2021

Impact of Social Barrier Removal on Primary Care Use by Managed Care Enrollees

Pamme Lyons-Taylor
Walden University

Walden University

College of Health Professions

This is to certify that the doctoral dissertation by

Pamela A. Lyons-Taylor

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Simone Salandy, Committee Chairperson, Public Health Faculty
Dr. Vasileios Margaritis, Committee Member, Public Health Faculty
Dr. Scott McDoniel, University Reviewer, Public Health Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
2021

Abstract

Impact of Social Barrier Removal on Primary Care Use by Managed Care Enrollees

by

Pamela A. (“Pamme”) Lyons-Taylor

Dissertation Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy
Health Sciences–Public Health

Walden University
Febuary 2021

Abstract

Personal health represents a complex relationship among social, physical, and emotional factors that can be influenced by health-seeking behaviors. Prior research indicates that greater use of preventive services leads to longer life and lower healthcare costs. For some populations, evidence suggests that social barriers hinder access to preventive services. To better understand the relationship between social factors and the other personal-health factors, de-identified healthcare claims and social service encounter data for 4,480 low-income individuals enrolled in Medicare Advantage or Managed Medicaid at one national health insurance were examined using a retrospective, quasi-experimental design for services rendered between October 1, 2014 and October 1, 2016. The claims experience (represented by current procedural terminology or CPT codes) between enrollees who accessed social services (like healthy food or transportation assistance) and those who did not as well as the experience between Medicare Advantage and Medicaid enrollees were compared. The Meikirch model was the theoretical framework of the study. Study results revealed that, with a few exceptions, social service access alone was not significant. However, the combination of social service access with comprehensive case management support was signficant in driving the use of preventive services in a primary care setting, particulary among female Medicare Advantage enrollees. These study results create positive social change by offering evidence as to the importance of social factors that create barriers for vulnerable populations in accessing preventive services as well as methods to integrate social support coordination with healthcare delivery for increased efficiency and improved health outcomes.

Impact of Social Barrier Removal on Primary Care Use by Managed Care Enrollees

by

Pamela A. (“Pamme”) Lyons-Taylor

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Health Sciences–Public Health

Walden University

Febuary 2021

Acknowledgements

I would like to thank the army of allies and supporters who encouraged me to start and then helped me finish this adventure. First and foremost, I am indebted to my husband, Joel, and my son, Charlie, for their deep and unwavering support. The lost hours together are captured here with the hope that our sacrifices will bring positive change to this world. My family – both near and far – have been incredibly supportive.

I have a team of academic role models who guided me in so many ways. First, I would not have completed this journey without the ongoing encouragement and guidance of my colleague, Dr. Zac Pruitt. I value and admire my chair, Dr. Simone Salandy, who stepped in when I needed her most. Most especially, I want to thank Dr. Vasileios Margaritis for his advice, guidance, constant kindness, and commitment to my success.

I would not have started this endeavor without Alec Cunningham's and Lisa Iglesias's belief in me and their endorsement to the APEX scholarship committee. I would not have the data I needed without Rhonda Mims and the incredible Health*Connections* team at WellCare. Furthermore, I stayed the course by the love and encouragement of my dear friend, Cindy Hatcher. Finally, I am thankful for the social consciousness of my colleagues at Nightingale Partners. Individually, you are each amazing, but together you are an extraordinary social revolution.

This dissertation and the underlying body of work represents decades of difficult conversations, perseverance, and resilience. The collective strength of my friends, colleagues, mentors, and family reinforces the adage that you will rise to the level of those who surround you so you must choose well. I am better for knowing all of you.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction to the Study

Introduction

A person's health ties directly to three factors: their genetic history, how they prevent or manage illness, and how they respond to life's demands (Bircher & Hahn, 2016). Life's demands include biological, environmental, and psychosocial factors, such as access to healthy foods and having a clean, safe home (Bircher & Hahn, 2016). The inability to respond to demands such as proper nutrition and shelter can create barriers that hinder health-seeking behaviors needed to manage or prevent illness either predisposed genetically or acquired (Bradley & Taylor, 2013; DeVoe et al., 2007). Low-income and vulnerable populations who live on a fixed income often struggle to afford safe housing, reliable transportation, and healthy food options (Allen, Call, Beebe, McAlpine, & Johnson, 2017; Kullgren, McLaughlin, Mitra, & Armstrong, 2012; Mays & Smith, 2011). As a result, vulnerable families prioritize food, safety, and shelter above seeking preventive healthcare and often resulting in future costlier healthcare use (Allen et al., 2017; Kullgren et al., 2012; Tarasuk et al., 2015; Mays & Smith, 2011). For example, Allen et al. (2017) found in their survey of perceived barriers to preventive healthcare that vulnerable populations often delayed care, including primary care service, with 33% reporting childcare/housing barriers and 64% reporting financial barriers. Consequently, vulnerable families (including those who are enrolled in Managed Medicaid or Medicare Advantage) commonly report to emergency department (ED) services to address health issues resulting from missed or delayed use of preventive services in a primary care setting (Srebnik, Connor, & Sylla, 2013; Allen et al., 2017; Mays & Smith, 2011).

While social factors, also referred to social determinants of health, represent a significant area of focus in public health literature, most of the works focus primarily on the following three areas: (a) identifying how social factors describe an impacted population, (b) how social factors create healthcare inequity, and (c) how topic-specific and population-specific interventions contain healthcare costs (DeVoe et al., 2007). Recently, Weinick, Zuvekas, and Cohen (2000) pointed out the need to further research the impact of barriers to healthcare use including various social factors. A research study by Pruitt, Emechebe, Quast, Lyons-Taylor, and Bryant (2018) examined the relationship between removing social barriers and healthcare costs among vulnerable populations and their findings indicated reduced length of inpatient stay tended to result in savings when social barriers had been removed. This study built on this body of research by examining how removing social barriers relates to primary care use among vulnerable populations.

Background

Since the beginning of the 21st century, several researchers have posited the need for improvements in the integration of social, physical, and behavioral healthcare delivery methods (Mays, Mamaril, & Timsina, 2016; Turnock, 2014). In particular, Turnock (2014) recommended exporing best practices in public health and primary care together in order to create a truly integrated delivery system aimed at the removal of social barriers in healthcare use. Similarly, the Centers for Medicare and Medicaid Services (CMS) designed the Accountable Health Community initiative to link Medicaid and Medicare Advantage enrollees to social services to better understand the implications for improved public health outcomes (Mays & Smith, 2011).

Healthcare Cost Considerations

Bradley and Taylor (2013) reported that the United States spends more on healthcare without seeing proportional gains in health outcomes. Also, the authors link failing health outcomes with inadequate funding of and attention to social determinants that limit access and use of preventive care (Bradley & Taylor, 2013). As such, Medicaid and Medicare Advantage enrollees often rely on social service organizations to respond to the demands of life in order to get the preventive care offered in primary care settings (Mays & Smith, 2011; Turnock, 2014).

The Importance of Preventive Services

Maciosek, Coffield, Flottermesh, Edwards, and Solberg (2010) surmised that greater use of preventive services leads to longer life expectancy and lower healthcare costs. With this in mind, connecting all populations to preventive services such as screenings and vacinations could lead to improved health outcomes and reduce the overall involved cost (Maciosek et al., 2010). For some populations, evidence suggests that social barriers hinder access to preventive services. This study offered potential suggestions regarding ways to remove social barriers as a means to faciliate greater use of preventive services, speficially in primary care settings.

Unmet Social Needs and the Role of the Social Safety Net

Examining the relationship between social and physical health factors requires some discussion of the healthcare delivery systems. Social support programs, sometimes referred to as the social safety net, provide food, housing, income, and other material benefits to those in need (Allen et al., 2017). By comparison, managed care organizations that focus on government programs such as Medicaid and Medicare Advantage administer health insurance options to vulnerable and at-risk populations (Loprest & Nightingale, 2018; Mays & Smith, 2011). Today, more than 45 million individuals living in poverty with chronic healthcare conditions receive health coverage through Managed Medicaid in the United States (Kaiser Family Foundation, 2018). Notably, approximately 20 million seniors on fixed income, many with chronic conditions, receive health coverage through Medicare Advantage in the United States (Jacobson, Damico, Neuman, & Gold, 2015). With rising healthcare costs and a growing acceptance of the relationship between social and physical factors, I designed this study to contribute to the growing body of knowledge regarding the important intersection between the removal of social barriers and use of primary care services.

Problem Statement

A person's health ties directly to how they use primary care services (Bircher & Hahn, 2016). Social barriers such as the lack of transportation or affordable childcare often hinder access to preventive services such as those offered in primary care settings, but an increase in social spending in relation to healthcare spending is associated with improved life expectancy and health outcomes (DeVoe et al., 2007; Bradley, Elkins, Herrin, & Elbel, 2011). Furthermore, low-income populations, including those enrolled in Medicaid or Medicare, tend to face additional barriers to obtaining preventive care, such as loss of wages from taking unpaid time off work to visit their primary care physician

(Allen et al., 2017; Kullgren et al., 2012). According to Thornton et al. (2016), health disparities resulting from social determinants of health continue to persist despite the fact that overall quality of medical care and disease prevention techniques have improved across the globe. There is currently a need for widespread interventions and policies targeting healthcare assistance based on social determinants of health (Thornton et al., 2016).

Although clinical consequences of high-risk, vulnerable groups such as poverty-stricken individuals are well described in existing literature, less is known about the role for healthcare system in improving clinical, and social outcomes for such groups (O’Toole, Johnson, Aiello, Kane & Pape, 2016). Emergency physicians are witnesses to these effects of socioeconomic determinants of health on physical and psychiatric diseases. The integration of social determinants into clinical care may be one approach for efficiently addressing and handling the requirements of vulnerable and disenfranchised patients (Bircher & Kuruvilla, 2014). One compelling argument is that understanding structural obstacles can serve as a basis for health equity measures (Samra, Pelayo, Richman, McCollough, & Taira, 2019).

According to the Public Health 3.0 model proposed by the 2016 U.S. Department of Health and Human Services (HHS, 2016), there is a need for public health agencies to consider the social determinants of health much more, namely through the enactment of five recommendations: (a) strong leadership and workforce; (b) strategic partnerships; (c) flexible and sustainable funding; (d) relevant social data, metrics, and analytics; and (e) the infrastructure of the public health system. In general, a review of public health research and industry publications reveals two primary trends. Firstly, there is a greater acceptance of the relationship between social factors and improved health outcomes. Secondly, there is a growing desire among leaders to identify methods for mitigating social barriers and integrating healthcare with social supports in order to reduce healthcare costs and improve health outcomes. According to Emechebe, Pruitt, and Lyons-Taylor (2018), unmet social needs lead to avoidable use of inpatient and emergency room services that could be offered in a less costly setting, such as the primary care office.

Research Framework and Questions

The Meikirch model provided the theoretical framework to determine how a person is self-motivated to take action to improve their health (Bircher & Hahn, 2017). One aspect of health-seeking behavior regards positively responding to life's typical demands (Bircher & Hahn, 2016). The Meikirch model provides five comoponents atternded to in equal measure to achieve optimal health: (a) demands of life, (b) biological factors, (c) personally acquired factors, (d) social determinants of health, and (e) environmental determinants of health (Bircher & Hahn, 2016). Low-income populations tend to face additional social barriers in many facets of life and, as a result, must largely rely on social supports to respond to life's demands (Bradley & Taylor, 2013; DeVoe et al., 2007).

Integrating health with healthcare represents a core concept in the Meikirch model. For this study, the Meikirch model offers a macrolevel frame for evaluating the deeper connection between removing social barriers in healthcare and use of preventive services in the primary care setting. While this study focused primarily on the demands of life, all variables reflecting the tenets of the Meikirch model were incorporated into the research, including life's demands of needing primary care, biological factors including age and sex, personally acquired factors such as chronic conditions, social determinants of health such as case management, and environmental considerations such as the characteristics of Medicaid and Medicare Advantage enrollees.

Personal health represents a complex relationship between social, physical, and emotional factors that can be influenced by health-seeking behaviors. The goal of this study was to examine the relationship between two of these factors. I examined the relationship between social barriers and use of a primary care service. With this goal in mind, I used a quasi-experimental, quantitative design with a retrospective claims review to answer the following two questions and corresponding hypotheses:

RQ1: To what extent do Managed Medicaid or Medicare Advantage enrollees who use at least one social service also seek care in a primary care setting more often than enrollees who do not use the referred social service, while controlling for variables such as age, sex, chronic conditions and case management?

> $H_0$1: There is no significant difference between primary care service use by Managed Medicaid or Medicare Advantage enrollees who access social services and those who do not, while controlling for variables such as age, sex, and case management.
>
> $H_0$2: There is significant difference between primary care service use by Managed Medicaid or Medicare Advantage enrollees who access social

services and those who do not, while controlling for variables such as age, sex, and case management.

RQ2: What is the difference in primary care service use between Managed Medicaid and Medicare Advantage populations who use at least one social service and those who do not, while controlling for variables such as age, sex, and case management?

$H_0$1: There is no significant difference between primary care service use by Managed Medicaid and Medicare Advantage enrollees who access social services and those who do not, while controlling for variables such as age, sex, and case management.

$H_0$2: There is significant difference between primary care service use by Managed Medicaid and Medicare Advantage enrollees who access social services and those who do not, while controlling for variables such as age, sex, and case management.

Nature of the Study

To answer these research questions, I examined de-identified healthcare claims and social service encounter data from one health insurance company that captures social, physical, behavioral, and pharmaceutical service delivery for low-income individuals enrolled in their Medicare Advantage or Managed Medicaid insurance programs. I used a retrospective, quasi-experimental design with a 1-year pre-/postclaims evaluation period for services rendered between October 1,2014, through October 1, 2016, while controlling for mediating variables such as age, sex, case management, and more. This approach offered the data necessary to investigate the two primary hypotheses:

I used healthcare claims data for Medicare and Medicaid enrollees who reported a social need such as the lack of transportation or the need for stable, affordable housing when they called a toll-free community assistance line at their health insurance company. In response to calls to the community assistance line, the health insurance company refers the member to a community-based organization designed to address the barrier and monitor if each member accesses the corresponding referred service. In such cases, the health insurance company captures the corresponding disposition in the member's electronic health record. I compared the claims experience (represented by current procedural terminology or CPT codes) between enrollees who accessed any of the referred social services and those who did not. Owned by the American Medical Association, CPT codes provide the detail on the individual use of healthcare services in a standardized fashion (Citardi, 2009).

Definitions

Case management: Case management is a collaborative process in which patients are assessed, their treatments planned, and their care coordinated and facilitated (Case Management Society of America, 2019).

Complex adaptive systems: Operating as a whole, a complex adaptive system represents a function with diverse, interrelated, and interdependent components responding to environmental changes with no single leading agent (Carey & Crammond, 2015).

De-identified data: The HHS classified de-identified data as having all individual identifiers removed (El Emam+ et al., 2012).

Preventive services: Preventive services are healthcare services designed to prevent disease. They include immunizations, screenings, and counseling (Maciosek et al., 2010).

Primary care setting: A primary care setting is "the provision of integrated accessible healthcare services by clinicians who are accountable for addressing a large majority of personal healthcare needs, developing a sustained partnership with patients, and practicing in the context of family and community" (Donaldson, Yordy, Lohr, & Vanselow, 1996, p. 22). EDs, inpatient hospital settings, ambulatory surgical centers, independent diagnostic testing facilities, skilled nursing facilities, inpatient rehabilitation facilities, and hospices are not considered primary care settings under this definition (CMS, n.d.).

Quasi-experimental, retrospective review: A quasi-experimental, retrospective review is a study comparing a control group with an intervention group in a nonrandomized, pre-/ postintervention design (Nursey and Phelps (2016)).

Social barrier: Jacobson, Ir, Bigdel, Annear, & Van Demme (2011) classified barriers using four descriptors: geographic accessibility, availability, affordability, and acceptability that correspond to social resources that help a patient overcome these barriers to receive preventive care services in a primary care setting.

Social gradient in health: A person's income status that aligns with their health status represents the link (or gradient) between socioeconomic and healthcare status (Marmot, 2017).

Social support resource: Nursey and Phelps (2016) defined social support as the practical assistance offered to a person when they are in crisis.

Social support agency: Social service agencies or community organizations offer social services and social resources to people in social crisis or in social need (Broman, Neighbors & Taylor, 1989).

Social service encounter: The term social service encounter captures the interaction between a social service agency and a person in social crisis or in social need (Broman et al., 1989),

Assumptions

This study used three basic assumptions. The first assumption was that the participants provided honest and unbiased answers. Researchers have a responsibility to protect the privacy of study respondents and to create a sense of trust to attain responses that are not biased (Creswell, 2008). The second assumption was that the data obtained from the health insurance company were reliable and valid. A third assumption was that the sample would be representative of the study’s target population.

Scope and Delimitations

The scope of the study was limited to data collection from a health insurance company with the goal to remove social barriers. The study captured consumers who had expressed a social need. The target populations were those people enrolled in a Managed Medicaid and/or a Medicare Advantage product. The data collected related to self-reported feedback and claims analysis that limited its generalizability. Delimitations were those preventive services in the primary care setting. Data collected as a result of the study included self-reported feedback and claims analysis that therefore hindered generalizability.

Limitations

The use of a health insurance company with the goal to remove social barriers has several limitations:

- Findings relate to a sample of participants who self-identify as (a) having their needs met or not, and (b) motivated to call the peer-based resource line.
- Subjects were characterized by self-reported status.
- The motivation to call the peer-based resource line may have a greater impact on driving healthcare action.
- Results from the study tied to a finite sample may limit how the results may be generalized to a broader population in managed care and public health.
- Little is known about why the “unmet” population that did not get their needs met.

Significance

Mays et al. (2016) and Turnock (2014) argued that integration of social, physical, and behavioral healthcare delivery requires deeper investigation to truly understand how removing social barriers increases use of primary care settings. Turnock (2014) recommended exploring the integration of public health and primary care in order to build on the best practices of each for a stronger, integrated health delivery system. Similarly, the CMS designed the Accountable Health Communities initiative to link Managed Medicaid and Medicare Advantage enrollees to social services to better understand the implications for improved public health outcomes (Mays et al., 2016). Through this study, I sought to add to the body of research in which Weinick, et al. (2000) identified a gap by examining the claims experience using specific preventive service-focused CPT codes coupled with social service experience to add to the public health discourse around system integration. This focus at the intersection between social support and healthcare delivery revealed lessons for social change examined in Chapter 5.

Maciosek et al. (2010) argued that greater use of preventive services leads to longer life expectancy and lower healthcare costs. In considering health outcomes, connecting all populations to preventive services, such as screenings and vaccinations tend to lead to improved health and reduced costs (Maciosek et al., 2010). For some populations, barriers hinder access to preventive services; this study offers information that could reveal ways to remove social barriers in order to facilitate to greater use of preventive services, particularly in primary care settings.

In the context of public health research, the 2016 initiative by the HHS provides an excellent reminder for scholarship to consider social determinants of health in devising community-wide and population-wide interventions and health policies (DeSalvo et al., 2017). According to DeSalvo et al. (2017), such interventions and policies need to be centered around the increase of evidence-based services, covering services outside of the clinical setting and implementing interventions that have the potential to benefit the entire population. In this study I used data from a very large sample size of approximately

22,000 in order to provide evidence regarding the currently existing health disparities and social barriers to healthcare in the United States.

Pruitt, Lyons-Taylor, and Bryant (2018) examined a peer-based resource line called the Community Assistance Line that is one of the aspects of the health insurance company’s model. When examining the Community Assistance Line, Pruitt, Lyons-Taylor, and Bryant found the health insurance company’s model for linking members with social services offered a unique alternative to evaluating the association between removing social barriers and health outcomes as measured by reduced cost and increased quality scores. Building on the mixed evidence offered by existing literature about the capacity for removing social barriers to improve outcomes, Pruitt, Emechebe, Quast, Lyons-Taylor, and Bryant (2018) examined the claims history for members through the same model and found a $2,443 annual savings per member resulting from all social needs being met. Pruitt, Emechebe, Lyons-Taylor, & Bryant, (2017) and Pruitt, Lyons-Taylor & Bryant (2018) recommended examining the association between social barrier removal and improved access to primary care settings.

