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Variations in Mental Health Need and Service Utilization by Insurance Type: Findings from a
Population-Based Survey in California

THESIS

submitted in partial satisfaction of the requirements
for the degree of

MASTER OF SCIENCE
in Biomedical and Translational Science

by

Sophie Thu Thuy Duong

Thesis Committee:
Associate Professor Dara H. Sorkin, Ph.D., Chair
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2014

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ABSTRACT OF THE THESIS

Variations in Mental Health Need and Service Utilization by Insurance Type: Findings from a Population-Based Survey in California

By

Sophie Thu Thuy Duong

Master of Science in Biomedical and Translational Science

University of California, Irvine, 2014

Associate Professor Dara H. Sorkin, Ph.D., Chair

As California implements the Patient Protection and Affordable Care Act (ACA) of 2010, it is important to examine the various types of insurance coverage and their association with mental health need and service utilization. Using data from the California Health Interview Survey (CHIS) 2011-2012, this current study compared the mental health need and service use of California adults with various insurance types. The findings revealed that respondents' various insurance types were differentially associated with their mental health need and service use. In citing reasons for not seeking treatment, the uninsured were more likely to be concerned about cost, and the Medicare & Others group was less likely to be concerned about cost than those with Privately Purchased insurance. The Employment-Based insurance group was significantly more likely than the Privately Purchased group to be "concerned about what would happen if someone found out". Further, both the uninsured and the Medicare & Others group were more likely to discontinue treatment compared to their Privately Purchased counterparts. The reasons for discontinuing treatment varied among the different insurance groups. The results suggest that the ACA will improve mental health by reducing concerns about cost reported by the uninsured. However, there is still a need for programs to address other barriers to treatment.

INTRODUCTION

Mental health disorders are among the most common causes of disability. Mental health is essential to personal well-being, interpersonal relationships, and the ability to contribute to society. In 2005, nearly one in five adults in California, approximately five million people, said they needed help for a mental health problem (Grant et al., 2010). Although mental health services are often effective, there are numerous challenges in connecting those in need with appropriate mental health care. As a result, many adults with a mental health problem do not receive treatment.

The gap between mental health need and utilization of mental health services contributes to unmet need. The Surgeon General's Report on Mental Health emphasized the importance of systematically addressing unmet need for mental health care (U.S. Department of Health and Human Services, 2001). The lack of health insurance coverage is an important barrier to accessing care for those with mental health needs. The Patient Protection and Affordable Care Act of 2010 (ACA) will extend health insurance coverage to millions of uninsured adults. Based on the California Health Interview Survey (CHIS) 2009, four out of five uninsured adults with mental health needs, or about half a million people, will become eligible for health insurance coverage in 2014 (Padilla-Frausto et al., 2012). Thus, it is hoped that the expansion of health insurance coverage through health care reform will increase access to and utilization of mental health services for many uninsured adults with mental health needs in California.

Overview of Insurance Types

As California implements health insurance changes as part of the ACA, it is important to examine the various types of insurance coverage and mental health need and service utilization. Previous mental health studies have largely compared the uninsured vs. the insured or public vs.

private health insurance coverage (Padilla-Frausto et al., 2012; Grant et al., 2010; Norquist & Wells, 1991; Brown et al., 2009). Much less research has been done comparing the various insurance types within the public and private sectors of coverage. Within the public sector, there is Medi-Cal (California's Medicaid program), Medicare, and various other types of public health insurance that cover a smaller percentage of the population, including Veterans Affairs or military insurance. Medi-Cal provides coverage to individuals with low income, based on percentage of the federal poverty line (FPL), who meet certain eligibility requirements. Medi-Cal covers approximately 6.8% of California adults ages 19-64 (Brown et al., 2009). Medicare is typically for the elderly, specifically people 65 years and older, and some people under age 65 with certain disabilities. Among elderly persons ages 65 and older in California, 6.3% had Medicare only (Brown et al., 2009). While Medicare serves an important purpose for the population that it serves, it was not designed as a comprehensive benefit and leaves many gaps in coverage (Ryan et al., 2003). Hence, the majority of Medicare enrollees have additional private, or commercial, insurance to supplement their Medicare coverage, which accounts for 58.3% of elderly Californians (Brown et al., 2009). The population of those who have both Medi-Cal and Medicare coverage are called "dual eligibles", which makes up 18.3% of elderly persons in California. Among private coverage, there are employment-based and privately purchased insurance types. Employment-based insurance is for employees, or wage earners, and makes up the largest group (59.2%) of covered adults ages 19-64 in California (Brown et al., 2009). Privately purchased insurance is typically for the self-employed or unemployed who seek their own coverage, and it covers 6.8% of nonelderly adults.

Projected Impact of the ACA

The ACA is projected to impact insurance coverage in California in 2016 by reducing the number of uninsured people by 52%, from 6.5 million to 3.1 million (Long et al., 2011). Medi-Cal will expand coverage to include people with incomes up to 133% of the FPL (plus a 5% income disregard to effectively cover those with incomes up to 138% of the FPL). Consequently, Medi-Cal enrollment is expected to increase by 1.7 million enrollees (Long et al., 2011). Higher-income adults earning more than 133% and up to 400% of the FPL may qualify for federal subsidies to purchase coverage through the California Health Benefit Exchange (Exchange; Padilla-Frausto et al., 2012). All other uninsured adults earning more than 400% of the FPL will be able to purchase coverage through the Exchange without subsidies. Through the Exchange, the number of individuals with privately-purchased insurance in California is expected to increase by 4.0 million people (Long et al., 2011). Employer-sponsored insurance would decline slightly as it is expected that some small firms will stop offering coverage to their employees. Enrollment in Medicare or other public insurance programs is not expected to increase due to the ACA.

Specific Aims

Using data from the CHIS 2011-2012, this paper aims to compare the mental health needs of California adults with different insurance types. It is hypothesized that the Medicare & Medi-Cal dual eligible group will have the largest proportion of those with mental health need, since people with mental health disorders are disproportionately represented in this population (SSA program statistics at www.ssa.gov; Frank 2005). The second aim of this paper is to examine variations in mental health service utilization among the different insurance types. Based on previous research (Padilla-Frausto et al., 2012; Grant et al., 2010), it is expected that the uninsured will have the lowest rates of mental health service use compared to all of the

insured groups. An important step in reducing unmet need for mental health care involves understanding the reasons why those with mental health needs do not seek treatment or, once received, discontinue treatment. Thus, the third aim of this study is to examine reasons for not seeking or discontinuing treatment among people with different insurance types. It is hypothesized that the uninsured are more likely to report reasons related to cost. Beyond that, it is uncertain what to expect due to the limited amount of previous research on reasons for underutilization of mental health services by insurance type.

BACKGROUND

Rates of mental health service use have historically been low compared to those for physical health conditions. The creation of Medicaid in 1965 has been associated with a general increase in the use of mental health services over the period 1970-2000 (Frank et al., 2003). To reduce financial barriers to accessing mental health services, the Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act of 2008 addressed insurance coverage disparities that make mental health care less accessible than other forms of health care (Safran et al., 2009). The Parity legislation requires equal coverage for mental and non-mental illness for plans that include mental health coverage. However, findings on mental health benefit design suggest that parity laws have not broadened access to mental health services as advocates intended (Barry et al., 2003). In addition, there continue to be disparities in mental health treatment (Algeria et al., 2003; McGuire & Miranda, 2008; Wells et al., 2001). For example, racial and ethnic minorities have less access to mental health services, are less likely to receive needed care, and are more likely to receive poor quality of care when treated, compared to their white counterparts (U.S. Department of Health and Human Services, 2001). Both the Institute of Medicine and the National Institutes of Health (NIH) have made disparities in mental health a research priority, and The President's New Freedom Commission on Mental Health listed elimination of disparities as a major goal for transforming the mental health system (Safran et al., 2009). National rhetoric has focused on the reduction of racial and ethnic disparities in mental health outcomes. However, the major provisions of the ACA will directly affect insurance groups, such as the expansion of Medicaid, which covers those with very low income, their families, and the medically needy, rather than directly focusing on specific racial and ethnic

groups. Therefore, it is beneficial to examine the mental health needs and service use across various insurance types in order to better trace the effects of the ACA.

