (2014) found that those beneficiaries who reported issues accessing care said they could not find providers who accepted Medicaid, or the wait list for appointments was several months out, which aligned with the findings from another study (The Medicaid Access Study Group, 1994).

Allen et al. (2014) and Wilensky and Gray (2013) recommended policy changes be considered by state Medicaid plans to ensure certain barriers are removed where possible. Allen et al. recommended improving the information that Medicaid beneficiaries receive about their coverage and improving communication between providers and enrollees (Allen et al., 2014). Wilensky and Gray (2013) reinforced the idea that all Medicaid plans must include preventive services, improve explanations of Medicaid coverage for these services and educate beneficiaries about the importance of preventive services because they are more likely to have multiple complex medical issues (Wilensky & Gray, 2013). The Medicaid Access Study Group (1994) recommended more research be conducted on the availability of ambulatory care visits for Medicaid beneficiaries. The findings from these studies will help to inform the research being conducted in this study because they provide a broad view of the barriers and challenges that exist for Medicaid plans, Medicaid beneficiaries, and Medicaid providers.

These studies discussed important limitations specific to the Medicaid population that should be considered in this research project. Firstly, Medicaid beneficiaries are more likely to have complex medical issues that may prevent them from seeking treatment for depression when their physical health issues are not being addressed (Allen et al., 2014; Waxmonsky et al., 2012; Wilensky & Gray, 2013). Secondly, Medicaid beneficiaries are more likely to be confused about their coverage than individuals with private insurance (Allen et al., 2014), which could limit their understanding of which mental health services are covered under their state's Medicaid plan. Lastly, Medicaid beneficiaries frequently have issues staying enrolled in coverage (Allen et al., 2014), which greatly affects their ability to receive long-term psychotherapy and medication management if they have MDD.

Factors Associated with Medicaid Beneficiaries Receiving Lower Quality of Care

Several studies discussed the need for more research on factors affecting quality of care for Medicaid-enrolled adults with depression and other mental health issues (Landon et al., 2007; Teh et al., 2010; Waxmonsky et al., 2012; Young, Klap, Sherbourne, & Wells, 2000). Teh et al., (2010) focused on this topic because Medicaid beneficiaries are more likely to suffer from depression and have limited access to mental health treatment when compared with privately insured adults. Teh et al. (2010) mention the severe lack of data on whether Medicaid beneficiaries are receiving adequate depression treatment and the need for more research on the factors associated with these individuals receiving better quality treatment for depression. Landon et al. (2007) found that Medicaid-enrolled adults consistently performed worse on quality outcomes across 11 indicators when compared with commercially insured adults. Landon et al. (2007) describes the lack of investigation on this topic and the unavailability of research on the quality of care received by fee-for-service Medicaid beneficiaries. Young et al. (2000) studied quality of depression treatment across multiple insurance types and found that most adults are not receiving adequate care. Young et al. (2000) call for more research on how insurance coverage influences the mental health services available to adults with depression.

Teh et al.’s (2010) study design is similar to the design of this study and provides justification for studying the Medicaid population and evaluating the quality of outpatient care for depression through claims data. A study by Teh et al. (2010) utilized two years of claims data for 1,098 Medicaid-enrolled adults from a mid-Atlantic state to evaluate the quality of outpatient depression treatment for adults enrolled in the state's Medicaid program. They measured quality of care by the participant’s attendance at a minimum number of psychotherapy visits and they evaluated pharmacy data that showed whether beneficiaries filled their prescribed medications. During a period of 12 weeks after the episode of care began, the study found that 63 percent of beneficiaries completed at least four psychotherapy visits and 30 percent of beneficiaries filled their antidepressant medication prescriptions for the entire period. The analysis showed that women, younger adults, African Americans, individuals living in urban areas, and individuals who had an inpatient stay at the start of their episode were less likely to receive adequate psychotherapy and pharmacotherapy. Thirty percent of beneficiaries did not receive adequate psychotherapy or pharmacotherapy after their initial diagnosis of depression. According to Teh et al., "Policy-level interventions to improve the quality of mental health care overall...may help to reduce these disparities in the quality of depression treatment" (2010, p. 310).

Variations in Quality Across State Medicaid Programs

Quality of care varies greatly across state Medicaid programs and this area requires further research because there is little knowledge about why these differences exist. A study by Horvitz Lennon, Volya, Donohue, Lave, Stein, and Normand (2014) provides evidence-based guidance on measuring quality of care for a psychiatric diagnosis across multiple state Medicaid programs. This study and several others point to paucity of research that evaluates the quality of psychiatric care for Medicaid beneficiaries across Medicaid programs (Horvitz Lennon et al., 2014; 2015; Landon et al., 2007; Lipson, Colby, Lake, Liu, & Turchin, 2010; Weissman, Vogeli, & Levy, 2013). Horvitz Lennon et al. (2014) use claims data from 2002 through 2009 to compare disparities in the quality of care for adult Medicaid beneficiaries with a diagnosis of schizophrenia across four state Medicaid populations. The study included 123,496 Medicaid beneficiaries who were covered under fee-for-service plans. The researchers set specific diagnosis, outpatient visit, and inpatient visit parameters to determine which beneficiaries were included in the study. Quality of care was measured by a composite score of 14 different clinical indicators, including adherence to prescribed medications, utilization of psychosocial services and inpatient services. The study found that African-Americans received the lowest quality of care when compared with Latinos and whites; Latinos received a lower quality of care compared to whites except in Florida where their quality measures exceed that of whites (Horvitz Lennon et al., 2014). The analyses for each state's data were conducted separately because states differ greatly in the way they record claims information (Horvitz Lennon et al., 2014). Horvitz Lennon et al. identify factors that may contribute to variation in quality across states: "...public policy environment; characteristics of the health care system; and socio-economic characteristics of the geographic region" (Horvitz Lennon et al., 2014).

