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Effect of Drug Medi-Cal Organized Delivery System Access to Substance Use Disorder Treatment

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Abstract

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Abstract

Drug addiction, mental health disorders, and homelessness has impacted communities nationwide increasing mortality and morbidity and is a public health threat. But access to substance use treatment has been a problem due to the lack of the ability by many to pay for services. This observational quantitative research design utilized administrative secondary data collected between July 2017 and June 2022. The key variables are Insurance Status, Number of Admissions, and Successful Discharges in outpatient substance use treatment. The purpose of the study and research questions involved evaluating the effects Drug Medi-Cal (DMC) Organized Delivery System program by analyzing program admissions completion. The data set included 2679 who were admitted to treatment just before and 4 years after DMC implantation; there were 810 successful completers. Multinomial regression was used to examine relationship between admission, completion of treatment, and insurance status. Parallel mediation analysis addressed the impact of race and ethnicity as mediators of the relationship between insurance status and admissions and discharges by program implementation year. Results indicate that insurance coverage predicts numbers of treatment admissions and successful completions due to DMC in Years 3 and 4. Race (Indirect effect = -.0205, 95CI -.0360, -.0076) and Ethnicity (Indirect effect = .0490, 95CI .0281, .0725) were significant mediators for admissions, but not discharges. The DMC program appears to impact treatment seeking and completion. Implications for positive social change include increasing access to treatment for disadvantaged populations, thus resulting in improved quality of life and increased insurance parity.

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Dedication

I dedicate this research to those who struggle with addiction and seek treatment, treatment providers Who work hard on the front lines to battle addiction, and political and government agencies that developed an insurance system to increase access to treatment for those among a disadvantaged population. Additionally, I hope this research reaches other states to develop a system to increase access to substance use treatment for a disadvantaged population within their state to promote social change.

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I want to acknowledge that my husband, David Davies, and all family members, friends, non-profit organization, and Walden University Chair and all faulty provided support and patience throughout my PhD journey.

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Chapter 1: Introduction to the Study

There is a need for access to substance use treatment due to the increase deaths and the increase cost of the negative outcome associated with substance use (Peterson et al.,2021). The Department of Human and Health Services (2022) revealed 75,673 deaths linked to substance use, and 56,064, accounted for opioid-related deaths (Centers for Disease Control & Prevention [CDC], 2022). There is a high demand for more substance use treatment providers, which can help address the drug use epidemic, and the need for more support for treatment provider is essential to increase access to substance use treatment (Peterson et al.,2021). But access to substance use treatment has been a challenge due to insurance coverage among a disadvantaged population (Urada et al.,2019). California developed an insurance coverage named Drug Medi-Cal Organized Delivery System (DMC-ODS) to increase access to substance use treatment for individuals who receive government insurance Medicaid and Medicare (Urada et al., 2019). The purpose of developing insurance coverage through Medi-Cal is to decrease individual suffering, increase community health, and reduce economic distress associated with addiction, increasing mortality and morbidity rate.

Background

Limited funding for substance use treatment is a significant barrier to access to treatment among diverse and disadvantaged populations (Hobbs & Davies, 2018). Insurance coverage, quality, and access to treatment are deficient (Pincus et al., 2018). Disparities in access and quality of substance use treatment has a negative impact on

societies nationwide by the increased of mortality and morbidity rates (Liebling et al., 2016). Similarly, there are significant deficiencies in the appropriate level of care, lack of evidence-based practice modalities, and lack of research on substance use and mental health co-occurring disorders (McKee, 2017). Research has also suggested that race, gender, no insurance, and insurance parity influence quality and access to substance use treatment (McKee, 2017). It is important to address population disparities and human suffering, affecting community health and economic disparities that create inequalities in access to treatment (Peterson & Busch, 2018).

There is an evolving social problem of substance use and the relationship between health disparities, increased crime rates, and the development of economic disparity (U.S. Department of Health and Human Services, 2018). But the Drug Medi-Cal organized delivery system in California focuses on improving access to substance use treatment and insurance coverage among diverse and disadvantaged populations (Urada et al., 2019). The study aims to bridge the gap of a multi-theoretical framework in assessing individual needs due to underutilization in substance use outpatient treatment assessment (McKee,2017; Pincus,2016). Additionally, the study aims to fill the gap in knowledge of government insurance equality and individuals with no coverage regarding access to substance use outpatient treatment among a low socioeconomic status population. Another aim is to fill the gap in research in the implementation and the effectiveness of DMC ODS (Drug Medi-Cal Organized Delivery System) by observing increase admission administrative data and discharges among a disadvantage population in outpatient substance use treatment before and after the Affordable Care Act was

implemented in 2014. (McKee,2017; Pincus,2016). Social change is essential in substance use treatment due to the complexity of addiction, which has multiple contributing factors requiring a rigorous assessment and analytical approach in producing evidence-based solutions.

Problem Statement

Substance use has become a public health issue due to the increase in mortality and morbidity rate, which influences population, community, and environmental health (CDC, 2021; Urada et al., 2019). Addressing unmet needs of substance use, mental health, health, and economic disparities on micro, meso, and macro-level that income disparities can increase community and individual health (Peterson & Busch, 2018). Substance use influences the emotional state of an individual, which promotes emotional instability (U.S. Department of Health and Human Services, 2018). But access to quality substance use treatment is a significant problem among individuals with low socioeconomic status due to lack of reasonable insurance, uninsured, and poverty (Liebling et al., 2016; Peterson & Busch, 2018). The U.S. health care insurance system has social injustice and inequalities among the low socioeconomic status populations due to income equality (Blumenthal, 2020). Socioeconomic status (SES) is defined as sociological and environmental health combined with the full measure of a person's work experience, individual or family's economic and social position concerning others based on income, education, and occupation (Leonard et al., 2017). Increased stress may increase health risk, mental health disorders, risky behaviors, and increased drug use (Leonard et al., 2017). Therefore, this study focused on the effectiveness of DMC ODS

(Drug Medi-Cal Organized Delivery System) by observing increase admission administrative data and discharges among a disadvantaged population.

Purpose

The purpose of the study was to quantify and evaluate the effectiveness of the DMC-ODS by analyzing increased numbers in Admissions to the program and completion of treatment. I analyzed the admission and discharge data at four points in time to examine insurance coverage increase and increased numbers of Admissions to treatment and successful discharge within the 4-year time frame. Another aim was to examine ethnic, racial, and gender disparities in access to outpatient substance use treatment. The discharge data were examined to determine the effectiveness of implementation by comparing successful and unsuccessful discharges. This study can provide evidence to other states other than California policy developers to adopt the Drug Medi-Cal Organized Delivery System to reduce human suffering and promote social change by investing in the DMC ODS to help the low socioeconomic status individuals to improve individual and community health on a micro and macro level. Further, the Coronavirus pandemic increased inequalities with access to substance use and healthcare treatment due to the failed infrastructure of the health care coverage in government insurance and private insurance coverage (Blumenthal et al.,2020). Reanalyzing the health care system in the United States is necessary for developing a system that increases access to quality treatment among the diverse and low socioeconomic status population to improve life quality.

Research Questions and Hypotheses

RQ 1: What is the statistical effect of Insurance Status (government insurance and no insurance) on the number of Admissions in outpatient substance use treatment in a 4-year time?

$H_0$1: There is no statistically significant relationship between Insurance Status and the Number of Admissions to outpatient patient substance use treatment.

H_a1: There is a statistically significant relationship between Insurance Status and the Number of Admissions to outpatient patient substance use treatment in a four-year time.

RQ 2: What is the effect of Insurance Status (government insurance and no insurance) on numbers of Successful Discharges in outpatient substance use treatment in a four-year time frame July 1, 2017, to June 30, 2022?

$H_0$2: There is no statistically significant relationship between Insurance Status and the Number of Successful Discharges in outpatient substance use treatment.

H_a2: There is a statistically significant relationship between Insurance Status and the Number of Successful Discharges in outpatient substance use treatment.

RQ 3: Do race and ethnicity mediate the association between Insurance Status, numbers of Admissions, and Successful Discharges in outpatient substance use treatment?

$H_0$3: There is no statistically significant mediating effect of Race and Ethnicity on the relationship between Insurance Status, numbers of Admissions, and Successful Discharges.

H_a3: There is a statistically significant mediating effect of Race and Ethnicity on Insurance Status, Numbers of Admissions, and Successful Discharges.

Theoretical Foundation

The theories of interest are the transtheoretical model of change (TMC) and the ecological model (EM). Due to the severity of substance use, a multi-disciplinary and theoretical approach is essential to examine clients' readiness to change and unmet needs, so treatment is effective by utilizing whole person approach (Creswell, & Creswell, 2018; Glanz et al., 2015). Each theory is relevant to substance use treatment because it is important to assess the needs of individuals personally and environmentally. The transtheoretical model of change incorporates assessing the readiness and motivation to change of individuals with substance use, whereas the ecological model helps provide providers to analyze environmental influences that are barriers and challenges to making changes or seeking treatment (Glanz et al., 2015). Therefore, the theories complement each other, creating a multi-theoretical approach to explain study results. Both theories are a process that gives providers guidance, knowledge, and understanding and increases the quality of life, promoting social change on a macro level (Creswell, & Creswell, 2018).

Nature of the Study

The research design is a quantitative study using secondary data to examine relationships between insurance status, admissions, discharges, and population demographics. The independent variable is Insurance Status that has two conditions: no insurance or Medi-Cal/Medicare. Private insurance was not examined due to the facility

not being equipped to bill private insurance companies. The impact of the Drug Medi-Cal Organized Delivery System was examined by analyzing secondary data including admission and discharge numbers of participants in outpatient substance use treatment between July 01,2017 to June 30, 2022.

Definitions

Disadvantage population: Is a population that lives in poverty or low income that has no income or limited income.

Drug Medi-Cal organized delivery system: Is an insurance coverage developed by California through Centers for Medicare and Medicaid Services that provides medical coverage by a wavier to pay for drug treatment.

Insurance coverage: A form of payment to pay for services rendered by treatment providers.

Substance use treatment: To help individuals who have a drug addiction problem utilizing a comprehensive approach in addressing individual issues with a multi- level intervention (NIDA, 2020).

Substance use: A disorder of the brain that influences risky behavior.

Assumptions

The assumptions of access to substance use treatment would promote motivation to change drug use behaviors by government insurance coverage, decreasing mortality and morbidity rates in individual health community health, and reducing economic distress. Secondly, insurance status for a disadvantage population would decrease mortality, morbidity, risky behavior, and environmental hazards because it close the gap

of the needs of the individual, community, and environmental issues by obtaining the help that is needed regardless of the ability to pay which promotes insurance parity. Finally, I assumed that secondary data is accurate.

Scope and Delimitations

The research study focused on government insurance and increased access to outpatient substance use treatment among a disadvantaged population between the ages of 18 and older who have a substance use disorder in San Diego. The study covers the California DMC ODS (Drug Medi-Cal Organized Delivery System) for outpatient substance use individuals seeking help during a four-year timeframe. Additionally, I aimed to examine the effectiveness of increased numbers of admission and outpatient substance use treatment and the Successful Discharges under the California DMC ODS (Drug Medi-Cal Organized Delivery System). The newly found coverage helps support a disadvantaged population struggling with addiction to access addiction treatment. Second, the study evaluated the successful number of discharges during a four-year time frame between July 1,2017 to June 30, 2022. The primary study variables are dates of admission and discharges and Insurance Status. The purpose of the study was to examine the increase of Admissions to treatment and successful completion of outpatient substance use treatment. The goal was to identify a relationship between insurance coverage in access to treatment and to gain new knowledge of the importance of insurance coverage and the contributing factors of addiction treatment access.