Several studies have examined the mental health needs of adults by insurance status. According to Grant et al. (2011), 10.3% of the uninsured, 16.4% of those with public insurance, and 8.1% of those with private insurance reported a mental health need, defined as having serious psychological distress with also at least a moderate level of impairment in one or more life domains due to emotional health. Looking specifically at length of time insured or uninsured in the past year: 9.7% of those uninsured all year, 13.3% of those uninsured part of the year, and 9.3% of those insured all year had a mental health need. A study by Brown et al. (2009) found that 15.8% of those who were uninsured all year had a mental health need (defined as having a self-reported need for mental health care), compared to 23.7% of those who were uninsured part of the year. Within the Medi-Cal group, 18.7% of non-disabled Medi-Cal enrollees had a mental health need, compared to 51.6% of disabled Medi-Cal enrollees. Of those with employment-based coverage all year, 16.2% had a mental health need. Norquist & Wells (1991) found that the uninsured had a higher prevalence of serious psychiatric disorder (16%) than those with private health insurance (12%), but had a prevalence similar to those with Medicaid (18%).

There have been studies examining the relationship between mental health service use and insurance status. A study by Young et al. (2001) found similarly low rates of appropriate care for depressive or anxiety disorder among those with no insurance or public or private insurance. However, a study based on CHIS 2009 data found that the majority of uninsured adults with mental health needs (68.5%) reported receiving no mental health treatment in the past year, compared to adults with mental health needs who had either public (39.8%) or private (46.1%) insurance coverage (Padilla-Frausto et al., 2012). Additionally, those who lacked health

insurance coverage were the least likely to report receiving minimally adequate mental health treatment in the past year (11.6%) compared to adults with public coverage (33.8%) or private coverage (26.1%). Minimally adequate treatment (MAT) was defined as those with four or more visits with a health professional in the past 12 months, as well as prescription medication for mental health. A study by Grant and colleagues (2010) had similar findings: among adults with serious psychological distress, service use was significantly higher among insured adults (37%) than among uninsured adults (24%). Similarly, among those with perceived need, insured adults were more than twice as likely to report visiting a mental health professional for treatment than uninsured adults (37% vs. 19%). In these studies, the lack of health insurance coverage appeared to be an important barrier to accessing care for those with mental health needs.

In addition to having health insurance, mental health service use has been found to vary by type of insurance coverage. Among adults under age 65, those with public insurance were significantly more likely to report receiving treatment than adults with employer-based or privately-purchased insurance (14% vs. 9%). However, among insured adults with either serious psychological distress or perceived need, there were no significant differences in service use by insurance type (Grant et al., 2010). In a study looking at Medicaid coverage, it was found that Medicaid beneficiaries are about 70% more likely than poor or near-poor people without Medicaid coverage are to have received mental health services (Rowland et al., 2003). Norquist & Wells (1991) found that access to mental health services among those with a psychiatric disorder was similar in the uninsured (14.5%) and those with private insurance (18%) but was less than those with Medicaid coverage (42%). Grant et al. (2011) found that those with Medi-Cal had more people with MAT (32.2%) compared to those with other health insurance coverage (24.4%). The uninsured had 11.6% with MAT.

While the gap between mental health need and treatment has been well-studied, there is less research on barriers to mental health service use. Several factors are thought to impede appropriate mental health care seeking, including both structural and attitudinal/evaluative barriers. Structural barriers include financial concerns, lack of transportation, inconvenience, and inability to obtain an appointment (Sareen et al., 2007). Attitudinal/evaluative barriers relate to stigma (van Voorhees et al., 2005; Wrigley et al., 2005; Wynaden et al., 2005), pessimism regarding the effectiveness of treatments (Bayer & Peay, 1997), or wanting to handle problem on one's own (Mojtabai et al., 2011). Further, lack of perceived need for treatment is considered to be a major barrier to mental health treatment (Mojtabai et al., 2002; Edlund et al., 2006; Sareen et al., 2007). Brown et al. (2009) examined differences in mental health service use by insurance status and found that more than 50% of uninsured Californians who perceived a need for mental health care had not obtained it because of the cost. Among Californians with either public or private insurance, the cost of care was a much smaller factor. Between 9% and 16% of Californians with public or private insurance who perceived a need for mental health care did not receive it because of cost. Another study found that by far the highest rate of cost concerns was among the uninsured, although even individuals with private insurance cited it more often than individuals with public insurance (Sturm et al., 2001). Roby and colleagues (2010) found that among commercial insurance enrollees, 41% of adults in preferred provider organizations (PPOs) who needed but did not receive help cited cost as the reason, compared with 32% of those in HMOs and 24% of Kaiser Permanente HMO enrollees. Of public fee-for-service (FFS) enrollees, 47% cited cost as a mental health treatment barrier, compared with 36% of public HMO enrollees. Nearly three-quarters of the uninsured cited cost as a treatment barrier. Further,

20% of the uninsured reported difficulty in obtaining a mental health appointment, compared with 8% to 10% of the commercial enrollees reporting the same difficulty.

Early discontinuation from mental health treatment also contributes to unmet mental health need. A substantial proportion of adults who receive mental health treatment drops out before completing treatment (Edlund et al., 2006; Wang, 2007). Thus, it is important to understand the reasons for premature termination from mental health treatment. Lack of insurance coverage was found to be significantly related to discontinuation of treatment (Edlund et al., 2002; Wang et al., 2000). Mojtabai et al. (2011) found that wanting to handle the problem on one's own was the most commonly reported reason for dropping out of treatment (42.2%), followed by perceived improvement in mental health (31.2%). According to Edlund and colleagues (2002), prior studies of treatment dropout have produced inconsistent findings regarding both the frequency and predictors of treatment dropout. Furthermore, there have been no studies relating discontinuation of treatment to type of health insurance.

The model in Figure 1 provides a conceptual pathway for understanding the potential links between people's insurance status, their possible entry into the mental health system, their treatment seeking behaviors, and their mental health outcomes. The process begins with the presence of a mental health need. Whether someone is likely to initiate or seek treatment is determined, in part, by the barriers that he or she may face. As shown in Figure 1, the absence or presence of barriers affects mental health treatment. Both failure to seek treatment and discontinuation of treatment contribute to unmet mental health need. Met need is only achieved when those with a need either complete a recommended course of treatment or continue receiving treatment. In order to reduce levels of unmet mental health need, we need to understand the relationship between insurance type and barriers to mental health service use.

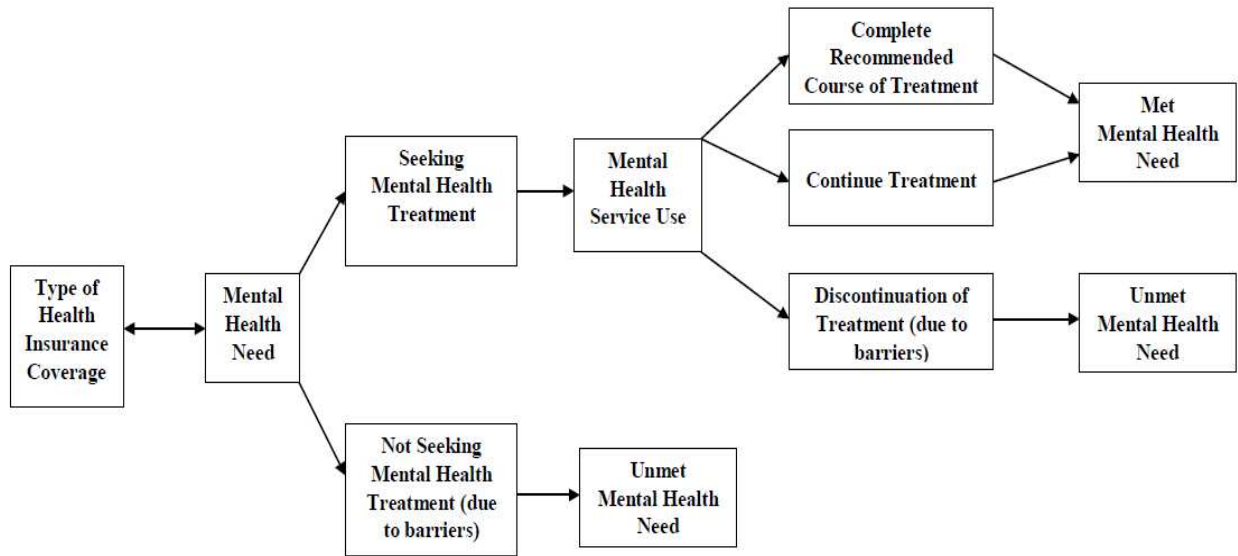


Fig. 1. Conceptual Model for Type of Health Insurance Coverage and Mental Health Need

The Current Study

The purpose of this present study is to examine three key links in this process. Specifically, the first aim is to compare the mental health needs of California adults with different insurance types. The second aim is to examine variations in mental health service utilization among the different insurance types. The third aim of this study is to examine reasons for not seeking or discontinuing treatment among people with different insurance types. Data will be drawn from the CHIS 2011-2012, a population-based survey of California households.