Summary

This literature review revealed a need for further research on associations between Medicaid programs and quality of care for depression. Similar to some of the studies mentioned above I evaluated the quality of depression treatment for adult Medicaid beneficiaries enrolled in Washington State's Medicaid Program, Apple Health. The studies by Teh et al. (2010) and Horvitz Lennon et al. (2014) greatly influenced the study design for this research project. I evaluated quality of care by measuring the number and frequency of psychotherapy visits and adherence to prescribed medications for adults diagnosed with depression between September 1, 2014 and April 30, 2015. I used variables identified in multiple studies to compare and evaluate how these might be associated with the quality of depression treatment received by adult Medicaid beneficiaries in Washington.

Methods

Introduction

Further research about Washington's Medicaid beneficiaries is needed because rates of serious mental illness are higher than the national average. The percentage of adults enrolled in Medicaid is 15th highest in the country (Table 1, Henry J. Kaiser Family Foundation (2016) and U.S. Census Bureau (2016)), and less than half of adults reported receiving treatment for their mental illnesses (Substance Abuse and Mental Health Services Administration, 2015). The adequate treatment of depression for Washington residents is a problem and this study evaluated whether some factors are associated with Medicaid-enrolled adults receiving adequate treatment for MDD and those who may not be.

This research may further our understanding of differences in quality of care for MDD across groups within the Medicaid population. The study focused on evaluating whether any observable differences between those receiving adequate or inadequate care may help inform Medicaid policies that govern the treatment of depression in Washington State. This research could be used to target and inform state-level Medicaid policies that may prevent disparities in the quality of care received by Medicaid beneficiaries with a diagnosis of MDD. Additionally, this research could help decision makers consider the influence that certain health policies may have on the quality of mental health care for Medicaid beneficiaries.

The following research questions were addressed in this study:

1. Do Medicaid-enrolled adults in Washington State receive adequate treatment for MDD when compared to recommended treatment guidelines?
2. What factors are associated with Medicaid-enrolled adults receiving adequate treatment for MDD among this population?

Design

This study followed an observational retrospective cohort study design where the cohort was made up of subjects who received health care services for the diagnosis of MDD. The study focused on whether certain factors may be associated with Medicaid-beneficiaries receiving adequate or inadequate treatment of depression under Apple Health. I used Medicaid claims data from Washington State to analyze service use patterns by adults who were diagnosed with MDD and their adherence to recommended treatment guidelines for MDD. This study investigated whether the quality of depression treatment for adults enrolled in Apple Health is minimally adequate when compared with recommended guidelines.

Setting

This study used publicly available claims data to conduct an observational retrospective cohort study where a diagnosis of MDD was the eligibility criterion to be included in the study. Publicly available claims data were requested from the Division of Legal Services within the Washington State Health Care Authority. Claims data were from September 1, 2014, through September 30, 2015. I chose this date range due to the implementation of ICD-10 on October 1, 2015; it simplified the analysis to review claims data that are all coded and billed in ICD-9. These data were collected through the state's health care claims system, which stores data from clinical providers and health care organizations that submit claims to the Washington State Health Care Authority for services provided to Medicaid-enrolled adults across the state. These claims data include all fee-for-service and managed Medicaid claims for Medicaid-enrolled adults in the state of Washington (T. Leipski, personal communication, August 1, 2017).

Mental health services were provided to the study population in a variety of clinical and non-clinical settings, which required me to create sub-categories within the dataset to track the place of service for the study participants. These data come from health care providers in 41 different clinical and non-clinical settings across the State of Washington and these data include all out-of-state services provided to the study participants (Washington State Health Care Authority, Division of Legal Services, 2016). Providers are not required to identify place of service or discharge status on the claims they submit to the Health Care Authority (T. Leipski, personal communication, November 2, 2016), but many claims included this information, and place of service was a variable in this study. The place of service for all participants' index visits and ongoing psychotherapy visits were identified through one of the following sub-categories: (a) Community mental health; (b) Office visit; (c) Inpatient hospital; (d) Outpatient - hospital campus; (e) Other clinical; or (f) Other non-clinical.