Summary

The purpose of this study was to examine the relationship between social barriers and use of a primary care service. The following research questions were investigated:

RQ1: To what extent do Managed Medicaid or Medicare Advantage enrollees who use at least one social service also seek care in a primary care setting more often than enrollees who do not use the referred social service, while controlling for variables such as age, sex, and case management?

RQ2: What is the difference in primary care service use between Managed Medicaid and Medicare Advantage populations who use at least one social service and those who do not, while controlling for variables such as age, sex, and case management?

Despite a growing body of research examining the relationship between social need and healthcare, little research focuses on the impact of removing social barriers on health-seeking behaviors. With this in mind, I provided the background of the problem, purpose, and theoretical foundation for this study in Chapter 1. I also presented limitations, delimitations, assumptions, and significance of the study. What follows in Chapter 2 is the literature review that will detail current information on the relationship between social barriers and primary care use of Managed Medicaid and Medicare Advantage enrollees including the theoretical framework, the healthcare setting, the target population in the context of the broader population it represents, and the concept of unmet social needs creating social barriers to using healthcare.

Chapter 2: Literature Review

Introduction

Preventive services represent life-saving measures that offer an early warning of preventable health issues (DeVoe et al., 2016). Examples of preventive services include engaging in regular exercise, improving a poor diet to a healthier one, reducing stress, as well as adhering to medication and chronic disease treatment guidelines prescribed by a clinician (DeVoe et al., 2016). These preventive services can be instrumental in reducing healthcare costs, particularly when obtained in a primary care setting (Mays & Smith, 2011). Some populations face additional social challenges to obtaining preventive services, particularly in primary care settings. These social challenges include the lack of consistent transportation or access to affordable healthy food options (Casper et al., 2015; Nguyen et al., 2018).

Several concepts shape the deeper examination of the relationship between preventive care and social factors. The concepts include the care setting, including primary care versus urgent care or emergency EDs, the role of healthcare literacy, the definition of vulnerable populations, the concept of self-motivation, and more. When the concepts are combined, they reveal a gap in existing literature that I sought to fill with this study. The study was built on prior research by examining the relationship between social support services to remove a social barrier and the use of primary care services.

Literature Research Strategy

I reviewed the following databases during the collection of literature for the current study: Academia, American Hospital Association Journals, Google Scholar, Walden University, and Springer. I also consulted government websites in the development of the literature review. I chose peer-reviewed journal articles, dissertations, and websites for inclusion in the literature review based on whether the information pertained to the topics of healthcare or healthcare use and related topics. In order to create the literature review, I identified the following key words: *healthcare, healthcare utilization or use, healthcare and demographics, healthcare utilization or use and demographics, healthcare utilization or use and gender*, *healthcare utilization or use and social services, healthcare utilization or use,* and *case management.* The majority of the sources considered were recent, peer-reviewed studies published in the past 5 years, from 2015 to 2019, with some older sources establishing the theoretical understanding of the study.

Research Framework

A wide array of theories and models, such as Penchansky and Thomas' theory of access, offered provided a basis for the research framework. For example, this theory focuses on the principles of equity but not on the differences between access and use in healthcare. In contrast, the Meikirch model offers a more appropriate theoretical framework by focusing on health-seeking behavior. According to Bircher and Hahn (2016, 2017), the Meikirch model examines health-seeking behavior to positively respond to life's demands (social barriers). Vulnerable populations face additional challenges when seeking healthcare and facing life's demands (DeVoe et al., 2007; Bradley & Taylor, 2013). Serving as the theoretical lens, the Meikirch model shaped the examination of the relationship between social service used to remove a social barrier (life’s demands) and preventive service use in a primary care setting (health-seeking behavior).

The Meikirch Model

According to Bircher and Hahn (2016), the Meikirch model explains how responding to life’s demands have an effect on health, particularly when these demands create barriers to accessing preventive services. In the Meikirch model, a patient’s health depends on how they respond to life’s demands across five components (Bircher & Kuruvilla, 2014). The five components include demands of life, biological factors, personally acquired factors, social determinants of health, and environmental determinants of health (Bircher & Hahn, 2016).

The terms of “health” and “healthcare” represent core concepts in the Meikirch model. Bircher and Kuruvilla (2014) researched the five components to represent health as a complex adaptive system requiring collaboration among several key players while keeping the patient and their personal choices at the center. In this study, the Meikirch model offered a macro-level frame for evaluating the connection between removing social barriers and the use of preventive services in a primary care setting.

According to Bircher and Kuruvilla (2014), a patient must use multiple resources to combat genetic, social, and environmental factors and that health is a complex adaptive system that requires synergy among five factors. Using the five factors, Bircher and Kuruvilla (2014) outlined a framework that shifts healthcare from a biologically driven to a person-centered delivery system that aligns with targeted health outcomes.

Healthcare Setting and Factors Influencing Use

In a recent study, Katz et al., (2018) found an association between greater social challenges or social complexities and poorer health outcomes. In the same year, Katz et al., (2018) found in their investigation of secondary data that the population with greater social barriers account for a disproportionate amount of healthcare costs associated with health-seeking behavior outside of the primary care setting. Investigating the relationship between social factors and healthcare use requires a thorough understanding of the care setting as well as the services and influences specific to that setting. Therefore, in addition to the primary care setting, influences include social factors as outlined below.

Primary Care Setting

A primary care setting is defined as one that provides integrated, accessible healthcare services by clinicians who are accountable for addressing a large majority of personal healthcare needs, developing a sustained partnership with patients, and practicing in the context of family and community (Rogers & Elliott, 2018). EDs, inpatient hospital settings, ambulatory surgical centers, independent diagnostic testing facilities, skilled nursing facilities, inpatient rehabilitation facilities, and hospices are not considered primary care settings under this definition" (CMS, n.d.).

Distress and Social Crisis

Geerse et al. (2018) summarized the effects of interventions facilitating shared decision making on distress and healthcare use among hospital patients with lung cancer. A total of 12 studies detailed in 13 publications were included in the study conducted by Geerse et al. (2018): nine randomized trials and three retrospective cohort studies. All of the studies reported on a supportive care intervention facilitating shared decision making as part of their intervention (Geerse, 2018). Although not supported by all the studies investigated, the findings suggested that facilitating shared decision making in the context of lung cancer may lead to improved emotional outcomes and less aggressive therapies (Geerse et al., 2018).

Healthcare Costs and Patterns

Sabale et al. (2015) described healthcare resource use patterns and estimated healthcare costs of newly diagnosed Type 2 diabetes mellitus (T2DM) patients in Sweden. The patients with a newly diagnosed T2DM between 1999 and 2009 were identified from 84 primary care centers in Sweden (Sabale et al., 2015). Healthcare resource use data, excluding pharmaceuticals, were extracted from electronic patient records and a national patient register and reported as per patient mean number of primary care contacts, laboratory tests, and hospitalizations. Per patient mean healthcare costs were reported as annual and cumulative costs (Sabale et al., 2015). Although newly diagnosed T2DM patients require a substantial amount of basic healthcare services in primary care, hospitalizations account for the majority of healthcare costs (Sabale, 2015).

Chronic Pain and Pain Management

De Fernandes and Burdof (2016) described the health use in different body sites and according to the number of pain sites and investigated associations between the numbers of pain sites with these three outcomes in workers from Bahia, Brazil. The functional consequences of pain among patients depend on how much the body regions are affected, that is, the more widespread pain the higher the likelihood of medical consumption, among other things (de Fernandes & Burdof, 2016). The presence of pain across the body affects the decision to access healthcare (de Fernandes & Burdof, 2016). Given the high comorbidity, the number of pain sites instead of specific body site of pain seems to be a useful measure to anticipate interventions at workplaces for musculoskeletal disease prevention (de Fernandes & Burdof, 2016).

Psychosocial Factors

While there are limited studies on psychosocial workplace factors in the field of healthcare use, existing studies recognized such factors as work environment, cultural perceptions, and employee capacities affecting health and health perceptions (Modrek, Hamad, & Cullen, 2015; Williams, Buxton, Hinde, Bray, & Berkman, 2017). Survey data were collected by Williams et al. (2017) from two different employers using computer-assisted telephone interviewing as a part of the Work-Family Health Network (2008-2013): one in the information technology service industry and one that is responsible for a network of long-term care facilities. The author found that having above median job demands and higher work-to-family conflict lead to greater healthcare use. Williams et al. (2017) concluded that improving the psychosocial workplace factors may pay off for employers through more than just improved health; they may lead to changes in use as well.

Health Equity

Improving access to primary healthcare for vulnerable populations and marginalized sectors is important for achieving health equity, yet achieving this remains challenging (Richard et al., 2016). Evidence of effective interventions is rather limited and fragmented. Seven hundred forty-four responses were recorded over a 6-week period. Two hundred forty unique examples of innovations originating from 14 countries were described, the majority from Canada and Australia. Wide ranges of innovations improving access to primary healthcare were identified (Richard et al., 2016). The access framework was useful in uncovering the disparity between supply- and demand-side dimensions and pinpointing areas that could benefit from further attention to close the equity gap for vulnerable populations in accessing primary healthcare services that correspond to their needs (Richard et al., 2016).

Self-Care

Gustafsson et al. (2016) explored influences from a group of nurses who recommended certain self-care advice on healthcare use and patients' satisfaction with telephone nursing. Young callers and persons recommended watchful waiting or recurrence if no improvements were significantly less satisfied with their care that they received through calling by phone (Gustafsson et al., 2016). When calling on their own behalf, both men and women rated the severity of their symptoms equally and were advised to self-care to the same extent when it is more advisable (Gustafsson et al., 2016). Self-care advice had a constricting influence on self-reported healthcare use, with·1% of cases resulting in a lower level of care than first intended. Feeling reassured after the call was the aspects of nursing care that influenced satisfaction the most (Gustafsson et al., 2016). Receiving self-care advice by calling to the nurses rather than referral to a general practitioner influences patient satisfaction negatively. Feeling reassured after consultation even though just by telephone is strongly related to satisfaction, that in turn has been found to increase the likelihood of engaging in self-care behavior (Gustafsson et al., 2016).

Sepsis, the most expensive cause of hospitalization in the United States, is associated with high morbidity and mortality (Liu et al., 2014). However, the patients poorly understand healthcare use patterns following sepsis. Patient factors including acute severity of illness, hospital length of stay, and the need for intensive care were associated with early readmission and high healthcare use; however, the dominant factors explaining variability, comorbid disease burden and high pre-sepsis use, were present prior to sepsis admission (Liu et al., 2014). These several factors were found to affect the levels of healthcare use, including social considerations (Emechebe, Amoda, Lyons-Taylor, & Pruitt, 2019). Post-sepsis survival and healthcare use were most strongly influenced by patient factors already present prior to sepsis hospitalization (Liu et al., 2014).

Health Literacy

Health literacy among patients is an enormous challenge in the delivery of effective healthcare and quality outcomes. Rasu et al. (2015) evaluated the effects of low health literacy (LHL) on healthcare use and healthcare expenditure. Health literacy was found to be inversely associated with healthcare use and expenditure. Individuals with below basic or basic high health literacy (HLL) have greater healthcare use and expenditures spending more on prescriptions compared to individuals with above basic HLL. Public health strategies promoting appropriate education among individuals with

LHL may help to improve health outcomes and reduce unnecessary healthcare visits and costs (Rasu et al., 2015).

Social Services and Healthcare

Social services are public services offered by the government and various other agencies, including private, for-profit, and non-profit organizations. The HHS lists multiple types of social services, a few of which include (a) self-sufficiency programs, (b) Temporary Assistance for Needy Families (TANF), (c) Supplemental Nutrition Assistance Program (SNAP), (d) Health Start, (e) Child Support Enforcement. Other examples of service overseen through HHS help people with energy assistance, hosts programs for seniors and persons with disabilities and provides help to the homeless and military families. As such, the number of social services can be diverse.

Also, the HHS administers programs regarding health, health rights, and health insurance. The HHS includes information about public safety, and emergency preparedness information. The HHS provides information about prevention and wellness programs, education for health professionals and helps sponsor scientific research into health issues. The social service associated with supporting the health needs of individuals include TANF, SNAP, Head Start, childcare, child support among individuals, families and communities. Consequently, the HHS notes numerous services connected to improving the health of society overall.

The literature is not abundant regarding the disparities among healthcare depending whether consumers use social services. Chen (2018) did examine the impact of social services on the use of healthcare services. Research into the phenomenon indicated that the use of social services was associated with the use of healthcare services. In addition, when individuals took advantage of at least one mental health services, it reduced the likelihood of requiring hospitalization due to mental health conditions. Therefore, Chen (2018) reported an indirect link from taking advantage of social service to eliminating the need for mental-health related hospitalization.

Researchers have proposed that individuals may periodically be comfortable with seeking healthcare services while avoiding social services. In one example, researchers noted that women who were victims of intimate partner violence may feel comfortable seeking healthcare but not social support (Dichter et al. 2018). Researchers noted that at times there may be stigma associated with social services that was not associate with healthcare services. As such, there may be at times a discrepancy between seeking social support versus healthcare services.

Researchers indicated that social services may be a determinant of health in addition to dedicated healthcare support but that access to both could be negatively impacted by various social conditions. Gea-Sanchez, Gastaldo, Molina-Luque, and Otero-Garcia (2016) conducted their study in Spain that offers universal coverage with both social and healthcare services. The researchers focused on how undocumented immigrant women access both social support and healthcare services. The researchers conducted 12 in-depth interviews with Latin American women living and working in various contexts across the country. Following the review of the data, the researchers noted that working conditions impacted access to social and healthcare services. Fear of revealing their residency status impacted whether the study participants access social and healthcare services. As such, when considering the relationship between social support and healthcare service use, it may be helpful to consider barriers that, in the case of illegal immigration or documentation status, includes fear of repercussions including deportation.

Outside of the few aforementioned investigations into the relationship between social services and healthcare, there was a lack of literature regarding the potential relationship. The researcher did note that some barriers may impact accessing social supports but not healthcare (Dichter et al., 2018) while in other cases, there may be barriers that prevent access to both social services and healthcare (Gea-Sanchez, Alconda-Romero, Briones-Vozmediano, Pastells, Gastaldo, & Molina, 2016). As such, it may be important to consider that, at times, the two may have a positive correlation with one another while at other times there may be no association. Therefore, there was room in the literature for further exploration of the potential relationship between accessing social supports and healthcare use.

Primary Care Setting

There are multiple definitions for primary care listed by the American Academy of Pediatrics (AAFP). The first definition of primary care is care provided by physicians trained to provide comprehensive first contact care as well as continuing care for individuals with symptoms that may be biological, behavioral, or social in nature (AAFP, 2019). The second definition is a service that acts as a patient’s first moment when they enter a healthcare system. From that point of view, the treating healthcare system acts as the central point from that all healthcare needs are met. The third definition includes that of the primary care physician. In this context, primary care is characterized by a physician providing service in the areas of Family Medicine, Internal Medicine, or Pediatrics. This individual acts as a point of first contact for patients. The fourth definition and fifth definition are characterized by nonprimary care providers acting in the role of primary care providers (PCP). Sometimes physicians or other healthcare practitioners, such as nurses, must assume the role of PCP. This is often a less effective form of primary care because those involved are not trained in the full scope of primary care practices (AAFP, 2019).

Although there is little previous research into primary care settings and their correlation with social supports, there are various studies into the outcomes of primary care. Chronic kidney care has previously been managed in a primary care setting (Shardlow, McIntyre, Fluck, McIntyre, & Taal, 2016). Among these patients with chronic kidney conditions, there are a minority of people at high risk for adverse outcomes. Researchers noted that identifying these individuals early was linked to introducing interventions early that could help to slow the progression of the disease, indicating that primary care would be important to improving health outcomes among those with chronic kidney care needs. Primary care can also mean managing support for end-of-life patients (Kim & Tarn, 2016). Study among patients requiring end-of-life support revealed that patients were more likely to die outside of the hospital. This result indicated that primary care may be important to help patients end their lives at home in their preferred setting.

Primary care was also used to support the delivery of mental healthcare. Researchers used primary care interventions in the treatment of adult survivors of adverse childhood experience (Korotana, Dobson, Pusch, & Josephson, 2016). Researchers conducted a systematic review of the existing literature that included 99 studies. Following the review of these studies, researchers found that cognitive behavioral therapy could be used in tandem with primary care delivery to help improve the outcomes for these individuals. Both the mental health and health-risk behavioral of individuals improved as a result of their exposure to cognitive behavioral therapy. Balasubramanian et al. (2017) noted that primary care could be integrated with the delivery of behavioral healthcare, a form of encompassing care for mental health conditions, psychosocial and family problems, and substance use disorders. Doing so had a significant positive impact improving health outcomes and reducing various mental health issues. Therefore, primary care had the potential to positively impact the mentally ill when paired with appropriate mental health treatments.

As noted by the AAFP (2019), primary care is not always delivered by a primary care physician. Instead, there are circumstances when other medical practitioners must fill the role. Swan, Ferguson, Chang, Larson, and Smaldone (2015) examined the quality of care delivered under such circumstances by advanced practice nurses. Drawing upon ten articles to perform a systematic review, the researchers found there were actually few differences in PCPs by nurses versus physicians. In some cases, the quality of care was superior to that delivered by doctors, suggesting that those filling in for the role of primary care doctors could fulfill the role successfully.

Researchers have promoted ways of improving patients in primary care with multimorbidity. Defined as a state of having two or more chronic medical conditions.

Comorbidity was associated with the need to increasingly access healthcare services (Wallace et al., 2015). Therefore, comorbidity was associated with higher healthcare use, but also with increased need for emergency admissions, lower quality of life, and ongoing functional decline. As a result, this part of the population was subject to a higher treatment burden. Researchers indicated that in this population, switching primary care to a patient-centered approach was associated with improved outcomes for patients and included shared decision making in the treatment of patients. Supporting self-management of conditions among such patients was also pointed to as a potential approach for improving outcomes, that could be accomplished by educating patient about their care. Smith, Wallace, O'dowd and Fortin (2016) had pointed to more traditional methods of improving outcomes, including ensuring that patients adhered to their medication. These findings therefore indicated that there was a blend of traditional and innovative approaches to improving outcomes for those in primary care.

As indicated in the literature there were multiple benefits to primary care. Medical conditions such as chronic kidney disorders (Shardlow et al., 2016) and the needs present for those at the end of their lives (Kim & Tarn, 2016) were both conditions when primary care was beneficial. Research also indicated that mental health could also be addressed when primary care was paired with appropriate mental health interventions (Balasubramanian et al., 2017; Korotana et al., 2016), while patients with comorbid issues could also be treated through a combination of innovative and traditional healthcare (Smith et al., 2016; Wallace, et al., 2015). Primary care could also be delivered in multiple contexts, indicating the flexibility of primary care as a means of treatment for a number of physical and mental health conditions.

Using Healthcare and Age

There has been very little research into healthcare use with a specific focus on age, though research into age and healthcare use often examined how healthcare conditions impacted certain groups (Atella et al., 2018; Peytremann et al., 2008) or was examined alongside several other demographic factors (Elrashidi et al., 2016). Research among older Europeans indicated that there was a significant prevalence of depressive system, indicating a need for such individuals to use healthcare services. Researchers noted that depressive systems were associated with increase healthcare use (Peytremann-Bridevaux, Voellinger, & Santos-Eggimann, 2008). The estimated prevalence of depressive symptoms in this part of the population was 28.2% indicating a need to seek mental healthcare treatment. Among older adults, generalized anxiety disorder was associated with disability (Baslet, Roiko, & Prensky, 2010). Older adults diagnosed with centralized anxiety disorder had poorer quality of life and required greater healthcare use. Such findings indicated the importance for older individuals to seek mental health treatment.

Researchers also generally noted the need for older adults to seek healthcare services. Aging was pointed to as a strong factor for various chronic diseases (Atella et al. 2018). Researchers examined aging Italian populations using data from the Health Search CSD-LPD that contains clinical and drug prescription data. Longitudinal observational data was collected using computer-based patient records and an additional analysis collected from 900 general practitioners and data from 1 million patients over the age of 35. The researchers found that 86% of the Italian population over the age of 65 had at least one chronic condition while 56.7% had two or more chronic health conditions. There was also an increase in the prevalence of chronic disease and the need to use healthcare from 2004-2014. The data reflected a general increase in chronic disorders. Consequently, the data indicated the need for older individuals to use healthcare services.