METHODS

Data Source

This study used data from the CHIS Public Use File and Confidential Data 2011-2012, a population-based, random-digit-dial telephone survey of California households (CHIS 2011-2012). CHIS data provide a detailed picture of the health and health care needs of California's population. The sample is geographically stratified and weighted to be representative of California's large and diverse population in terms of age, sex, race/ethnicity, and rural-urban residence. The first CHIS cycle took place in 2001 and data collection had been biennial until 2011-2012, when CHIS began data collection continually over each two-year cycle. Another new feature of the CHIS 2011-2012 compared to previous years is in the weighting process. The CHIS 2011-2012 uses control totals for weights based on the 2010 U.S. Census data, while earlier CHIS cycles used control totals based on data from the 2000 Census. The weighting procedures were used to compensate for differential probabilities of selection for households and persons, reduce biases occurring because non-respondents may have different characteristics than respondents, and adjust for under-coverage in the sampling frames and in the conduct of the survey (CHIS 2011-2012 Methodology Report 5). In addition, CHIS 2011-2012 increased its cell phone sample to 22% of adult interviews, in order to compensate for the increasing number of households without landlines. The CHIS 2011-2012 had an overall household response rate of 17.7%, with completed interviews with 7,334 children, 3,931 adolescents, and 42,935 adults. Missing values in the CHIS data were replaced through imputation (CHIS 2011-2012 Methodology Report 3). More information on methodology can be obtained from the California Health Interview Survey website: <http://www.chis.ucla.edu>. The sample analyzed in this current paper was restricted to adults, aged 18 years and older.

Outcome Measures

Mental Health Need

Moderate to Severe Psychological Distress. Moderate to severe psychological distress was assessed using questions from the Kessler 6-Item Psychological Distress Scale (K6) Scale (Kessler et al., 2002). Respondents were asked about the extent to which they experienced symptoms of psychological distress during their emotionally worst month in the past 12 months: (a) nervous, (b) hopeless, (c) restless or fidgety, (d) so depressed that nothing could cheer you up, (e) everything was an effort, and (f) worthless. Ratings were made on a 5-point scale ranging from 0 (none of the time) to 4 (all of the time) and then summed to create a composite score ranging from 0 to 24. The K6 composite score was dichotomized, so that a score of ≥ 9 indicated the presence of moderate to severe psychological distress and a score of < 9 indicated its absence.

Functional Impairment. Adults with moderate to severe psychological distress were then asked questions about functional impairment during their emotionally worst month in the past 12 months. The questions are part of the Sheehan Disability Scale (SDS) and ask about the extent to which psychological distress interferes with daily life functions in the following four domains: at home, at work, in social life, and in personal relationships. For each of the four areas, respondents were asked if their emotions interfered “a lot” (severe), “somewhat” (moderate), or “not at all” (none). If respondents indicated either moderate or severe impairment in any of the four life domains, then they were assessed as having functional impairment.

Perceived Need. To assess perceived need, all adults were asked, “Was there ever a time during the past 12 months when you felt that you might need to see a professional because of problems with your mental health, emotions, nerves, or your use of alcohol or drugs?” Adults

who responded “Yes” to this question were considered to have a perceived need for mental health services and were then included in the sample for assessing utilization of services.

Utilization of Mental Health Services

To examine utilization of services, respondents were asked, “In the past 12 months, how many visits did you make to a professional for problems with your mental/emotional health or use of alcohol/drugs?” Respondents who answered with at least one visit were then included in the sample to determine the mean number of mental health visits in the past 12 months. The reason for the mental health visit was determined by asking respondents for which type of problem they sought help: 1) mental-emotional health, 2) alcohol-drug problem, or 3) both mental and alcohol-drug problem. Respondents were asked if they have seen a primary care physician or another professional such as a psychiatrist in the past year for their mental or alcohol/drug problem. They were also asked, “During the past 12 months, did you take any prescription medications, such as an antidepressant or sedative, almost daily for two weeks or more, for an emotional or personal problem?” To determine the number of respondents of discontinued treatment, the following questions from CHIS were used: “Are you still receiving treatment for these problems from one or more of these providers?”, and “Did you complete the recommended full course of treatment?” Those who responded “No” to both questions were counted as having discontinued mental health treatment without completing the recommended full course of treatment.

Reasons for Underutilization of Mental Health Services

Those who reported a perceived need but did not have at least one visit to a mental health professional in the past 12 months were asked if each of the following reasons applied: 1) Concerned about cost of treatment, 2) Did not feel comfortable talking to professional about

personal problems, 3) Concerned about what would happen if someone found out, and 4) Had a hard time getting appointment. Of those who did receive treatment but discontinued, respondents were asked to select one of the following ten reasons for discontinuing: 1) Got better/no longer needed, 2) Not getting better, 3) Wanted to handle problem on own, 4) Bad experiences with treatment, 5) lack of time/transportation, 6) Too expensive, 7) Insurance does not cover, 8) Not given a set course of treatment, 9) Did not want to take medicine, or 10) Other.

Main Independent Variable

The main independent variable was insurance type, which was classified into eight categories, according to self-reported responses to questions about type of health coverage source: 1) uninsured, 2) Medi-Cal only, 3) Medicare only, 4) Medicare & Medi-Cal dual eligible, 5) Medicare & Others, 6) Other Public, 7) Employment-Based, and 8) Privately Purchased. The Other Public insured group included those with military health care or some other government health program, such as Access for Infants and Mothers (AIM) or Major Risk Medical Insurance Program (MRMIP). Only respondents who continuously had the same health coverage, or were continuously uninsured, for the past 12 months were included. Hence, those who changed insurance type in the past 12 months or who were uninsured for only part of the past 12 months were excluded from analyses.

Demographic Characteristics

Standard demographic variables included age (continuous), gender (1=male, 2=female), race/ethnicity (1=White, 2=African American, 3=Asian/Pacific Islander, 4= Latino, 5=other), and marital status (1=currently married, 2=not currently married). Socioeconomic status was assessed using education (1=high school degree or less, 2=some college or less) and family income, which indicates the total annual income of the household as a percent of the Federal Poverty Level. The 100%, 200%, and 300% cutoff values for each household were calculated by

multiplying the 2009 Census Poverty Threshold “size of family unit” by “related children under 18 years”. Immigration status was assessed by including nativity (1=born in the U.S., 2=not born in the U.S.), years in the U.S. (1=less than 10 years, 2=10 or more years), and citizenship status (1=U.S. citizen, 2=not a U.S. citizen). General health characteristics were examined by assessing self-reported general health status (1=excellent/very good/good, 2=fair/poor), and by summing the number of self-reported chronic conditions (1=0 conditions, 2=1-4 conditions).

Statistical Analyses

SAS Callable SUDAAN Release 9.0.2 (Research Triangle Institute, Research Triangle Park, NC), a statistical package specifically designed for complex survey data, was used to conduct analyses. Descriptive statistics were used to produce estimates of population characteristics accounting for sampling weights.

Mental Health Need

Weighted cross tabulation was used to obtain the percentages of respondents by insurance type for each of the following outcomes: moderate to severe psychological distress, functional impairment, and perceived need. *P* values of less than 0.05 were considered to be statistically significant.

Utilization of Mental Health Services

Respondents who reported a perceived need were included as a subset of the sample for examining the percentages of those who had at least one mental health visit in the past 12 months. Then, those who had at least one mental health visit in the past 12 months were used as the sample in cross tabulation to analyze the remainder of the service use outcomes: average number of visits, reason for visit, type of provider seen, whether prescription medication was used, and whether treatment was discontinued.

Logistic regression was used to calculate the odds ratios and 95% confidence intervals for examining the relationship between discontinuation of treatment and insurance type. Four models were used for this analysis. Model 1 was an unadjusted model, which included no covariates. Model 2 included age, gender, race/ethnicity, income, marital status, and citizenship status. The rationale for selecting these covariates was that these are basic demographic characteristics that have been found to be associated with either insurance type or mental health status. In addition to these covariates, English language proficiency was entered into Model 3 due to the wide racial and ethnic diversity of the sample. For Model 4, general health status was added as a covariate to examine the additive effect that poor overall health may have on mental health outcomes. The Privately Purchased insurance group was chosen as the reference group since it will experience the largest increase in number of enrollees due to the ACA health care reform.