Selection of Study Subjects & Data Collection

I focused on adults between the ages of 18 to 64 years because this group provided the largest sample and makes up 55% of individuals who are enrolled in Apple Health (Washington State Health Care Authority, 2017). I used a purposive sample by requesting all Medicaid claims data for adults between the ages of 18 to 64 years who received health care services for the diagnosis of MDD during the period from September 1, 2014 to September 30, 2015. This study excluded children, adolescents, and older adults because these groups have different recommended treatment guidelines and other insurance payers that would have been prohibitive to the analysis of quality of care for Medicaid beneficiaries. After age 65 Medicaid is not usually the primary payer because of the onset of Medicare benefits at age 65. Including anyone over age 65 in the study would have resulted in an incomplete claims history for these individuals.

Individuals were included in the study if they had a new diagnosis of MDD during the first eight months of the study period from September 1, 2014 through April 30, 2015. Inclusion in the study population was limited to this eight-month period because analyzing the quality of treatment for MDD requires at least 144 days after an individual's initial diagnosis (Teh et al., 2010) and this study was limited to a total of 13 months. For all study participants, the initial diagnosis was identified through the use of the following CPT codes: 90791, 90792, 99201-99205, 99241-99245, and 99251-99255, which classify a psychiatric evaluation or medical evaluation by a qualified medical professional (Centers for Medicare and Medicaid Services, 2017). Many of the unique patient identification numbers showed duplicative visits for the same service on the same dates in the dataset. To avoid overestimating the number of eligible participants, all duplicate services with the same unique patient identification number were excluded and only one index visit was included in the analysis to determine the number of eligible study participants. Study participants had to receive a diagnosis of MDD through a psychiatric evaluation between September 1, 2014, and April 30, 2015, to be included in the study population. A total of 11,463 individuals were diagnosed with MDD and eligible to be included in this study.

Recommended treatment guidelines for major depression are generally consistent across the following diagnosis categories: (a) mild/moderate depression; (b) severe depression; (c) depression with psychosis; (d) and depression in partial or full remission (Gelenberg et al., 2010). Grouping participants into these diagnosis groups has been documented in similar studies (Fullerton, Busch, Normand, McGuire, & Epstein, 2011; Teh et al., 2010) and provided more variables to analyze the quality of treatment for the study population. Study participants were only eligible to be included in this study if they had one of 14 diagnosis codes (ICD-9-CM codes) for major depression attached to their claims data. The 14 diagnosis codes come from the ICD-9 manual and include diagnosis codes from 296.2 to 296.26 and 296.3 to 296.36. Study participants were put into the following depression diagnosis sub-groups: (a) MDD with psychosis (codes 296.24 and 296.34); (b) MDD mild/moderate without psychosis (codes 296.2-296.22 and 296.3-296.32); (c) MDD severe without psychosis (codes 296.23 and 296.33); and (d) MDD in partial or full remission (codes 296.25, 296.26, 296.35, and 296.36).

The following socio-demographic variables were analyzed for all study participants: age, primary language spoken, sex, race and urban-rural classification for services provided. Based on a previous study design (Teh et al., 2010) all participants were placed in one of the following age-range categories: (a) 18 to 29; (b) 30 to 44; and (c) 45 to 64. The study population included 40 different primary languages, but the analysis only displays the three most commonly spoken language groups in Washington: English, Spanish, and Asian and Pacific Island languages (United States Census Bureau, 2015). Sex was displayed as male, female, or unknown. Race is highly complex and included 68 different sub-categories for study participants. Due to the high number of sub-categories for this variable, I referenced the National Center for Education Statistics' standard (AACRAO, 2017) to reduce the existing data to seven categories that include the following: (a) White, not Hispanic; (b) Black, not Hispanic; (c) Hispanic; (d) Asian, not Hispanic; (e) American Indian or Alaskan Native, not Hispanic; (f) Native Hawaiian of Other Pacific Islander, not Hispanic; and (g) Two or more races, not Hispanic. All people who identified their ethnicity as Hispanic are included in the Hispanic race category and anyone who reported Hispanic ethnicity and more than one race was also included in the Hispanic race category (AACRAO, 2017). The locations of services provided to study participants were analyzed based on the U.S. Census Bureau's definition of urban areas, urban clusters, and rural areas. The study included the locations of all services billed to Apple Health, including some services from out-of-state. Due to inconsistencies in some of the U.S. Census Bureau's datasets the populations of all cities with more than 10 participants were verified and categorized according to the U.S. Census Bureau's definitions for urban areas, urban clusters, and rural areas (U.S. Census Bureau, 2015).

Previous studies and the American Psychiatric Association's practice guideline provided the criteria I used to evaluate minimally adequate psychotherapy and pharmacotherapy treatment for participants with a diagnosis of MDD (Agency for Health Research and Quality, 2011; Fullerton et al., 2011; Gelenberg et al., 2010; Teh et al., 2010). Evaluation of adequate treatment for MDD was separated into three groups that include minimally adequate psychotherapy, minimally adequate pharmacotherapy, and inadequate treatment. A participant's psychotherapy treatment was considered minimally adequate if they had at least four psychotherapy visits within 16 weeks or 112 days of their initial diagnosis. Pharmacotherapy treatment was considered adequate if the participant had been prescribed an antidepressant within 30 days of the index visit and filled the prescription for at least 12 weeks or 84 days of the 144 days after the index visit. If a participant received either adequate psychotherapy or adequate pharmacotherapy or both they were not included in the inadequate treatment category. Participants who did not receive either adequate psychotherapy or pharmacotherapy were evaluated as receiving inadequate treatment (Gelenberg et al., 2010). Participants who were hospitalized during the treatment episode after their index visit were excluded from the study results (Fullerton et al., 2011).