The research design is quantitative data using secondary data. The data focus is admission and successful completion dates. The variables include insurance coverage and

coverage and Admissions and discharge dates and discharge dates. The remaining ten variables were used in descriptive statistical analysis to examine the targeted population's characteristics and parameters. The data collection dates are July 1st, 2017, to June 30th, 2022. The focus is on outpatient substance use treatment with a drug addiction disorder.

This study did not include clients under 18 or individuals receiving residential and detoxification management treatment. This study is limited to outpatient substance use treatment. The treatment modalities of intensive outpatient and outpatient services. The following has been excluded from the data set California Penal Code1000(PC100) diversion and recovery service programs. PC 1000 diversion programs are individuals who make weekly payments of 35.00 Regardless of insurance coverage which is a separate program. The recovery services program is an aftercare program that is not treatment. At the end of treatment, it is a supportive service that provides social support (Urada et al., 2020)

Significance

Access to substance use treatment is significant in increasing the quality of life and improving community health, which can promote social change (Melamed et. al., 2020). Based on the indicator to access outpatient substance use treatment is a meaningful topic due to the gap in knowledge, research, rigorous theoretical framework, and a multidisciplinary approach in promoting social justice and social change. Substance use is a meaningful topic to investigate due to the multiple levels of adverse outcomes and pressing issues that affect all subsystems in the macro-economic system, and the

increase of mortality and morbidity rates which increase human suffering (Davies, 2020b; Hobbs &Davies, 2018; U.S. Department of Health and Human Services,2018).

Summary

Chapter 1 provides a summary of the research problem, design, purpose of the study. I provided detailed information of the problem of substance use, background, purpose of the study, theoretical framework, the significance of insurance coverage, and the research design. The goal of this study was to increase awareness and knowledge of the importance of insurance coverage and drug treatment that can potentially reduce the economic distress associated with drug addiction and its impact on individual health, community health, and economic distress. The study can promote awareness and the adoption of DMC ODS for other states and local entities that offer access to drug treatment among a disadvantaged population to reduce the economic stress at state and local levels. It has been shown that treatment costs less than the negative impact of drug addiction, and the importance of social change is to invest in a system that provides social change on a macro level (McKee, 2017).

Chapter 2: Literature Review

COVID-19 has increased challenges for public health, behavioral health, and the health care system due to the increase in drug use, suicides, and increase of criminal behavior (Chiappini et al., 2020; Dubey et al., 2020). However, there is a lack of access to treatment (Dubey et al., 2020). The implication for effective practice is to develop interventions that address the health, mental health, and social health of the population by educating and increasing access to treatment for individuals struggling with substance use and mental health disorders. The study population includes individuals with a low socioeconomic status diverse disadvantage population seeking access to treatment. The literature review includes a comprehensive study of substance abuse, homelessness, mental health, insurance coverage, research disparity, and COVID-19 that influences access to quality treatment before and during the pandemic.

Literature Review Strategies

The literature review was accessed through various databases to examine peer-reviewed articles utilizing a multidisciplinary and interdisciplinary approach to enhanced knowledge and understanding. The websites used in this study literature review were U.S National Library of Medicine National Institute of Health, *American Journal of Public Health*, U.S. Department of Health and Human Services Substance Abuse and Mental Health Services Administration, American Psychological Association, Walden University Library databases, *Journal of Behavioral Social Sciences*, Human Development, and *American Journal of Economics and Sociology*, Public Health Journals.

The following key terms were used to gather information about access to treatment for substance use, mental health issues, and homelessness issues: *access to outpatient substance use treatment*, *co-occurring addiction/mental health*, *addiction/community health*, *homelessness*, *addiction policy development*, *addiction research*, *healthcare coverage/parity*, and *recovery policies*. The article criteria for this study were articles between 2015 to 2021 except the original studies of the ecological model and the transtheoretical model of change (TTM). The initial search accumulated 85 articles; however, only 29 fit the criteria of this study. The criteria search were narrowed into six categories: access to substance use treatment policy enactment, social determinants of health and addiction, addiction research, public health innovation, addiction treatment disparities, theoretical foundation, and effective implementation and evaluation of substance use treatment.

Theoretical Foundation

Individual behavior theory and community health theory are the most powerful when combined because one theory may not be sufficient to develop an effective solution when a lack of understanding of the problem is not attained (Glanz et al., 2015). In the United States, substance use problem rates have been increasing. Understanding individual behavior is critical; however, individual understanding behavior within its environment is essential because the environment conditions human behavior (Bronfenbrenner, 1994; Glanz et al., 2015).

Ecological Model

The ecological model is important in understanding and enhanced knowledge of human behavior by examining the microsystem and macrosystem of individual behavior (Bronfenbrenner, 1994). The model suggests that human development is a condition through the interaction of individual behavior and the environment, with five levels that influence an individual behavior: microsystem, mesosystem, exosystem, macrosystem, and chronosystem. The ecological model is essential in quality and access to substance use treatment due to it provides a rigorous assessment of individual environmental factors and the development of an effective treatment strategy.

Transtheoretical Model (TTM)

Integration of theory provides a greater understanding of individual behavior in their environment and gives researchers the knowledge to effectively develop an evidenced-based solution. The transtheoretical framework of change is an integrated construction of human behavior to assess an individual's readiness to change in their environment (Prochaska & Diclemente, 1983). The framework enhances knowledge and understanding of self-change and the importance of developing an integrated model in initiating behavioral change. The framework can be used to increase comparatives analysis and other addictive behavior and examine the change process and the effectiveness and implication of evidence-based material.

Literature Related to Key Variables

Access to Substance Use Treatment

Access to substance use treatment is an ongoing issue. There is a problem with access to substance use and mental health treatment due to the scarcity of providers and the lack of acceptance of Medicaid and insurance among providers (Geisslet & Evans, 2020). Insurance coverage determining access to treatment is an issue due to lack of insurance coverage and ineffective policy development (Mulvaney-Day, et al.,2016).

New policy development is essential in increasing access to treatment among a diverse population by increasing Medicaid expansion (Andrew et al., 2019; Geisslet & Evans, 2020). Medicaid expansion increased access to substance use treatment and decreased uninsured individuals by 13.7%, reflecting 12 million people (Andrew et al., 2019). The data suggests outpatient substance use treatment provides essential information that reflects the effectiveness of the drug Medi-Cal coverage and the changes to extend coverage increase access to treatment. An important factor is policy enactment that leads to increased access by expanding eligibility among a low socioeconomic status population with Medical, which increased the numbers in admission treatment. The policy influences of Addiction Equity Act and Mental Health Parity (MHPAEA) have addressed the challenges in increasing access to treatment and Medicaid expansions, which influences substance use and mental health providers to accept Medicaid coverage.

Policy Enactment

The U.S. health care system has deficiencies influenced by policy, which brings challenges to access of substance use and mental health treatment. Research has shown

was a positive association between MHPAEA and behavioral health service and spending due to increased utilization, but the overall change was modest (Mulvaney-Day et al., 2016). A historical review of parity also included legislation beginning in 1992, The Mental Health Parity Act of 1996, The Mental Health Parity and Addiction Equity Act (MHPAEA) 2008, The Affordable Care Act (ACA) 2010, MHPAEA Final Rules 2013, and House vote to repeal the ACA, 2017 (Peterson et al., 2018). The 2010 Patient Protection and Affordable Care Act impacted parity in fundamental ways (Peterson et al., 2018). It increased the parity of group health plans to individual health plans, including state health insurance exchanges, which affected over 11 million individuals. The ACA classified MH/SUD as an essential health benefit and required coverage to prevent mental health and substance use. It required insurers to minimize delay adequately and increased Medicaid to cover low-income Americans 19-64 who were ineligible. In total, the ACA affected insurance for over 170 million Americans. But future research is needed in NQTL issues, effects of parity on severe mental illness, Medicaid coverage, and other effects on the economy. Future research is also needed to determine the impact of spending on OUD and its effect on SUD outpatient treatment.

Addiction Research

Quality research in addiction treatment is critical because it provides a rigorous assessment, increases access to treatment, and addresses the core issues, promoting an effective evidence-based solution, as Hollingsworth et al. (2017) examined the negative impact of opioid addiction on a macroeconomics basis. The authors urged that drug addiction influences economic conditions with adverse outcomes due to the increased

mortality and morbidity rates associated with drug overdose and alcohol use accidental deaths due to being under the influence while driving. The authors discussed a gap in research due to the lack and limited research and data available in substance use and insurance coverage. The authors urged that understanding the relationship between addiction and the economy is critical in developing evidence-based solutions. Whereas Lippold (2017) discussed the importance of identifying and understanding social problems utilizing a rigorous quantitative approach. The significance of understanding the risk factors of drug addiction and access to treatment by utilizing advanced methodological approaches to develop an effective program to address the unmet needs of the individual, community, and economy. The studies provide a wealth of knowledge and awareness of the importance of access to treatment and decreases economic disparities nationwide.

Social Determinants of Health and Drug Addiction

Drug addiction has been known to increase social determinants of health among a disadvantage population. Accordingly, Polcin et al. (2016) discussed concepts and research into the severe and persistent problem of homelessness. Alcohol and drug problems are either cause, consequence, or coexistent. The authors examined the existing service models aim at harm reduction or drug alcohol avoidance. Homelessness increases substance abuse, disease risk, mental illness, lawlessness, and victimization such as sexual assault. A literature search shows poor research design and suspects conclusions concerning the success of current models involving the data; methodological boundaries need improvement. The authors suggested that improving the evaluation method and

improving service to homeless people involved in the justice system is necessary; the current methodology consists of two models for homelessness, Housing First and linear. The linear approach consists of abstinence from substance use as a lifestyle goal; it is a step in obtaining permanent Housing. The author urged that Housing First is the first step; then, it becomes a personal choice to seek treatment for substance use and mental health issues, which fits people who have been homeless for many years. Housing first exhibits excellent retention rates, but substance use issues outcomes remain cloudy at best. The linear model exhibits moderate success as retention is a huge issue; the mental state of homeless individuals makes it difficult for drug-free compliance; however, this model had good outcomes when dealing with cocaine addiction. There is a need for more focused measurements and standardized assessment tools connecting substance use and mental health with services received. The research debate centers around the proper service model for homeless persons that are substance users at the same time. There are weaknesses in all models, mainly because of the complexity of measurements of the characteristics of each homeless person, and more focused inclusion and exclusion requirements would form specific categories of homelessness and cause better treatment options. Whereas Dworkin et al. (2018) examined the co-occurring association between substance use and post-traumatic stress disorder (PTSD) that influences an individual and maintaining sobriety gate to the hyperarousal symptoms. The authors provide a rigorous assessment and analyze the relationship between post-traumatic stress disorder and substance use to increase knowledge and understanding of the adverse outcomes. The authors urge that a rigorous assessment is vital to examine individual needs to provide an

interdisciplinary treatment approach to increase the effectiveness of substance use treatment, which adheres to the whole person approach. The article provides relevant information for district station due to the article provides significant information on the quality of treatment and bridges the gap in knowledge and understanding in the importance of substance use and influences of psychological disorders, which can influence the effectiveness of treatment if lack of rigorous assessment due to the deficiency in the identification of a psychological disorder within an individual.