Reasons for Underutilization of Mental Health Services

To examine reasons for not seeking mental health treatment by insurance type, weighted cross tabulation was used to obtain the percentages of respondents who responded affirmatively to each of the following outcomes: “concerned about cost of treatment”, “did not feel comfortable talking with a professional about personal problems”, “concerned about what would happen if someone found out”, and “hard time getting an appointment”. Logistic regression was used to calculate the odds ratios and 95% confidence intervals for each of these reasons for not seeking treatment. This analysis included the same four unadjusted and adjusted models as those used for the previous aim. To examine reasons for discontinuing mental health treatment by insurance type, weighted cross tabulation was used.

RESULTS

Table 1 shows the socio-demographic and general health characteristics of the sample. The mean age for all non-Medicare groups ranged from 35.9 (± 0.3) years old for the Medi-Cal only group to 42.3 (± 0.1) years old for the Employment-Based group. The Medicare groups consisted of the elderly and ranged from 67.4 (± 0.5) years old in the Medicare & Medi-Cal dual eligible group and 74.1 years old (± 0.1) in the Medicare & Others group. Among all insurance types, the Medi-Cal only group had the largest proportion of women (61.6%), and the uninsured had the largest proportion of men (57.8%). Whites made up the majority of all insurance groups except in the uninsured and the Medi-Cal only groups, for which Latinos had the largest proportions (45.5% of the uninsured and 43.0% of the Medi-Cal only). The Medi-Cal only enrollees had the highest proportion of people with family incomes below 100% of the FPL (53.0%). The highest proportions of those with incomes above 300% of the FPL were in Employment-Based (72.1%), Medicare & Others (62.9%), and Privately Purchased (62.6%). The Employment-Based insurance group had the highest proportion of those married (63.0%), and the Medi-Cal only group had the lowest proportion of those married (33.3%). The Medicare & Others group had the highest proportion of enrollees who are U.S. citizens (98.0%). The Medi-Cal only and uninsured groups had the lowest proportions of U.S. citizens (62.2% and 70.3%, respectively). The uninsured had the highest proportion of those who reported English language proficiency of not well/not at all (35.3%), and the Medicare & Others group had the highest proportion of those who reported English language proficiency of very well/well (95.1%). The highest proportion of those who reported excellent/very good/good health was in the Privately Purchased group (90.3%). The Medicare & Medi-Cal dual eligibles had the highest proportion of those with fair or poor general health (52.6%).

Table 1. Demographic Characteristics

	Uninsured n=4,367	Medi-Cal only n=2,938	Medicare only n=1,535	Medicare & Medi-Cal dual n=2,826	Medicare & Others n=9,969	Other Public n=805	Employment- Based n=15,996	Privately Purchased n=1,979	p value
Age (mean±SE)	38.9±0.3	35.9±0.3	68.1±0.7	67.4±0.5	74.1±0.1	40.3±0.9	42.3±0.1	38.5±0.5	<0.001
Gender (%)									
Male	57.8	38.4	46.6	46.5	42.2	52.3	49.8	48.1	<0.001
Female	42.2	61.6	53.4	53.5	57.8	47.7	50.2	51.9	
Race/Ethnicity (%)									
White	24.7	18.8	63.2	33.5	76.8	37.3	50.4	57.3	<0.001
African American	5.0	10.6	6.8	13.5	4.4	9.8	5.2	3.2	
Asian/Pacific Islander	11.3	11.7	8.5	18.0	7.2	13.3	17.4	19.6	
Latino	45.5	43.0	12.7	23.5	6.5	24.4	17.5	12.7	
Other	13.5	15.9	8.8	11.5	5.1	15.2	9.5	7.2	
Education (%)									
High school degree or less	59.0	67.5	46.7	66.7	38.0	46.4	26.7	29.1	<0.001
Some college or more	41.0	32.5	53.3	33.3	62.0	53.6	73.3	70.9	
Current Employment (%)									
Currently employed	66.6	48.2	13.9	6.0	17.5	58.6	81.7	68.2	<0.001
Not currently employed	33.4	51.8	86.1	94.0	82.5	41.4	18.3	31.8	
Family Income (% of FPL) (%)									
0-99% FPL	31.2	53.0	13.0	40.3	5.4	22.2	4.5	9.9	<0.001
100-199% FPL	33.3	28.9	25.3	36.2	15.1	31.8	10.8	13.3	
200-299% FPL	15.9	10.9	20.6	13.8	16.6	20.2	12.6	14.2	
300% FPL and above	19.6	7.2	41.1	9.7	62.9	25.8	72.1	62.6	
Marital status (%)									
Currently married	35.6	33.3	49.9	36.2	59.8	35.2	63.0	40.9	<0.001
Not currently married	64.4	66.7	50.1	63.8	40.2	64.8	37.0	59.1	
Born in the U.S. (%)									
Yes	45.9	56.4	73.4	57.5	83.2	63.0	71.0	73.5	<0.001
No	54.1	43.6	26.6	42.5	16.8	37.0	29.0	26.5	
Years in the U.S.* (%)									
Less than 10 years	23.6	22.1	2.0	2.7	3.3	19.9	14.7	13.5	<0.001
10 or more years	76.4	77.9	98.0	97.3	96.7	80.1	85.3	86.5	
U.S. Citizen (%)									
Yes	62.2	70.3	95.5	90.4	98.0	82.2	90.1	91.0	<0.001
No	37.8	29.7	4.5	9.6	2.0	17.8	9.9	9.0	
English language proficiency (%)									
Very well/well	64.7	68.7	89.0	66.4	95.1	78.2	92.3	93.0	<0.001
Not well/not at all	35.3	31.3	11.0	33.6	4.9	21.8	7.7	7.0	
General health status (%)									
Excellent/very good/good	74.1	66.6	63.9	47.4	77.7	72.6	89.1	90.3	<0.001
Fair/poor	25.9	33.4	36.1	52.6	22.3	27.4	10.9	9.7	
Number of chronic conditions (%)									
0	70.1	58.7	29.0	23.9	27.1	56.4	65.2	71.9	<0.001
1-4	29.9	41.3	71.0	76.1	72.9	43.6	34.8	28.1	
Usual source of care (%)									
Doctor's office/HMO/Kaiser	17.7	39.9	72.8	68.3	87.2	20.0	74.5	67.6	<0.001
Community/government clinic	30.3	38.5	20.3	22.7	9.5	62.1	16.7	16.2	
Emergency room/Urgent care	2.2	3.3	0.8	0.9	0.2	1.9	0.5	0.7	
Other place/no one place	1.6	0.5	0.5	0.5	0.4	0.3	0.8	1.7	
No usual source of care	48.2	17.8	5.6	7.6	2.7	15.7	7.5	13.8	
Food security status (%)									
Food security	69.4	59.6	88.2	67.4	97.5	78.0	94.8	92.7	<0.001
Food insecurity	30.6	40.4	11.8	32.6	2.5	22.0	5.2	7.3	
Urban/rural environment (%)									
Urban	93.6	92.2	89.2	92.7	91.6	93.6	95.1	94.3	<0.001
Rural	6.4	7.8	10.8	7.3	8.4	6.4	4.9	5.7	

*Sample size (n) for "Years in the U.S." only includes respondents who were not born in the U.S.

Mental Health Need

Table 2 describes respondents' mental health need by insurance type. The Medicare & Medi-Cal dual eligible group had the highest percentage of respondents with moderate to severe psychological distress (22.1%, $p < 0.001$). For both functional impairment and perceived need, Other Public insurance had the highest percentages (24.3% and 26.8%, respectively), followed by those with Medi-Cal only (23.7% and 20.8%, respectively). The Medicare & Others group had the lowest percentage of respondents with need compared to all other insurance types: 4.8% with moderate to severe psychological distress, 6.1% with functional impairment, and 7.7% with perceived need.

Table 2. Mental Health Need by Insurance Type

	Uninsured n=4,367	Medi-Cal only n=2,938	Medicare only n=1,535	Medicare & Medi-Cal dual n=2,826	Medicare & Others n=9,969	Other Public n=805	Employment- Based n=15,996	Privately Purchased n=1,979	<i>p</i> value
Moderate to Severe Psychological Distress ¹ (%)	13.8	20.3	16.5	22.1	4.8	16.3	6.2	6.4	<0.001
Functional impairment ² (%)	18.3	23.7	17.2	23.0	6.1	24.3	12.4	14.8	<0.001
Perceived need ³ (%)	13.9	20.8	14.2	18.0	7.7	26.8	15.2	17.2	<0.001

a. Table shows unadjusted percentages.

¹As indicated by a Kessler 6 (K6) score of ≥ 9 .

²As indicated by moderate or severe impairment in work, chores, family, or social life.

³Self-reported need to see professional for problems with mental health, emotions, nerves, or use of alcohol or drugs in the past 12 months.