Research into veterans in Ontario indicated that age may influence healthcare use. Aiken, Mahar, Kurdyak, Whitehead, and Groome (2016) conducted a descriptive analysis of medical healthcare services of Veterans living in Ontario using a retrospective cohort drawn from administrative healthcare data. This data was drawn from Veterans release at any tie between 1990 and 2013. There were numerous indicators that those who took advantage of healthcare services varied among veteran populations. One of the factors influencing healthcare use was age, with stratifying veteran populations by age leading to differentiated outcomes in healthcare use. This provided some evidence that individuals in different age groups used healthcare differently.

Age did not always seem to create disparities in healthcare use. Elrashidi et al. (2016) noted that among young and middle-aged adults with high body mass index (BMI), healthcare use was largely a factor with BMI trajectory. Obese individuals generally were more likely to required outpatient visits, ED visits and hospitalization. The researchers noted that over eight years, regardless of age, obese individuals followed a specific BMI trajectory. Along each trajectory, BMI continued to increase, even if slightly, until there was a need for medical attention. As BMI increased, the likeliness of all three forms of medical care increased after adjusting for various demographic factors, including age. Age may not always impact whether an individual needs healthcare support, and instead healthcare may rely on the trajectory of the condition. Peytremann-Bridevau, and Eggiman (2007) had previously indicated that being overweight or obese was linked to increased use of ambulatory care and visiting general practitioners in addition to taking at least two or more types of medication. The research by Elrashidi et al. (2016) and Peytremann-Bridevau, and Eggiman (2007) therefore point to some conditions leading to increased healthcare use despite differences in various demographic factors.

Healthcare use may partly be contingent on costs. Researchers indicated that there was a difference in healthcare use among the middle aged and elderly depending on the cost of healthcare among Chinese populations (Wang, Li, Chen, & Si, 2018). Such findings indicated the importance of providing affordable healthcare if the goal was to encourage increased healthcare use. Similar findings regarding the impact of cost was also found among older adults in Ghana (Awoke et al, 2017). Researchers investigated Ghanamian older adults using cross-sectional data gather from the World Health Organization study on global Aging and adult health. Of the 2,517 respondents in the study, researchers found that prevalence of healthcare use was often dependent on wealth. Those with greater wealth were more likely to take advantage of public and private outpatient healthcare services. While older populations may require more healthcare, the literature indicated that their ability to use it may be contingent on their finances.

Even when older individuals access healthcare, outcomes from treatment may vary. Researchers in Brazil examined primary care and healthcare use among older Brazilians (Macinko et al, 2019). Data was drawn from the Brazilian Longitudinal Study of Aging using a nationally representative population-based cohort study of individuals aged 50 years and older. A total of 9,412 individuals were recruited for the study. The researchers found that use of healthcare was high among this group. However, the quality of treatment impacted individuals. Some individuals with higher quality health plans were able to afford specialists more easily rather than general practitioners and access specialized treatment, suggesting that for older individuals, their health outcomes may depend on the quality of their health plans. Given this relationship, the evidence indicated that relationship of healthcare quality and income. Such findings were consistent with Wang, Li, Chen and Si (2018) and Awoke et al. (2017) who noted that finances were related to healthcare use, while the findings of Macinko, Andrade, DeSouza, & Lima-Costa (2018) indicated that finances were linked to the quality of health plan that impacted outcomes.

Researchers have found numerous factors that may lead to disparities in healthcare use. An estimated 30% of adults were identified as having low health literacy (Lee, Tsai, Tsai, & Kuo, 2010). These older individuals tended to have lower income, less education and live in rural areas. Older people given the fact that they often have several chronic diseases (Atella et al., 2018) should also be expected to use healthcare services more often. Frolich, Ghith, Schiotz, Jacobsen, and Stockmarr (2019) indicated that multi-morbidity was associated with a significant increase in the use of healthcare services. They also pointed to socioeconomics as a factor influencing whether individuals took advantage of healthcare services, with wealthier individuals more likely to do so.

As demonstrated in the existing literature, age disparities in healthcare use has rarely been researched. Investigation has been conducted into specific age groups, such as older adults (Atella et al., 2018; Elrashidi et al., 2008). One example of investigation into the older population was conducted by Macinko, Andrade, Junior, & Lima-Costa, (2018) who noted that aging populations often took advantage of healthcare services. However, the existing literature also indicated that there were specific conditions that might impact the ability for older individuals to take advantage of healthcare services. Issues such as health literacy (Lee, Tsai, Tsai & Kuo., 2010), wealth (Wang, Li, Chen, & Si, 2018; Awoke et al., 2017), and types of healthcare plan (Macinko, Andrade, Junior, & Lima-Costa, 2018), all influenced whether older individuals were able to take advantage of healthcare services and also impacted the quality of care that was received. As such, even when addressing specific age groups and their likeliness of healthcare use, it is also important to remember that other factors may influence use.

Using Healthcare and Gender

Gender has previously been linked to differences in healthcare use. Roth et al. (2016) examined Medicare claims as a type of indicator regarding who utilized healthcare following hospitalization for an ischemic stroke. Race, sex, and caregiving effects were explored in the study. The researchers noted that differences in who utilized healthcare may help to explain why there were differentiated outcomes following hospitalization that fell along race and gender lines. The researchers examined survivors 65 years and older and found that after controlling for covariates, women were more likely than men to seek out home healthcare and to take advantage of ED services following their cute care for ischemic stroke. This finding demonstrated a gender-based difference in care, but African Americans also took more advantage of home healthcare, indicating an ethnicity-based difference. The findings indicated demographics influenced healthcare use.

Women's increased use of healthcare was previously found in a study of diabetes. Shalev, Chodick, Heymann, and Kokia (2005) noted studied gender differences in healthcare use and medical indicators among patients with diabetes. The study examined 21,777 diabetic patients between the ages of 45 and 64 in order to better understand who took advantage of healthcare. The researchers found that men were much less likely to utilize healthcare versus women. This effect was found among multiple types of healthcare events, including physician visits and urine, lip, and creatine tests. The findings once more suggested the lower likeliness that men would take advantage of healthcare opportunities.

Another approach to understanding gender differences in healthcare use was taken among researchers examining the difference in healthcare use among immigrants. Read and Smith (2017) examined gender and national origin differences in addition to gender to determine the group was most likely to take advantage of healthcare. The study drew upon the 2003 New Immigrant Survey and a total of 2,244 participants in the survey from Mexico, China, and India. The data suggested that Chinese immigrants were less likely than Mexican and Indian immigrants to see a doctor, that was often due to lack of health insurance. However, among these groups, it was women who were more likely to try an access healthcare despite having access to resources such as income or the ability to speak English.

The trend for women to be more likely to take advantage of healthcare was also found in rural Ghana. Frank, Benedict, and Adusei-Nkrumah (2016) analyzed gender and healthcare service use in rural Ghana to determine if there were significant differences in outcomes. The researchers conducted the research given the issue of gender inequality in the country with regard to access and use of healthcare (Frank, Benedict, & Josephine, 2016). The study surveyed 286 individuals using household structured interviews. Following analysis of the data, researchers found that females once again were more likely to take advantage of healthcare services than males. An estimated 74% of females utilized healthcare while only 63.3% of males utilized healthcare at some point while dealing with their last four illnesses. The findings once more indicated the disparity in healthcare use between men and women.

Studies of oral health also indicated that women once again were more likely to take advantage of healthcare services. Bottenberg, Vanobbergen, Declerck, and Carvalho (2019) examined oral health and healthcare use among Belgian dentate adults. The researchers drew upon the Belgian National Oral Health Data Registration and Evaluation Survey of 2012-2014 and drew upon data from among 1,340 adults of 25 years of age and older. Following examination of the survey data, the researchers found that specific groups were more likely to take advantage of oral health sessions than others. While the researchers found that participants who were better education, older participants, and employed participants were all more likely to attend oral care sessions, there remained a gender divide among groups. Females were consistently more likely to attend sessions than men.

Given the existing body of research, women were found to more likely seek out healthcare for numerous different reasons. Among those in maladies including oral health issues (Bottenberg, Vanobbergen, Declerck, and Carvalho, 2019), post-acute ischemic stroke care (Roth et al., 2016) and diabetes (Shalev, Chodick, Heymann, and Kokia, 2005), women were more likely to seek professional healthcare help. Women were more likely to seek healthcare help even in immigrant groups (Read & Smith, 2017) and across several demographic groups (Bottenberg, Vanobbergen, Declerck, and Carvalho, 2019). These findings therefore indicated that women in multiple contexts were more likely to seek out healthcare of all kinds. The existing literature therefore suggested an existing gender disparity in healthcare that may put men at higher risk of poor healthcare outcomes given their lack of attendance among healthcare providers.

Using Healthcare and Case Management

Case management is defined by the Case Management Society of America (2019) as a collaborative process in which patients are assessed, their treatments planned, and their care coordinated and facilitated. This approach to dealing with patients helps improve an individual's and family's comprehensive health outcomes. The emphasis in case management is on communication and the maximization of available resources to help improve patient outcomes. The underlying philosophy behind case management is to help an individual reach the optimum degree of wellness and functional ability because, when that is accomplished, it is to the benefit of the individual, those supporting them, and the healthcare system.

Case management and its relation to healthcare delivery has been studied fairly extensively in the literature. Hudon et al. (2018) indicated the case management was important to improving outcomes for those who frequently required healthcare services. The use of case management helped to reduce psychological distress among patients and helped them feel more secure in the care of their caregivers. Brennan-Ing et al. (2016) indicated that case management helped to improve the care engagement of patients with HIV, suggesting that the sue of case management could help to improve the degree to which patients were engaged with their care. These initial findings suggested the benefits of case management to creating highly engaged patients that felt more confident in the care they were provided.

Beyond the benefits of case management to creating more engaged patients, researchers also indicated that there may be some medical benefits. Sandberg, Kristensson, Midlöv, & Jakobsson (2015) examined the impact of healthcare use of case management and its impact on frail older people. Researchers examined the impact of case managers among this part of the population by comparing an experimental group who experienced home visits from case managers against those who did not. The findings indicated that the use of case managers led to significantly lower visits to EDs and significantly lower visits to physicians. As such, case management may be an effective means of helping individuals manage various maladies they may be afflicted by and reduce the need for emergency care. The findings were similar to that of Bodenmann et al. (2016), who indicated that case management may serve to reduce ED usage. There may be benefits to the individual and the health system when case management was used.

The general findings regarding case management therefore indicated that there benefits to patients in a number of ways. More highly engaged patients were developed (Brennan-Ing et al., 2016) who were more confident in their caregivers (Sandberg, Kristensson, Midlöv, & Jakobsson, 2015). Case management therefore created a positive care environment. However, case management also led to reductions in ED and physician use (Bodenmann et al., 2016; Sandberg, Kristensson, Midlöv, & Jakobsson, 2015). Consequently, case management may help individuals more effectively negotiate their various disorders and avoid emergency medical requirements, or even help individuals reduce the frequency with which they may need to visit a physician.

Vulnerable Populations

Ethics leaders and healthcare professionals continue to debate the definition of vulnerability and vulnerable populations. According to Ruof (2004), the aforementioned debate surrounding vulnerability stems from the application of its definition across a wide variety of areas of across the healthcare industry, with the author positing that the use of the term can lead the audience to pity the subject under study when applied. For the purposes of this study, the researcher followed Hurst’s (2008) definition to identify the study population as “those at-risk at any particular point-in-time for unequal treatment to achieve maximum possible health and quality of life”. Hurst (2008) applied both intrinsic and extrinsic resources to the definition such as financial, place of residence, ethnic or cultural background, age, or health conditions.

Populations captured in the definition provided by Hurst include low-income populations, seniors, children and young adults in foster care, persons with disabilities or chronic conditions, and so on. For purposes of this study, the target population represents a subset of the broader population of individuals all across the United States who are enrolled in Managed Medicaid and Medicare Advantage. The characteristics of this population including their demographic and socioeconomic status as well as the relationship that these factors may have on access to primary care services are explored in this section.

Low-Income Populations

The case to include families with low- or fixed-income in the definition of a vulnerable population correlates heavily with healthcare spending. According to Fitzpatrick et al. (2015), healthcare spending among low-income families represented a disproportionate share of overall spending. In addition, income-level represents a predictor of high future use of healthcare services (Fitzpatrick et al., 2015). Similarly, Pruitt, Lyons-Taylor, and Bryant (2018) discovered that people with low-income face critical nonmedical needs that create barriers to preventive medical care use further supporting the need to consider socioeconomic factors in studies of preventive medical care use. Moreover, Pickett and Wilkinson (2015) proposed a causal relationship between income inequality and higher healthcare costs further leading credence to explore the role of cost burden on individuals seeking healthcare services.

Seniors

By the year 2050, the United Nation estimates more than 2 billion of the world population will be over age 65 (Clegg, Young, Iliff, Rikkert, & Rockwood, 2013). Equaling nearly a quarter of the total estimated population, the future size of our elderly population requires significant planning as aging populations continue to live longer leading to age-related declines, disability, frailty, long-term care needs and isolation (Clegg, Young, Iliff, Rikkert, & Rockwood, 2013). Clegg, Young, Iliff, Rikkert, & Rockwood (2013) define frailty as increased vulnerability resulting from a stress that increases the risk of adverse health such as disorientation, disability and general decline. This definition of frailty, coupled with people living longer, offers sufficient evidence to include seniors as a vulnerable population. In order to incorporate the senior population into the study, this study will control for the potential confounding by age since age may affect the likelihood of seeking primary services independently of membership in the Managed Medicaid or Medicare Advantage program.

Foster Care

Children in foster care are considered a "vulnerable population" in clinical care and research, with good reason. Children in foster care face multiple medical, psychological, and social risks that obligate the child welfare and healthcare systems to protect them from further harms (Seltzer, Kasimatis-Singleton, Williams, & Boss, 2018). An unintended consequence of the "vulnerable population" designation for children in foster care is that it may impose barriers on tracking and studying their health that creates gaps in knowledge that are key to their receipt of medical care and good outcomes

(Seltzer, Kasimatis-Singleton, Williams, & Boss, 2018). These gaps in knowledge have implications for justice, beneficence, and maleficence and serve to undermine "protection" of this population. The challenges of research regarding children in foster care, particularly medically complex children, offer the foundation to include children in foster care in medical research (Seltzer et al., 2018).

Patients with HIV/AIDS

Despite the existence of highly active antiretroviral therapy, HIV/AIDS morbidity and mortality continue to be public health burdens in the U.S. due to difficulties in engaging people living with HIV/AIDS (PLWHA) in continuous, effective care (Lam et al., 2016). Lam et al. (2016) collected data on continuous and effect care via one-on-one, in-depth interviews with 31 study participants, and data analysis entailed thematic coding of interview transcripts and writing analytic memos to develop ideas and concepts (Lam et al., 2016). Among other findings of the study, factors described as influential by the study participants related to appointment reminders and scheduling, the attitudes and communication styles of HIV clinicians, and the disposition and availability of other healthcare workers on the care “team.” Thus, improving quality of HIV care and means of delivering it may help mitigate the numerous points in the continuum of HIV care when a patient may disengage (Lam et al., 2016). This study controls for chronic conditions or comorbidity and thus the researcher will be able to assess the difference in the degree to which chronic and non-chronic patients seek primary care services.

Transgender Community

Roberts and Fantz (2014) offers that the transgender community is arguably the most marginalized and underserved population in medicine. A special issue focusing on men's health would be incomplete without mention of this vulnerable population, that includes those transitioning to and from the male gender (Roberts & Fantz, 2014). Transgender patients who belong to the vulnerable population face many barriers in their access to healthcare including historical stigmatization, both structural and financial barriers, and even a lack of healthcare provider experience in treating this unique population (Roberts & Fantz, 2014). Recently, healthcare providers acknowledge that healthcare information is lacking regarding the unique needs and long-term outcomes for transgender patients, that contributes to the inability to provide appropriate care (Roberts & Fantz, 2014). All of these barriers must be recognized and addressed in order to elevate the quality of healthcare delivered to the transgender community to a level commensurate with the general population (Roberts & Fantz, 2014). Overcoming these social barriers among the vulnerable population will require redefinition of our current system such that the care a patient receives is not exclusively linked to their gender but also considers gender identity (Roberts & Fantz, 2014).

People with Mental Health Illness

Mental illnesses among affected patients are the largest contributors to the global burden of non-communicable diseases. However, there is extremely limited access to high quality, culturally sensitive, and contextually appropriate mental healthcare services (Acharya et al., 2017). This situation suffered by patients with mental illness persists despite the availability of interventions with proven efficacy to improve patient outcomes. A partnerships network is necessary for successful program adaptation and implementation. The perspectives supported by Acharya et al. (2017) are informed from integrating mental healthcare services in a rural public hospital in Nepal. This specific approach in the healthcare system includes training and supervising generalist health workers by off-site psychiatrists (Acharya et al., 2017). This is made possible by complementing the strengths and weaknesses of the various groups involved: the public sector, a non-profit organization that provides general healthcare services and one that specializes in mental health, a community advisory board, academic centers in high- and low-income countries, and bicultural professionals from the diaspora community (Acharya et al., 2017). Acharya et al., (2017) proposed a partnerships model to assist implementation of promising programs to expand access to mental healthcare in low-resource settings. Further, Acharya et al. (2017) also described the success and limitations of our current partners in a mental health program in rural Nepal.

People with Other Chronic Disease

People with long-term conditions reported more difficulties than the general population in understanding health information and actively engaging with healthcare providers (Friis, Lasgaard, Osborne, & Maindal, 2016). Wide variation was found between disease groups, with people with cancer having fewer difficulties and people with mental health disorders having more difficulties in actively engaging with healthcare providers than other long-term condition groups (Friis et al., 2016). Having more than one long-term condition was associated with more difficulty in engaging with healthcare providers and understanding health information (Friis et al., 2016). People with low levels of education had lower health literacy than people with high levels of education (Friis et al., 2016). Compared with the general population, people with long-term conditions report more difficulties in understanding health information and engaging with healthcare providers (Friis et al., 2016). These two dimensions are critical to the provision of patient-centered healthcare and for optimizing health outcomes (Friis et al., 2016). More effort should be made to respond to the health literacy needs among individuals with long-term conditions, multiple comorbidities and low education levels, to improve health outcomes and to reduce social inequality in health (Friis et al., 2016).

Unmet Social Need and Social Barriers

Social justice in the field of healthcare is the moral imperative to avoid and remediate unfair distributions of societal disadvantage (Dukhanin et al., 2018). In priority setting in healthcare and public health, social justice reaches beyond fairness in the distribution of health outcomes and economic impacts to encompass fairness in the distribution of policy impacts upon other dimensions of well-being of the patients (Dukhanin et al., 2018). Four broad challenges in the healthcare system related to the implementation of these solutions were identified: clarifying the normative basis; measuring and determining the relative importance of criteria representing that basis; combining the criteria; and evaluating trade-offs (Dukhanin et al., 2018). All included solutions must grapple with an inherent tension: they must either face the normative and operational challenges of quantifying social justice concerns or accede to offering incomplete policy guidance (Dukhanin et al., 2018). Interdisciplinary research in the healthcare system and broader collaborations are crucial to address these challenges and to support due attention to social justice in priority setting (Dukhanin et al., 2018).

Putting Social Barriers Into Context

The social healthcare context involves the interaction between professionals, patients and the organizational systems in care delivery (Chandler, Rycroft-Malone, Hawkes, & Noyes, 2016). Five Complexity Theory core concepts extracted were self-organization, interaction, emergence, system history, and temporality (Chandler, Rycroft-Malone, Hawkes, & Noyes, 2016). Application of these concepts suggests routine surgical fasting practice is habituated in the social healthcare system and therefore it cannot easily be reversed and the healthcare of the patients may be significantly affected (Chandler, Rycroft-Malone, Hawkes, & Noyes, 2016) A reduction to fasting times requires an incentivized new approach to emerge in the surgical system's priority of completing the operating list (Chandler, Rycroft-Malone, Hawkes, & Noyes, 2016). The application of Complexity Theory in the healthcare system provides a useful explanation for resistance to change fasting practice. Its utility in implementation research warrants further attention and evaluation (Chandler, Rycroft-Malone, Hawkes, & Noyes, 2016).