Analysis Plan

This analysis was conducted to better understand if during an initial treatment episode for depression there are relationships between socio-demographic factors, service location, diagnosis, and adequate depression treatment for Medicaid-enrolled adults. I used descriptive statistics to calculate frequency counts and percentages within the study population across several socio-demographic factors, service location and participant diagnosis. I used inferential statistics to compare the results of the descriptive analysis of the study population to the quality of treatment received by the study population. The study population was compared to the recommended treatment guidelines for MDD and then separated into the following groups: minimally adequate psychotherapy, minimally adequate pharmacotherapy, and inadequate treatment. I used relative risks and 95% confidence intervals to describe associations and chi-square tests to test for associations between the study's categorical variables and the adequacy or inadequacy of treatment for MDD within the study population. I used multivariable analysis to test for associations with adequate treatment while adjusting for the other variables in the study.

Results

Characteristics of the Study Sample

The study included 11,463 subjects who were identified as receiving a diagnosis of MDD between September 1, 2014 and April 30, 2015 (Table 2). The study population was 61.1 percent (*n* = 7000) female and the largest age group was between 30 and 44 years of age (*n* = 4145). Over 70 percent of participants identified their race as White (*n* = 8106), 10.2 percent (*n* = 1169) identified as Hispanic, and 7.3 percent (*n* = 832) identified as Black. All other identified racial groups made up 2 percent or less of the study population. The primary language spoken was English (*n* = 10294; 89.8%). The majority of subjects received services in urban areas (*n* = 7409; 64.6%) or urban clusters (*n* = 3219; 28.1%). Most subjects received their clinical visits in an office setting not connected to a hospital (*n* = 8653; 75.5%) or in a community mental health setting (*n* = 2261; 19.7%). Most of the study subjects were diagnosed with mild to moderate MDD without psychosis (*n* = 8379; 73.1%) or severe MDD without psychosis (*n* = 2239; 19.5%).

Table 2. Sociodemographic and Clinical Characteristics of Medicaid-Enrolled Adults in Washington State (N = 11,463)

Characteristic	*%*	*N*
Sex		
Female	61.1%	7000
Male	38.9%	4456
Unknown	0.1%	7
Age (years)		
18-29*	33.7%	3857
30-44	36.2%	4145
44-64	30.2%	3461
Race*		
White	70.7%	8106
Black	7.3%	832
Hispanic	10.2%	1169
Asian	2.0%	234
American Indian	1.6%	183
Pacific Islander	1.3%	145
More than one race	0.7%	80
Other/Not Provided	6.2%	714
Primary Language Spoken		
English	89.8%	10294
Spanish	1.2%	139
Asian and Pacific Island Languages	0.3%	38
Other	0.8%	93
Unknown	7.8%	899
Urban-Rural Classification*		
Urban Areas	64.6%	7409
Urban Clusters	28.1%	3219
Rural	6.7%	764
Out of State	0.6%	71
Location of Initial Diagnosis		
Community Mental Health	19.7%	2261
Office Visit	75.5%	8653
Inpatient Hospital	1.4%	159
Outpatient - Hospital Campus	1.1%	125
Other Clinical	1.3%	154
Other Non-Clinical	1.0%	110
Depression subtype		
MDD with psychosis	4.9%	561
MDD mild or moderate w/o psychosis	73.1%	8379
MDD severe w/o psychosis	19.5%	2239
MDD in partial or full remission	2.5%	284

*American Indian includes Alaska Native, Black includes African American, Pacific Islander includes Native Hawaiian, and Hispanic includes Latino. Race categories exclude Hispanic origin and all people who identified as Hispanic in ethnicity are included in the Hispanic race category. Hispanic includes all individuals who identified as "Hispanic" in the ethnicity category, regardless or their identified race.
*Used the Census Bureau's definition of urban areas, urban clusters, and rural areas. Researched all cities with more than 10 study participants to ensure they were properly categorize as an urban area, urban cluster, or rural.

Subjects who Received Adequate Psychotherapy

Thirty percent of study subjects received adequate psychotherapy services for their diagnosis of MDD (95% confidence interval, 29.1% to 30.9%). A participant's psychotherapy treatment was considered minimally adequate if they had at least four psychotherapy visits within 112 days of their initial diagnosis. Adequate psychotherapy increased with age (P < .0001). Subjects between 30 and 64 years of age, and between 30 and 44 years of age were more likely than subjects between 18 and 29 years of age to receive adequate psychotherapy (33.1% and 29.8% vs. 27.6%) (Table 3). Subjects 30 years of age and older were more likely to receive adequate treatment even after adjusting for other variables in the model. Adequacy of psychotherapy also varied by race (P <.0001). Subjects who identified as Black or as Hispanic were significantly less like to receive adequate psychotherapy than subjects who identified as White (20% and 26.4% versus 31.8%); this association persisted after controlling for all other study variables (P<.0001). Subjects who identified as more than one race or declined to identify their race were less likely to receive adequate psychotherapy than subjects who identified as White (21.3% and 27.9% versus 31.8%). However, the confidence intervals for subjects who identified as having more than one race include 1.0 so the difference was not statistically significant.