Utilization of Mental Health Services

Table 3 shows the use of mental health services by insurance type among those who reported a perceived need. The percentages of people with at least one visit to a mental health professional in the past 12 months were similar across all insurance types (range=88.8% to 96.0%, not significantly different from one another, $p=0.10$). Those with Medicare only reported the most visits to a mental health professional in the past 12 months (mean=16.1, SE= ± 2.4), and those with Medicare & Others had the fewest visits (mean=9.4, SE= ± 1.0). Mental-emotional health was the most common reason for visits to a mental health professional across all insurance

groups (range=73.9% to 97.3%, $p<0.001$). The uninsured and the Other Public groups had the highest rates of an alcohol-drug problem being the reason for visits (6.2% and 6.7% respectively), while all other insurance groups had rates ranging between 0.2% and 2.8% ($p<0.001$). The Other Public group had the highest percentage (19.4%) of those who had a combination of both a mental-emotional health and an alcohol-drug problem being the reason for the visits ($p<0.001$). Rates of seeing a primary care physician for mental health reasons ranged from 46.0% of the uninsured to 72.1% of the Medicare & Medi-Cal dual eligibles ($p<0.001$). There were no significant differences among the various insurance types for seeing an “other professional” for mental health reasons ($p=0.20$). The Medicare & Medi-Cal dual eligible group had the highest percentage of those taking a prescription medication for mental health (89.7%) and the uninsured had the lowest (36.1%, $p<0.001$). Rates of discontinuing treatment ranged from 1.3% of the Medicare only group to 32.5% of the uninsured ($p<0.001$).

Table 3. Utilization of Mental Health Services by Insurance Type

	Uninsured	Medi-Cal only	Medicare only	Medicare & Medi-Cal dual	Medicare & Others	Other Public	Employment-Based	Privately Purchased	<i>p</i> value
<i>Respondents with perceived need</i>	<i>n=240</i>	<i>n=442</i>	<i>n=140</i>	<i>n=328</i>	<i>n=465</i>	<i>n=131</i>	<i>n=1,606</i>	<i>n=191</i>	
≥1 visit to mental health professional (%)	88.8	92.9	94.4	94.6	92.5	93.1	96.0	94.9	0.10
<i>Respondents with perceived need and ≥1 visit to mental health professional</i>	<i>n=216</i>	<i>n=408</i>	<i>n=131</i>	<i>n=298</i>	<i>n=434</i>	<i>n=124</i>	<i>n=1,546</i>	<i>n=184</i>	
Average number of visits to mental health professional (mean±SE)	12.6±2.1	14.6±1.5	16.1±2.4	12.5±1.9	9.4±1.0	11.4±2.0	11.7±0.6	13.4±1.6	
Reason for visit (%)									
Mental-emotional health	87.2	93.0	93.3	91.6	97.3	73.9	92.4	93.4	<0.001
Alcohol-drug problem	6.2	0.6	0.6	0.2	2.1	6.7	2.8	2.3	
Both mental & alcohol-drug	6.6	6.4	6.1	8.2	0.6	19.4	4.8	4.3	
Saw PCP (%)	46.0	71.0	56.0	72.1	52.4	67.1	53.5	56.1	<0.001
Saw other professional (%)	85.9	77.3	82.3	78.0	77.8	80.6	81.5	86.6	0.20
Prescription medication (%)	36.1	66.3	81.7	89.7	70.2	62.5	55.1	50.8	<0.001
Discontinued treatment (%)	32.5	18.7	1.3	3.0	13.0	18.5	18.2	8.6	<0.001

a. Table shows unadjusted percentages.

Table 4 presents the unadjusted and adjusted odds ratios (aOR) of seeking mental health treatment, defined as having at least one visit to a mental health professional in the past 12 months, by insurance type. The uninsured had the lowest odds of seeking mental health treatment

compared to Privately Purchased (aOR=0.69, 95% confidence interval (CI)=0.21, 2.28), and the Employment-Based group had the highest odds of seeking mental health treatment compared to Privately Purchased (aOR=1.69, CI=0.56, 5.10); however, these results were not statistically significant ($p=0.54$ and 0.35 , respectively).

Table 4. Unadjusted and Adjusted Odds Ratios (and 95% Confidence Intervals) of Seeking Mental Health Treatment by Insurance Type

Insurance Type	Model 1		Model 2		Model 3		Model 4	
	Unadjusted OR (95% CI)	p value	Adjusted OR (95% CI)	p value	Adjusted OR (95% CI)	p value	Adjusted OR (95% CI)	p value
Privately Purchased	1.00		1.00				1.00	
Uninsured	0.43 (0.13-1.43)	0.17	0.66 (0.20-2.16)	0.49	0.64 (0.20-2.07)	0.45	0.69 (0.21-2.28)	0.54
Medi-Cal only	0.70 (0.22-2.28)	0.55	1.13 (0.35-3.64)	0.84	1.05 (0.32-3.44)	0.93	1.18 (0.35-3.93)	0.79
Medicare only	0.91 (0.21-3.84)	0.89	1.28 (0.31-5.27)	0.73	1.08 (0.27-4.30)	0.91	1.21 (0.30-4.92)	0.79
Medicare & Medi-Cal dual	0.93 (0.28-3.15)	0.91	1.87 (0.56-6.23)	0.30	2.09 (0.59-7.43)	0.25	2.27 (0.63-8.14)	0.21
Medicare & Others	0.66 (0.20-2.20)	0.50	1.35 (0.51-3.61)	0.54	1.12 (0.42-3.07)	0.82	1.11 (0.40-3.07)	0.84
Other Public	0.73 (0.17-3.09)	0.67	0.62 (0.15-2.79)	0.56	0.62 (0.14-2.70)	0.52	0.66 (0.15-3.00)	0.59
Employment-Based	1.30 (0.42-4.09)	0.65	1.71 (0.57-5.13)	0.33	1.62 (0.54-4.89)	0.39	1.69 (0.56-5.10)	0.35

Model 2: Adjusted for age, gender, race/ethnicity, income, marital status, and U.S. citizenship status.

Model 3: Adjusted for age, gender, race/ethnicity, income, marital status, U.S. citizenship status, and English language proficiency.

Model 4: Adjusted for age, gender, race/ethnicity, income, marital status, U.S. citizenship status, English language proficiency, and general health status.

Pseudo- R^2 for Model 4 = 0.04.

Reasons for Underutilization of Mental Health Services

Tables 5 and 6 present the findings from examining reasons for not seeking mental health treatment by insurance type. The unadjusted percentages in Table 5 show that the uninsured were the most concerned about cost (80.3%) and those with Medicare & Others were the least concerned about cost (15.1%, $p<0.001$). There were no significance differences between any insurance types for “did not feel comfortable talking with a professional about personal problems”. Medicare only had the lowest percentage of people “concerned about what would happen if someone found out” (6.8%), and the Medicare & Medi-Cal dual eligibles had the highest (28.7%, $p<0.001$). The Other Public group had the highest percentage of people with a “hard time getting an appointment” (25.5%), while Medicare & Others had the lowest percentage (7.9%, $p<0.001$).

Table 5. Reasons for Not Seeking Mental Health Treatment by Insurance Type

	Uninsured n=384	Medi-Cal only n=228	Medicare only n=67	Medicare & Medi-Cal dual n=118	Medicare & Others n=279	Other Public n=59	Employment- Based n=902	Privately Purchased n=125	<i>p</i> value
Concerned about cost of treatment (%)	80.3	51.2	40.9	49.4	15.1	63.0	34.4	41.8	<0.001
Did not feel comfortable talking with a professional about personal problems (%)	20.1	26.3	28.9	29.3	19.2	34.5	22.3	26.6	0.57
Concerned about what would happen if someone found out (%)	24.4	27.4	15.6	28.7	6.8	11.0	19.2	12.2	<0.001
Hard time getting an appointment (%)	19.3	21.4	17.7	13.5	7.9	25.5	8.7	12.6	0.001

a. Table shows unadjusted percentages.

In adjusted models, the uninsured were found to be significantly more likely to be concerned about cost than their Privately Purchased counterparts (aOR=3.57, CI=1.77, 7.19; see Table 6). On the other hand, those with Medicare & Others were significantly less likely to be concerned about cost than those with Privately Purchased insurance (aOR=0.20, CI=0.09, 0.44). For both “did not feel comfortable talking with a professional about personal problems” and “hard time getting an appointment”, there were no significant differences for any insurance type compared to Privately Purchased. The uninsured and Medi-Cal only groups had greater odds ratios of being “concerned about what would happen if someone found out”, but these effects were no longer significant after adjusting for covariates in the first model. After adjusting for covariates, the Employment-Based insurance group was significantly more likely than the Privately Purchased group to be “concerned about what would happen if someone found out” (aOR=2.13, CI=1.09, 4.15).