The Difference Between Healthcare and Social Supports

A lack of access to knowledgeable healthcare providers is the greatest reported barrier to care for transgender individuals (Korpaisarn & Safer, 2018). The purpose of the manuscript by Korpaisarn and Safer (2018) is to review the recent literature characterizing transgender medicine education for medical providers and to summarize effective interventions for improving education in transgender care. The lack of education about the health management in transgender care continues among providers across all levels of medical education from medical students and physician trainees to PCPs, endocrinologists and other specialists involved in transgender care (Korpaisarn & Safer, 2018). Several interventions have been shown to effectively improve transgender knowledge and cultural competency. Education among healthcare providers for vulnerable populations is deficient and is considered a major barrier to care for transgender individuals (Korpaisarn & Safer, 2018). Effective interventions should be applied to fundamental medical education. Additional focused education also should be taught with specialty-appropriate content to produce needed proficiency among providers of transgender care (Korpaisarn & Safer, 2018).

Defining Successful Health Interventions

Bortolotti et al. (2018) sought to identify the most influential determinants of healthcare employees’ problem-solving capabilities and attitudes towards kaizen initiatives, and clarify how these determinants are related to social outcomes. The results support healthcare practitioners to understand how to establish “focused kaizen” actions to leverage specific determinants that positively influence social outcomes (Bortolotti et al., 2018). Of the 14 determinants of a successful health intervention investigated, goal clarity, team autonomy, management support, goal difficulty and affective commitment to change (ACC) are the most influential determinants of kaizen capabilities and/or employees’ attitude. Goal clarity, goal difficulty, team autonomy and management support are also found to influence social outcomes directly and/or indirectly through ACC, internal processes and/or an action orientation (Bortolotti et al., 2018).

The Economy and the Social Safety Net

Although Portugal has been deeply affected by the global financial crisis, the impact of the recession and subsequent austerity on health and to healthcare has attracted relatively little attention, especially towards the healthcare system received by the vulnerable population (Legido-Quigley et al, 2016). Legido-Quigley et all (2016) used several sources of data including the European Union Statistics for Income and Living Conditions (EU-SILC) that tracks unmet medical need during the recession and before and after the Troika's austerity package. Individual-level studies from Portugal among vulnerable population also suggested that co-payments at primary and hospital level are having a negative effect on the most vulnerable living in disadvantaged areas, and that healthcare professionals have concerns about the impact of recession and subsequent austerity measures on the quality of care provided (Legido-Quigley et al, 2016). The Portuguese government no longer needs external assistance, but these findings suggest that measures are now needed to mitigate the damage incurred by the crisis and austerity (Legido-Quigley et al, 2016).

Summary and Conclusions

Multiple factors may impact the use of healthcare and social services. Research indicated that there may be times individuals feel uncomfortable visiting social services but feel comfortable visiting a healthcare provider (Dichter et al., 2018). Shifting populations into primary care settings may be beneficial given that such settings could be used both physical and mental problems (Balasubramanian et al., 2017; Kim & Tarn, 2016; Shardlow, McIntyre, Fluck, McIntyre, & Taal, 2016). However, disparities sometimes existed in healthcare use based on factors such as age (Aiken, Mahar, Kurdyak, Whitehead, & Groome, 2016) and gender (Roth et al., 2016). Researchers also noted that some populations may be at particular need of using healthcare, such as low-income populations (Fitzpatrick et al., 2015; Pruitt, Emechebe, Quast, Lyons-Taylor, & Bryant, 2018) or patients with specific diseases, such as HIV (Lam et al., 2016). Adequately addressing gaps in healthcare use may require addressing issues in a country's healthcare system and its social safety net (Legido-Quigley et al, 2016). However, the general findings of the literature review were that there were multiple issues that may prevent individuals from taking advantage of healthcare.

Chapter 3: Research Method

Introduction

The purpose of this quantitative, quasi-experimental study was to examine the relationship between the use of social supports and primary care while controlling for age, sex, and case management. The focus of this study was to examine the relationship between the use of the social services and the use of primary care services among Medicaid and Medicare Advantage members.

Role of the Researcher

A good researcher must ensure their personal bias does not affect their research. In order to prevent personal biases, I reported the information exactly the way it was presented. I examined the relationship between removing social barriers and use of preventive services among Medicaid and Medicare consumers in a complex adaptive system. Moreover, all ethical considerations were strictly adhered to, with any potential dilemmas addressed prior to proceeding with the data collection process and the data analysis.

As the researcher and scholar, I used knowledge obtained from both academic and professional expertise to evaluate the results and findings obtained from the study. I complied with the guidelines set forth by the Institutional Review Board (IRB) and Walden University, and I took all measures to ensure honest responses from participants during the data collection process. I cleaned and coded the data using SPSS, with the data analysis conducted according to the data analysis plan presented later in this Chapter.

Research Design and Rationale

The quantitative method and quasi-experimental design of this research study were appropriate because the criterion variables are measurable numbers (see Weiers, 2010). Qualitative designs explore unknowns (McDaniel & Gates, 2013). A qualitative design would not have been appropriate for this study because the purpose was to test hypotheses between known variables. The use of a qualitative methodology, therefore, is best suited to evaluate a central phenomenon or to understand the essence of experience (Schiffman & Wisenblit, 2014). This study was not a general description of an experience or an understanding of the meaning of themes. Instead, this quantitative study was a comparison of variables proving a hypothesis and answering specific questions. The quantitative design was appropriate for researching and comparing relationships between use of social services and primary care use.

In quantitative research, the investigator identifies a research problem that needs explaining, demonstrates how one variable affects another variable, researches historical and current literature for potential instruments and tools to measure the problem, and collects data with the intent of generalizing the results from a population or sampling. Data analysis reveals a predictable pattern or picture statistically. The entire quantitative study conveys an objective opinion that can be generalized to a larger population (Dobrovolny & Fuentes, 2008).

The purpose of using a quasi-experimental research design for this study was to investigate the potential impact one variable may have on another variable (see Randler & Bogner, 2008). When interventions are held in a naturalistic setting such as a hospital, especially in cases when variables cannot be easily controlled for, the use of the quasi-experimental design is more appropriate than framing the research as a true experimental design (Randler & Bogner, 2008).

The quasi-experimental research design requires the researcher to: (a) observe the experiment, (b) ask appropriate research questions, and (c) formulate null and alternative hypotheses statements. The hypothesis is an explicit statement as to what is believed to be true about the observed experiment. The scientific method instructs the researcher to test the hypothesis. Testing usually involves designing a protocol for collecting information (data) that will permit the evaluation of the hypothesis and, finally, to accept or reject it (Tanbakuchi, 2009).

Methodology

I used a quasi-experimental research design to measure the difference in mean number of visits to the primary care office in the same population before and after a social service intervention for the purposes of this study. The investigation involved a 1-year pre-/postevaluation period using claims for services rendered between October 1, 2014, and October 1, 2016, while considering other variables such as age, sex, and other interventions like case management. The purpose of using the quasi-experimental research design was to investigate the potential relationship between two variables without a specific designation of participants into experimental groups (see Randler & Bogner, 2008). With such interventions held in a naturalistic setting, the use of the quasi-experimental design was more appropriate than true experimental design (Randler & Bogner, 2008).

Due to the research questions posed, a repeated measures analysis of variance (rmANOVA) and generalized estimation equations (GEE) were employed. I used rmANOVA to determine if there are any statistically significant differences between the means of three or more levels of an in-subjects factor. Both research questions sought to determine if there are any significant mean differences in the dependent variable difference in PCP visits based on access to social services (RQ1) and line of business (RQ2). I used a generalized estimating equation (GEE) to estimate the parameters of a generalized linear model with a possible unknown correlation between outcomes, such as time dependent data. Unlike multiple regression, GEE regression takes into consideration repeated measurements, as needed for this study.

Population Overview

The target population consisted of individuals enrolled in Managed Medicaid and Medicare Advantage through one national managed care organization. This targeted population represented a subset of the broader population of individuals enrolled in Managed Medicaid and Medicare Advantage across the United States. As of 2017, one in three people with Medicare (33% or 20 million beneficiaries) enrolled in Medicare Advantage (Jacobson, et al., 2015). As of 2018, 45 million enrolled in Managed Medicaid (Kaiser Family Foundation, 2018).

Types and Sources of Data

A national health insurance company granted me access to claims data for their Medicare Advantage and Managed Medicaid enrollees who accessed their model for screening and connecting people to social supports. The study population included nearly

22,000 individuals who secured a social support referral through the organization as well as visited their primary care physician during the study time period. Specifically, to be included in the study, the participants must have had both social support and primary care experience between October 1, 2014, and October 1, 2016.

Sampling and Sampling Procedure

The sampling method was purposive and typically conducted when a specific inclusion criterion was met as well as when a limited number of people were available in the area for the study. The sampling must be representative of the larger population in the United States. The analysis included de-identified, self-reported data as well as claims analysis.

A priori power analysis using G*Power determined the required minimum sample size for the study. Four factors determine the power analysis: significance level, effect size, the power of the test, and statistical technique. The significance level, also known as Type I error, refers to the chance of rejecting a null hypothesis given that it is true (Haas, 2012). Most quantitative studies make use of a 95% confidence level because it adequately provides enough statistical evidence of a test (Creswell, 2008). The effect size refers to the estimated measurement of the relationship between the variables considered (Cohen, 2013). Cohen (2013) categorized effect size into small, medium, and large. Berger, Bayarri, and Pericchi (2014) purported that a medium effect size is better as it strikes a balance between being too strict (small) and too lenient (large). Additionally, assuming that “large” effects are always more important than “small” or “medium” ones is unjustified (Durlak, 2009). It is not only the magnitude of effect that is important but also its practical or clinical value that must be considered (Durlak, 2009). As such, medium effect sizes are usually considered better because, as Berger et al. (2014) stated, it strikes a balance between being too strict (small) and too lenient (large).

The power of a test refers to the probability of correctly rejecting a null hypothesis (Sullivan & Feinn, 2012). In most quantitative studies, 80% of power is usually used (Sullivan, & Feinn, 2012. I used rmANOVA and GEE in this study. A minimum sample size of 34 is required to conduct repeated measures and for rmANOVA to detect a medium effect size of *f* = 0.25, at the 5% level of significance, with 80% power. Figure 1 and Figure 2 depict this information below.

```
F tests - ANOVA: Repeated measures, in factors
Analysis:   A priori: Compute required sample size
Input:      Effect size f                  =  0.25
            α err prob                     =  0.05
            Power (1-β err prob)           =  .80
            Number of groups               =  2
            Number of measurements         =  2
            Corr among rep measures        =  0.5
            Nonsphericity correction ε     =  1
Output:     Noncentrality parameter λ      =  8.5000000
            Critical F                     =  4.1490974
            Numerator df                   =  1.0000000
            Denominator df                 =  32.0000000
            Total sample size              =  34
```

Figure 1. G*Power minimum sample size calulation for ANOVA.

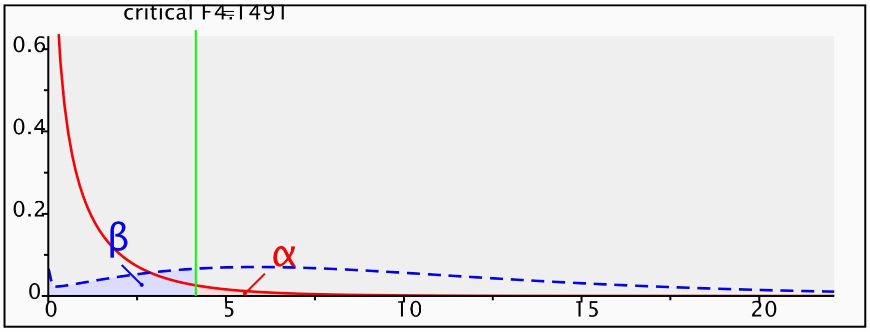


Figure 2. G*Power critical F value calculation for ANOVA

As there is no minimum sample size estimation for GEE in G*Power, rules of thumb are often used for GEE. One popular method proposed by Hedeker, Gibbons, & Waternaux (1999), is the following rule of thumb used for longitudinal data:

$N \approx (4/\delta)^2$, where δ = effect size (for power = .8 for a 2-tailed .05 test)

Using Cohen’s suggestion of $\delta = 0.5$ be considered a medium effect size, the minimum sample size required for GEE is $(4/.5)^2 = 64$ individuals.

Procedures for Recruitment, Participation, Data, and Data Protection

I sought permission from a national health insurance company to use the claims data for Medicare Advantage and Managed Medicaid enrollees who accessed their model for screening and connecting people through social services offered by the company. Hence, I used de-identified data from the experience of 22,000 people for this study who had both social support and primary care experience between the 2-year period of October 1, 2014, and October 1, 2016.

Upon IRB approval, I used primary data sources including self-reported feedback and claims data from the national health plan described above. The identity of the participants was kept anonymous throughout the study. To protect the identity of study participants, the national health plan replaced the names of participants with a unique identifier. As the researcher, I did not have access any identifying data. All information using the coded identification numbers from the pretest and posttest data were tabulated. Because the nature of the data were anonymous, the identification of the participants was limited. All study-related documents were stored in a locked private cabinet in a secure area during the study. After 5 years, all sensitive research information will be shredded in a crosscutting manner before disposal.

Covariates

The independent variable in this study is the use of a social service. The covariates in this study include age, sex, and case management status. Primary care setting represents the one dependent variable.

Access to a social service. This categorical variable, measured at the nominal level of measurement, is dichotomized into people who have used a social service at least once (coded as 1) and those that have not used a social service (coded as 0).

Covariates. The covariates were as follows:

Age: Age is a continuous variable and will be measured at the interval level of measurement.

Sex: Sex is a categorical variable that will be dichotomized as either M for male or F for female.

Case management. Case management is a categorical variable that will be dichotomized as either 0 for no and 1 for yes.

Dependent variable. The dependent variable was as follows:

Primary Care Visits: Primary care visits are a continuous variable measured at the interval level of measurement.

Independent variable. The independent variable was as follows:

Social Support Encounters: Social Support encounters categorical variable that will be dichotomized as either 0 for no and 1 for yes.

Data Analysis Plan

Data were analyzed using the statistical software suite Statistical Package for the Social Sciences (SPSS) Version 24. Examination of the data set shows missing data and cases were removed if incomplete (e.g., listwise deletion). Analysis was completed on cases with complete data. Categorical variables were dummy coded. I reported the descriptive statistics of the data for the predictor and dependent variables as well as the frequency and percentage summaries for the categorical variables in chapter 4. I used the measure of central tendencies of means and standard deviations and minimum and maximum values to examine the continuous variables.

For RQ1, I used rmANOVA as well as GEE to determine differences in primary care use between Managed Medicaid or Medicare Advantage participants who use social services and those who do not, while controlling for age, sex, and other interventions. The predictor variable in the ANOVA is the use of social services (0 = no, 1 = yes), the dependent variable is the use of primary care. Additionally, GEE was conducted in order to determine the association between the dependent variable use of primary care and the independent variable use social services, while controlling for age, sex, and case management.

For RQ2, I also used rmANOVA and GEE to determine differences between Managed Medicaid and Medicare Advantage populations who used at least one social service in seeking care in a primary care setting, while controlling for age, sex, and other interventions. The predictor variable in the ANOVA was Medicare or Medicaid using social services (0 = Medicare, 1 = Medicaid), the dependent variable was the use of primary care, and the covariates were age, sex, and case management.

There are four assumptions for ANOVA (Hirotsu, 2017). These four assumptions are (a) independence of observations—residuals are independent, (b) normality—the distributions of the residuals are normal, (c) sphericity - the variances of the differences between all combinations of levels of the in-subjects factor must be equal, and (d) absence of outliers (Hirotsu, 2017). The independence assumption refers to the assumption wherein each observation must be independent of all other observations in the data set (Hirotsu, 2017). Researchers use random sampling techniques in collecting data in order to meet this assumption (Huber & Melly, 2015). The normality assumption refers to the assumption that for each categorical group, each dependent variable must represent a normal distribution of scores (Hirotsu, 2017). Removal of outliers in the data set or data transformation can be used to ensure the normality assumption is met (Huber & Melly, 2015). The sphericity assumption refers to the assumption that each dependent variable must exhibit similar levels of variance across each independent variable (Parra-Frutos, 2013). Levene’s test identifies potential violation of this assumption or not (Sedgwick, 2015). Lastly, outliers can be detected by converting values to standardized values and standardized scores outside the -3 to +3 are removed.

Generalized Estimating Equations (GEE) was used in determining the relationships between the dependent variable, PCP visits, and the independent variables (the use of social services and enrollee type) of the study. GEE estimates are more efficient and unbiased regression parameters compared to ordinary least squares regression (multiple regression) in part because they permit correlation of responses on dependent variables, that was the case for time dependent data utilized in this study (Alnaji, 2018). Additionally, the covariates of age, sex, and case management status were controlled for in the GEE analysis. The assumptions of GEE are that the cases are assumed to be dependent in subjects and independent between subjects, as was the case in this study. Additionally, GEE does not require normality.

Threats to Validity

Leedy and Ormrod (2010) stated that research must ensure internal and external validity to conclude any meaningful assumption from a research study. Validity determines whether the research measures that it was designed to measure. The confidence in the cause-and-effect relationship of a study is essential to establishing the validity of the study. Internal validity is primarily concerned with controlling the extraneous variables and outside influences that may impact the outcome. The use of quasi-experimental design represents a potential threat to internal validity since the participants are not randomly selected. Therefore, difficult controlling the extraneous variables influence the findings. Internal validity indicates the degree that the study findings mirror reality and if the independent variable affects the outcome of the dependent variable. The independent variables are the use of social services and enrollee type, and the dependent variable is the use of preventive services in a primary care setting.

External validity refers to the generalizability of the study results to a larger population. External validity depends on the instrument used to analyze the data in an attempt to generalize findings from this setting to the broader range. Statistical validity is used to show that the correct statistical procedures were chosen, followed, and assumptions fully met (Neuman, 2003). External validity may be improved by (a) selecting populations randomly, (b) attempting to maintain a low dropout rate, and (c) using a diverse population when possible (Trochim, Donnelly, & Arora, 2006). Participants for this study were extracted from the target population in a nonrandomized fashion. Additionally, different ages, both genders, and diverse groups are eligible to participate in this study.

Ethical Procedures

Approval from the Walden's IRB for data collection was obtained on February 21, 2020 (IRB approval #: 02-21-20-0429038). IRB is committed to maintaining, approving, and overseeing ethical research standards. (Hartnett, 2016). I will not keep any confidential information such as the names of participants, phone numbers, or addresses. All collected data will be stored on a password-protected computer on which only I know the password and fingerprint validation is required. Another ethical issue that arises is whether the research questions and hypotheses in this current study may have been used, in previous literature in which the data have already been analyzed and published. Permission of secondary data must be obtained to use secondary data. Secondary data must be original and to the point.

Granted permission from the national health plan limited the use of the data for my dissertation only in accordance with standard research programs (Tripathy, 2013). In response, I agreed to share research results back with the national health plan upon completion of my dissertation. Documented approval was captured in a formal letter of release included in the appendix this document.

Summary

In chapter 3, I provided an overview of how the statistical models that compare the means of paired samples offer provisions for the analysis of the hypotheses. In this study, I examined the relationship between use of social services with primary care use while controlling for age, sex, and case management status. A focus on the effects of social supports use on primary justifies the use of a quantitative approach (rmANOVA and GEE) is justified since the focus is on the effects of social service on primary use using claims data and encounter data.

Chapter 4: Results

Introduction

The purpose of this quantitative, quasi-experimental study was to examine the relationship between the use of social supports and primary care among Medicaid and Medicare Advantage members of a national health plan while controlling for age, sex, and case management. What follows now is a description of the data collection process involved in the analysis. I provide baseline descriptive and demographic characteristics of the sample. Additionally, I present the results of the statistical analysis for each research question here as well as the testing of statistical assumptions. The chapter concludes with a summary of the results of the analysis.

Data Collection

After receiving IRB approval, I used a quasi-experimental research design to measure the difference in mean number of visits to the primary care office in the same population before and after a social service intervention. The investigation involved a 1-year pre-/postevaluation period using claims for services rendered between October 1, 2014, and October 1, 2016, while considering other variables such as age, sex, and other interventions like case management.