I found no statistically significant differences in the adequacy of care for subjects who spoke different primary languages. Also, the geographic location where treatment services were provided was not associated with the subjects' adequacy of treatment. However, the type of treatment setting where services began for a subject's depression was statistically significant when compared to the subjects' adequacy of treatment (P<.0001). Subjects who began their treatment at an inpatient hospital or an outpatient center located on a hospital campus were less likely to receive adequate psychotherapy than those who received their care in an office setting (15.0% and 15.9% versus 30.0%) (Table 3); these

Table 3. Adequacy of Depression Treatment for Medicaid-Enrolled Adults in Washington State

	Adequate Psychotherapy Treatment (N=3443)					Adequate Pharmacotherapy Treatment (N=10)					Inadequate Treatment (N=8014)				
Characteristic	*%*	*(N)*	*P* Value	*RR*	(95% CI)	*%*	*(N)*	*P* Value	*OR**	(95% CI)*	*%*	*(N)*	*P* Value	*RR*	(95% CI)
Sex			0.8900					0.2070					0.8906		
Female	30.1%	2107		Reference		0.06%	4		Reference		69.9%	4892		Reference	
Male	29.9%	1333		0.99	(0.94-1.05)	0.13%	6		2.36	(0.56-11.38)	70.0%	3117		1.00	(0.98-1.03)
Unknown	37.6%	3		1.25	(0.51-3.05)	0.00%	0		170.65	(0->999.999)	62.5%	5		0.89	(0.52-1.53)
Age (years)			<.0001					0.6745					<.0001		
18-29	27.6%	1065		Reference		0.05%	2		0.54	(0.10-2.92)	72.5%	2801		Reference	
30-44	29.8%	1235		1.08	(1.01-1.16)	0.10%	4		Reference		70.1%	2903		0.97	(0.94-0.99)
44-64	33.1%	1143		1.20	(1.12-1.29)	0.12%	4		1.20	(0.30-4.79)	66.8%	2310		0.92	(0.89-0.95)
Race			<.0001					0.4218					<.0001		
White	31.8%	2580		Reference		0.10%	8		Reference		68.1%	5520		Reference	
Black	20.0%	166		0.62	(0.55-0.72)	0.12%	1		1.22	(0.03-9.10)	80.1%	666		1.18	(1.13-1.22)
Hispanic	26.4%	309		0.83	(0.75-0.92)	0.00%	0		0.63	(0.00-3.15)	73.6%	860		1.08	(1.04-1.12)
Asian	32.1%	75		1.01	(0.83-1.22)	0.00%	0		3.14	(0.00-15.80)	68.0%	159		1.00	(0.91-1.09)
American Indian	30.6%	56		0.96	(0.77-1.20)	0.55%	1		5.56	(0.13-41.83)	69.4%	127		1.02	(0.92-1.12)
Pacific Islander	28.3%	41		0.89	(0.68-1.15)	0.00%	0		5.07	(0.00-25.57)	71.7%	104		1.05	(0.95-1.17)
More than one race	21.3%	17		0.67	(0.44-1.02)	0.00%	0		9.20	(0.00-46.63)	78.8%	63		1.16	(1.03-1.30)
Other/Not Provided	27.9%	199		0.88	(0.77-0.99)	0.00%	0		1.03	(0.00-5.16)	72.1%	515		1.06	(1.01-1.11)
Primary Language Spoken			0.3724					0.6591					0.3527		
English	30.3%	3121		Reference		0.09%	9		Reference		69.6%	7167		Reference	
Spanish	28.1%	39		0.93	(0.71-1.21)	0.00%	0		5.94	(0.00-29.47)	71.9%	100		1.03	(0.93-1.15)
Asian and Pacific Island Languages	29.0%	11		0.95	(0.58-1.57)	0.00%	0		21.84	(0.00-110.20)	71.1%	27		1.02	(0.83-1.25)
Other	30.1%	28		0.99	(0.73-1.36)	0.00%	0		8.88	(0.00-44.23)	69.9%	65		1.00	(0.88-1.15)
Unknown	27.1%	244		0.90	(0.80-1.00)	0.11%	1		1.27	(0.03-9.20)	72.9%	655		1.05	(1.00-1.09)
Urban-Rural Classification			0.4083					0.5810					0.3905		
Urban Areas	29.8%	2206		Reference		0.09%	7		Reference		70.2%	5200		Reference	
Urban Clusters	30.6%	985		1.03	(0.97-1.09)	0.06%	2		0.66	(0.07-3.46)	69.3%	2232		0.99	(0.96-1.02)
Rural	30.9%	236		1.04	(0.93-1.16)	0.13%	1		1.39	(0.03-10.81)	69.0%	527		0.98	(0.94-1.03)
Out of State	22.5%	16		0.76	(0.49-1.17)	0.00%	0		10.90	(0.00-56.53)	77.5%	55		1.10	(0.97-1.25)
Location of Initial Diagnosis			<.0001					0.2278					<.0001		
Community Mental Health	31.3%	699		1.04	(0.97-1.12)	0.22%	5		Reference		68.6%	1533		0.98	(0.95-1.01)
Office Visit	30.0%	2601		Reference		0.06%	5		0.26	(0.06-1.12)	70.0%	6068		Reference	
Inpatient Hospital	15.0%	25		0.50	(0.35-0.72)	0.00%	0		1.99	(0.00-11.02)	85.0%	142		1.22	(1.14-1.30)
Outpatient - Hospital Campus	15.9%	20		0.53	(0.35-0.79)	0.00%	0		2.64	(0.00-14.63)	84.1%	106		1.20	(1.11-1.30)
Other Clinical	38.4%	58		1.28	(1.04-1.57)	0.00%	0		2.20	(0.00-12.2)	61.6%	93		0.88	(0.78-1.00)
Other Non-Clinical	36.0%	40		1.20	(0.94-1.54)	0.00%	0		3.00	(0.00-16.63)	64.0%	71		0.91	(0.79-1.05)
Depression subtype			0.0023					0.4967					0.0023		
MDD with psychosis	29.7%	164		1.00	(0.88-1.14)	0.00%	0		1.86	(0.00-9.87)	70.3%	388		1.00	(0.95-1.06)
MDD mild or moderate w/o psychosis	29.7%	2496		Reference		0.07%	6		Reference		70.2%	5897		Reference	
MDD severe w/o psychosis	32.3%	720		1.09	(1.02-1.16)	0.18%	4		2.52	(0.52-10.62)	67.6%	1507		0.96	(0.93-0.99)
MDD in partial or full remission	22.1%	63		0.74	(0.60-0.93)	0.00%	0		3.61	(0.00-19.14)	77.9%	222		1.11	(1.04-1.18)