Table 6. Unadjusted and Adjusted Odds Ratios (and 95% Confidence Intervals) of Reasons for Not Seeking Mental Health Treatment by Insurance Type

<i>Reason 1 - Concerned about cost of treatment</i>										
Insurance Type	Model 1			Model 2			Model 3		Model 4	
	Unadjusted OR (95% CI)	<i>p</i> value		Adjusted OR (95% CI)	<i>p</i> value		Adjusted OR (95% CI)	<i>p</i> value	Adjusted OR (95% CI)	<i>p</i> value
Privately Purchased	1.00			1.00			1.00		1.00	
Uninsured	5.65 (2.96-10.80)	< 0.001		3.68 (1.86-7.29)	< 0.001		3.65 (1.84-7.23)	< 0.001	3.57 (1.77-7.19)	< 0.001
Medi-Cal only	1.46 (0.73-2.90)	0.28		0.79 (0.39-1.61)	0.51		0.79 (0.39-1.60)	0.50	0.77 (0.37-1.57)	0.46
Medicare only	0.96 (0.42-2.21)	0.92		0.57 (0.24-1.38)	0.21		0.57 (0.24-1.40)	0.22	0.52 (0.21-1.29)	0.16
Medicare & Medi-Cal dual	1.36 (0.49-3.79)	0.55		0.78 (0.27-2.27)	0.64		0.77 (0.27-2.25)	0.63	0.69 (0.23-2.09)	0.51
Medicare & Others	0.25 (0.12-0.52)	< 0.001		0.21 (0.10-0.44)	< 0.001		0.21 (0.10-0.45)	< 0.001	0.20 (0.09-0.44)	< 0.001
Other Public	2.37 (0.97-5.79)	0.06		1.76 (0.70-4.43)	0.22		1.76 (0.70-4.45)	0.23	1.75 (0.69-4.46)	0.24
Employment-Based	0.73 (0.40-1.31)	0.29		0.82 (0.44-1.55)	0.55		0.83 (0.44-1.55)	0.55	0.82 (0.43-1.55)	0.54
<i>Reason 2 - Did not feel comfortable talking with a professional about personal problems</i>										
Insurance Type	Model 1			Model 2			Model 3		Model 4	
	Unadjusted OR (95% CI)	<i>p</i> value		Adjusted OR (95% CI)	<i>p</i> value		Adjusted OR (95% CI)	<i>p</i> value	Adjusted OR (95% CI)	<i>p</i> value
Privately Purchased	1.00			1.00			1.00		1.00	
Uninsured	0.70 (0.29-1.68)	0.42		0.65 (0.26-1.65)	0.36		0.66 (0.26-1.67)	0.37	0.62 (0.25-1.59)	0.32
Medi-Cal only	0.99 (0.42-2.30)	0.97		0.81 (0.34-1.94)	0.63		0.81 (0.34-1.95)	0.64	0.77 (0.32-1.85)	0.55
Medicare only	1.12 (0.40-3.10)	0.82		1.65 (0.55-4.95)	0.37		1.63 (0.51-4.94)	0.38	1.33 (0.43-4.12)	0.62
Medicare & Medi-Cal dual	1.14 (0.42-3.11)	0.79		1.60 (0.56-4.61)	0.38		1.61 (0.56-4.62)	0.37	1.29 (0.44-3.83)	0.64
Medicare & Others	0.66 (0.25-1.74)	0.39		1.21 (0.40-3.64)	0.73		1.19 (0.40-3.61)	0.75	1.13 (0.38-3.36)	0.82
Other Public	1.46 (0.46-4.58)	0.52		1.35 (0.42-4.34)	0.61		1.35 (0.42-4.37)	0.62	1.34 (0.41-4.36)	0.63
Employment-Based	0.79 (0.37-1.72)	0.55		0.88 (0.39-1.97)	0.75		0.87 (0.39-1.97)	0.74	0.86 (0.38-1.96)	0.71
<i>Reason 3 - Concerned about what would happen if someone found out</i>										
Insurance Type	Model 1			Model 2			Model 3		Model 4	
	Unadjusted OR (95% CI)	<i>p</i> value		Adjusted OR (95% CI)	<i>p</i> value		Adjusted OR (95% CI)	<i>p</i> value	Adjusted OR (95% CI)	<i>p</i> value
Privately Purchased	1.00			1.00			1.00		1.00	
Uninsured	2.32 (1.21-4.48)	0.01		1.82 (0.90-3.67)	0.10		1.79 (0.88-3.61)	0.11	1.76 (0.87-3.57)	0.12
Medi-Cal only	2.72 (1.18-6.25)	0.02		1.95 (0.77-4.93)	0.16		1.94 (0.76-4.92)	0.16	1.91 (0.75-4.87)	0.17
Medicare only	1.33 (0.37-4.75)	0.66		1.72 (0.43-6.83)	0.44		1.75 (0.45-6.83)	0.41	1.64 (0.42-6.44)	0.47
Medicare & Medi-Cal dual	2.90 (0.87-9.69)	0.08		3.16 (0.90-11.16)	0.07		3.13 (0.88-11.05)	0.08	2.92 (0.83-10.27)	0.09
Medicare & Others	0.52 (0.18-1.55)	0.24		0.94 (0.29-3.09)	0.92		0.97 (0.30-3.19)	0.96	0.96 (0.29-3.15)	0.94
Other Public	0.89 (0.13-6.12)	0.90		0.80 (0.12-5.43)	0.82		0.80 (0.12-5.34)	0.82	0.80 (0.12-5.28)	0.82
Employment-Based	1.71 (0.89-3.29)	0.11		2.13 (1.09-4.14)	0.03		2.14 (1.10-4.16)	0.03	2.13 (1.09-4.15)	0.03
<i>Reason 4 - Hard time getting an appointment</i>										
Insurance Type	Model 1			Model 2			Model 3		Model 4	
	Unadjusted OR (95% CI)	<i>p</i> value		Adjusted OR (95% CI)	<i>p</i> value		Adjusted OR (95% CI)	<i>p</i> value	Adjusted OR (95% CI)	<i>p</i> value
Privately Purchased	1.00			1.00			1.00		1.00	
Uninsured	1.64 (0.42-6.64)	0.47		1.13 (0.29-4.36)	0.85		1.09 (0.28-4.21)	0.90	1.05 (0.27-4.03)	0.95
Medi-Cal only	1.89 (0.44-8.04)	0.39		1.14 (0.27-4.75)	0.86		1.12 (0.27-4.72)	0.87	1.09 (0.26-4.62)	0.91
Medicare only	1.49 (0.26-8.41)	0.65		1.54 (0.27-8.92)	0.62		1.61 (0.28-9.25)	0.59	1.42 (0.25-7.93)	0.69
Medicare & Medi-Cal dual	1.08 (0.22-5.37)	0.93		1.12 (0.20-6.24)	0.90		1.11 (0.20-6.29)	0.91	0.97 (0.17-5.53)	0.97
Medicare & Others	0.60 (0.13-2.70)	0.50		0.73 (0.16-3.31)	0.68		0.78 (0.18-3.45)	0.74	0.75 (0.17-3.26)	0.70
Other Public	2.37 (0.48-11.69)	0.29		2.18 (0.43-11.06)	0.34		2.20 (0.44-10.88)	0.33	2.16 (0.44-10.69)	0.34
Employment-Based	0.66 (0.16-2.69)	0.56		0.74 (0.18-3.04)	0.68		0.75 (0.19-3.03)	0.69	0.74 (0.18-2.99)	0.67

Model 2: Adjusted for age, gender, race/ethnicity, income, marital status, and U.S. citizenship status.

Model 3: Adjusted for age, gender, race/ethnicity, income, marital status, U.S. citizenship status, and English language proficiency.

Model 4: Adjusted for age, gender, race/ethnicity, income, marital status, U.S. citizenship status, English language proficiency, and general health status.

Pseudo-R² for Model 4 = 0.20 (Reason 1), 0.03 (Reason 2), 0.04 (Reason 3), 0.06 (Reason 4)

Table 7 presents the findings from examining the relationship between discontinuing mental health treatment and insurance type. The final adjusted model shows that the uninsured (aOR=3.34, CI=1.28, 8.74) and the Medicare & Others group (aOR=4.13, CI=1.58, 10.81) were significantly more likely than the Privately Purchased group to discontinue treatment. Originally,

the Medicare only group was less likely than the Privately Purchased group to have discontinued mental health treatment (OR=0.28, CI=0.09, 0.88, $p=0.03$); however, this effect was no longer significant after adjusting for covariates (aOR=0.61, CI=0.17, 2.19, $p=0.45$).