Conversely, Priester et al. (2016) investigated treatment differences and difficulties for those with coexisting mental health and substance use disorders; there are systematic biases in treatment involving this population, and much has been written concerning this issue, but voids still exist, which tend to surface when reviewing integrated literature. The methodology consisted of five categories: problem identification, literature review, data evaluation, analysis, and presentation. Search efforts focused on studies that had been peer-reviewed and English articles published from January 1993 and January 2013 concerning treatment availability and people with COD. The data evaluation instrument used a five-point scale to examine the theoretical relevance and aims of the study: a score of 5 indicated high relevance, and a score of 1 indicated low theoretical relevance; all scores were above three and were included in the study. The results and analysis found access to treatment issues revolving around personal characteristics and structural barriers. These included personal beliefs and areas of vulnerability involving individual character, skills, knowledge, and symptoms from coexisting mental illness and SUD. It was found that adolescents, women, ethnic

minorities, veterans, low-income individuals, individuals in the criminal justice system and homeless, and individuals with mental disabilities were poorly represented in the literature while LGBTQ, seniors, and Spanish-speaking individuals were missing. Implications for future work center around examining barriers to treatment singularly in COD, mental health disorders, and SUDs only. The studies confirmed that there is a disparity in assessing the social problem of addiction and mental health utilizing a rigorous multilevel approach incorporating cultural competency and sensitivity to assessing the need of the community.

Dempsey et al. (2018) suggested that social norms create barriers and positive behavior due to misperceptions, perceived beliefs, attitudes, stigma, and bias in addiction treatment. Furthermore, the public behavior of drug addiction has created challenges due to the association with risky behavior that increased economic cost. Thus, the authors provided vital information on addiction and the influence of social norms in drug treatment. Additionally, the authors express challenging the social norms of drug treatment can increase positive behaviors and access to drug treatment by decreasing thus bias, stigma, attitudes, misconception, and belief system by utilizing a collaborative approach with the community to initiate individual and Community empowerment which increases knowledge and understanding. In comparison, Blevins et al. (2018) urged that demands for drug addiction treatment are essential due to the increase of mortality and morbidity rates which create drug addiction as a public health threat Nationwide. The authors express that drug addiction treatment is inaccessible scarcity in addiction treatment. There are shortages of drug treatment providers, which create a long waiting

list that prolongs treatment access. The supply and demand for a drug addiction treatment have challenges related to funding resources, rigorous qualification and becoming a provider, and staff shortage. The author provided vital information and confirm the current challenges and barriers that substance use treatment suffer in all treatment modalities.

Public Health Innovation and Integrated Approach

There is a disparity and need for addiction study and higher education as a major in California. Currently, addiction study is offered at a community college level. It limits education in gaining knowledge and understanding of addiction study in higher levels of education. It is essential knowledge and understanding of the addiction crisis that currently threatens public and community health. Desalvo et al.,2020 confirmed that innovation is critical in developing an effective multilevel solution. Also, Desalvo et al. (2020) urged that interconnectedness between Public Health, Behavioral Health, and Healthcare is essential in a collaborative approach utilizing interdisciplinary concepts in promoting social change. The authors suggested a strategic approach in innovation to address social determinants of health in the 21st century. The authors urged that a rigorous assessment is needed to address social problems to gain knowledge and understanding to develop an effective solution. The strengthening of the public health system is vital to address social problems by increasing adequate funding, engaging the community, and increasing collaboration between governmental entities, Community Partnerships, and nonprofit organizations. The article provides critical information for the

dissertation literature review due to the importance of access to treatment and increasing available funding to initiate social change.

Hence, Noyes et al. (2018) urged that guideline for researchers are vital in developing empirical constructs that promote analytic skills in decisions concerning complex interventions for complex variable health systems. It is known that qualitative and quantitative evidence can be compiled in a mixed-method synthesis, which clarifies the effects of complexity on interventions in each context. Mixed methods using qualitative and quantitative results can analyze the complexity of interventions and health systems that may be integrated at different stages of a review and guideline process. They examined three cases from WHO that used quantitative and qualitative methods to demonstrate mixed-methods and integrate them at different stages of the review and guideline procedure. Mixed-methods synthesis and review are the least developed of all systematic review methods; however, there are various ways to integrate quantitative and qualitative results into a review and guideline process. One way is to synthesize single reviews using a cross-study synthesis. A mixed-methods review is effective in complex interventions and needs more development in review design and synthesis, depending on the question being asked. There is a need to adapt and test decision frameworks to assist the findings of mixed-method synthesis that do not determine the statistical effect of interventions without test trials. The article provide vital information in closing the gap in addiction research.

Pincus et al. (2016), in 2006, the Institute of Medicine constructed a report full of recommendations to improve behavioral healthcare; to date, these recommendations have

not been activated, which slight improvement over the last ten years. Healthcare reform, insurance parity, and the effect of behavioral health disorders on public health have created new demands and challenges that must be addressed in the behavioral health population. Research into the current state of behavioral health must be measured, and key priorities and essential measurements determined along with critical challenges concerning behavioral Healthcare. A coordinated plan to develop behavioral healthcare measurements should be established to link all data sources, which, methodology, recovery is an essential concept in behavioral health. The authors urged the process of change that incorporates improved health and well-being and life that strives to reach its full potential in Housing and economic stability; these measure outcomes related to successful treatments. The methodology consists of structural goals of enhancing the ability of organizations to provide effective care that will achieve favorable outcomes. An analysis reveals that many reports have substantiated the high cost and quality issues associated with mental health and substance use disorders; the consequence of this disparity is significant. Several states have developed integrated care; however, little implementation has taken place at the national level. Increasing healthcare costs and payment structures have added pressure on behavioral health organizations to improve and pursue quality measurements. Opportunities exist to build an adequate portfolio of accurate, meaningful measurements to determine which treatments work for everyone.

Quality Addiction Treatment

In the United States, there is a disparity in access to substance use treatment that has contributed to increased mortality and morbidity rates. The COVID-19 pandemic has

increased awareness of the importance of substance use and mental health conditions to extreme measures and now has the United States government's attention, which promoted increased funding and research. Whereas McCormick et al. (2019) urged the importance of re-designing the substance use treatment construct to improve access to quality treatment. The authors examine substance use treatment needs and program structure implementation effectively as and the delivery of service by utilizing a theoretical foundation and practical phases and transformation of program productivity. Increasing access to treatment was the author's main goal due to lack of access to treatment that incorporated long waiting periods to enroll in the program. The authors were able to identify areas of improvement, and one major issue was access to care. The methodological design was a mixed-method design by conducting semi-structured interviews with staff and clients and administrative data to evaluate the areas need for change. The transformation of the program structure incorporated an interdisciplinary and multi-disciplinary approach to developing teams to increase access to treatment and increase staff assessment knowledge to enhance productivity. In comparison, McKee (2017) discussed the importance of risk assessment and increasing research knowledge in substance use treatment to increase quality and access to treatment and bridge the gap in substance use treatment research, and integrated approach is critical in addressing substance use and mental health systematically. The author explored current and past research of substance use and discovered that addiction is under research and has significant gaps in knowledge and identification of the core issues which influence the quality and appropriate treatment. There are numerous barriers and challenges and

discovered that the lack of a theoretical framework in addiction treatment research had reduced the program's effectiveness. The article is essential to the dissertation topic because it provides a wealth of information and the importance of rigorous assessment, research quality, and evidence-based solutions to address the social problem of addiction and the importance of creating social change. Both studies identified issues in the quality of substance use treatment by providers.

Manuel et al. (2017) expressed those rigorous assessments in transition treatment utilizing the socioeconomic model in the transitional phase in substance use treatment are vital for long-term self-sufficiency. The author's main objective was that rigorous assessment is critical in addressing all unmet needs and the success in transitioning into recovery treatment. The authors utilized the ecological model to assess and identify all levels to ensure all barriers have been addressed. The author's theoretical framework of the ecological model utilized in the research study gave guidance to identify and assess the issues in treatment and develop an evidence-based solution with positive outcomes. it provides empirical evidence and the importance of rigorous assessment, and the effectiveness of quality access to treatment. In contrast, Eddie et al. (2019) offered a systematic review of PRSS and finds that support services increase in many clinical settings to help people with substance use disorders and coexisting mental disorders in present-day society. The authors expressed that substance users carried out mentoring; they were determined to be better qualified to support those experiencing SUD. Essentially a systematic review, which characterized the existing experimental and cross-sectional PRSS research, was undertaken, and a methodical literature search was

conducted using search terms such as recovery coaching, peer recovery support, along substance use terminology. Also, a broad group of studies related to randomized controlled trials and substance use disorder were included, along with their corresponding outcomes. The results indicated positive potential concerning peer supports across different SUD treatment models, including reduced substance use, relapse rates, and increased treatment retention with satisfaction and better provider relationships; these being evaluated with a backdrop of many null findings. In conclusion, the potential of peer support groups was established involving different treatment settings; however, there is still a need to define these groups' virtue and effectiveness and convert that potential to a defined reality. The existing literature displays limitations, such as being unable to distinguish effects between peer recovery and other support activities. Boundaries for peers working in substance use disorder were cloudy, and cost benefits of PRSS compared to its effectiveness were found to be an implication for future research. The studies confirmed that implementation and design of program construct lack effectiveness in evaluating and analytical assessment.

There is a major need to address the disparities in access to substance use treatment. As a result of a recognition of disparities the Substance Abuse and Mental Health Service Administration (2016) published a comprehensive report with the Surgeon General of Facing addiction in the United States that provided an in-depth analysis of the adverse effects of addiction. Another subcategory is data analysis of substance use addiction, neurobiology, prevention programs and policies, Intervention effectiveness, recovery, health care systems integration, implication of a public health approach. The

authors discussed the neurobiology framework of addiction and the influence on the brain, and the changes of brain structure that influence human behavior. Peterson et al.,2021 confirmed the importance of enhancing knowledge and understanding of the negative impact of substance use and the threat to public health. Additionally, the authors urged the importance of prevention to reduce the burden of disease and cost of addiction. Additionally, the authors discuss the importance of the effectiveness of research, early intervention, implementation of treatment, management of substance use disorders, and rigorous assessment systems to identify problem areas to develop an evidence-based public health solution to reduce economic cost and increase access to treatment (HHSA, 2016; Peterson et al., 2021). Finally, public health approach in addressing the substance use disorder in America gives a comprehensive examination for the vision of the future and utilizing a public health approach to bring innovation and enhance research to bridge the gap of knowledge, research, and understanding (HHSA,2016). The information provided in the articles promote awareness that access to substance use treatment cost less than the negative outcome, and the importance of developing public health evidence-based solutions to reduce human suffering and increase social justice and initiate social change.

Urada et al. (2020) designed and provided research based on hypotheses that include the belief that access to treatment increases for counties opting into the DMC-ODS waiver compared to prior access and counties opting out; there should be an improvement in quality of care for counties opting into the DMC-ODS waiver compared to those opting out. Costs for Healthcare will be more equitable after the DMC-ODS

waiver for patients undergoing SUD treatments because it offsets inpatient and emergency department use. A coordinated approach to SUD treatment with physical, mental, and recovery health services will improve overall SUD outcomes, which aid approach, a mixed-methods design was used to evaluate and compare the measures in question, such as administrative data from Drug Medi-Cal claims and CalOms-Tx. The authors analyzed the data were analyzed using descriptive and multivariate analyses. Inferential statistics would yield non-meaningful results due to California's population size, yielding significance when differences were minor. Also, the sample was not random but involved data on the population of interest.