*The validity of the odds ratio estimates and confidence intervals are questionable due to very small number of subjects (n=10) with adequate treatment.

associations persisted after controlling for all other study variables (P<.0001). A subject's depression subtype was statistically significant when compared to adequate of treatment (P<.002). Subjects with a diagnosis of MDD in partial or full remission were less likely to receive adequate psychotherapy when compared to those diagnosed with MDD mild or moderate without psychosis (22.1% versus 29.7%); this association persisted after controlling for all other study variables (P=.0001).

Subjects who Received Adequate Pharmacotherapy

Less than one percent of subjects received adequate pharmacotherapy for 84 days following their initial diagnosis of MDD while enrolled in Apple Health (95% confidence interval, 0.0004% to 0.002%) (Table 3). The majority of subjects who received adequate pharmacotherapy were White, male, identified their primary language as English, received treatment in an urban area, and had a diagnosis of MDD mild or moderate without psychosis (Table 3). Ten subjects were identified as having adequate pharmacotherapy throughout their course of treatment for MDD. Fisher's exact test was used to determine the statistical significance for all variables that could have been associated with subjects receiving adequate pharmacotherapy. None of the variables were found to have a statistically significant association with whether the subjects received adequate pharmacotherapy (Table 3).

Subjects who Received Inadequate Treatment

Almost seventy percent of subjects received inadequate psychotherapy and pharmacotherapy for MDD during the 144 days following their initial diagnosis (95% confidence interval, 69.1% to 70.8%) (Table 3). Subjects were evaluated as having inadequate treatment only if they did not receive either adequate psychotherapy or adequate pharmacotherapy. Due to very few subjects (n=10) receiving adequate pharmacotherapy, the analyses of the inadequate therapy group resulted in the same associations that were found in the adequate psychotherapy group described above.

Discussion

Strengths and Limitations

This study had several strengths; most importantly, it contributed to the existing body of research on the quality of depression care for Medicaid-enrolled adults. This study confirmed similar findings described in previous research and produced a state-specific analysis on Medicaid-enrolled adults in the state of Washington. Compared to previous studies on depression in the Medicaid population this was a large observational retrospective cohort study with 11,643 subjects who met inclusion criteria (Fullerton et al., 2011; Teh et al., 2010; Young et al., 2000). This study focused on depression treatment at an outpatient level of care because previous studies have found improved outcomes for individuals diagnosed with MDD in an outpatient setting compared to those diagnosed in an inpatient setting (Stein, Kogan, Sorbero, Thompson, & Hutchinson, 2007; Teh et al., 2010). More research is needed on the quality of depression care in outpatient settings.

There may be limitations with the claims data that were used in this study, which could prevent the study findings from being generalizable across the entire adult Medicaid population in Washington State. Due to the human errors in the claims data some information may be misrepresented or missing, which could affect the validity of the data. The pharmacy claims data were not a complete record for all subjects and the state of Washington acknowledged these data issues after I was well into this research project (T. Leipski, personal communication, August 1, 2017). This data issue made the analysis of adequate pharmacotherapy invalid.