There were 21,993 individuals whose social service referral status were tracked and confirmed. The study population was restricted to include individuals with first referral dates between October 1, 2014, and October 1, 2016, to allow for the 2-year observation window. Thus, 14,497 cases were excluded. This led to a population of 7,496. Furthermore, 7,017 members had at least one visit to a PCP. I excluded a total of

479 members because they had dual Medicaid and Medicare. Also, 2,006 members were excluded because they lacked at least 6 months of utilization data pre- and post-index date. This was done to ensure members were continuously enrolled for at least 6 months, and it is theoretically possible to determine their utilization during this time frame. Eight people lacked utilization data in 12 months pre- or postreferral date. Due to extreme outliers (standardized difference scores outside the -3 to +3 threshold), analysis was restricted to 4,480 cases.

There were 3,010 (67.2%) females and 1,470 (32.8%) males in the sample. Ages ranged from 18 to 97 (*M* = 55.73, *SD* = 15.76). The sample consisted of Medicaid, 2325 (51.9%), and Medicare, 2155 (48.1%) line of businesses (as defined by insurance type). Regarding race, most were White, 3,472 (77.5%). This was followed by Black, 453 (10.1%); some other ethnicity, 163 (3.6%); Hispanic, 116 (2.6%); Asian, 21 (0.5%); and Native American, 2 (< .01%). There were 253 (5.7%) people who did not provide a response. Tables 1, 2, and 3 depict this information below.

Table 1

Distribution of the Sample by Gender

	Frequency	Percent
Females	3,010	67.2
Males	1,470	32.8
Total	4,480	100.0

Note. (*N* = 4,480).

Table 2

Distribution of the Sample by Insurance

	Frequency	Percent
Medicaid	2,325	51.9
Medicare	2,155	48.1
Total	4,480	100.0

Note. (*N* = 4480).

Table 3

Distribution of the Sample by Ethnicity

	Frequency	Percent
White	3,472	77.5
Black	453	10.1
Not provided	253	5.7
Other	163	3.6
Hispanic	116	2.6
Asian	21	.5
Native American	2	.0
Total	4,480	100.0

Note. (*N* = 4480).

What follows are the results of the analysis that include descriptive statistics of the study variables. Additionally, I provide the testing of parametric assumptions. I also present the results of the hypotheses testing for each research question.

Results

A sample of *N* = 4,480 cases were analyzed in this study that included demographic data for Medicare Advantage and Managed Medicaid enrollees who accessed their model for screening and connecting people to social supports, line of business (Medicare or Medicaid), and number of PCP visits pre- and post-index dates. Demographic statistics were reported in the previous section.

The number of PCP visits in 6 months preevaluation ranged from 1 to 101 (*M* = 11.19, *SD* = 9.79). Postevaluation for the number of PCP visits in 12 months ranged from 1 to 141 (*M* = 20.31, *SD* = 16.62). This information is depicted in Table 4 below.

Table 4

Mean and Standard Deviation of Primary Care Provider Visits and Social Service Encounters

	Min	Max	*M*	*SD*
Number of PCP visits in 6 months Pre	1	101	11.19	9.79
Number of PCP visits in 12 months Post	1	141	20.31	15.62

Table 5 below depicts the number of PCP visits by line of business type. For Medicaid, the number of PCP visits preevaluation ranged from 1 to 95 (*M* = 13.5, *SD* = 10.68) and postevaluation ranged from 1 to 111 (*M* = 24.59, *SD* = 16.73). For Medicare, preevaluation ranged from 1 to 81 (*M* = 9.09, *SD* = 8.11) and postevaluation ranged from 1 to 111 (*M* = 16.49, *SD* = 13.19).

Table 5

Mean and Standard Deviation of Primary Care Provider Visits and Insurance

Insurance type		Min	Max	*M*	*SD*
Medicaid	Pre	1	95	13.50	10.68
	Post	1	111	24.59	16.73
Medicare	Pre	1	81	9.09	8.11
	Post	1	111	16.49	13.19

Table 6 depicts the number of pre- and post-PCP visits by social service accessed. Among those participants who did not access a social service, preevaluation number of PCP visits ranged from 1 to 80 (*M* = 10.72, *SD* = 9.54) and postevaluation number of visits ranged from 1 to 110 (*M* = 19.27, *SD* = 15.32). Among the participants who did access a social service, preevaluation number of PCP visits ranged from 1 to 95 (*M* = 11.52, *SD* = 9.80) and postevaluation number of visits ranged from 1 to 111 (*M* = 21.05, *SD* = 15.66).

Table 6

Mean and Standard Deviation of Primary Care Provider Visits and Social Service Status

Accessed social service		Min	Max	*M*	*SD*
No	Number of PCP visits in 6 months Pre	1	80	10.72	9.54
	Number of PCP visits in 12 months Post	1	110	19.27	15.32
Yes	Number of PCP visits in 6 months Pre	1	95	11.52	9.80
	Number of PCP visits in 12 months Post	1	111	21.05	15.66

Table 7 depicts the number of pre- and post-PCP visits by gender. Among males, preevaluation number of PCP visits ranged from 1 to 81 (*M* = 11.41, *SD* = 10.15) and postevaluation number of visits ranged from 1 to 111 (*M* = 20.25, *SD* = 15.82). Among females, preevaluation number of PCP visits ranged from 1 to 95 (*M* = 11.21, *SD* = 9.52) and postevaluation number of visits ranged from 1 to 111 (*M* = 20.61, *SD* = 15.47).

Table 7

Mean and Standard Deviation of Primary Care Provider Visits and Gender

Gender		Min	Max	*M*	*SD*
Male	Number of PCP visits in 6 months Pre	1	81	11.41	10.15
	Number of PCP visits in 12 months Post	1	111	20.25	15.82
Female	Number of PCP visits in 6 months Pre	1	95	11.21	9.52
	Number of PCP visits in 12 months Post	1	111	20.61	15.47

Table 8 depicts the number of pre- and post-PCP visits by race. Among Blacks, preevaluation number of PCP visits ranged from 1 to 87 (*M* = 10.03, *SD* = 9.07) and postevaluation number of visits ranged from 1 to 105 (*M* = 18.28, *SD* = 14.84). Among Whites, preevaluation number of PCP visits ranged from 1 to 95 (*M* = 11.29, *SD* = 9.53) and postevaluation number of visits ranged from 1 to 111 (*M* = 20.57, *SD* = 15.37). Among Hispanics, preevaluation number of PCP visits ranged from 1 to 56 (*M* = 10.93, S*D* = 9.53) and postevaluation number of visits ranged from 1 to 85 (*M* = 19.76, *SD* = 15.31). Among other races, preevaluation number of PCP visits ranged from 1 to 62 (*M* = 8.54, *SD* = 8.54) and postevaluation number of visits ranged from 1 to 67 (*M* = 15.87, *SD* = 12.07).

Table 8

Mean and Standard Deviation of Primary Care Provider Visits and Ethnicity

Race		Min	Max	*M*	*SD*
Black	Number of PCP visits in 6 months (Pre)	1	87	10.03	9.07
	Number of PCP visits in 12 months (Post)	1	105	18.28	14.84
White	Number of PCP visits in 6 months (Pre)	1	95	11.29	9.523
	Number of PCP visits in 12 months (Post)	1	111	20.57	15.37
Hispanic	Number of PCP visits in 6 months (Pre)	1	56	10.93	9.523
	Number of PCP visits in 12 months (Post)	1	85	19.76	15.31
Other	Number of PCP visits in 6 months (Pre)	1	62	8.54	7.54
	Number of PCP visits in 12 months (Post)	1	67	15.87	12.07

Difference scores were created in order to measure the difference between the number of PCP visits pre and post evaluation. Difference scores ranged from -40 to 11(*M* = -9.22, *SD* = 8.14). A negative difference score indicates that the number of pre-evaluation PCP visits was greater than the post-evaluation PCP visits. A mean PCP visit of -9.22 indicates that, overall, the average post-evaluation PCP visit was larger than pre-evaluation. Additionally, based on skewness and kurtosis values, the difference scores were normally distributed. Skewness and kurtosis values in -2 to +2 indicate approximate normality (George & Mallery, 2010). Table 9 depicts this information below.

Table 9

Descriptive Statistics of Primary Care Provider Visits and Social Service Encounters

Min	Max	*M*	*SD*	Skewness	Kurtosis
-40.00	11.00	-9.22	8.14	-1.236	1.375

Table 10 depicts the Pearson Correlation Coefficient between age and PCP difference scores. There is a significant small positive correlation between age and PCP visit difference scores (*r* = 0.082, *p* < .001). This indicates that increasing age is associated with more post-evaluation PCP visits (i.e., the difference between pre and post number of visits increases).

Table 10

Correlation Analysis between Primary Care Provider Visits and Age

		PCP visit difference	Age
PCP visit difference	*R*	1	$.082^{**}$
	P		.000
Age	*R*	$.082^{**}$	1
	P	.000	

Note. **. Correlation is significant at the 0.01 level (2-tailed).

In order to assess the significance of gender as an effect on PCP visit difference scores, an independent *t* test was conducted. There was no violation of the assumption of homogeneity of variances as assessed by a nonsignificant Levene's test, *p* = .767. Females (*M* = -9.40, *SD* = 8.13) had a greater mean PCP visit difference score than males (*M* = -8.84, *SD* = 8.15). This mean difference of 0.57 was significant, t(8364) = 2.926, *p* = .003. Tables 11 and 12 below depict this information.

Table 11

Mean, Standard Deviation and Standard Error of Primary Care Provider Visits and Gender

	Gender	*M*	*SD*	*SE*
PCP visit difference	Male	-8.84	8.15	.16
	Female	-9.40	8.13	.11

Table 12

Independent Samples T Test between Primary Care Provider Visits and Gender

	Levene's test for equality of variances		*t* test for equality of means						
	F	*P*	*T*	*Df*	*p*	Mean difference	Std. error difference	95% C.I of the difference	
								Lower	Upper
PCP visit difference	.088	.767	2.926	8364	.003	.56	.19	.19	.94

In order to assess the significance of line of business (insurance type) as an effect on PCP visit difference scores, an independent *t* test was conducted. There was a violation of the homogeneity of variances assumption, $p < .001$. As a result, the Welch *t* test was interpreted (Ruxton, 2006). Medicaid ($M = -11.08$, $SD = 8.82$) had a greater mean PCP visit difference score than Medicare ($M = -7.40$, $SD = 6.94$). This mean difference of -3.68 was significant, $t(7853.397) = -21.188$, $p < .001$. Tables 13 and 14 below depict this information.

Table 13

Mean, Standard Deviation and Standard Error of Primary Care Provider Visits and Insurance

	Insurance type	*M*	*SD*	*SE*
PCP visit difference	Medicaid	-11.08	8.82	.14
	Medicare	-7.40	6.94	.11

Table 14

Independent Samples t *Test between Primary Care Provider Visits and Insurance*

	Levene's test for equality of variances		*t* test for equality of means						
	F	*p*	*T*	*Df*	*P*	Mean difference	Std. error difference	95% Confidence interval of the difference	
								Lower	Upper
PCP visit difference	277.80	< .001	-21.188	7853.397	< .001	-3.68	.17	-4.02	-3.34

In order to assess the significance of access to social service as an effect on PCP visit difference scores, an independent t test was conducted. There was a violation of the homogeneity of variances assumption, $p = .006$. As a result, the Welch t-test was interpreted (Ruxton, 2006). Those who did access a social service ($M = -9.53$, $SD = 8.21$) had a greater mean PCP visit difference score than those who did not ($M = -8.855$, $SD = 7.93$) This mean difference of 0.97 was significant, $t(5151.105) = 5.140$, $p < .001$. Tables 15 and 16 below depict this information.

Table 15

Mean, Standard Deviation, and Standard Error of Primary Care Provider Visits and Service

	Accessed social service	*M*	*SD*	*SE*
PCP visit difference	No	-8.55	7.93	.16
	Yes	-9.53	8.21	.11

Table 16

Independent Samples t *Test between Primary Care Provider Visits and Social Service*

	Levene's test for equality of variances		t-test for Equality of Means						
								95% confidence interval of the difference	
	F	*p*	*T*	*Df*	*P*	Mean difference	Std. error difference	Lower	Upper
PCP visit difference	7.418	.006	5.140	5151.105	.000	.97	.19	.60	1.35

In order to assess the significance of ethnicity as an effect on PCP visit difference scores, a one-way ANOVA was conducted. The overall ANOVA was significant, *F*(3,

7899) = 10.174, *p* < .001. Specifically, Blacks (*M* = -8.25, *SD* = 7.94) had a smaller mean difference in PCP visits as compared to Whites (*M* = -9.28, *SD* = 8.04), p = .004. Additionally, Whites had a greater mean difference in PCP visits as compared with other ethnicities (*M* = -7.33, *SD* = 8.00), *p* < .001. Tables 17, 18, and 19 depict this information.

Table 17

Confidence Interval for Primary Care Provider Visits and Ethnicity

	M	*SD*	*SE*	95% Confidence interval for mean		Min	Max
				Lower bound	Upper bound		
Black	-8.25	7.94	.29	-8.81	-7.69	-39.00	10.00
White	-9.28	8.04	.10	-9.48	-9.09	-40.00	11.00
Hispanic	-8.83	8.16	.57	-9.95	-7.71	-40.00	3.00
Other	-7.33	7.017	.37	-8.05	-6.61	-38.00	11.00
Total	-9.08	8.00	.09	-9.25	-8.90	-40.00	11.00

Table 18

Variance Analysis between Primary Care Provider Visits in Relation to Ethnicity

	Sum of squares	*Df*	Mean square	*F*	*p*
Between groups	1948.449	3	649.483	10.174	< .001
In groups	504076.449	7896	63.839		
Total	506024.899	7899			

Table 19

Confidence Interval for Primary Care Provider Visits in Relation to Each Ethnicity

(I) Ethnicity	(J) Ethnicity	Mean difference (I-J)	SE	*P*	95% Confidence interval	
					Lower Bound	Upper Bound
Black	White	1.03	.30	.004	.25	1.81
	Hispanic	.58	.63	.788	-1.02	2.19
	Other	-.92	.50	.265	-2.22	.38
White	Black	-1.034	.304	.004	-1.81	-.25
	Hispanic	-.45	.56	.855	-1.90	1.00
	Other	-1.95	.43	.000	-3.05	-.8549
Hispanic	Black	-.58	.63	.788	-2.19	1.02
	White	.45	.56	.855	-.10	1.90
	Other	-1.50	.69	.133	-3.28	.28
Other	Black	.92	.50	.265	-.38	2.22
	White	1.95	.43	.000	.85	3.05
	Hispanic	1.50	.69	.133	-.28	3.28

I conducted both rmANOVA and GEE regression in order to assess this first research question and hypotheses:

RQ1: To what extent do Managed Medicaid or Medicare Advantage enrollees who use at least one social service also seek care in a primary care setting more often than enrollees who do not use the referred social services, while controlling for variables such as age, gender, and case management?

An rmANOVA was conducted to determine whether there were statistically significant differences in PCP visits over the course of pre and post evaluations between those who did and did not access social services. There was a statistically significant interaction between the social service access and time on PCP visits, F (1, 8723) = 23.519, $p < .001$. Among those participants that did not access a social service, preevaluation number of PCP visits ranged from 1 to 80 (*M* = 10.72, *SD* = 9.54) and post-evaluation number of visits ranged from 1 to 110 (*M* = 19.27, *SD* = 15.32). Among the participants that did access a social service, pre-evaluation number of PCP visits ranged from 1 to 95 (*M* = 11.52, *SD* = 9.80) and post-evaluation number of visits ranged from 1 to 111 (*M* = 21.05, *SD* = 15.66).Tables 20 and 21 depict this information.

Table 20

Variance Analysis of Primary Care Provider Visits in Relation to Service Status Over Time

Source		Type III sum of squares	Df	Mean square	F	p
Time	Sphericity assumed	297567.033	1	297567.033	9049.397	.000
	Greenhouse-Geisser	297567.033	1.000	297567.033	9049.397	.000
	Huynh-Feldt	297567.033	1.000	297567.033	9049.397	.000
	Lower-bound	297567.033	1.000	297567.033	9049.397	.000
Time * accessed	Sphericity assumed	773.367	1	773.367	23.519	.000
	Greenhouse-Geisser	773.367	1.000	773.367	23.519	.000
	Huynh-Feldt	773.367	1.000	773.367	23.519	.000
	Lower-bound	773.367	1.000	773.367	23.519	.000
Error(Time)	Sphericity assumed	286834.270	8723	32.883		
	Greenhouse-Geisser	286834.270	8723.000	32.883		
	Huynh-Feldt	286834.270	8723.000	32.883		
	Lower-bound	286834.270	8723.000	32.883		

Table 21

Mean and Standard Deviation of Primary Care Provider Visits (Pre/Post) by Social Service

Accessed social service		Min	Max	*M*	*SD*
No	Number of PCP visits in 6 months (Pre)	1	80	10.72	9.540
	Number of PCP visits in 12 months (Post)	1	110	19.27	15.319
Yes	Number of PCP visits in 6 months (Pre)	1	95	11.52	9.795
	Number of PCP visits in 12 months (Post)	1	111	21.05	15.662

In order to control for the effects of age, gender, race, case management, line of business (insurance type), and comorbidities, a General Estimating Equation (GEE) regression was performed. GEE regression is different from multiple regression in that it takes into consideration repeated measurements, such as required in this study. Unlike multiple regression, normality of residuals is not an assumption. GEE is a nonparametric test that has no assumptions about the population distribution (Liang & Zegar, 1986). Instead of assuming that data were generated from a certain distribution, GEE iteratively chooses the best coefficients (β) to describe the relationship between independent and dependent variables (Liang & Zegar, 1986). The effect of social service access ($p = .137$) was not found significant after controlling for age ($p = .626$), gender ($p < .001$), ethnicity ($p = .237$), case management ($p = .008$), line of business or insurance type ($p < .001$), and comorbidities ($p = .008$) and the null hypothesis was retained. Although there was no significant relationship between social service access and PCP visits, there was a significant relationship between gender and PCP visits ($p < .001$). Compared with males, females had decreased differences in PCP visits over the course of pre and post evaluations. These estimates are depicted in Table 22 below.

Table 22

Generalized Estimating Equation Parameter Estimates for Primary Care Provider Visits and Controlled Factors

Parameter	B	Std. Error	95% Wald confidence interval		Hypothesis test		
			Lower	Upper	Wald chi-square	df	p
(Intercept)	-11.011	.5875	-12.162	-9.859	351.220	1	.000
Access: No	.313	.2108	-.100	.726	2.210	1	.137
Access: Yes	0^a	.	.	.	.	.	.
Age	-.004	.0088	-.021	.013	.237	1	.626
Gender	-.757	.2077	-1.164	-.349	13.265	1	.000
Case	-.581	.2185	-1.009	-.153	7.075	1	.008
Comorbidities	-1.233	.0682	-1.367	-1.100	326.705	1	.000
Ethnicity	-.194	.1642	-.516	.128	1.401	1	.237
Insurance type	3.351	.2538	2.854	3.848	174.391	1	.000
(Scale)	56.222						

In order to assess whether a specific type of social support service utilized was significant, GEE was conducted again. The effect of social service access ($p < .001$) was found significant after controlling for age ($p = .793$), gender ($p = .633$), race ($p = .088$), case management ($p = .350$), line of business ($p < .001$), and comorbidities ($p < .001$). There were significant reductions in differences in the number of PCP visits over the course of pre and post evaluations. Differences in PCP visits were calculated by subtracting the number of PCP visits during post evaluation from pre-evaluation. These significant differences are measured by the regression coefficients *B*, also referred to as the parameter estimates. For example, the following social support services were statistically significant: Abuse support services ($B = -7.099$, $p = .007$); Area agency on aging ($B = -4.668$, $p = .024$); Cancer support ($B = -9.559$, $p = .007$); Clothing assistance ($B = -9.749$, p = .028); Community referral service ($B = -5.694$, $p = .037$); Disability related advocacy (*B* = -9.080, *p* = .019); Emergency response (*B* = -5.804, *p* = .009); Food pantry (*B* = -4.707, *p* = .018; and Free/reduced healthcare (*B* = -4.784, *p* = .043). Table 23 depicts this information below.