Finally, the DMC-ODS waiver project successfully improved access to treatment, quality of care, and coordination of care. It covers 95.9% of the population in California (Urada et al.,2019). However, the system still has issues involving benefits, technical assistance, training, and tools for specific categories. The system struggles with increasing opioid and stimulant overdoses and rising homelessness (HHSA,2016). Both studies provide a comprehensive insight of the problem and a proposed solution of the addiction, mental health, and homelessness multilevel issues in the United States. Access to treatment is significant in promoting social change and social justices on a macro level which increase the quality of life of individuals, communities, and increase economic health (HHSA,2016; Urada et al.,2019.

Summary

In Chapter 2, I have described the ongoing problems and negative outcomes of drug addiction, homelessness, insurance coverage and mental health, and the gaps in drug

addiction research, insurance coverage, policy enactment, and the need of multidisciplinary and interdisciplinary approach in closing the gaps of this on-going battle.

Chapter 3: Research Method

The purpose of the study was to examine if insurance status increases access to outpatient treatment. Exploring insurance coverage is essential in access to outpatient substance use treatment and decrease individual and community health suffering. The two focal points include access to treatment and the effectiveness of implementing the Drug Medi-Cal insurance by examining successful completion and the increase of Admissions to the program. Drug Medi-Cal (DMC) is a funding insurance source that pays for addiction drug treatment and recovery residence housing for individuals with no income or low income (Urada et al., 2020). Drug Medi-Cal was developed and introduced in 2015 in California received a federal waiver from the Center for Medicare and Medicare that is a sector of the Federal Department of Health and Human Services (Urada et al., 2020). In this chapter, I will describe the research design, the purpose of utilizing the design, the dataset of clients, ethical protocol, the safeguard of client personal information, data collection, and describe my role as a researcher.

Research Design and Rationale

The research followed a quantitative design with secondary data focusing on observational correlation constructs to examine if insurance coverage increases Admissions to treatment and the successful completion of treatment. The quantitative methodological design uses numerical constructs to evaluate and explore relationships and causation in social problems of addiction to increase knowledge and understanding of insurance coverage (Creswell & Creswell, 2018). Quantitative methodological design is based on positivism or postpositivist constructs that entail many assumptions (Creswell &

Creswell, 2018). It is essential in positivist concepts to explore and analyze the truth or reality, objective, and assumption (Warner,2013). A quantitative research design is based on utilizing empirical scientific methods to understand the difference and association of insurance coverage on access to outpatient substance treatment (Warner, 2013).

The purpose of the study was to evaluate the effectiveness of Drug Medi-Cal by examining successful completion of treatment and numbers of intake utilizing secondary administrative data from an anonymous treatment facility in San Diego County in the state of California. The outpatient treatment facility that was the data source asked to remain anonymous with the location confidential. Descriptive and inferential research constructs were utilized in combination to analyze population characteristics and the mean difference to analyze drug Medi-Cal effectiveness. The increase of Admissions to treatment and successful completion of treatment is also analyzed to answer the research questions:

- RQ 1: What is the statistical effect of Insurance Status (government insurance and no insurance) on the number of Admissions in outpatient substance use treatment in a 4-year time?
- RQ 2: What is the effect of Insurance Status (government insurance and no insurance) on numbers of Successful Discharges in outpatient substance use treatment in a four-year time frame July 1, 2017, to June 30, 2022?

- RQ 3: Do race and ethnicity mediate the association between Insurance Status, numbers of Admissions, and Successful Discharges in outpatient substance use treatment?

An observational research design was the quantitative design used to analyze and explore research questions. I used descriptive statistics to explore and analyze population characteristics. Inferential statistics were used to test the four hypotheses. A time-series design was utilized to examine insurance coverage and no insurance at four points in time: July 1,2017 to June 30, 2018, July 1, 2018, to June 30,2019, July 1, 2019 to June 30,2020, and July 1,2020 to June 30,2022. I used secondary data with the methodological constructs of basic observational research due to utilizing secondary data collected from the treatment facility.

Methodology

Population

The core data were secondary data with all identifiable personal information removed to protect ethical standards. Data were received once IRB approval was obtained (# 08-08-22-1004318). The population is individuals seeking substance use treatment who have criminal justice involvement and substance use disorder. The population characteristics of the dataset included individuals who have an active and ongoing drug addiction problem with negative consequences and were referred to treatment by the criminal justice system in San Diego County Superior Court, San Diego County Child Protective System, health care facilities, mental health facilities, homeless outreach programs, San Diego County Probation, California Corrections Parole

Department, Human Health Services Agency, and self-referred individuals who are seeking help that have Drug Medi-Cal or no insurance. Additionally, the treatment facility provides services to immigrants that struggle with drug addiction.

Inclusion and Exclusion Criteria

Inclusion criteria clients who have intake and discharges administrative records, are 18 years and older, and have an insurance coverage status. The exclusion criteria are under 18 years of age and those enrolled in PC1000, is a diversion program developed by the criminal justice system for individuals who have misdemeanor drug charges and have a chance to attend treatment to remove criminal charges off their background record. The organization does not accept 17 years or younger and/or are enrolled in PC 1000. The program PC1000 pays $35 a week for participation; therefore, insurance coverage is not needed because it does not accept insurance coverage for payment (California Legislative Information, n.d.).

Sampling and Sampling Procedure

Purposive sampling was used based on the targeted population that included individuals struggling with substance use addiction and their access to outpatient treatment. Purposive sampling is used to obtain a sample of people who meet some predetermined criterion (Elfil & Negida, 2017). The participants were individuals coming to seek treatment for themselves or referred by another entity such as the criminal justice system, community health providers, mental health providers, and child protective services. The subjects from this dataset are seeking or referred to outpatient treatment that

has government Medi-Cal insurance or no insurance in North County San Diego. Therefore, there is no further sampling within this dataset.

The sample size was unknown; however, the perceived sample was significant due to the program capacity level being 200 clients per month. The proposed parameter sample size was significant due to the number of individuals seeking treatment within the 4-year time frames as follows: July 1, 2017 to June 30, 2018; July 1, 2018, to June 30, 2019; July 1, 2019 to June 30, 2020; and July 1, 2020 to June 30, 2022. The alpha level was set at 0.05 for statistical significance. The desired power of the statistical test was set at 0.95 for a large population. Based on the power analysis, 287 was the minimal number of participants needed for the research to yield significant results. The main variables that were utilized are independent variable Insurance Status and dependents variables Admission Date, Discharge Date, and Completion Status. All other variables were used to examine population demographics.

Data Access and Collection

The data used for this research is a subsection of the Caloms (California's data collection and reporting system for substance use disorder (SUD) treatment services) web infrastructure, which is a data collection and reporting software that treatment facilities having a contract with behavioral health departments on county and state level use. They oversee all level of substance use treatment providers and are the funding source for treatment (Urada et al., 2019). The California Behavioral Health Department is the developer of Drug Medi-Cal Organized Delivery System (DMC ODS); the program was developed to increase access to treatment for the disadvantage population. Data obtained

from the treatment facility remained confidential, and the site was masked. A permission letter was also obtained, and the dataset and was submitted to IRB. The permission letter stated the stipulation of use of the dataset and the outpatient treatment facility requesting the results be disclosed to the facility and a copy of the dissertation once the research has been concluded.

Data Analysis Plan

SPSS V28 was used for data analysis. In this observational basic quantitative research design, I used secondary data from an anonymous drug treatment facility. I used descriptive statistics to describe the population and sample and inferential statistics utilizing regression analyses. The sampling type utilized in this research is convenience, stratified, and haphazard sampling due to the data being from individuals that were forced or self-referred into treatment. A code book was developed and was reviewed by the research committee.

The independent variable in the research is Insurance Status, which is binary (Drug Medi-Cal (DMC) or County Billable [no insurance coverage]). The mediating variable in this research is race/ethnicity. The dependent variables are (a) the number of Admissions within four time periods and (b) the number of Successful Discharges examined within four time periods.

Other variables are potential risk factors due to the challenges and barriers that subjects are exposed to in their environmental settings which can influence the admission and discharge data. However, these variables will be utilized in the parameters which describes the population characteristic, and no manipulation will be conducted, and the

study is observational purposes. These variables include admission, discharge, and confounding variables. The admission variables included

- Medi-Cal
- Date of admission
- Gender, ethnicity
- Race
- Types of disability
- Sexual orientation
- Veteran status
- Chronic life-threatening illnesses
- Risk categories
- Admission type
- Use of tobacco products
- Employment status
- Criminal status
- HIV status
- Diagnosed with tuberculosis
- Diagnosed with Hepatitis C
- Diagnosed with a sexually transmitted disease
- Diagnosed mental health disorder, and
- Graduated high school

The discharge variables were

- Date of Discharge
- Termination Reason
- Graduated High School
- Tested for HIV
- Received HIV Test Results
- Mental Health Diagnose
- Taken prescribed medication for mental health need: Yes or No

The confounding variables were

- Risk Categories
- Graduated High School
- Criminal Status
- Gender
- Employment Status
- Chronic Life-threatening Illnesses
- Mental Health Diagnose

Research Questions 1

The inferential statistics that will be utilized to run the analysis is multinomial regression due to the dependent variable has four categories and correlation analysis to compare the means of admission and Insurance Status. The potential confounding variables are risk categories, employment status, and mental health diagnosis due the influence of admission to treatment is based on the individual level of commitment to treatment and environmental commitments that requires individuals to meet their basic

needs first or not have mental capability which treatment is not an option at the time of admission into the program.

Research Question 2

The inferential statistical analysis that will be utilized to run the data is multinomial regression due to the dependent variable has four categories, and correlation analysis to compare the means of successful discharge and Insurance Status. The potential confounding variables are risk categories, employment status, mental health, criminal status, gender, chronic life-threatening illness, and mental health diagnosis. These variables influence individuals' decision-making capacity which are driven by environmental pressure and stressors that individual leave treatment prematurely.

Research Question 3

The inferential statistic test that will be utilized is multinomial regression due to the dependent variable has four categories with racial ethnicity as the mediating coefficient to examine the means differences between Insurance Status and population ethnicity and race (Hayes,2022). Parallel mediation analysis will be conducted utilizing Andrew F, Hayes PROCESS macro using model four by running matrix procedure, and to determine statistical significant mediation effect between Insurance Status, years of Admissions and successful discharges, racial ethnicity mediating effect can influence data set due to the cultural beliefs about substance use addiction treatment, which can influence participation in the treatment program that effects admission and successful discharge based on stigma created in individuals environmental cultural setting (Vaeth el. at.,2017). Therefore, mediating effects can have a statistically significant predictor of

racial ethnicity can have a significant interaction with admission and Successful Discharges which can change or influence by decreasing the number of Admissions and Successful Discharges outcome.