Investigating the following limitations will require further research because we need to better understand the factors affecting quality of care for individuals with depression. It is also possible that cultural differences could be attributed to lower service utilization among participants with certain identified races and/or ethnicities, which has been shown in previous research (Becker, Martinez-Tyson, DiGennaro, & Ochshorn, 2011; Teh et al., 2010; Young et al., 2000). Multiple demographic factors that were not reported in the claims dataset may be associated with lower utilization of services, including education, income, transportation, family support, and proximity to services. Previous research has pointed to health plan eligibility status being an important variable (Becker et al., 2011; Zito, Safer, Zuckerman, Gardner, & Soeken, 2005) and possible limitation (Stein et al., 2007) in any study focused on the Medicaid population. Medicaid beneficiaries may have their eligibility status change in the middle of a study period, which could produce a larger proportion of subjects that appear to have received inadequate treatment when they may still be receiving services through a different health plan.

There are other limitations in the dataset that should be considered when reviewing the results of this study. Some patients had two psychiatric evaluations at different times in the 13-month study period and this study used the first psychiatric evaluation to determine the beginning of a subject's depression treatment. It is possible that having two index visits signifies two separate courses of depression treatment, but this study only evaluated the first course of treatment after the first initial diagnosis in the study period. It is possible that the second course of depression treatment for a subject was adequate, but this was unable to be evaluated in this study. The county of residence may have been outdated in the claims dataset if subjects were not keeping their most recent addresses on file with Apple Health, which could affect the accuracy of the analyses of geographic location where services were provided. It is possible that some patients paid cash for services or were provided free services and those would not be reported to the Medicaid plan in Washington State.

Due to the implementation of the Affordable Care Act in Washington State on January 1, 2014, approximately 285,000 newly eligible adults were added to Washington's state Medicaid plan (The Kaiser Commission on Medicaid and the Uninsured, 2014). This influx of new Medicaid beneficiaries may have had the effect of making the Medicaid population appear healthier or sicker depending on the state of health these adults were in right before they became eligible for Medicaid. It is likely the new Medicaid beneficiaries were in a healthier state because they became eligible based on their income level and not on their level of disability. This situation could reduce the proportion of Medicaid beneficiaries who need health care services for depression and make the need for mental health services appear smaller in the Medicaid population.

Study Findings

In this study 30% of subjects received adequate psychotherapy (95% confidence interval, 29.1% to 30.9%), less than 1% of subjects received adequate pharmacotherapy (95% confidence interval, 0.0004% to 0.002%), and 70% of subjects received inadequate treatment for their diagnoses of MDD

(95% confidence interval, 69.1% to 70.8%). The rate at which subjects received adequate psychotherapy was similar to rates found in previous studies (Fullerton et al., 2011; Young et al., 2000). The rate at which subjects received adequate pharmacotherapy was much lower when compared to previous studies (Fullerton et al., 2011; Teh et al., 2010; Young et al., 2000). The low rate of adequate treatment for pharmacotherapy was likely due to the dataset having an incomplete history of pharmacy claims for subjects included in the study (T. Leipski, personal communication, August 1, 2017). The high rate of inadequate treatment for Medicaid-enrolled adults with a diagnosis of MDD was similar to findings in previous studies (Fullerton et al., 2011; Teh et al., 2010; Young et al., 2000).

This study found statistically significant associations between adequate psychotherapy and each of the following: (a) age; (b) race; (c) location of initial diagnosis; (d) and depression subtype (Table 3). Multivariate and bivariate regression found that rates of adequate psychotherapy increased with age and that subjects between 18 and 29 years of age were the least likely to receive adequate psychotherapy (P<.0001). Individuals between 18 and 29 years of age have previously been associated with lower adequacy of depression treatment (Teh et al., 2010; Young et al., 2000). These lower rates of adequate treatment may be related to previous research findings that show young adults are less likely to visit mental health professionals (Cooper-Patrick, Crum and Ford, 1994). Subjects who identified as Black, Hispanic, or declined to identify their race were significantly less like to receive adequate psychotherapy than subjects who identified as White (20%, 26.4%, and 27.9% versus 31.8%). Multivariate analysis confirmed the associations between Black or Hispanic subjects and lower rates of adequate treatment after adjusting for the other study variables (P<.0001). Previous research has found a consistent relationship between study participants who identify as Black or Hispanic and lower rates of adequate treatment for MDD (Becker et al., 2011; Horvitz Lennon et al., 2015; Teh et al., 2010; Young et al., 2000). These studies found that both Black and Hispanic subjects were less likely to seek treatment from a mental health professional and even when they saw providers at the same frequency as White subjects they were more likely to receive poorer quality of treatment (Becker et al., 2011; Teh et al., 2010; Young et al., 2000). Subjects who received their initial diagnosis in an inpatient hospital or a hospital-based outpatient center were less likely to receive adequate psychotherapy treatment, and this was true after adjusting for all other study variables. These findings are consistent with previous research and may be related to these subjects having more severe depression (Teh et al., 2010). Previous research has found that individuals discharging from an inpatient setting are at higher risk of not attending their discharge appointments when compared to individuals who received their initial treatment for depression in an outpatient setting (Stein et al., 2007). There is little research available on the relationship between hospital-based outpatient centers and lower rates of adequate psychotherapy. Subjects with a diagnosis of MDD in partial or full remission had lower rates of adequate psychotherapy treatment when compared to the other depression subtypes and this association persisted after controlling for all other study variables. According to Gelenberg et al. (2010), subjects in partial remission have depressive symptoms, but are not meeting the threshold for MDD and may be appropriate for decreased frequency of psychotherapy visits after the acute and continuation phases of treatment. It is possible that subjects with a diagnosis of MDD in partial or full remission during the study already received treatment for their acute and continuation phases or they never met the threshold that required a minimum of four psychotherapy visits within 112 days of their initial diagnosis. There is little available research on the relationship between individuals with a diagnosis of MDD in partial or full remission and adequate psychotherapy treatment.