Table 23

Generalized Estimating Equation Parameter Estimates for Primary Care Provider Visits and Type of Social Service

Parameter	*B**	Std. error	95% Wald confidence interval		Hypothesis test		
			Lower	Upper	Wald chi-square	df	p
Adult day activity center	-2.339	2.3031	-6.853	2.174	1.032	1	.310
Advocacy	-.727	2.2005	-5.040	3.586	.109	1	.741
Affordable child care	3.022	2.0246	-.946	6.990	2.228	1	.136
Area agency on aging (& disabilities)	-4.668	2.0630	-8.711	-.625	5.120	1	.024
Assisted living facility	.025	2.2306	-4.347	4.397	.000	1	.991
Cancer support services	-9.559	3.5658	-16.548	-2.570	7.187	1	.007
Cardiology-specific support service	-2.785	2.9907	-8.647	3.076	.867	1	.352
Center for independent living	-1.371	3.1669	-7.578	4.836	.187	1	.665
Child welfare-related service	.399	2.6174	-4.731	5.529	.023	1	.879
Clothing assistance	-9.749	4.4478	-18.467	-1.031	4.804	1	.028
Community center	-3.418	2.2080	-7.746	.909	2.397	1	.122
Community referral service	-5.694	2.7285	-11.042	-.346	4.355	1	.037
Community service / volunteers	-4.770	2.9773	-10.606	1.065	2.567	1	.109
Community-based prenatal program	2.745	2.5318	-2.217	7.707	1.176	1	.278
Condition-specific support service	-3.244	1.9444	-7.055	.567	2.784	1	.095
County or community health department	-2.721	2.5962	-7.810	2.367	1.099	1	.295
Disability housing	-3.682	2.2186	-8.030	.667	2.754	1	.097
Disability-related advocacy	-9.080	3.8651	-16.655	-1.504	5.518	1	.019
Disability-related service	-5.327	2.2459	-9.729	-.925	5.626	1	.018
Domestic violence	-5.000	3.2881	-11.444	1.445	2.312	1	.128
Drug addiction / Substance abuse	-1.427	2.5732	-6.471	3.616	.308	1	.579
Early intervention	-.841	1.9007	-4.566	2.884	.196	1	.658
Education assistance	-2.547	2.7786	-7.993	2.898	.841	1	.359
Elder assistance	-2.187	2.0773	-6.259	1.884	1.109	1	.292

Emergency response / preparedness	-5.804	2.2360	-10.187	-1.422	6.739	1	.009
Employment Assistance	-2.289	2.3265	-6.849	2.271	.968	1	.325
Endocrine-specific support service	-6.359	2.9101	-12.063	-.655	4.775	1	.029
Faith-based general support service	-7.184	3.3481	-13.746	-.621	4.603	1	.032
Family support service	-1.185	2.2394	-5.575	3.204	.280	1	.597
Financial - rent assistance	-2.960	2.0897	-7.056	1.136	2.006	1	.157
Financial assistance	-3.727	1.9467	-7.543	.088	3.666	1	.056
Financial assistance – utility	-3.447	1.9308	-7.232	.337	3.188	1	.074
Food pantry / mission / food program	-4.707	1.9978	-8.623	-.792	5.552	1	.018
Free / reduced healthcare – dental	-3.178	1.9558	-7.011	.656	2.640	1	.104
Free / reduced healthcare – equipment	-3.260	2.1094	-7.394	.874	2.388	1	.122
Free / reduced health are – hearing	-4.784	2.3689	-9.427	-.141	4.079	1	.043
Free / reduced healthcare – medical	-9.490	4.6130	-18.532	-.449	4.232	1	.040
Free / reduced healthcare – vision	-3.621	1.9113	-7.367	.125	3.589	1	.058
Free cell phone program	-4.186	2.3025	-8.699	.327	3.305	1	.069
Health literacy program	-2.617	2.1488	-6.828	1.595	1.483	1	.223
Healthy Start program	-.992	5.4183	-11.612	9.627	.034	1	.855
HIV/AIDS-related service	7.327	4.7756	-2.033	16.687	2.354	1	.125
Home health are	-5.389	2.9843	-11.238	.460	3.261	1	.071
Homeless service	-1.609	2.1533	-5.829	2.612	.558	1	.455
Housing	-3.435	2.0382	-7.430	.559	2.841	1	.092
Human support service	-6.657	2.7349	-12.018	-1.297	5.925	1	.015
ID/DD-related support service	-7.254	1.9347	-11.046	-3.462	14.057	1	.000
Legal assistance	-2.185	2.6355	-7.350	2.981	.687	1	.407
Literacy	-3.690	3.0725	-9.712	2.332	1.442	1	.230
Local government	2.344	2.0296	-1.634	6.322	1.333	1	.248
Managed care organization (MCO)	-9.457	3.3450	-16.013	-2.901	7.993	1	.005
Medical research	-5.227	2.9161	-10.942	.489	3.212	1	.073
Medication assistance	-3.950	2.0186	-7.906	.006	3.829	1	.050
Mental health – Adults	-3.349	2.1147	-7.493	.796	2.508	1	.113
Mental health – Children	-1.446	2.9376	-7.204	4.311	.242	1	.622
Parenting service	.496	2.8368	-5.064	6.057	.031	1	.861
Pulmonary-specific support service	-1.710	3.1300	-7.844	4.425	.298	1	.585
Respite - home based	-1.561	2.5370	-6.533	3.412	.378	1	.538
Respite - site based	.391	2.1017	-3.728	4.510	.035	1	.852
School-based supports	.199	1.8935	-3.513	3.910	.011	1	.916
Supplemental Nutrition Assistance Program / WIC	-.437	2.3874	-5.116	4.242	.034	1	.855
Teen pregnancy-related education	4.433	1.8859	.737	8.130	5.526	1	.019

Thrift store	-7.871	3.4791	-14.690	-1.052	5.118	1	.024
Transitional housing	-.739	2.2905	-5.228	3.750	.104	1	.747
Transportation support – general	-3.081	1.9885	-6.978	.817	2.400	1	.121
Transportation support – medical	-3.212	1.9268	-6.989	.565	2.779	1	.096
Veteran's service	-1.621	2.1697	-5.874	2.631	.558	1	.455
Youth support service	0[a]	.	.	.	.	.	.
(Scale)	91.977						

Note. Dependent Variable: DiffPCPVisits

Model: (Intercept), age, sex_Num, LineOfBuss, Race_num, SocialSupportType, CM, CCS2

a. Set to zero because this parameter is redundant.

b. *B* = Parameter estimates

I conducted both rmANOVA and GEE regression in order to assess this second research question and hypotheses:

RQ2: What is the difference in primary care service use between Managed Medicaid and Medicare Advantage populations who use at least one social service and those who do not, while controlling for variables such as age, gender, and case management?

I conducted an rmANOVA to determine whether there were statistically significant differences in PCP visits over the course of pre and post evaluations between Managed Medicaid and Medicare Advantage populations. There was a statistically significant interaction between the line of business (Medicaid or Medicare) and time on PCP visits, $F(1, 6035) = 237.280$, $p < .001$. For Medicaid, the number of PCP visits pre-evaluation ranged from 1 to 95 ($M = 13.5$, $SD = 10.68$) and post-evaluation ranged from 1 to 111 ($M = 24.59$, $SD = 16.73$). For Medicare, pre-evaluation ranged from 1 to 81 ($M = 9.09$, $SD = 8.11$) and post-evaluation ranged from 1 to 111 ($M = 16.49$, $SD = 13.19$). Tables 24 and 25 depict this information.

Table 24

Variance Analysis of Primary Care Provider Visits in Relation to Insurance Over Time

Source		Type III sum of squares	Df	Mean square	*F*	*p*
Time	Sphericity assumed	241865.208	1	241865.208	7468.666	<.001
	Greenhouse-Geisser	241865.208	1.000	241865.208	7468.666	<.001
	Huynh-Feldt	241865.208	1.000	241865.208	7468.666	<.001
	Lower-bound	241865.208	1.000	241865.208	7468.666	<.001
Time * LOB	Sphericity assumed	7684.067	1	7684.067	237.280	<.001
	Greenhouse-Geisser	7684.067	1.000	7684.067	237.280	<.001
	Huynh-Feldt	7684.067	1.000	7684.067	237.280	<.001
	Lower-bound	7684.067	1.000	7684.067	237.280	<.001
Error(time)	Sphericity assumed	195437.393	6035	32.384		
	Greenhouse-Geisser	195437.393	6035.000	32.384		
	Huynh-Feldt	195437.393	6035.000	32.384		
	Lower-bound	195437.393	6035.000	32.384		

Table 25

Mean and Standard Deviation of Primary Care Provider Visits and Insurance Type

Type of insurance		Min	Max	*M*	*SD*
Medicaid	Pre	1	95	13.50	10.68
	Post	1	111	24.59	16.73
Medicare	Pre	1	81	9.09	8.11
	Post	1	111	16.49	13.19

In order to control for the effects of age, gender, race, case management, and comorbidities, GEE regression was performed. The effect of insurance type ($p < .001$) was found significant after controlling for age ($p = .650$), gender ($p < .001$), race ($p =$

.235), case management (*p* = .007), and comorbidities (*p* = .007). These estimates are depicted in Table 24 below. Type of insurance (*B* = -3.409, $\chi 2(1) = 184.920$, *p* < .001) was a significant predictor of PCP visits, after controlling for the effects of age, gender, race, case management, and comorbidities. Specifically, Medicaid resulted in an average decrease in PCP visits by 3.409 as compared to Medicare and the null hypothesis was rejected. Table 25 below depicts this information.

Table 26

Generalized Estimating Equation Parameter Estimates for Primary Care Provider Visits and Insurance

Parameter	B	Std. error	95% Wald confidence interval		Hypothesis test		
			Lower	Upper	Wald chi-square	df	p
(Intercept)	-4.198	.6701	-5.511	-2.884	39.236	1	.000
Medicaid	-3.409	.2507	-3.901	-2.918	184.920	1	.000
Medicare	0^*	.	.	.	.	.	.
Age	-.004	.0087	-.021	.013	.206	1	.650
Gender	-.760	.2077	-1.167	-.353	13.375	1	.000
Race	-.195	.1644	-.517	.127	1.409	1	.235
Comorbidities	-1.229	.0682	-1.363	-1.096	324.589	1	.000
Case management	-.592	.2184	-1.020	-.164	7.343	1	.007
(Scale)	56.235						

Note. *Reference category

Summary

The purpose of this quantitative, quasi-experimental study is to examine the relationship between the use of social supports and primary care. The two research questions sought to determine the mean differences in the dependent variable (primary care services) and the independent variable (use of social services) among Medicaid and Medicare Advantage populations.

Regarding the first research question, while the effects of gender, case management, line of business, and comorbidities were significant, the effect of social service access was not found significant after controlling for age, gender, race, case management, line of business, and comorbidities. Thus, the first null hypothesis was retained.

Regarding the second research question, the effect of line of business was found significant after controlling for age, sex, race, case management, and comorbidities. Specifically, Medicaid resulted in an average decrease in differences in PCP visits compared to Medicare. Additionally, gender, case management, and comorbidities were significant. The second null hypothesis was rejected.

What follows in Chapter 5 is a discussion as to how the results of this study are interpreted in the context of the theoretical framework. Any limitations of the results of the study will be provided. Additionally, recommendations for future research will be discussed.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this quantitative, quasi-experimental study was to examine the relationship between the use of social supports and primary care while controlling for age, gender, and case management. By employing both rmANOVA as well as GEE, both research questions were addressed. While the effects of gender, case management, line of business, and comorbidities were significant, the effect of social service access was not found significant after controlling for age, gender, race, case management, line of business, and comorbidities. Thus, the first null hypothesis was retained. Regarding the second research question, the effect of line of business was found to be significant after controlling for age, gender, race, case management, and comorbidities. Specifically, Medicaid resulted in an average decrease in differences in PCP visits compared to Medicare. Additionally, gender, case management, and comorbidities were significant. The second null hypothesis was rejected.

Interpretation of the Findings

The literature is not abundant regarding the disparities among healthcare depending whether consumers use social services. Chen (2018) did examine the impact of social services on the use of healthcare services. Research into the phenomenon indicated that the use of social services was associated with the use of healthcare services. In addition, when individuals took advantage of at least one mental health service, it reduced the likelihood of requiring hospitalization due to mental health conditions. Therefore, Chen (2018) reported an indirect link from taking advantage of social service to eliminating the need for mental health-related hospitalization.

Although there was no significant relationship between social service access and PCP visits, there was a significant relationship between gender and PCP visits ($p < .001$). Compared with males, females had decreased differences in PCP visits over the course of pre- and postevaluations. Gender has previously been linked to differences in healthcare use. Roth et al. (2016) examined Medicare claims as a type of indicator regarding who utilized healthcare following hospitalization for an ischemic stroke. Race, gender, and caregiving effects were explored in the study. The researchers noted that differences in who utilized healthcare may help to explain why there were differentiated outcomes following hospitalization that fell along race and gender lines. The researchers examined survivors 65 years and older and found that after controlling for covariates, women were more likely than men to seek out home healthcare and to take advantage of ED services following their acute care for ischemic stroke.

I did not find any significant effect of age on PCP visits in this study, which aligns with other research. One study evaluated patients' perception of community healthcare seeking behavior towards both acute and preventive physical and psychosocial health concerns by gender, age, and type of primary care setting (Lim, Lim, Tong, & Sivasampu, 2019). A total of 3,979 patients from 221 public and 239 private clinics in Malaysia were interviewed between June, 2015, and February, 2016, using a patient experience survey questionnaire from the Quality and Cost of Primary Care cross-sectional study (Lim et al., 2019). Multivariable logistic regression analysis adjusted for the complex survey design was used. There were no significant differences in perceived healthcare seeking behavior by age groups (Lim et al., 2019).

To assess the significance of ethnicity as an effect on PCP visit difference scores, I conducted a one-way ANOVA. The overall ANOVA was significant, specifically in that Blacks had a smaller mean difference in PCP visits as compared to Whites. Additionally, Whites had a greater mean difference in PCP visits as compared with other ethnicities. This finding was similar to results of another study that examined racial/ethnic differences in healthcare use among patients classified as having controlled and uncontrolled diabetes (Taylor, Spencer, Mahabaleshwarkar, & Ludden, 2017). Rates of diabetes-related ED visits were two to three times higher for non-Hispanic Blacks compared to non-Hispanic Whites. Similar differences were observed for all-cause ED visits. Non-Hispanic Blacks with controlled and uncontrolled diabetes also had lower rates of all-cause physician office visits when compared to non-Hispanic Whites.

I found that case management substantially decreased readmissions to hospitals and visits to the ED. Hudon et al. (2018) suggested that case management was essential for those who often needed healthcare services to improve outcomes. The use of case management helped to alleviate patients' psychological distress and made them feel more comfortable in their caregivers. Brennan-Ing et al. (2016) suggested that case management helped increase patient care engagement with HIV, indicating that case management use could help improve the degree to which patients received treatment. Such initial results showed the benefits of case management in producing highly engaged patients who felt more positive about the care given. In one systematic review’s findings, case management was successful in minimizing the use of hospitals by people with chronic diseases (Joo & Liu, 2016). Ten studies published between 2007 and 2015 have been retrieved and evaluated for methodological bias risk. As a primary outcome, all studies used case management as a tool, centered on transitional care programs and recorded hospital use, including readmissions, emergency room and patient visits.

Regarding comorbidity, the prevalence of fatigue and higher burden of physical comorbidity was correlated with higher levels of use of health services by persons with multiple sclerosis (McKay, Marrie, Fisk, Patten, & Tremlett, 2018). Having more than one long-term condition was associated with more difficulty in engaging with healthcare providers and understanding health information (Friis et al., 2016). In another study, after controlling for demographic and socioeconomic variables, comorbidity substantially raised the likelihood of individuals with cardiovascular disease obtaining access to health services (Morrissey, 2019). More effort should be made to respond to the health needs of individuals with long-term conditions and multiple comorbidities to improve health outcomes and to reduce social inequality in health (Friis et al., 2016).

Regarding insurance type (Medicaid or Medicare), after controlling for the effects of age, gender, race, case management, and comorbidities, the effect of insurance type ($p < .001$) was found to be significant. Specifically, Medicaid resulted in an average decrease in PCP visits as compared to Medicare. Similar to this present study, another study showed that insurance type and time of arrival were correlated with primary care-treatable ED visits and that temporal patterns in potentially avoidable ED visits differed by type of insurance (Pukurdpol, Wiler, Hsia, Gindi, 2014). After adjusting for covariates, Medicaid and self-pay/uninsured visits were more likely to be classified as primary care–treatable compared to privately insured visits, while Medicare visits were less likely (Pukurdpol et al., 2014).

Assessment of Incidences in Primary Care Among Patients

Patient safety is vital in healthcare quality and is believed to be a developmental challenge in most states (Alqattan, Cleland & Morrison, 2018). Besides interventions used in the process, there is a need to incorporate secondary care in the overall process of attention to the patients. The assessment of culture safety helps the organizations in the healthcare setting to assess the sectors for improvement and then analyze the transformations needed in the long term (Al Salem Bowie & Morrison, 2019). The assessment is critical in improving the problematic practices and perceptions in the medical field. Incident reporting, including social factors, is significant in the achievement of safety among the patients. Therefore, there is a need for healthcare professionals to develop a transparent incident system used in reporting incidences in hospitals.

The use of computerized systems helps in the tracking of both social and physical/emotional healthcare delivery or incidences. The results obtained in the review show that the methods developed must include both the local and the centralized system in the country (Ahmed et al. 2019). The local reporting systems would then collaborate with the national center in monitoring and recording of the incidences in the healthcare setting in the region. However, it is essential to note that the centralized system would monitor and record the frequent and recurrent problems in the primary care sector

(ALFadhalah & Elamir, 2019). The local center would then aid in the ability to facilitate and report the faster implementation of the methods needed to prevent resurgent issues in primary care.

Patient safety in the primary care sector is an emerging aspect of most research centers in the United States. However, minimal information has been documented on the case in the world with a few exceptions. For example, the ministry of health in Kuwait has embarked on finding ways of improving the healthcare quality in the healthcare service delivery at various levels. Kuwait has introduced a 5-year plan used in the provision of primary care with the development of vision 2050 that brings in all stakeholders in the healthcare setting to help create a better understanding of patient care and safety (Alqattan et al., 2018). Through the ministry of health and the department of information technology, Kuwait is working toward gathering information used in the transfer of knowledge between the stakeholders in the medical field (Al Salem et al., 2019). The data is linked to patient care and secondary care, and hospitals often feel that civil identification can be utilized in identifying access points to the health information on the incidences and the patients across different health institutions.

Communication between different stakeholders in primary care influences the safety culture in the health institutions and acts as a significant factor contributing to the incidences in the healthcare setting. The world has an open communication system based on a harmonized cultural background in the country (Al Hamid, Malik, & Alyatama, 2019). Organizations with positive and accommodative safety culture policies have great communication strategies among the stakeholders in the hospitals.

The clear channels help in the improvement of safety in healthcare to develop better preventive measures on the incidences in the medical sector (ALFadhalah & Elamir, 2019). However, there is a need for healthcare institutions in the country to improve the staffing to handle the problems of patients in primary care. Therefore, this area needs urgent attention by all the stakeholders in the provision of primary healthcare in the region.

Systematic review revealed that an essential step in the assessment of safety culture in primary care is understanding the perceptions in quality and safety issues by the healthcare providers in the health institutions. The paper has concentrated on the policies used in articulating the incidences through identifying the areas that require improvement at the organizational, unit, and personal level. There is a need to assess primary care regularly to help in evaluating the effectiveness of safety in health institutions. The results of the review give an idea that the template developed in the world helps in improving the safety culture in primary care based on the rapid economic growth in the country.

Reporting Cases in Primary Care

The section seeks to describe the policies used in incident reporting in primary care and the recommendations utilized in improving the learning and reporting of the incidences in the healthcare setting. It discusses the plight of the labor unions in the world based on a collection of the novel studies that have been derived from the national archives in the country (Lawati et al., 2018). More than 76% of the participants (Lawati et al., 2018) reported having feelings of frustration after nurse-and-physician interaction.

The research topics that have been used in the development and the articulation of this paper range from the information based on the men's wages, educational background, union status, background variables, and the history of employment (Trbovich & Vincent, 2018). It has also undertaken the discussion in a broad manner of events in which the program takes some form of achievement in the method, style, and time of the transition in the labor movements in the country. The paper has also been circulated in most print media to help in the discussion and comment purposes.