Threats to Validity

The utilization of secondary data has some common threats to validity that occur during the data collection process (Johnston, 2017). The data proposed for this study is to examine insurance coverage and its association with treatment effectiveness (Wickham, 2021). The administrative data has some disadvantages and poses a threat to validity. Validity is assessing operational definition and test validity refers to the degree to which the test that is being measures what it claims to measure. Test validity is also the extent to which inferences, conclusions, and decisions based on test scores are appropriate and meaningful (Wickham, 2021). The two types of variables that can lower internal validity: extraneous variables, which are any factors in the experiment but not being studied, and confounding variables, which are related to the independent variable and affect the dependent variable (Johnston,2017).

Internal Validity

The secondary data is subjective during the data collection process, and systematic errors, random errors, and instrumentation are issues in the dataset. Systematic errors in experimental observations usually come from the measuring instruments, and they may occur because of something wrong with the instrument or its data handling system or because the experimenter or human error wrongly uses the instrument (Johnston,2017).

Random error is all those unintended variabilities that are equally distributed across conditions, whereas systematic errors refer to those unintended variabilities that are more heavily concentrated in some conditions than others. Random errors in experimental measurements are caused by unknown and unpredictable changes in the experiment, and these changes may occur in the measuring instruments or the environmental conditions (Pederson et al.,2020).

Instrumentation is any change or systematic change in measuring and data collection instruments that influence the independent and dependent variables. Using two different tools measures threatens validity, which constant change in administrative paperwork creates change in the outcome due to government changes to paperwork (Johnston,2017).

External Validity

The external threats related to are subject mortality, history, reactivity. Subject mortality participant dropout potentially creates pre-existing differences. Addiction treatment has been known for higher subject mortality rates due to continuing to use substances and not being ready for treatment (Urada ,2019).

History is an event that coincides with the treatment and could have a similar effect on the dependent variable. The end of the dataset collection period was March 18, 2020, to June 30, 2022, and this was the time frame of COVID-19 which influences the data collected within this period due to restrictions to access to treatment which decreased admission intakes.

Reactivity is a potential problem when measuring behavior is reactivity, and a measure is said to be reactive if awareness of being measured changes an individual's behavior. The participants are guarded, creating social desirability, and providing intake coordinators with the wrong information.

Response set is a response according to a bias than open and honest. The response set in data collection occurs when the tendency a person responds to questions or statements in such a way that it produces a particular image of the respondent, rather than answering based on the respondent's true feelings or behaviors (Johnston,2017). Response sets may occur because a person is purposefully trying to be deceitful, or they may be unintentional. Response sets depend upon the situation and are usually temporary (Pederson et al., 2020). The common factor amongst the addiction treatment intake process is the client being deceitful and under the influence of substances, affecting the response to questions asked in the intake process.

The threats to validity are present in this dataset; however, specific variables will be used to examine the effectiveness of insurance coverage. The threat to external and internal relativity is minimal in this dataset, and safeguards have been in place of certain variables that will be examined in this research.

Ethical Procedures

The ethical safeguards that are in place are site masking to maintain the facility's confidentiality (Anderson & McNair,2018). The dataset contains information on treatment intake and discharge administrative data. Therefore, no interaction with clients is going to be initiated. All personal information will be removed before receiving the

data set. The dataset will add here to the ethical standards of the institutional review board at Walden University. Permission to use the data will be obtained in the form of a letter from the treatment facility and will provide the data on a USB drive with all personal information removed except for the variables requested

An application will be submitted to Institutional Review Board (IRB) for approval from Walden University. It will be obtained before any formal data analysis for this study. The secondary data set will be received from a non-profit organization that provides outpatient substance use treatment services, is therefore, there will be no interactions with the client due to the data being administrative. The data is not for public access use. The proper authorization from the non-profit was obtained and will wait for the Chairman's approval to submit the IRB application. The dataset will not contain any personal information. The dataset will be saved to a USB thumb drive and secured, and the researcher only has access.

Another ethical issue is limited access to treatment due to environmental vulnerabilities that influence successful treatment completion (Scott, 2017). A significant issue with intake admission paperwork is the individual conducting an intake under the influence of substances which influences the data collection.

Masking Site

Masking the facility's organization data will enable the researcher to observe negative and positive outcomes of insurance coverage without any repercussion and increase the validity and integrity of the study. Additionally, protecting the facility's identity is imperative and all identifying information will be removed from the dataset,

and no mention of the facility's name will appear at any point of the research. The facility's location will be presented with minimal disclosure of information and will be referred to as the partner site.

he researcher's role is reporting and analyses only and does not influence administrative data because the data is obtained through the intake coordinator and counselors discharge process. The role of the researcher is not influenced by the intake process and discharge process of the program. Therefore, the safeguards are in place for social desirability, bias response of cognitive priming and personal agenda, or client perceived coercion. Confidentiality is maintained by the non-profit organization and has their consents to a treatment on file and will provide dataset without personal identifiers. Therefore, confidentiality is maintained and not breached.

Summary

In Chapter 3, I explained in detail the methodology of the research. Additionally, I explained the research design, the definition of DMC ODS insurance coverage, sampling protocol, and the proposed use of statistical analysis, the ethical considerations and safeguarded to obtain data was explained in detail. All information provided in this chapter is the proposed plan.

Chapter 4: Results

The research was conducted to examine the association of DMC ODS (Drug Medi-Cal Organized Delivery System) with increased access to outpatient treatment. The study was conducted to assess whether Insurance Status increases access to outpatient treatment. The three research questions that guided this research related to the effect of Insurance Status on the number of outpatient substance use Admissions, number of successful Discharges, and whether race/ethnicity mediates the association between government insurance and no insurance. In Chapter 4, I will provide the results of this quantitative observational study utilizing secondary data. I will describe variable coding procedures and data analysis methods. Additionally, I will describe the data access and approval process.

Data Access

The data were provided by a nonprofit organization and put on a USB drive. The organization removed all personal identifying information from the data and only provided the requested information.

Data Cleaning and Missing Data

The data were cleaned by removing Recovery Services, PC1000, and Assessed but Dot Admitted data, as these variables are not part of the DMC ODS program, and because recovery service involves aftercare rather than treatment. In the original dataset, the number of admissions for treatment was $N = 3,145$, and the sample size was $N = 2,679$. The original discharge data set included $N = 3,077$ discharges, and the sample size was $N = 810$ of successful completions.

Missing data were found in successful discharges in the insurance status category. However, I was able to identify missing data through admission identification and client identification. I addressed the issue by conducting a comparative analysis examining the number of successful discharges per year. There were missing categories in the admission data set, which were sexual orientation, high school diploma, and risk category.

Multinomial logistic regression was used to analyze the relationship between outpatient substance use treatment and demographics, and chi-square was used to analyze the study sample's characteristics within insurance coverage type. Chi-square and crosstabulation were utilized to analyze the demographics of the population sample study.

Admission Dataset

In this observational quantitative time series study between July 1, 2017, to June 30, 2022, the sample size in the admission dataset was $N = 2{,}679$, but there were missing values in the original data; all individuals were enrolled in outpatient substance use treatment. The individuals fall under the federal poverty level and had DMC or no insurance, which met the criteria to enroll in the program.

Results

A chi-square and crosstabulation were used to analyze the admission demographics (see Table 1). A chi-square test was performed to examine the relationship between gender and insurance. The relation between Gender and Insurance Status was significant, X^2 (2, $N = 2679$) = 57.67, $p = < .001$; men were more likely than women to enroll in outpatient treatment. A chi-square test was also performed to examine the relationship between Ethnicity and Insurance Status. The relationship between these

variables was significant, X^2 (4, N = 2679) = 51.33, p = < .001. The findings indicated that the non-Hispanic group was more likely than the Hispanic group to enroll in outpatient treatment with insurance. Another chi-square test was performed to examine the relation between Race and Insurance Status. The relationship between race and Insurance Status was significant, X^2 (6, N = 2666) = 52.88, p = < .001. Whites were more likely than other races to enroll in outpatient treatment with insurance. Table 1 provides an overview of gender, ethnicity, and race population characteristics utilizing chi-square and crosstabulation by Insurance Status.

Table 1

Insurance Status and Admission Demographics for San Diego, California, 2017–2022

Socioeconomic Status by Gender, Ethnicity, and Race	Total n = (%) 2680 100	DMC n= (%) 1476 100	County Billable n = (%) 686 100	p-value
Gender	2162(100)			<0.001[b]
Males	1567(72.5)	1004(68.0)	563(82.1)	
Females	594 (27.5)	472 (32.0)	122 (17.8)	
Other	1 (0.1)	0 (0)	1 (0)	
Ethnicity	2679 (100)			<0.001[b]
Not Hispanic		1018 (54.4)	332 (41.0)	
Mexican /Mexican American		649(34.7)	383(47.3)	
Cuban		1 (0.1)	2 (0.2)	
Puerto Rican		24(1.3)	3 (0.4)	
Other Hispanic / Latino		178 (9.5)	84(11.0)	
Race	2671(100)			<0.001[b]
Native American		42 (2.3)	32 (4.0)	
African American		96(5.1)	26(3.2)	
White		850(45.6)	267 (33.2)	
Asian		49 (2.6)	17 (2.1)	
Pacific Islander		8 (0.4)	3 (0.4)	
Mixed Race		116(6.2)	56 (7.0)	
Other Race		705(37.8)	404 (50.2	

Note. Independent variable is Insurance Status

A chi-square test was used to test the relationship between insurance status and population characteristics (see Table 2) The relationship between Veteran Status and Insurance Status was insignificant, X^2 (1, N = 2679) = 2.37, p = .124T; thus, non-veterans were no more or less likely than veterans to have insurance. The relationship between Employment Status and Insurance Status was significant, X^2 (4, N = 2679) = 127.98, p = < .001, indicating clients who were unemployed and looking for work were more likely to have insurance. However, the relationship between In-school Status and Insurance Status was not significant, X^2 (2, N = 2677) = 5.53, p = .063. The relationship between Job Training Status and Insurance Status was also not significant, X^2 (2, N = 2677) = .394, p = .821. Finally, the relationship between Housing Status and Insurance Status was significant, X^2 (2, N = 2677) = 31.82, p < .001; clients that lived independently were more likely to have insurance.

Table 2

Insurance Status and Population External Characteristic for San Diego, California 2017–2022

Socioeconomic Status by Military, Education, Housing Status	Total n = (%)	DMC n= (%)	County Billable n = (%)	p-value
Veteran Status	2679(100)			.124
Yes		312(16.7)	84(10.4)	
No		599 (30.4)	299 (37.0)	
Employment Status	2679(100)			<0.001[b]
Employed Fulltime		552(29.5)	423(52.3)	
Employed Parttime		241 (12.9)	80 (9.9)	
Unemployed Looking for Work		696(37.2)	202(25)	
Unemployed Not Looking for work		315(16.8)	89 (11)	
Not in the Labor Force		66(3.5)	15(1.9)	
In School	2677(100)			.063
Yes		137(7.3)	41(5.1)	
No		1731 (92.6)	768(94.9)	
Job Training	2677(100)			.821

Yes		41(2.2)	17(2.1)	
No		1828 (97.8)	791 (97.8)	
Housing Status	2679(100)			<0.001[b]
Homeless		277(14.8)	58(7.2)	
Dependent Living		355 (19)	150 (18.5)	
Independent Living		1238(66.2)	601(74.3)	

Note. Independent variable is Insurance Status

I used a crosstabulation and chi-square to analyze the relationship between substance use characteristics and insurance status (see Table 3). The relationship between the client's drug of choice and insurance variables was significant, X^2 (10, N = 2679) = 43.96, p = < .001; thus, revealed the top three substances most widely used were methamphetamines, alcohol, and opioid, and the majority of users had insurance. . The relationship between Tobacco Status and Insurance Status was significant, X^2 (2, N = 2679) = 9.78, p = .008; clients that used tobacco were more likely to have insurance. The relationship between Intravenous Drug User Status and Insurance Status was significant, X^2 (1, N = 2679) = 37.54, p = <.001; clients who are intravenous users were more likely to have insurance. Finally, the relationship between Legal Status and Insurance Status was also significant, X^2 (1, N = 2677) = 16.08, p = <.001; thus, clients that were under criminal justice supervision were more likely to have insurance.