Table 7. Unadjusted and Adjusted Odds Ratios (and 95% Confidence Intervals) of Discontinuing Mental Health Treatment by Insurance Type

Insurance Type	Model 1		Model 2		Model 3		Model 4	
	Unadjusted OR (95% CI)	p value	Adjusted OR (95% CI)	p value	Adjusted OR (95% CI)	p value	Adjusted OR (95% CI)	p value
Privately Purchased	1.00		1.00		1.00		1.00	
Uninsured	3.01 (1.23-7.38)	0.02	3.11 (1.18-8.18)	0.02	3.14 (1.19-8.32)	0.02	3.34 (1.28-8.74)	0.01
Medi-Cal only	1.49 (0.64-3.48)	0.35	1.37 (0.56-3.33)	0.49	1.46 (0.59-3.60)	0.41	1.66 (0.67-4.07)	0.27
Medicare only	0.28 (0.09-0.88)	0.03	0.48 (0.13-1.72)	0.26	0.53 (0.15-1.88)	0.32	0.61 (0.17-2.19)	0.45
Medicare & Medi-Cal dual	0.37 (0.14-0.98)	0.05	0.60 (0.22-1.66)	0.32	0.59 (0.21-1.64)	0.31	0.65 (0.23-1.85)	0.42
Medicare & Others	1.28 (0.54-3.04)	0.57	3.77 (1.46-9.76)	0.007	4.15 (1.58-10.85)	0.004	4.13 (1.58-10.81)	0.004
Other Public	1.30 (0.40-4.18)	0.66	1.50 (0.45-5.01)	0.51	1.56 (0.47-5.22)	0.46	1.64 (0.50-5.38)	0.41
Employment-Based	1.38 (0.63-3.02)	0.41	1.70 (0.72-4.00)	0.22	1.79 (0.75-4.23)	0.19	1.83 (0.78-4.31)	0.16

Model 2: Adjusted for age, gender, race/ethnicity, income, marital status, and U.S. citizenship status.

Model 3: Adjusted for age, gender, race/ethnicity, income, marital status, U.S. citizenship status, and English language proficiency.

Model 4: Adjusted for age, gender, race/ethnicity, income, marital status, U.S. citizenship status, English language proficiency, and general health status.

Pseudo- R^2 for Model 4 = 0.08.

Table 8 shows reasons for discontinuing mental health treatment by insurance type. The majority of respondents in the Other Public group (58.7%) discontinued treatment due to “got better/no longer needed”, compared to only 6.7% of the Privately Purchased group who discontinued for that reason ($p<0.001$). Medi-Cal only had the highest percentage of people who discontinued due to lack of time/transportation (19.7%), compared to people with Medicare only (0.0%) and Medicare & Others (0.2%, $p<0.001$). The uninsured had the highest percentage of people who discontinued treatment due to “too expensive” (28.5%), compared to the lowest percentage of 0.5% for the Medicare & Others group ($p<0.001$). Rates for all other reasons for discontinuing treatment were not significantly different between insurance groups.

Table 8. Reasons for Discontinuing Mental Health Treatment by Insurance Type

	Uninsured n=57	Medi-Cal only n=72	Medicare only n=12	Medicare & Medi-Cal dual n=34	Medicare & Others n=76	Other Public n=15	Employment- Based n=233	Privately Purchased n=26	<i>p</i> value
Got better/no longer needed (%)	19.8	15.5	31.5	31.2	51.1	58.7	45.6	6.7	0.001
Not getting better (%)	4.7	4.9	0.0	6.6	11.4	0.0	6.6	0.9	0.24
Wanted to handle problem on own (%)	7.8	16.1	0.0	10.0	7.2	0.5	7.4	30.2	0.33
Had bad experiences with treatment (%)	2.4	11.6	6.3	30.2	4.7	2.3	5.8	7.3	0.43
Lack of time/transportation (%)	15.8	19.7	0.0	2.9	0.2	12.8	9.6	4.5	0.01
Too expensive (%)	28.5	6.0	11.1	5.6	0.5	10.9	7.3	15.3	0.02
Insurance does not cover (%)	18.8	6.3	8.8	1.5	9.6	13.4	5.3	0.5	0.11
Not given a set course of treatment (%)	0.2	7.5	0.0	3.4	0.6	0.0	1.4	23.9	0.54
Did not want to take medicine (%)	0.0	0.0	0.0	0.0	0.2	0.0	1.5	0.0	0.90
Other (%)	2.0	12.6	42.3	8.6	14.6	1.4	9.5	10.8	0.05

a. Table shows unadjusted percentages.

DISCUSSION

Previous research examining mental health and its relationship to health insurance status has largely compared the uninsured vs. the insured or public insurance vs. private insurance. Using data from a population-based study of Californians, this current study compared the mental health need and service use of California adults with various insurance types within both the public and private sectors of health insurance, as well as the uninsured.

Based on psychological distress and functional impairment, the uninsured had more mental health need than those with private insurance, but less than those with public insurance, which is consistent with previous research (Grant et al., 2011; Norquist & Wells, 1991). However, for perceived need, this study found that the uninsured did not have the lowest rate of need (the Medicare & Others group had the lowest rate of perceived need), which was not consistent with previous research (Brown et al., 2009). A possible explanation for this could be that the uninsured may face greater financial or other pressures that require their more immediate attention than their mental health. This is similar to the notion that the priority of homeless persons is to meet basic survival needs before addressing less concrete problems like mental health (Herman, 1993). The disjunctive findings between the three outcome measures selected to capture mental health need in this study points to the importance of including both measured illness severity and self-reported perceived need. Studies that only include self-reported perceived need may underestimate the mental health needs of the uninsured.

This study also found that the Medicare & Medi-Cal dual eligibles had the highest rate of moderate to severe psychological distress. However, this was not seen for functional impairment and perceived need, where the Other Public insured group had the highest rates, followed by the Medi-Cal only group. Thus, the various measures of need do not consistently support the

hypothesis that those with mental health need would be disproportionately represented among the dual eligible individuals. Those insured with Medicare & Others consistently had the lowest rates of mental health need across all three outcomes for mental health need. Previous studies looking at the relationship between health status and the purchase of individual supplemental insurance by Medicare beneficiaries have found mixed results (Atherly, 2001). However, this study provides additional support for previous studies reporting that those with Medicare who purchase individual supplemental insurance have better mental health status compared to those with Medicare only.

In examining mental health service use, all insurance groups, including the uninsured, had similar rates of seeking treatment. This is contrary to findings from Grant et al. (2010), who found that among those with perceived need, insured adults were more than twice as likely to report visiting a mental health professional for treatment than uninsured adults. In terms of receiving MAT for mental health, previous research found that the uninsured were the least likely to report receiving MAT in the past year (11.6%) compared to adults with public (33.8%) or private coverage (26.1%; Padilla-Frausto et al., 2012). While this study did not examine the number of people with four or more visits with a mental health professional in the past 12 months, it did examine prescription medication use, which is a required component of having MAT. Thus, based on prescription medication use, this study's results suggest that the uninsured had the lowest MAT, and that a higher percentage of those with public insurance received MAT compared to those with private insurance, which is consistent with previous research. However, the results from this study did not support findings by Grant (2011), in which those with Medical had more people with MAT (32.2%) compared to those with other health insurance coverage (24.4%). Beyond that, this study found that those with Medicare & Others insurance type had the

fewest mental health visits out of all groups. This is a new finding considering the limited previous research including this group in comparisons of mental health treatment and service use. The uninsured was more likely to discontinue treatment compared to their counterparts with Privately Purchased insurance. This is consistent with previous findings that lack of insurance was found to be significantly related to dropping out of treatment (Edlund et al., 2002; Wang et al., 2000). This study also found that the Medicare & Others group was more likely to discontinue treatment compared to the Privately Purchased group, which is a new finding in the literature. The results from each adjusted model suggest that neither English language proficiency nor general health status is a mediator in the association between insurance type and discontinuation from treatment.