The article carried out the cross-sectional study through a series of measurements based on actual quantile methods. To determine the differences between healthcare professionals' perceptions regarding incident reporting policy and their demographic profiles, appropriate tests were utilized. The same trend was realized between Whites and African Americans. Other factors that were levied to have played a role in the infiltration of the labor unions in the country include the levels of education and the income levels. The families that had parents with low educational qualifications seemed to show a lesser extent of the inclination to the effects of the labor unions in their active daily lives (Dhamanti et al., 2019). This increase was realized during the period between 1935 and 1953. It then culminated in the era called the world economic history that was brought about by the New Deal legislation in the constitution of the country. The changes in union levels and activities in the country changed drastically (Gray, Clark, & Whitehead, 2016). The demand by the workers for a fair and just representation, and other general aspects are leading to the communication of the virtues obtained from the unions on the members. The data used in this article covers the period from the year 1950 to date to help trace the events linked to the transformations in the entire system of games in one way or the other.

Responses on communication between healthcare professionals (F4) was seen to have a positive and moderate relationship with incident reporting policy (F5) with Spearman's r = 0.459. The literature and economic histories of the unions during this time are comprehensive and significant. However, some fundamental questions still arise based on the wages and the labor unions in one way or the other. Some of these research questions have proved to be very difficult to answer in that there are small datasets that most of the recorded workers union may think about to help make their living status better (Lawati et al., 2018). Correctly, the census federal population data has never been used in the inquiry about the trade union status with the current data showing a decline in the private sector union effectiveness from the loss of public support toward the same idea (Trbovich & Vincent, 2018). The principal interest levied in this article was based on the notion that the mid-century period was heightened with concurrent and related trends in the types and forms of inequality. However, these articles or ideas have not been peer-reviewed and may thus not be very reliable source information to the modern scholars on the same subject.

It can be inferred from the findings that ease of access to information about incident reporting procedures is still not fully developed in the selected regions of the world. This phenomenon was realized among the workers who might have already experienced a high rate of pay through the reduction of the employment opportunities in the firms that had strong union foundations in the same country. However, all these were carried out without the relevant benefit from the data obtained from the workers' level of organization (Howell et al., 2017). As much as the cities are not wholly representative of the changes in the world, they are still varied from one region to the next and based on the specialization, experience, and the size of the World War II (Gray et al., 2016). The data that was used in this case show some form of pooled samples in the surveys that were conducted onto the microdata on the measurements linked to the characteristics of the human capital, demographics, and the economic structures of the non-southern urban labor force in the country.

The application of the new data was then used to address the parameters that were too significant in the understanding of the research questions touching on the unions, wages, and the workers in the mid-century. The other aspect that was deemed essential in this research paper was the fact to underscore the link between the wages of the men and the status of their union membership. It also sought to explore the variations in the gap between the non-unions and the union members across several qualities in the region.

Health Reforms

First, in 1961, the presidential task force held a meeting in Washington DC, dubbed the White House Conference on Aging to recommend the provision of a health insurance plan for the elderly in the country. The requirement was placed under Social Security, and the President sent to the Congress a special message touching on health issues in the nation. The insurance plan was drawn from the support from the intense opposition and organized labor emanating direct form the commercial and AMA health insurance subscribers. Second, in 1986, OBRA 86, with the authority form the reconciliation in the federal budget, allows infants, pregnant women, and children to be covered by Medicaid (Willison, Singer & Grazier, 2020). The coverage was to extend 100% level on poverty-stricken families irrespective of the public aid given to the same members. It also allowed for the Medicaid programs to offset the premiums by Medicare holders to over 148%. The plan was aimed at creating an effect of cost-sharing between the low-income families and the government in medical expenses.

Long-term care patients receive benefits to support their ongoing healthcare needs. The Act creates new options in Medicaid to help in promoting community-based programs and also the protection of the persons with serious illnesses to deter them from reaching levels of impoverishments. It also includes the support Act, community living assurance services, and affordable insurance plans. The other modern provision in the Affordable Care Act is the primary healthcare that must be made available to the underserved populations medically (Erickson et al., 2020). It involves the articulation of the insurance coverage programs that tend to cover the less fortunate in the community. It is mainly concerned with the National Health Service Corps that seeks to serve over 60 million beneficiaries in the US.

The origin of the EPA can be traced back to the 1960s when discussions regarding the protection of the environment were realized in the American context. It was brought about by the attack on the indiscriminate use of pesticides that had elicited a great debate on the possibility of both water and air pollution arising from the use of these pesticides and the onset of disasters. In the year 1970, there was increased concern on the deteriorating quality of air in the city, litters that were present all over the compound, and urban water supplies that were contaminated with lots of impurities. President Richard Nixon presented a groundbreaking message to the conservation of the environment by requesting billions of dollars that could be used in water treatment centers. The launch of the federally funded research to help in reducing automobile pollution in the atmosphere. The city authorities had the role of ordering cleanup of the federal facilities that had fouled the atmosphere.

Preliminary Analysis in Primary Care

Ethical presuppositions means aligning yourself in your environment and choosing to do what is good and right among the people and the society at large. Firstly, from the context, it is ethically right to get the person's consent to use her or his tissue for a test, if someone tissue or organ is used without the consent of the person then that is ethically wrong more so in the medical field and is punishable by law. The researchers have to conduct their researches in an ethical way and whatever they carry out both experiments and tests has to be professional done in line with the principles and code of ethics of work. In everything I do I ensure I conduct myself ethically without harm (Crane, Matten, & Spence, 2019). Also, in my I follow all the principles that accompany code of ethics of doing the right thing at the right time. My actions towards the society have to be productive for the benefit of the society. This can involve being honest and trustworthy to others and coming up with programs and initiatives that help in improving the lives of the people. Supporting vulnerable populations is my social responsibility. Advocating for the rights and welfare of others in society is my ethical value as through that, the rights of a specific group, if supported well, can be achieved, and this leads to improvement of the society's welfare and, in turn, improves people's lives.

Limitations

There were some limitations in this study that must be mentioned. Accordingly, the use of a health insurance company with the goal to remove social barriers has several limitations:

- Findings relate to a sample of participants who self-identify as a) having their needs met or not and b) motivated to call the peer-based resource line.
- Subjects characterized by self-reported status.
- The motivation to call the peer-based resource line may have a greater impact on driving healthcare action.
- Results from the study tied to a finite sample may limit how the results may be generalized to a broader population in managed care and public health.
- Little is known about why the “unmet” population that did not get their needs met.

Recommendations

The use of health and social services can be affected by several factors. Research has shown that people can feel uncomfortable accessing social services, but feel comfortable accessing a healthcare provider (Dichter et al., 2018). Shifting populations to primary care settings could be advantageous provided that physical and emotional conditions may be used in these settings (Balasubramanian et al., 2017; Kim & Tarn, 2016; Shardlow, McIntyre, Fluck, McIntyre, & Taal, 2016). Nevertheless, health-care use inequalities also existed based on factors such as age (Aiken, Mahar, Kurdyak, Whitehead, & Groome, 2016) and gender (Roth et al., 2016). Researchers have noted that certain populations could be especially in need of healthcare, such as low-income populations (Fitzpatrick et al., 2015; Pruitt, Emechebe, Quast, Lyons-Taylor, & Bryant, 2018) or serious disease patients such as HIV (Lam et al., 2016). Addressing healthcare disparities properly can include addressing problems in a country's healthcare system and social safety net (Legido-Quigley et al., 2016). Nonetheless, the literature review's general conclusions were that there were several problems that could discourage people from taking advantage of the healthcare.

Recommendations for future studies include expanding the sample to a larger level. The scope of the study was limited to data collection from one health insurance company with the goal to remove social barriers. The target populations were those people enrolled in a Managed Medicaid and/or a Medicare Advantage product. Other insurance types (private, out-of-pocket) should also be considered. The data collected relates to self-reported feedback and claims analysis that limits it generalizability. The data collected as a result of the study included self-reported feedback and claims analysis that therefore hindered generalizability. More efforts should be made in future studies to increase the generalizability of the results to the larger population.

Implications

Mays, Mamaril, and Timsina (2016) and Turnock (2014) concluded that combining social, physical and behavioral healthcare delivery requires more in-depth studies to better understand how eliminating social barriers improves the use of primary care settings. Turnock (2014) suggested exploring the convergence of public health and primary care to draw on each's best practices for a better, more efficient delivery system. Likewise, the Center for Medicare and Medicaid has developed the Accountable Health Communities initiative to connect Managed Medicaid and Medicare Advantage enrolments to social services in order to better understand the consequences for enhanced public health outcomes (Mays, 2016).

This study aimed to add to the research literature where Weinick et al. (2000) defined as a gap by examining the claims experience using specific preventive service-focused CPT codes coupled with social service experience to add to the public health discourse around system integration. This focus at the intersection between social support and healthcare delivery offers the opportunity to reveal lessons for positive social change.

Conclusion

Preventive services are life-saving initiatives that provide an early warning of preventable health problems (DeVoe et al., 2016). Examples of preventive measures include daily exercise, changing an unhealthy diet to a healthy diet, minimizing depression and adhering to a clinician's recommended guidelines on medication and chronic disease care (DeVoe et al., 2016). In particular when accessed in a primary care environment (Mays & Smith, 2011), the above preventive services may be instrumental in lowering healthcare costs. Many populations, especially in primary care settings, face additional social barriers in accessing preventive services. Such social challenges include insufficient transport or access to affordable healthy food choices (Casper et al., 2015; Nguyen et al, 2018). Several concepts form a deeper examination of the relationship between preventive care and social factors. The concepts include the setting up of care, including primary care versus emergency care or ED, the role of health literacy, the definition of vulnerable populations, the concept of self-motivation and more. When the concepts are combined, they reveal a gap in the existing literature that this research filled with the proposed study. The study was based on previous studies by exploring the connection between social support services to eliminate a social barrier and the use of primary care services.

In conclusion, a study of research and articles on public health and industry shows two main patterns. First, the association between social factors and better health outcomes is more recognized. Second, policymakers are increasingly interested in finding ways to eliminate structural obstacles and align healthcare with social services to reduce healthcare costs and enhance health outcomes. Unmet social needs lead, according to Emechebe, Pruitt, and Lyons-Taylor (2018), to the avoidable use of inpatient and emergency room facilities that could be provided in a less costly environment, such as the primary care office.

References

Acharya, B., Maru, D., Schwarz, R., Citrin, D., Tenpa, J., Hirachan, S., Ekstrand, M. (2017). Partnerships in mental healthcare service delivery in low-resource settings: developing an innovative network in rural Nepal. *Globalization And Health*, *13*(1), 2. doi:10.1186/s12992-016-0226-0

Ahmed, Z., Saada, M., Jones, A. M., & Al-Hamid, A. M. (2019). Medical errors: Healthcare professionals' perspective at a tertiary hospital in Kuwait. *PlOS ONE*, *14*(5). doi:10.1371/journal.pone.0217023

Aiken, A. B., Mahar, A. L., Kurdyak, P., Whitehead, M., & Groome, P. A. (2016). A descriptive analysis of medical health services utilization of Veterans living in Ontario: A retrospective cohort study using administrative healthcare data.399 *BMC Health Services Research, 16*(1). doi:10.1186/s12913-016-1596-y

Al Hamid, A., Malik, A., & Alyatama, S. (2019). An exploration of patient safety culture in Kuwait hospitals: a qualitative study of healthcare professionals' perspectives. *International Journal of Pharmacy Practice*. doi:10.1111/ijpp.12574

Al Salem, G., Bowie, P., & Morrison, J. (2019). Hospital Survey on Patient Safety Culture: a psychometric evaluation in Kuwaiti public healthcare settings. *BMJ Open*, *9*(5), e028666.

ALFadhalah, T., & Elamir, H. (2019). Exploring leadership styles in government hospitals in Kuwait. *Leadership in Health Services, 32*(3), 458–476. doi:10.1108/lhs-11-2018-0059

Allen, E. M., Call, K. T., Beebe, T. J., McAlpine, D. D., & Johnson, P. J. (2017). Barriers to care and healthcare utilization among the publicly insured. *Medical Care*, *55*(3), 207–214. doi:10.1097/MLR.0000000000000644

Alqattan, H., Cleland, J., & Morrison, Z. (2018). An evaluation of patient safety culture in a secondary care setting in Kuwait. *Journal of Taibah University Medical Sciences, 13*(3), 272-280. doi:10.1016/j.jtumed.2018.02.002

Atella, V., Mortari, A. P., Kopinska, J., Belotti, F., Lapi, F., Cricelli, C., & Fontana, L. (2018). Trends in age-related disease burden and healthcare utilization. *Aging Cell*, *18*(1). doi:10.1111/acel.12861

Awoke, M. A., Negin, J., Moller, J., Farell, P., Yawson, A. E., Biritwum, R. B., & Kowal, P. (2017). Predictors of public and private healthcare utilization and associated health system responsiveness among older adults in Ghana. *Global Health Action, 10*(1), 1301723. doi:10.1080/16549716.2017.1301723

Balasubramanian, B. A., Cohen, D. J., Jetelina, K. K., Dickinson, L. M., Davis, M., Gunn, R., . . . Green, L. A. (2017). Outcomes of integrated behavioral health with primary care. *Journal of the American Board of Family Medicine, 30*(2), 130-139. doi:10.3122/jabfm.2017.02.160234

Baslet, G., Roiko, A., & Prensky, E. (2010). Heterogeneity in psychogenric non epileptic seizures: Understanding the role of psychatric and neurological factors. Epilepsy & Behaviora. 17(2), 236-241. doi:10.1016/j.yebeh.2009.12.008

Berger, J., Bayarri, M. J., & Pericchi, L. R. (2014). The effective sample size. *Econometric Reviews*, *33*(1–4), 197–217. doi:10.1080/07474938.2013.807157

Bircher, J., & Hahn, E. G. (2016). Understanding the nature of health: New perspectives for medicine and public health. Improved wellbeing at lower costs. *F1000Research, 5*. doi:10.12688/f1000research.7849.1

Bircher, J., & Hahn, E. G. (2017). Will the Meikirch model, a new framework for health, induce a paradigm shift in healthcare? *Cureus*, *9*(3). doi:10.7759/cureus.1081

Bircher, J., & Kuruvilla, S. (2014). Defining health by addressing individual, social, and environmental determinants: New opportunities for healthcare and public health. *Journal of Public Health Policy, 35*(3), 363–386. doi:10.1057/jphp.2014.19

Bodenmann, P., Velonaki, V., Griffin, J. L., Baggio, S., Iglesias, K., Moschetti, K., . . . Daeppen, J. (2016). Case management may reduce emergency department frequent use in a universal health coverage system: A randomized controlled trial. *Journal of General Internal Medicine, 32*(5), 508-515. doi:10.1007/s11606-016-3789-9

Bottenberg, P., Vanobbergen, J., Declerck, D., & Carvalho, J. C. (2019). Oral health and healthcare utilization in Belgian dentate adults. *Community Dentistry and Oral Epidemiology, 47*(5), 381-388. doi:10.1111/cdoe.12484

Bortolotti, T., Boscari, S., Danese, P., Medina Suni, H. A., Rich, N., & Romano, P. (2018). The social benefits of kaizen initiatives in healthcare: an empirical study. *International Journal of Operations & Production Management*, *38*(2), 554–578. doi:10.1108/IJOPM-02-2017-0085

Bradley, E. H., Elkins, B. R., Herrin, J., & Elbel, B. (2011). Health and social services expenditures: associations with health outcomes. *BMJ Quality & Safety*, *20*(10), 826. doi:10.1136/bmjqs.2010.048363

Bradley, E. H., & Taylor, L. (2013). *The American healthcare paradox* (1st ed.). New York, NY: Public Affairs.

Brennan-Ing, M., Seidel, L., Rodgers, L., Ernst, J., Wirth, D., Tietz, D., . . . Karpiak, S. E. (2016). The impact of comprehensive case management on HIV client outcomes. *PLOS ONE, 11*(2). doi:10.1371/journal.pone.0148865

Broman, C., Neighbors, H., & Taylor, R. (1989). Race differences in seeking help from social workers. *Journal of Sociology & Social Welfare, 16*(3), 109–123. Retrieved from https://scholarworks.wmich.edu/cgi/viewcontent.cgi?article=1911&context=jssw

Carey, G., & Crammond, B. (2015). Systems change for the social determinants of health, 662 *BMC Public Health, 15*(1). doi:10.1186/.s12889-015-1979-8

Case Management Society of America. (2019). *What is a case manager?* Retrieved from https://www.cmsa.org/who-we-are/what-is-a-case-manager/

Willison, C. E., Singer, P. M., & Grazier, K. L. (2020). Double-edged sword of federalism: Variation in essential health benefits for mental health and substance use disorder coverage in states. *Health Economics, Policy and Law*, 1-13. doi:10.1017/s1744133119000306

Casper, C., Teltsch, D. Y., Robinson, D., Desrosiers, M.-P., Rotella, P., Dispenzieri, A., & Reynolds, M. W. (2015). Clinical characteristics and healthcare utilization of patients with multicentric Castleman disease. *British Journal of Haematology*, *168*(1), 82–93. doi:10.1111/bjh.13111

Centers for Medicare and Medicaid Services. (n.d.) *Place of Service Code Set*. https://www.cms.gov/Medicare/Coding/place-of-service-codes/Place_of_Service_Code_Set.

Chandler, J., Rycroft-Malone, J., Hawkes, C., & Noyes, J. (2016). Application of simplified complexity theory concepts for healthcare social systems to explain the implementation of evidence into practice. *Journal of Advanced Nursing*, *72*(2), 461–480. doi:10.1111/jan.12815

Chen, M. (2018). *The impact of social services on the utilization of health care services* (Doctoral thesis, Indiana University-Purdue University Indianapolis). IUPUI Scholar Works.

Citardi, M. (2009). *Current procedural technology: History, structure, process & controversies*. University of Texas McGovern Medical School Department of Otorhinolaryngology–Head & Neck Surgery. Retrieved from https://med.uth.edu/orl/2009/12/11/current-procedural-technology-history-structure-process-controversies/

Clegg, A., Young, J., Iliffe, S., Rikkert, M. O., & Rockwood, K. (2013). Frailty in elderly people. *Lancet*, *381*(9868), 752–762. doi:10.1016/S0140-6736(12)62167-9

Cohen, J. (2013). *Statistical power analysis for the behavioral sciences* (1st ed.). Abingdon, United Kingdom: Taylor & Francis Group.

Crane, A., Matten, D., & Spence, L. (Eds.). (2019). *Corporate social responsibility: Readings and cases in a global context*. Abingdon, United Kingdom: Routledge.

Creswell, J. W. (2008). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (3rd ed.). Upper Saddle River, NJ: Pearson.

de Fernandes, R. C. P., & Burdorf, A. (2016). Associations of multisite pain with healthcare utilization, sickness absence and restrictions at work. *International Archives of Occupational and Environmental Health*, *89*(7), 1039–1046. doi:10.1007/s00420-016-1141-7

DeSalvo, K. B., Wang, Y. C., Harris, A., Auerbach, J., Koo, D., & O'Carroll, P. (2017). Public health 3.0: A call to action for public health to meet the challenges of the 21st century. *Preventing Chronic Disease*, *14*. doi:10.5888/pcd14.170017

DeVoe, J. E., Baez, A., Angier, H., Krois, L., Edlunch, C., & Carney, P.A. (2007). Insurance + access = healthcare: Typology of barriers ot healthcare access for low-Income families. *Annals of Family Medicine. 5*(6), 511, 518. doi:10.1370/afm.748.

DeVoe, J. E., Bazemore, A. W., Cottrell, E. K., Likumahuwa-Ackman, S., Grandmont, J., Spach, N., & Gold, R. (2016). Perspectives in primary care: A conceptual framework and path for integrating social determinants of health into primary care practice. *Annals of Family Medicine*, *14*(2), 104–108. doi:10.1370/afm.1903

Dhamanti, I., Leggat, S., Barraclough, S., & Tjahjono, B. (2019). Patient safety incident reporting in Indonesia: An analysis using World Health Organization characteristics for successful reporting. *Risk Management and Healthcare Policy, 12*, 331–338. doi:10.2147/rmhp.s222262

Dichter, M. E., Sorrentino, A. E., Haywood, T. N., Bellamy, S. L., Medvedeva, E., Roberts, C. B., & Iverson, K. M. (2018). Women's healthcare utilization following routine screening for past-year intimate partner violence in the Veterans Health Administration. *Journal of General Internal Medicine, 33*(6), 936-941. doi:10.1007/s11606-018-4321-1

Dobrovolny, J. L., & Fuentes, S. C. G. (2008). Quantitative versus qualitative evaluation: A tool to decide which to use. *Performance Improvement*, *47*(4), 7–14. doi:10.1002/pfi.197.