Table 3

Comparison of Insurance Status and Drug of Choice for San Diego, California, 2017–2022

Substances Category Tobacco Use, Legal and IV User Status	Total n = (%)	DMC n= (%)	County Billable n = (%)	p-value
Drug of Choice	2679(100)			<0.001[b]
Opioid		312(16.7)	84(10.4)	
Alcohol		599 (30.4)	299 (37.0)	
Other Sedatives or Hypnotic		12(0.6)	0(0.0)	

Methamphetamine		725(38.8)	281(34.7)	
Other Amphetamines		3 (0.2)	0 (0.0)	
Cocaine/Crack		38(2.0)	18(2.2)	
Marijuana/ Hashish		195(10.4)	122 (15.1)	
Hallucinogen		2(0.1)	0(0.0)	
Non- Prescription Methadone		5(0.3)	3(0.4)	
Ecstasy 20 – Other Club Drugs		1(0.1)	0(0.0)	
Other		8 (0.4)	2 (0.2)	
Tobacco User Status	2673(100)			.008
Yes		1322(70.8%)	524(64.9)	
No		543 (29%)	283 (35.1%)	
Intravenous User	2678(100)			<0.001[b]
Yes				
No		41 (2.2)	17 (2.1)	
Legal Status	2677(100)			<0.001[b]
No Criminal Involvement		599(32.1)	197(24.4)	
Criminal Involvement		1269(67.9)	612(75.6)	

Note. Independent variable is Insurance Status

Table 4 shows the results of chi-square tests of association between several medical conditions and mental health status by insurance status. The relationship between Mental Health Status and Insurance status was significant, X^2 (1, N = 2679) = 142.50, p = < .001; thus, clients who reported not having mental health conditions were more likely to have insurance. The relationship between Suicide Ideation Status and Insurance Status was significant, X^2 (1, N = 2679) = 26.16, p = <.001; thus, clients that did not report suicide ideation were more likely to have insurance. The relationship between Taking Mental Health Medications Insurance Status was significant, X^2 (1, N = 2679) = 8194, p = < .001; thus, clients that did not take medication for a mental health condition were more likely to have insurance. The relationship between Hepatitis C Status and Insurance Status was significant, X^2 (1, N = 2679) =38.51, p = .004. Clients with no Hepatitis C were more likely than clients with Hepatitis C to have insurance. The relationship between HIV Test and Insurance Status was significant, X^2 (1, N =2678) =

62.52 p = < .001. Clients who reported receiving their results were more likely than clients who did not receive their results have insurance. Finally, the relationship between Sexually Transmitted Disease Status and Insurance Status was not significant, X^2 (1, N = 2679) = 7.26, p = .007. Clients with no STDs were more likely than clients with STDs to have insurance. The only relationship that was not statistically significant was that between Tuberculosis Status and Insurance Status.

Table 4

Insurance Status, Admissions Numbers and Medical and Mental Health Characteristic for San Diego, California 2017–2022

Medical and Mental Health Status	Total n = (%)	DMC n= (%)	County Billable n = (%)	p-value
Mental Health Diagnosis	2673(100)			<0.001[b]
Yes		789(42.3)	148(18.3)	
No		1076(57.7)	660(81.7)	
Suicide Ideation	2679(100)			<0.001[b]
Yes		250(13.4)	53(2.0)	
No		1620 (86.6)	756(93.4)	
Taking Mental Health Medication	2679(100)			<0.001[b]
Yes		516 (27.6)	94(11.6)	
No		1354(72.4)	715(88.4)	
Sexual Transmitted Disease	2679(100)			<0.004[b]
Yes		106(5.7)	26(3.2)	
No		1764 (94.3)	783 (96.8)	
Tuberculosis	2679			.319
Yes		59(3.2)	22(2.7)	
No		1811(96.8)	787 (96.8)	
Hepatitis C	2679(100)			<0.002[b]
Yes		191(10.2)	54(6.7)	
No		1679 (89.8)	755 (93.3)	
HIV Status	2676(100)			<0.004[b]
Yes		78(4.2)	71(2.1)	
No		1790(95.8)	791(97.9)	
HIV Test	2678(100)			<0.001[b]
Yes		1406(75.2)	486(60.1)	
No		463(24.8)	323(39.9)	
Received HIV Test Result	2678(100)			<0.001[b]
Yes		1353(72.4)	459(56.7)	
No		516(27.6)	350(43.3)	

Note. Independent variable is Insurance Status

A chi-square test was performed to examine the relation between disability and Insurance Status. The relationship between disability and Insurance Status was significant, X^2 (19, N = 2679) = 39.22, p = .004. Clients with no disability were more likely than clients with a disability to enroll into outpatient substance treatment to have insurance. See Table 5 for details by disability type.

Table 5

Insurance Status, Admissions and Disability List Characteristic for San Diego, California 2017–2022

Physical and Mental Disability Status	Total n = (%)	DMC n= (%)	County Billable n = (%)	p-value
Disability List	2679(100)			<0.004[b]
None		1602(85.7)	750(92.7)	
Mental		98 (5.2)	17 (2.1)	
Mobility		49(2.6)	10(1.2)	
Hearing		4(0.2)	4(0.5)	
Speech		0 (0.0)	1 (0.1)	
Decline to State		1(0.1)	0(0.0)	
Visual		66(3.5)	14 (1.7)	
Other Disability (not AOD)		14(0.7)	2(0.2)	
Developmentally Disabled/Mental		1(0.1)	0(0.0)	
Mental/Mobility/Visual		1(0.1)	0(0.0)	
Other Disability (not AOD)/Visual		1 (0.1)	0 (0.0)	
Hearing/Mobility		1(0.1)	0(0.0)	
Mental/Mobility		1 (0.1)	0(0.0)	
Hearing/Mobility/Visual		1(0.1)	0(0.0)	
Hearing/Mental/Visual		1 (0.1)	1(0.1)	
Hearing /Visual		5 (0.3)	1 (0.1)	
Developmentally Disabled		1(0.1)	1(0.1)	
Mental/Other Disability (not AOD)		1(0.1)	1(0.1)	
Mental/Other Disability (not AOD)		1(0.1)	0(0)	

Note. Independent variable is Insurance Status

Table 6 presents the results of tests of association between years of treatment before and after Drug Medi-Cal implementation and insurance status. Of the clients who enrolled in treatment before Drug Medi-Cal, 292 individuals (15. 6%) had insurance, and

205 individuals (25.3%) had no insurance. Of the Admissions in the first year of Drug Medi-Cal implementation, 424 individuals (22.7%) had insurance, and 182 individuals (22.5%) had no insurance. After two years, there were 393 individuals (21.0%) who had insurance and 182 individuals (22%) who did not. After three years, 372 individuals (19.9%) had insurance and 136 individuals (16.8%) had no insurance. After four years of DMC, 390 individuals (20.9%) had insurance, and 121 individuals (15.0%) had no insurance. The relationship between the number of Admissions to treatment before and after Drug Medi-Cal fiscal years and Insurance Status was significant, X^2 (1, N = 2679) = 23.02, p = < .001. Clients with insurance are more likely to have enroll into outpatient substance use treatment.

Table 6

Insurance Status and Admissions Per Year in Admission to Outpatient Treatment for San Diego, California 2017–2022

Numbers of Admissions Per Years	Total n = (%)	DMC n= (%)	County Billable n = (%)	p-value
Years Of Admission	2679(100)			<0.001[b]
Before DMC		292(15.6)	165(20.4)	
First Year of DMC		424(22.7)	205(25.3)	
Second Year of DMC		392(21.0)	182(22.5)	
Third Year of DMC		372(19.9)	136(16.8)	
Fourth Year of DMC		390 (20.9)	121(15.0)	

Note. Independent Variable is Insurance Status

Successful Discharge

There were 810 clients who completed outpatient substance use treatment between July 1, 2017 and June 30, 2022. Table 7 provides detailed information on the results. The relationship between gender and insurance was insignificant, X^2 (1, N = 810) = .822, p = .348. The relationship between ethnicity and insurance was insignificant, X^2

(1, N = 810) = 2.018, p = .569. The relation between race and insurance coverage was insignificant, X^2 (1, N = 810) = 7.085, p = .313.

Table 7

Insurance Status and Successful Discharge Demographics Characteristic for San Diego, California 2017–2022

Successful Discharges Socioeconomic Status by Gender, Ethnicity, and Race	Total n = (%) 810 100	DMC n= (%) 556 100	County Billable n = (%) 254 100	p-value
Gender	810(100)			.348
Males		395(71.2)	189(74.4)	
Females		160 (28.8)	65 (25.6)	
Other		0 (0)	1 (0)	
Ethnicity	810 (100)			.569
Not Hispanic		260 (46.8)	124 (48.8)	
Mexican /Mexican American		247(44.4)	109(42.9)	
Puerto Rican		8 (1.4)	1 (0.4)	
Other Hispanic / Latino		41(7.4)	20 (7.9)	
Race	810(100)			.313
Native American		13 (2.3)	3 (1.2)	
African American		21(3.8)	10(2.6)	
White		232(45.6)	109 (41.7)	
Asian		4 (0.7)	2 (0.8)	
Pacific Islander		1(0.2)	3 (1.2)	
Mixed Race		285(51.3)	126 (49.6)	
Other Race		0(0)	1 (0.4)	

Note. Independent variable is Insurance Status

As shown in Table 8, chi-square and crosstabulation were utilized to analyze the external environmental characteristics in successful discharges. There were 810 clients who completed outpatient substance use treatment between July 1, 2017, and June 30, 2022. The relationship between the client's veteran status and insurance coverage was insignificant, X^2 (1, N = 805) = .010, p = .922. The relationship between employment status and insurance coverage was insignificant, X^2 (5, N = 790) = 2.807, p = .730. The relation between the clients enrolled in school status and insurance coverage was not

significant, X^2 (2, N = 782) = .535, p = .765. The relationship between clients enrolled in job training, and insurance coverage was insignificant, X^2 (2, N = 782) = .834, p = .659. The relationship between housing status and insurance coverage was insignificant, X^2 (3, N = 726) = 3.260, p = .353.