Previous research has found similar associations between inadequate depression treatment and age, race/ethnicity, and location of initial diagnosis (Becker et al., 2011; Horvitz Lennon et al., 2015; Teh et al., 2010; Young et al., 2000). No previous research could be found that showed a relationship between inadequate treatment and MDD in partial or full remission at an outpatient level of care. However, several studies have shown associations between subjects with a diagnosis of MDD with psychosis and higher rates of inadequate treatment post-hospitalization (Naz et al., 2007).

Implication of Findings

Young adults are receiving inadequate treatment at a higher rate than their comparison groups (Table 3). Young adults have been shown to be less likely to seek treatment services (Cooper-Patrick et al., 1994), but little research has been conducted about the specific barriers to treatment experienced by this group. Policy makers in Washington State may want to consider programs that target young adults and reduce the stigma that exists around seeking treatment for depression and other mental health disorders (The Lancet, 2016).

This study found that those who identified as Black or Hispanic received less adequate treatment when compared to Whites (Tables 3). The disparities in quality of care for Blacks and Hispanics have been documented in previous research (Becker et al., 2011; Horvitz Lennon et al., 2015; Teh et al., 2010; Young et al., 2000). For African-Americans enrolled in Medicaid policy makers may want to consider programs that would enhance access to care, reduce stigma, identify provider discrimination and capture data on services being provided outside the traditional health care system (Teh et al., 2010). Language and/or socioeconomic barriers can be significant for Hispanics seeking treatment for depression (Mental Health America, 2013). Clinicians should consider making all paperwork available in the most common languages spoken in their areas and hiring bilingual staff members. Policymakers could consider expanding research focused on linguistic access because other populations may have more limited access to mental health care when compared to White and Latino communities. Some research has found a knowledge gap in Latino communities about depression, its symptoms, and the need to even seek mental health treatment (Lagomasino et al., 2005). Policymakers and public health officials may want to consider a campaign to better inform Latino communities about the signs and symptoms of depression.

Individuals diagnosed with depression in an inpatient hospital or hospital-based outpatient center received inadequate treatment at a higher rate than their comparison groups (Table 3). Other studies found that patients coming out of inpatient psychiatric treatment are less likely to receive adequate outpatient services than those who began treatment in an outpatient setting (Stein et al., 2007). These studies posit that individuals who received treatment at an inpatient level had a higher severity of illness than those who never utilized inpatient services (Teh et al., 2010). However, more intensive outpatient services are available for those individuals discharging from an inpatient psychiatric setting, but this study was not able to separate intensive outpatient services from traditional outpatient services. This is an area requiring further research because Medicaid-enrolled adults discharging from an inpatient psychiatric setting are at higher risk of receiving inadequate treatment for their depression. This study also found that subjects who began their course of treatment at a hospital-based outpatient center were less likely to receive adequate treatment. Little research exists on the factors associated with poor treatment outcomes for individuals receiving treatment at a hospital-based outpatient center. Further research is needed about individuals receiving treatment at a hospital-based outpatient and those entering an intensive outpatient treatment program after inpatient treatment versus a traditional outpatient treatment program.

Washington State has been identified as having a shortage of mental health providers and estimates that it is only meeting 40% of the need for mental health services for the Medicaid population (The Kaiser Commission on Medicaid and the Uninsured, 2014). Washington is the thirteenth most populous state in the country (U.S. Census Bureau, 2018) and has the tenth highest percentage of eligible adults enrolled in its Medicaid plan (The Kaiser Commission on Medicaid and the Uninsured, 2014). These study results found that 70% of Medicaid-enrolled adults received inadequate depression treatment, which shows there may be a greater need for adequate mental health care than the estimate mentioned above.

This study provides Washington State clinicians, policy makers and residents with more information about the quality of mental health treatment for Medicaid-enrolled adults in their state. These study results found that only 30% of subjects received adequate psychotherapy (95% confidence interval, 29.1% to 30.9%) and 70% of subjects received inadequate treatment for their diagnoses of MDD (95% confidence interval, 69.1% to 70.8%). Although most findings in this research were consistent with other studies, this was possibly the first study of its scale on the quality of depression treatment for Medicaid-enrolled adults in the state of Washington. These study results confirm what researchers in other states have found and confirm that Washington is not immune from the disparities that exist in the mental health services provided to Medicaid-enrolled adults across the United States. It is vitally important that state government and the provider community come together to close the gaps in care that exist for many Medicaid beneficiaries seeking mental health treatment.

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