Among those with a perceived need but did not seek mental health treatment, the uninsured were significantly more likely to be concerned with cost than their counterparts with Privately Purchased insurance, which supports findings from previous research (Brown et al., 2009; Sturm et al., 2001). Sturm and colleagues (2001) reported that those with private insurance cited cost concerns more often than those with public insurance. However, this study found the opposite to be true. Previous research found that Medicare beneficiaries with supplementary coverage were less likely to delay care because of costs than those without supplementary coverage (Porell & Miltiades, 2001). This present study had a similar finding: the Medical & Others group was significantly less likely to be concerned with cost than their Privately Purchased insured counterparts. This study also found that the Employment-Based group had significantly more likely to be “concerned about what would happen if someone found out”, which is a stigma-related barrier, than the Privately Purchased group. This is a new finding considering the limited previous research comparing mental health treatment and service use

between the Employment-Based and Privately Purchased insured groups. The results from each adjusted model suggest that neither English language proficiency nor general health status is a mediator in the association between insurance type and reasons for not seeking mental health treatment. Based on results from examining reasons for discontinuation, many uninsured individuals discontinue due to financial reasons. The most common reason for discontinuation of treatment in the Medicare & Others group was that they got better/no longer needed treatment. Although previous research has studied reasons for discontinuation of mental health treatment, they did not examine the reasons by insurance type. Thus, these particular findings are novel.

Limitations

This study has several limitations to note. The first limitation of this study is that CHIS, as a telephone survey of households, does not include persons living in group quarters (such as nursing homes, dormitories, residential treatment centers, prisons, etc.) or the homeless population. Group quarters tend to have a disproportionately high share of multigenerational families of racial/ethnic minorities and those with disabilities and high unmet need (Brault, 2008). National estimates indicate that 45% of the homeless populations have some level of mental health problems (Homelessness Research Institute, 2010). Together, the group quarters and homeless populations account for a small proportion of California's nearly 27 million adults; however, it is a population with high mental health need. In this present study, these individuals most likely belong to the uninsured group. Thus, the findings likely underestimate the mental health need and service utilization profiles for those groups.

The second limitation is due to the self-report nature of the survey, which relies on respondents both having insight into their own mental health status, as well as a willingness to report this information. Thus, some individuals who are very symptomatic or impaired might not

recognize or report their problems, and therefore would not be identified as having mental health need (Grant et al., 2011). Additionally, since this study examined mental health outcomes over the past 12 months, the data relied on the respondents' memory for accurate recall. The main independent variable, insurance type, was also subject to possible under- or over-reporting. For example, evidence suggests that there is some under-reporting of Medi-Cal in CHIS, perhaps due to stigma, dual enrollment, or confusion about program name (Kincheloe et al., 2006). A study by Kincheloe et al. (2006) found that CHIS estimates of adult Medi-Cal enrollment matched administrative counts. Nonetheless, there is no assurance that the CHIS self-reported insurance coverage data are accurate.

Third, this was a cross-sectional study in which insurance type and mental health need and service use were simultaneously assessed. Thus, a causal relationship between the two cannot be inferred. It is possible that mental health need and service use determine insurance type, rather than the other way around. However, it is more likely that a complex relationship exists, where there is interplay between insurance and mental health treatment seeking behaviors and outcomes.

The fourth limitation is that the CHIS 2011-2012 survey had a relatively low response rate of 17%. Survey response rates tend to be lower in California than nationally, though the CHIS response rates are comparable to those of other scientific telephone surveys in California (CHIS 2011-2012 Methodology Report 4). Research has shown that high non-response rates do not necessarily lead to non-response bias, which occurs if respondents and non-respondents systematically differ with some respect to some characteristic of interest (Groves, 2006). CHIS 2007 assessed non-response bias and found few differences between respondents and non-respondents that were either significant or substantial after the data were adjusted (CHIS 2008).

The final limitation is that this study did not include individuals who were uninsured for part of the year. Previous research has shown that those uninsured for only part of the year have greater mental health need than those consistently uninsured all year (Grant et al., 2011; Brown et al., 2009). Since the uninsured group in this study only included those continuously uninsured over the past 12 months, the mental health need of the uninsured group may have been underestimated.

Future Directions

As the ACA will drastically reduce the number of uninsured, the ACA is likely to increase mental health service use by alleviating concerns about cost. These individuals will also be more likely to have a usual source of care and see a primary care physician. This points to the increasing importance of primary care physicians to detect and discuss mental health problems with the newly-eligible population. This newly-eligible population may also be more likely to use prescription medication for a mental health problem and be less likely to discontinue treatment due to cost than they would be if they remained uninsured. While a reductive effect on financial barriers to treatment is expected, this study suggests that the ACA will not have an effect on reducing stigma-related reasons for not seeking treatment by simply providing the uninsured with insurance. Programs aimed at breaking down stigma are still greatly needed and should target the gender, age groups, racial/ethnic groups, etc. that have been found to be most affected by stigma-related barriers (Nadeem et al., 2007; Gary et al., 2005). On the other hand, those with Employer-Based insurance were significantly more likely than the Privately Purchased group to be concerned about stigma. This suggests the need for employee education programs to inform employees about existing confidentiality and privacy laws such as the Health Insurance Portability and Accountability Act (HIPAA). They should be informed that employers

will not receive information about mental health services that employees receive, even if they use company insurance to cover those services.

This study revealed that those with public insurance had a more difficult time getting an appointment than those privately insured. Traditionally, Medi-Cal and Medicare programs have lower service reimbursement rates and fewer providers than do private insurance companies, leading to more restricted access to care (Cunningham, 2009; Brown et al., 2009). Since the number of Medi-Cal enrollees will dramatically increase, this problem will be exacerbated by the ACA absent an accompanying increase in providers who accept Medi-Cal. This study provides additional support for the critical need to expand the network of Medi-Cal providers. Furthermore, this study found that Medi-Cal only enrollees were more likely to report discontinuing treatment due to lack of time/transportation. As the ACA increases the number of Medi-Cal enrollees, it is very likely that there will be an increase in the number of people affected by lack of time/transportation as a barrier to continuing treatment. Among all insurance groups, the Employment-Based group had the fourth highest percentage of those who discontinued due to lack of time/transportation. However, for the employed, it is unlikely that lack of transportation was the issue but rather the lack of time. This is an important distinction that should be made. The lack of transportation suggests a need for Medi-Cal assistance with transportation to mental health appointments. However, lack of time suggests the need for childcare assistance or better availability/longer hours of Medi-Cal providers in order to accommodate working adults. It would be helpful for future studies to examine lack of time and lack of transportation as two separate reasons since they have different implications.

Research to date has largely looked at those with Medicare as a single group or excluded individuals with supplementary insurance from analyses (McAlpine & Mechanic, 2000; Grant et

al., 2011). However, as evident in this study, future research should examine the Medicare & Medi-Cal dual eligible group and the Medicare & Others group as separate categories from those with Medicare only. The dual eligible population has high rates of mental health need and the highest rate of prescription medication use for a mental health problem. Yet, one-third of the dual eligible group reported discontinuing mental health treatment due to bad experiences with treatment. This is a vulnerable population and there should be additional services specifically aimed to help this group better navigate the health care system with the two types of public insurance. On the other hand, the Medicare & Others group had the lowest levels of need and highest rates of discontinuing treatment due to clinical benefit. Future studies should examine this group more closely to determine what patient characteristics or features of their coverage make these individuals more susceptible to experiencing good outcomes from treatment compared to other insured groups.

The Other Public group had the highest rates of functional impairment and perceived need. In addition, they had the highest prevalence of needing mental health service for both a mental/emotional and an alcohol/drug problem, which potentially makes this population especially difficult to treat. Pharmacological treatment has proven to be efficacious in treating mental health disorders. Despite their level of mental health need, prescription medication use in the Other Public group is not among the highest rates of use by insurance type. Future studies should examine whether this is due to insufficient coverage, practitioner concerns about medication interactions with the substance of abuse, or some other reason. Unfortunately, the composition of the Other Public group and its breakdown of those with military health insurance, AIM, MRMIP, etc. was not known in this study. Thus, it is difficult to draw more specific conclusions about the Other Public insurance group.

The ACA is expected to dramatically improve mental health care by reducing the number of uninsured. In addition, the issue of mental health disparities has been a national priority over the past decade, and the ACA has potential to reduce these disparities by closing the gap between mental health need and service use. However, it is important to note that there will still be a population of the uninsured, mainly made up of those who are undocumented immigrants. In the populous state of California, this represents approximately 1.24 million people (Long et al., 2011). It has been reported that failure to receive outpatient care during episodes of mental illness appears to play a role in increasing rates of hospitalization and lengths of stay (Chow et al., 2003). There is still a need for programs to provide treatment to the uninsured during episodes of mental health problems. Without any additional policy changes, it can be expected that the mental health disparities between the uninsured and insured will be even greater. This paper should serve as ground work for tracing the ACA's effects on mental health among all insurance types, including the remaining uninsured population, as the ACA is implemented over the next several years.

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