Table 8

Insurance Status, Successful Discharges and Population External Characteristic for San Diego, California 2017–2022

Successful Discharges Socioeconomic Status by Military, Education, Housing Status	Total n = (%)	DMC n= (%)	County Billable n = (%)	p-value
Veteran Status	805(100)			.922
Yes		312(16.7)	84(10.4)	
No		599 (30.4)	299 (37.0)	
Employment Status	790(87.03)			.730
Employed Fulltime		305(56.3)	144(58.1)	
Employed Parttime		83 (15.3)	35 (14.1)	
Unemployed Looking for Work		78(14.4)	42(16.9)	
Unemployed Not Looking for work		59(10.9)	20 (8.1)	
Not in the Labor Force		16(3.0)	7(2.8)	
In School	782(95.54)			.756
Yes		56(10.4)	24(9.8)	
No		480 (89.4)	221(90.2)	
Job Training	782(95.54)			.569
Yes		44(8.2)	17(6.9)	
No		492 (91.6)	228 (93.1)	
Housing Status	726(89.62)			.353
Homeless		12(2.4)	5(2.3)	
Dependent Living		73 (14.5)	26(11.7)	
Independent Living		419(83.1)	190(85.6)	

Note. Independent variable is Insurance Status

As shown in Table 9, chi-square and crosstabulation were utilized to analyze the relationship between mental health variables and HIV testing status and successful discharges. While there were 810 successful discharges, some of the sample sizes do not add to 810 due to missing data. The relationship between the client's veteran status and insurance coverage was insignificant, X^2 (2, N = 702) = 1.052, p = .591. The relation

between psychiatric medication status and insurance coverage was insignificant, X^2 (2, N = 702) = .881, p = .644. The relationship between HIV Test status and insurance coverage was insignificant, X^2 (2, N = 703) = 1.934, p = .380. The relation between HIV test received, and insurance coverage was not significant, X^2 (2, N = 703) = .382, p = .826.

Table 9

Insurance Status, Successful Discharges, Mental Health Variables, and HIV Testing Status Characteristic for San Diego, California 2017–2022

Successful Discharges Mental and Medical Status	Total n = (%)	DMC n= (%)	County Billable n = (%)	p-value
Mental Health Diagnosis	702(84.16)			.591
Yes		155(31.7)	74(34.7)	
No		326(66.7)	137(64.13)	
Missing		8(1.6)	2(0.9)	
Taking Mental Health Medication	702(84.16)			.644
Yes		115 (23.5)	57(26.8)	
No		371(75.9)	155(72.8)	
Missing Value		3(0.6)	1(0.5)	
HIV Test	703(86.8)			.380
Yes		385(78.7)	159(74.3)	
No		94(19.2)	51(23.9)	
Missing Value		10(2.0)	4(1.9)	
Received HIV Test Result	703(86.8)			.826
Yes		366(74.8)	156(23.1)	
No		113(23.1)	54(25.2)	
Missing Value		10(2.0)	4(1.9)	

Note. Independent variable is Insurance Status

As shown in Table 10, chi-square and crosstabulation were utilized to analyze the relationship between fiscal years before Drug Medi-Cal, the four years of implementation of Drug Medi-Cal, and the numbers of successful discharges within five years. There were 810 individuals who successfully completed outpatient substance use treatment. There was not a statistically significant relationship between Insurance Status and Year of Successful Discharge, X^2 (4, N = 810) = 8.976, p = .062.

Table 10

Insurance Status and Successful Discharge Per Years for San Diego, California 2017–2022

Successful Discharges Per Year	Total n = (%)	DMC n= (%)	County Billable n = (%)	p-value
Year Of Successful Discharge	810(100)			.062
Before DMC		109(19.6)	40(15.7)	
First Year of DMC		129(23.2)	53(20.9)	
Second Year of DMC		112(20.1)	75(29.5)	
Third Year of DMC		120(21.6)	50(19.7)	
Fourth Year of DMC		86 (15.5)	36(14.2)	

Note. Independent variable is Insurance Status

Research Question 1

RQ 1: What is the statistical effect of Insurance Status (government insurance and no insurance) on the number of Admissions in outpatient substance use treatment in a 4-year time?

As shown in Table 11, a multinomial logistic regression analysis was conducted to investigate the effect of Insurance Status (government insurance and no insurance) on the number of outpatient substance use treatment Admissions between July 1, 2017, and June 30, 2022. The predictor variable, Insurance Status was tested a priori to verify there was no violation of the assumptions of the linearity of the logit. Insurance Status contributed to the model. The multinomial logistic regression final model was statistically significant, $X^2(4) = 23.304$, $p < .001$, $R^2 = 0.009$, indicating that Insurance Status explained 0.9% of the variance in Admissions to outpatient substance use treatment. Drug Medi-Cal increased the number of Admissions to treatment; thus, Insurance Status has a positive impact on accessing treatment, but there is a decrease in admissions due to COVID-19, which created a stay-at-home order on March 18,2020 and was a barrier to

access treatment. The null hypotheses have been rejected, and alternative hypotheses have been accepted.

Table 11

Multinomial Regression for Insurance Status of Admission to Outpatient Substance Use Treatment for San Diego, California 2017–2022

Admissions to Treatment	B	SE	Wald	df	Sig	Exp(B)	%CI
Frist Year of DMC	-156	.129	1.454	1	.228	856	[.664, 1.102]
Second Year of DMC	-196	.132	2.201	1	.138	822	[.634, 1.065]
Third Year of DMC	-435	.140	9.710	1	.002	647	[.492, .851]
Fourth Year of DMC	-600	.143	17.695	1	<.001	549	[.415, .726]

Note. Variable(s) entered on step 1: Insurance Status, Dates of Admission
Reference Category: Before Drug Medi-Cal

Research Question 2

RQ 2: What is the effect of Insurance Status (government insurance and no insurance) on numbers of Successful Discharges in outpatient substance use treatment in a four-year time frame July 1, 2017, to June 30, 2022?

A multinomial logistic regression analysis was conducted to investigate the effect of Insurance Status (government insurance and no insurance) on Successful Discharges in outpatient substance use treatment during the four years of DMC. The predictor variable, Insurance Status, was tested a priori to verify there was no violation of the assumptions of the linearity of the logit. The multinomial logistic regression final model was statistically insignificant, $X^2(4) = 8.74$, p = .068, $R^2 = .011$. The null hypothesis was accepted and alternative hypothesis rejected.

Table 12

Multinomial Regression of Insurance Status and Successful Discharges in Outpatient Substance Use Treatment for San Diego, California 2017–2022

Successful Discharges	B	SE	df	Sig	Exp(B)	%CI
Frist Year of DMC	-.156	.129	1	.647	1.120	[.691, 1.815]
Second Year of DMC	-.196	.132	1	.011	1.825	[1.146, 2.907]
Third Year of DMC	-.435	.140	1	.611	1.135	[.696, 1.853]
Fourth Year of DMC	-.600	.143	1	.627	1.141	[.670, 1.941]

Note. Variable(s) entered on step 1: Insurance Status Successful Discharge, Treatment Modality.
Reference Category: Before Drug Medi-Cal

Research Question 3

RQ 3: Do race and ethnicity mediate the association between Insurance Status, numbers of Admissions, and Successful Discharges in outpatient substance use treatment?

Admissions

A multinomial logistic regression with covariates analysis was conducted to investigate the research question. The predictor variable, Insurance Status, was tested a priori to verify there was no violation of the assumptions of the linearity of the logit. The predictor variable, Insurance Status, in the multinomial logistic regression analysis was found to contribute to the model. The multinomial logistic regression final model was statistically significant, $X^2(12) = 84.703$, p = < .001, $R^2 = .033$ for admission. Insurance Status explained 3.3% of the variance in Admissions to outpatient substance use treatment; thus, Insurance Status, Race, and Ethnicity has influenced the numbers of

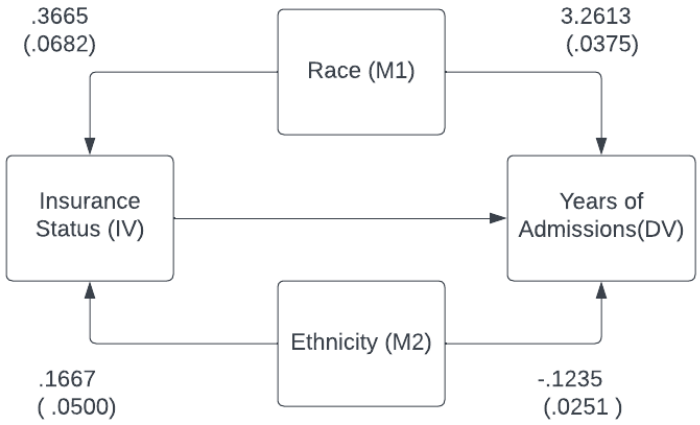
Admissions to outpatient substance use treatment The null hypothesis was rejected, and the alternative hypothesis was accepted.

Parallel Mediation Analysis of Admissions Years

To investigate whether race and ethnicity mediate the association between Insurance Status and the numbers of Admissions during the 4 years following DMC implementation, a parallel mediation analysis was performed using the PROCESS macro in SPSS model 4 (Hayes, 2022). The outcome variable for analysis was Admission Fiscal Year, and the predictor variable of the analysis was Insurance Status. The mediators were Race and Ethnicity. This parallel analysis was conducted to examine the effects of Insurance Status on numbers of Admissions as mediated by race and ethnicity. In Figure 1, the paths are shown with coefficients. The outcome variable for analysis was number of Admissions. The variables for the analysis were Race and Ethnicity. Table 13 presents the indirect effects, 95% confidence intervals, p-values, and standard errors. The results showed that race and ethnicity positively predict Insurance Status and number of Admissions per year. The total effect of Insurance Status on admission was found to be statistically significant, Effect= .0284, 95% C.I. (.0099, .0494) .

Figure 1

Parallel Mediation Analysis and Admission Per Years



Note: The parallel mediation analysis shows association between Insurance

Status, Race, Ethnicity, and Number of Admissions per Year.

Table 13

Mediation Analysis of the Relationship of Insurance Status, Admissions Year, Race, and Ethnicity in Outpatient Substance Use Treatment, San Diego County, California, 2017-2022.

Indirect Effects of X on Y	*Effect*	BootSE	95% CI	
			BootLLCI	*BootULCI*
Total	.0284	*.0102*	*.0094*	.0488
Race	-.0206	.0073	-.0360	-.0076
Ethnicity	.0490	.0113	.0281	.0725

Note. Number of clients = 2666. Variables: Y Admin, X Medi-Cal, M1: Ethnicity, and M2: Race

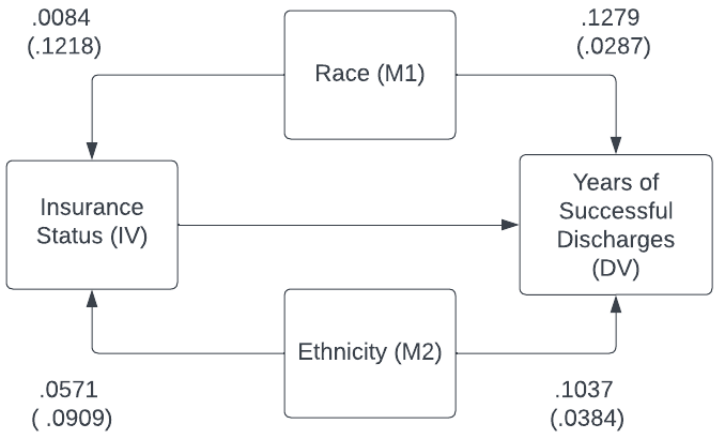
Parallel Mediation Analysis of Successful Discharges

To Investigate research question three a parallel mediation analysis was performed using the PROCESS macro to examine whether Race and Ethnicity mediate the association between Insurance Status and Number of Successful Discharges per year The variable for the analysis was race as mediator one and ethnicity as mediator two. This parallel analysis was conducted to examine the total effects of Insurance Status on increasing numbers of Successful Discharges as mediated by race and ethnicity. In figure 2, the paths are shown as coefficients.

Table 14 presents the indirect effects, 95% confidence interval, p-value and standard error and Insurance Status of admission years was found to be statistically insignificant. Successful Discharges [Effect = .0044, 95% C.I. (-.0309, .0408). It was hypothesized that race and ethnicity would have mediating effects on Insurance Status and successful discharges, and the relationship was analyzed by the total effects, indirect effects, p-value, and regression coefficients; the results revealed that race and ethnicity significantly mediate the relationship and Insurance Status. The null hypothesis was accepted, and the alternative hypothesis was rejected.

Figure 2

Parallel Mediation Analysis and Successful Discharges Per Year



Note: The parallel mediation analysis shows association between Insurance Status, race, ethnicity, and Successful Discharges per year.

Table 14

*Parallel Mediation analysis the relationship of Insurance Status, Successful Discharges, Race and Ethnicity in Outpatient Substance Use Treatment, San Diego County, California, 2017-2022***.**

Indirect Effects of X on Y	*Effect*	BootSE	95% CI	
			BootLLCI	*BootULCI*
Total	.0070	*.0185*	-.0297	.0449
Race	.0059	.0099	-.0120	.0276
Ethnicity	.0011	.0156	-.0298	.0327

Note. Number of clients = 810, Model: 4 Y: SD, X: Medi-Cal, M: Race, and M2: Ethnicity

Summary

In Chapter 4, I provided detailed information on coding data, recorded variables, missing variables, cleaning data, data mining, population sample size, population characteristics, and insurance coverage characteristics by years of admission and discharges, and conducted data analysis on research questions and reported the results of the study. I investigated insurance coverage, admission, and Successful Discharges of outpatient treatment. Additionally, I examine the mediation effects of Race and Ethnicity on the relationship between insurance status and admissions and discharge years after DMC implementation. In Chapter 5, I discuss the findings, limitations of the study, recommendations, implications, and conclusions.

Chapter 5: Discussion, Conclusions, and Recommendations

This study confirms that insurance coverage is important evidence by the peer reviewed articles and the results of this study that drug and alcohol addiction, homelessness, and mental health disorder is a complex issues, and closing the gaps by building a bridge to gains new knowledge in research, behavioral health and public health and to reduce social determinants of health. Furthermore, increasing understanding and of a disadvantage population is essential in developing solutions that promotes reduces human suffering. The theoretical frameworks of Transtheoretical Model of Change (TTM) and Bronfenbrenner Ecological confirmed that motivation, readiness to change and an individual's environment has an influence on outcomes of treatment evidence by the numerous demographic variables in this study. This study focused on insurance coverage Drug Medi-Cal (DMC ODS) compared to clients with no insurance among a disadvantaged population by analyzing numbers of admission and Successful Discharges in outpatient substance use treatment between July 1, 2017, to June 30, 2022. The dataset was complex due to the number of variables in research, and the sample consisted of 2,679 Admissions, 810 successful discharges, and missing values. Therefore, Admissions to treatment and Successful Discharges were examined separately. Additionally, the original statistical test was a binary logistic regression. However, multinational logistic regression was utilized due to the dependent variable having five levels based on the fiscal year. A correlation analysis was utilized to examine successful discharges, numbers of admission, and insurance coverage. Finally, a chi-square and cross-tabulation were utilized to gain a deeper understanding of the relationship between

Insurance Status and population characteristics. The frequencies and percentages were based on within Insurance Status category. The population in this study was diverse and showed a significant positive correlation between increased access to outpatient treatment based on insurance coverage. An essential factor is that this study was the COVID pandemic, which influenced the dataset due to the stay-at-home order starting March 18, 2020, which was a significant challenge to access outpatient substance use treatment.

Interpretation of Findings

The population sample included many clients who were sent to treatment by the criminal justice system by either being on probation or parole. However, there was a trend of individuals seeking treatment who were not a part of the criminal justice system. There were 1283 males and 587 females who had insurance. However, a total of 141 females and 667 males did not have insurance. In the successful discharges, 160 females and 396 males had insurance; however, 65 females and 189 had no insurance. An essential factor is examining the criteria for qualification of insurance coverage.

Race and Ethnicity

The population sample ethnicity was diverse, with a total of 1,350 not Hispanic and 1,329 of Hispanic origin. A total of 1,870 individuals had insurance compared to 809 who did not have insurance in the admission dataset. When examining the population sample race, 850 participants were White with insurance which is the highest, and all race categories, which confirms that there is a disparity between individuals from different races having access to treatment due to insurance coverage.

In the successful discharge dataset, 810 individuals completed treatment, 341 were whites, and 411 were mixed races. Of those insured individuals, 232 were White, and 285 were mixed race. The analysis confirmed that insurance coverage has a positive impact. However, 254 individuals did not have insurance. Further investigation is needed to analyze barriers to individuals not having insurance.

Criminal Justice System

The sample under the criminal justice system was more likely to enroll in outpatient treatment than clients with no criminal involvement. Of those referred to treatment by the criminal justice system, 1,269 participants had insurance. The research confirms that those with a criminal background are referred to treatment for crimes that occurred while under the influence, and therefore they are mandated to treatment and are required to provide proof of completion to the referring agency.

Drug of Choice

In the admission dataset, the drugs of choice in the population sample were 725 individuals who were methamphetamines users, 569 alcohol use, and 312 opioid users. These were the top three drugs of choice, with cannabis being in fourth place, with 195 clients smoking cannabis. In the successful discharge dataset, methamphetamines were the most used, with 193 clients, 181 alcohol use, and 65 opioid use.

Mental Health and Physical Health

Mental health has been deemed a contributing factor to addiction use. In the admission dataset, 35% of the population reported having a mental health diagnosis. However, only 22.8% reported taking medication. Additionally, 11.3% of individuals

reported having suicidal ideation. Undiagnosed and untreated mental health has been a significant addiction and homelessness issue.

The medical and physical health of the population sample revealed that 9.1% percent of the individuals had Hepatitis C, 3.6 % were HIV positive, 13% were intravenous users, 69.1% smoke tobacco, and 3% were treated for tuberculosis. Additionally, 70.6% of clients were HIV tested, and 67.7% received the results. The results revealed that physical health contributes to adverse outcomes of addiction use.

Environmental Factors

In the population housing status category,12.5% were homeless, 18.9% were dependent, and 68.6% were independent. There were 36.4% of clients who had full-time employment, 12% had part-time employment, 33.5% of unemployed clients, 15.1% were not looking for work, and 3.0% not in the labor force. There was a total of 6.6% of clients in school while in treatment, and 93.3% were not in school.

Insurance Coverage

The heart of this research was to examine Insurance Status and the increase of access to treatment by examining the numbers of admission and successful discharges. There was a positive relationship between Drug Medi-Cal and admission to treatment and successful discharges. Before the implementation of DMC (Drug Medi-Cal), there were 457 individuals, of whom 292 had insurance and 165 did not have insurance. In the first year of DMC, 629 individuals were admitted to the treatment, and 424 had DMC. In the second year of DMC, 574 were admitted to treatment 392 had DMC. In the third year of DMC, 508 were admitted to treatment, and 372 had DMC. In the fourth year of DMC,

511 individuals were admitted to treatment 390 had insurance. However, the numbers could have been more significant, but due to the COVID-19 pandemic, which occurred in the second year of DMC, created a significant barrier and challenges in access to treatment worldwide (Lin et al.,2022).

The Successful Discharges also show a positive increase with insurance. Before Drug Medi-Cal was implemented, there was a total of 149 individuals that completed treatment. In the first year of Drug Medi-Cal, there was a total of 182 successful discharges, of which 129 had insurance. In the second year of Drug Medi-Cal, 187 Successful Discharges and 112 had insurance. In the third year of Drug Medi-Cal, 170 had successful discharges, and 120 had insurance. In the fourth year of Drug Medi-Cal, a total of 122 completed discharge, 86 of whom had insurance. A significant factor in these numbers was the impact of the pandemic.

Limitations of Study

A limitation of the study was missing variables and values of the original dataset. There were mistakes in the collection of the original dataset that limited variables and had missing values, which caused challenges in research (Wickham, 2019). Second, dates in the original dataset dates were locked; therefore, I had to compute a new variable and use the range date syntax to create dates ranges from July 1, 2017, to June 30, 2018, July 1, 2018, to June 30, 2019, July 1, 2019, to June 30, 2020, July 1, 2020, to June 30, 2021, and July 1, 2021, to June 30, 2022. The date range is based on the fiscal year, which made the dependent variable have five levels. Therefore binary logistic regression was not utilized; however, multinominal regression was used in the study due to having more

than two levels in the dependent variable, which was the proper statistical test to utilize for this study (Liang & Zhan, 2020).

Recommendations

Addiction, homelessness, and mental health has increased mortality and morbidity rates worldwide (Lin et al., 2022). Further research is needed on insurance coverage for addiction, homelessness, and mental health combined because they are associated factors of social determinants of health. The new claims have taken the place of the Drug Medical Organized Delivery System on July 1, 2022, a public health model, and research on the effectiveness of this insurance coverage is suggested. Second, a suggestion for research would be on provider implementation of the system within their organization. Finally, community based participatory research (CBPR) is suggested due to it brings the community together with providers and develops an alliance, promotes community empowerment, community engagement, and increases knowledge and understanding of the communities needs and barriers, and develops an evidence-based solution with the community's help to develop an effective program building an alliance.

Implications

Insurance coverage can be a life-or-death aspect of an individual’s life, which impacts community health and environmental health on a micro and macro level (Lin et al.,2022; Ornell et al., 2020). Before drug medical organized delivery system, substance use treatment was private insurance or individuals in the wealthy class due to having the ability to pay for treatment. However, this research provided evidence that the implementation of the Drug Medi-Cal Organized Delivery System had a positive

outcome even in the time of the COVID 19 pandemic (Lin et al.,2022; Ornell et al., 2020). Policy implications on a federal level would create social change and have a positive outcome in reducing social determinants of health, which reduces human suffering and promotes social change due to bridging the gap of access to treatment by providing equitable health care coverage among a disadvantaged population (Woolhandler & Himmelstein, 2017; Yabroff et al , 2020). The Drug Medi-Cal Organized Delivery System has been replaced with claims as of July 1, 2022, which has a collaborative approach and utilizes a multidisciplinary approach with a rigorous assessment of an individual life.

Conclusion

In this study, I analyzed the effectiveness of the drug medical organized delivery system by examining the increased numbers of Admissions to treatment and Successful Discharges by utilizing secondary data. There was a positive association between Insurance Status and having access to quality treatment. In the admission to treatment, more White individuals enrolled in treatment than minorities; however, in the successful discharges, there were more minorities completing treatment compared to Whites. Addiction, homelessness, and mental health are considered a public health threat, and increasing access to treatment would need to increase insurance coverage among a diverse population that struggles with social determinants of health (Mulvaney -Day et al.,2019; Priester et al.,2016). Increasing access to insurance coverage is urgent to reduce mortality and morbidity rates (Woolhandler & Himmelstein, 2017; Yabroff et al, 2020). Promoting social change is critical in addressing the issues of addiction, homelessness,

and mental health in policy development and implementation on a federal level. The results of this research show that insurance coverage among a disadvantaged population is a life-saving component that promotes social change because it increases access to treatment which increases individual, community, and environmental quality of life health.

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