Donaldson, M. S., Yordy, K. D., Lohr, K. N., & Vanselow, N. A. (Eds.). (1996). *Primary care: America's health in a new era*. Washington, DC: National Academies Press.

Dukhanin, V., Searle, A., Zwerling, A., Dowdy, D. W., Taylor, H. A., & Merritt, M. W. (2018). Integrating social justice concerns into economic evaluation for healthcare and public health: A systematic review. *Social Science & Medicine*, *198*, 27–35. doi:10.1016/j.socscimed.2017.12.012

Durlak, J. (2009). How to select, calculate, and interpret effect sizes, *Journal of Pediatric Psychology*, *34*(9), 917-928. doi:10.1093/jpepsy/jsp004

El Emam, K., L. Arbuckle, G. Koru, B. Eze, L. Gaudette, E. Neri, . . . J. Gluck. (2012). Deidentification methods for open health data: The case of the heritage health prize claims dataset. *Journal of Medical Internet Research 14*(1), e33. doi:10.2196/jmir.2001

Elrashidi, M. Y., Jacobson, D. J., Sauver, J. S., Fan, C., Lynch, B. A., Rutten, L. J., & Ebbert, J. O. (2016). Body mass index trajectories and healthcare utilization in young and middle-aged adults. *Medicine, 95*(2). doi:10.1097/md.0000000000002467

Emechebe, N., Amoda, O., Lyons-Taylor, P., & Pruitt, Z. (2019). Passive social health surveillance systems may identify individuals at risk of inpatient readmissions. *American Journal of Managed Care*. 25(8).

Emechebe, N., Pruitt, Z., & Lyons-Taylor, P. (November, 2018). *Self-identified social needs predict hospital readmissions*. American Public Health Association 2018 Annual Meeting & Expo, San Diego, CA.

Erickson, S. M., Outland, B., Joy, S., Rockwern, B., Serchen, J., Mire, R. D., & Goldman, J. M. (2020). Envisioning a Better US Health Care System for All: Health Care Delivery and Payment System Reforms. *Annals of Internal Medicine, 172*(2_Supplement), S33-S49.

Field, A. (2013). Discovering statistics using IPM SPSS Statistics: And, sex and drugs and rock’n’roll (4th ed.). London: Sage.

Fitzpatrick, T., Rosella, L. C., Calzavara, A., Petch, J., Pinto, A. D., Manson, H., … Wodchis, W. P. (2015). Looking Beyond Income and Education: Socioeconomic Status Gradients Among Future High-Cost Users of Healthcare. *American Journal of Preventive Medicine, 49*(2), 161–171. doi:10.1016/j.amepre.2015.02.018

Frank, A., Benedict, A., & Adusei-Nkrumah, J. (2016). Analysis Of Gender And Healthcare Services Utilization In Rural Ghana. *Research Journal of Public Health, 2*(2).

Friis, K., Lasgaard, M., Osborne, R. H., & Maindal, H. T. (2016). Gaps in understanding health and engagement with healthcare providers across common long-term conditions: a population survey of health literacy in 29 473 Danish citizens. *BMJ Open, 6*(1), e009627. doi:10.1136/bmjopen-2015-009627

Frolich, A., Ghith, N., Schiotz, M., Jacobsen, R., & Stockmarr, A. (2019). Multimorbidity, healthcare utilization and socioeconomic status: A register-based study in Denmark. *PLOS ONE, 14*(8). doi:10.1371/journal.pone.0214183

Geerse, O. P., Stegmann, M. E., Kerstjens, H., Hiltermann, T., Bakitas, M., Zimmermann, C., & Berendsen, A. J. (2018). Effects of shared decision making on distress and healthcare utilization among patients with lung cancer: A systematic review. *Journal of Pain and Symptom Management, 56*(6), 975-987.e5. doi:10.1016/j.jpainsymman.2018.08.011

Gea-Sánchez, M., Alconada-Romero, Á, Briones-Vozmediano, E., Pastells, R., Gastaldo, D., & Molina, F. (2016). Undocumented immigrant women in Spain: A scoping review on access to and utilization of health and social services. *Journal of Immigrant and Minority Health, 19*(1), 194-204. doi:10.1007/s10903-016-0356-8

Gea-Sánchez, M., Gastaldo, D., Molina-Luque, F., & Otero-García, L. (2016). Access and utilisation of social and health services as a social determinant of health: The case of undocumented Latin American immigrant women working in Lleida

(Catalonia, Spain). *Health & Social Care in the Community, 25*(2), 424-434. doi:10.1111/hsc.12322

George, D., & Mallery, P. (2010). SPSS for Windows step by step. A simple study guide and reference (10. Baskı). *GEN, Boston, MA: Pearson Education, Inc*.

Gray, L., Clark, P., & Whitehead, P. (2016). Evolution of administrative practices in American unions: results from a 20-year study. *Monthly Labor Review*. doi:10.21916/mlr.2016.16

Gustafsson, S., Martinsson, J., Wälivaara, B. M., Vikman, I., & Sävenstedt, S. (2016). Influence of self-care advice on patient satisfaction and healthcare utilization. *Journal of Advanced Nursing, 72*(8), 1789–1799. doi:10.1111/jan.12950

Haas, J. P. (2012). Sample size and power. *American Journal of Infection Control*, *40*(8), 766–767. doi:10.1016/j.ajic.2012.05.020

Hartnett, J. L. (2016). Using Data Mining to Teach Applied Statistics and Correlation. *Teaching of Psychology*, *43*(2), 142–146. doi:10.1177/0098628316636292

Hedeker, D., Gibbons, R., & Waternaux, C. (1999). Sample size estimation for longintudinal designs with attrition: Comparing time-related constructs between two groups. *Journal of Educational and Behavioral Statistics, 24*(1), 70-93. doi:10.3102/10769986024001070

Hirotsu, C. (2017). *Advanced Analysis of Variance*. Hoboken, NJ: Wiley.

Howell, A. M., Burns, E. M., Hull, L., Mayer, E., Sevdalis, N., & Darzi, A. (2017). International recommendations for national patient safety incident reporting systems: an expert Delphi consensus-building process. *BMJ Quality and Safety*, *26*(2), 150-163. doi:10.1136/bmjqs-2015-004456

Huber, M., & Melly, B. (2014). A test of the conditional independence assumption in sample selection models. *Journal of Applied Econometrics*, *30*(7), 1144-1168. doi:10.1002/jae.2431

Hudon, C., Chouinard, M., Dubois, M., Roberge, P., Loignon, C., Tchouaket, É, . . . Bouliane, D. (2018). Case management in primary care for frequent users of healthcare services: A mixed methods study. *Annals of Family Medicine, 16*(3), 232-239. doi:10.1370/afm.2233

Hurst, S. A. (2008). Vulnerability in research and healthcare; Describing the elephant in the room? *Bioethics*, *22*(4), 191–202. doi:10.1111/j.1467-8519.2008.00631.x

Jacobson, G., Damico, A., Neuman, T., & Gold, M. (2015). *Medicare Advantage 2015 spotlight: Enrollment market update*. Retrieved from the Kaiser Family Foundation website: https://www.kff.org/medicare/issue-brief/medicare-advantage-2015-spotlight-enrollment-market-update/

Jacobson, B., Ir, B., Bigdel, M., Annear, P., & Van Demme, W. (2011). Addressing access barriers t health services: An analytic framework for selecting appropriate interventions in low-income Asian countries. *Health Policy and Planning,* 1-13. doi:10.1093/heapol/czr038

Joo, J., & Liu, M. (2016). Case management effectiveness in reducing hospital use: A systematic review. *International Nursing Review*, *64*(2), 296-308. doi:10.1111/inr.12335

Kaiser Family Foundation (2018). Total Medicaid MCO enrollment. Retrieved from https://www.kff.org/medicaid/state-indicator/total-medicaid-mc-enrollment/

Trbovich, P., & Vincent, C. (2018). From incentive reportng to the analysis of the patient journey. *BMJ Quality & Safety, 28*(3), 169-171. doi:10.1136/bmjqs-2018-008485

Katz, A., Chateau, D., Enns, J. E., Valdivia, J., Taylor, C., Walld, R., & McCulloch, S. (2018). Association of the Social Determinants of Health With Quality of Primary Care. *The Annals of Family Medicine*, *16*(3), 217–224. doi:10.1370/afm.2236

Kim, S. L., & Tarn, D. M. (2016). Effect of Primary Care Involvement on End-of-Life Care Outcomes: A Systematic Review. *Journal of the American Geriatrics Society, 64*(10), 1968-1974. doi:10.1111/jgs.14315

Korotana, L. M., Dobson, K. S., Pusch, D., & Josephson, T. (2016). A review of primary care interventions to improve health outcomes in adult survivors of adverse childhood experiences. *Clinical Psychology Review, 46*, 59-90. doi:10.1016/j.cpr.2016.04.007

Korpaisarn, S., & Safer, J. D. (2018). Gaps in transgender medical education among healthcare providers: A major barrier to care for transgender persons. *Reviews in Endocrine and Metabolic Disorders*, *19*(3), 271–275. doi:10.1007/s11154-018-9452-5

Kullgren, J. T., McLaughlin, C. G., Mitra, N., & Armstrong, K. (2012). Nonfinancial barriers and access to care for U.S. adults. *Health Services Research*, *47*(1Pt2), 462–485. doi:10.1111/j.1475-6773.2011.01308.x

Lam, Y., Westergaard, R., Kirk, G., Ahmadi, A., Genz, A., Keruly, J., Surkan, P. J. (2016). Provider-Level and Other Health Systems Factors Influencing Engagement in HIV Care: A Qualitative Study of a Vulnerable Population. *PLOS ONE*, *11*(7), e0158759. doi:10.1371/journal.pone.0158759

Lawati, M. H. A., Dennis, S., Short, S. D., & Abdulhadi, N. N. (2018). Patient safety and safety culture in primary health care: a systematic review. *BMC family practice, 19*(1), 104.

Lee, S. D., Tsai, T., Tsai, Y., & Kuo, K. N. (2010). Health literacy, health status, and healthcare utilization of Taiwanese adults: Results from a national survey. *BMC Public Health, 10*(1). doi:10.1186/1471-2458-10-614

Leedy, P. & Ormrod, J.E. (2010). *Practical Research Planning and Design*. Pearson.

Legido-Quigley, H., Karanikolos, M., Hernandez-Plaza, S., de Freitas, C., Bernardo, L., Padilla, B., McKee, M. (2016). Effects of the financial crisis and Troika austerity measures on health and healthcare access in Portugal. *Health Policy*, *120*(7), 833–839. doi:10.1016/j.healthpol.2016.04.009

Liang, K.Y., & Zeger, S. (1986). Longitudinal data analysis using generalized linear models. *Biometrics, 23*(1), 13-22.

Lim, M., Lim, Y., Tong, S., Sivasampu S. (2019) Age, sex and primary care setting differences in patients' perception of community healthcare seeking behaviour towards health services. *POOS ONE, 14*(10): e0224260. doi:10.1371/journal.pone.0224260

Liu, V., Escobar, G. J., Greene, J. D., Soule, J., Whippy, A., Angus, D. C., & Iwashyna, T. J. (2014). Hospital deaths in patients with sepsis from 2 independent cohorts. *JAMA, 312*(1), 90–92. doi:10.1001/jama.2014.5804

Loprest, P. J., & Nightingale, D. S. (2018). *The nature of work and the social safety net* (Urban Institute Research Report). Retrieved from https://www.urban.org/research/publication/nature-work-and-social-safety-net

Macinko, J., Andrade, F. B., De Souza, F., & Lima-Costa, M. F. (2018). Primary care and healthcare utilization among older Brazilians (ELSI-Brazil). *Revista De Saúde Pública, 52*(2). doi:10.11606/s1518-8787.2018052000595

Maciosek, M. V., Coffield, A. B., Flottemesch, T. J., Edwards, N. M., & Solberg, L. I. (2010). Greater use of preventive services in U.S. healthcare could save lives at little or no cost. *Health Affairs*, *29*(9), 1656–1660. doi:10.1377/hlthaff.2008.0701

Marmot, M. (2017). Closing the health gap. *Scandinavian Journal of Public Health, 45*(7). doi: 10.1177/1403494817717433

Mays, G. P., Mamaril, C. B., & Timsina, L. R. (2016). Preventable death rates fell where communities expanded population health activities through multisector networks. *Health Affairs*, *35*(11), 2005–2013. doi:10.1377/hlthaff.2016.0848

Mays, G. P., & Smith, S. (2011). Evidence links increases in public health spending to declines in preventable deaths. *Health Affairs, 30*(8). doi: 10.1377/hlthaff.2011.0196

McDaniel, C., & Gates, R. (2013). *Marketing research* (9th ed.). Hoboken, NJ: Wiley.

McKay, K., Marrie, R., Fisk, J., Patten, S., & Tremlett, H. (2018). Comorbidities are associated with altered health services use in multiple sclerosis: A prospective cohort study. *Neuroepidemiology, 51*(1-2), 1-10. doi:10.1159/000488799

Modrek, S., Hamad, R., & Cullen, M. R. (2015). Psychological well-being during the Great Recession: Changes in mental healthcare utilization in an occupational cohort. *American Journal of Public Health*, *105*(2), 304–310. doi:10.2105/AJPH.2014.302219

Morrissey, K. (2019). Comorbidity and healthcare use for individuals with CVD in the Ireland: A cross-sectional, population-based study. *BMJ Open*, *9*(1), e025305. doi:10.1136/bmjopen-2018-025305

Nguyen, J. E., Salemi, J. L., Tanner, J. P., Kirby, R. S., Sutsko, R. P., Ashmeade, T. L., . . . Drach, L. L. (2018). Survival and healthcare utilization of infants diagnosed with lethal congenital malformations. *Journal of Perinatology*, *38*(12), 1674–1684. doi:10.1038/s41372-018-0227-3

Nursey, J. & Phelps, A. (2016). Stress, Trauma, and Memory in PTSD. In G. Fink (Ed.), *Handbook of Stress, Series VI* (pp. 169-176). Academic Press. doi:10.1016/B978-01-12-800951-2-00020-0

O'Toole, T. P., Johnson, E. E., Aiello, R., Kane, V., & Pape, L. (2016). Tailoring care to vulnerable populations by incorporating social determinants of health: The Veterans Health Administration's "Homeless Patient Aligned Care Team" Program. *Preventing Chronic Disease, 13*. doi:10.5888/pcd13.150567

Penchansky, R. & Thomas, J.W. (1981). The concept of access: Definition and relationship to consumer satisfaction. Medical Care, 19(2), 127-140.

Peytremann-Bridevaux, I., Voellinger, R., & Santos-Eggimann, B. (2008). Healthcare and preventive services utilization of elderly Europeans with depressive symptoms. *Journal of Affective Disorders, 105*(1-3), 247-252. doi:10.1016/j.jad.2007.04.011

Pickett, K. E., & Wilkinson, R. G. (2015). Income inequality and health: A causal review. *Social Science & Medicine*, *128,* 316–326. doi:10.1016/j.socscimed.2014.12.031

Pruitt, Z., Emechebe, N., Lyons-Taylor, P., & Bryant, K. (2017). *Is access to social services related to decreased healthcare use?* Florida Public Health Association 2017 Annual Meeting, Orlando, Florida.

Pruitt, Z., Emechebe, N., Quast, T., Lyons-Taylor, P., & Bryant, K. (2018). Expenditure Reductions Associated with a Social Service Referral Program. *Population Health Management*, *21*(6), 469–476. doi:10.1089/pop.2017.0199

Pruitt, Z., Lyons-Taylor, P., & Bryant, K. (2018). A managed care organization's call center-based social support role. *American Journal of Accountable Care*. 6(1), e16-e22.

Pukurdpol, P., Wiler, J., Hsia, R., Gindi, A. (2014). Association of Medicare and Medicaid insurance with increasing primary care-treatable emergency department visits in the United States. *Journal of the Society for Academic Emergency Medicine, 21*(10), 1135-1142. doi:10.1111/acem.12490

Randler, C., & Bogner, F. X. (2008). Planning experiments in science education research: Comparison of a quasi-experimental approach with a matched pair tandem design. *International Journal of Environmental & Science Education*, *3*(3), 95–103.

Rasu, R. S., Bawa, W. A., Suminski, R., Snella, K., & Warady, B. (2015). Health Literacy Impact on National Healthcare Utilization and Expenditure. *International Journal of Health Policy and Management*, *4*(11), 747–755. doi:10.15171/ijhpm.2015.151

Read, J. G., & Smith, P. B. (2017). Gender and national origin differences in healthcare utilization among U.S. Immigrants from Mexico, China, and India. *Ethnicity & Health*, *23*(8), 867-883. doi:10.1080/13557858.2017.1297776

Richard, L., Furler, J., Densley, K., Haggerty, J., Russell, G., Levesque, J.-F., & Gunn, J. (2016). Equity of access to primary healthcare for vulnerable populations: the IMPACT international online survey of innovations. *International Journal for Equity in Health*, *15*(1), 64. doi:10.1186/s12939-016-0351-7

Roberts, T. K., & Fantz, C. R. (2014). Barriers to quality healthcare for the transgender population. *Clinical Biochemistry*, *47*(10), 983–987. doi:10.1016/j.clinbiochem.2014.02.009

Rogers, A., & Eliott, H. (2018). *Primary care: Understanding health need and demand*. Boca Raton, FL: CRC Press.

Roth, D. L., Sheehan, O. C., Huang, J., Rhodes, J. D., Judd, S. E., Kilgore, M., . . . Haley, W. E. (2016). Medicare claims indicators of healthcare utilization differences after hospitalization for ischemic stroke: Race, gender, and caregiving effects. *International Journal of Stroke, 11*(8), 928-934. doi:10.1177/1747493016660095

Ruof, M. C. (2004). Vulnerability, Vulnerable populations, and policy. *Kennedy Institute of Ethics Journal*, *14*(4), 411–425. doi:10.1353/ken.2004.0044

Ruxton, G. (2006). The unequal variance *t*-test is an underused alternative to students *t*-test and the Mann-Whitney *U* test. *Behavioral Ecology, 17*(4). 688-690. doi:10.1093.beheco/ark016

Sabale, U., Bodegård, J., Sundström, J., Östgren, C. J., Nilsson, P., Johansson, G., . . . Henriksson, M. (2015). Healthcare utilization and costs following newly diagnosed type-2 diabetes in Sweden: A follow-up of 38,956 patients in a clinical practice setting. *Primary Care Diabetes*, *9*(5), 330–337. doi:10.1016/j.pcd.2015.01.001

Samra, S., Pelayo, E., Richman, M., McCollough, M., & Taira, B. R. (2019). Barriers to the right to health among patients of a public emergency department after implementation of the Affordable Care Act. *Health Equity, 3*(1), 186-192. doi:10.1089/heq.2018.0071

Sandberg, M., Kristensson, J., Midlöv, P., & Jakobsson, U. (2015). Effects on healthcare utilization of case management for frail older people: A randomized controlled trial (RCT). *Archives of Gerontology and Geriatrics, 60*(1), 71-81. doi:10.1016/j.archger.2014.10.009

Schiffman, L. G., & Wisenblit, J. L. (2014). *Consumer behavior*. New York, NY: Pearson Higher Ed.

Seltzer, R. R., Kasimatis Singleton, M., Williams, E. P., & Boss, R. D. (2018). Medically complex children in foster care: Do research “protections” make this “vulnerable population” more vulnerable? *Journal of Clinical Ethics*, *29*(2), 145–149.

Shalev, V., Chodick, G., Heymann, A., & Kokia, E. (2005). Gender differences in healthcare utilization and medical indicators among patients with diabetes. *Public Health*, *119*(1), 45-49. doi:10.1016/j.puhe.2004.03.004

Shardlow, A., McIntyre, N., Fluck, R., McIntyre, C., & Taal, M. (2016). Chronic kidney disease in primary care: Outcomes after five years in a prospective cohort study. *PlOS Med. 13*(9), e1002128. doi:10.1371/journal.pmed.1002128

Smith, S., M., Soubhi, H., Hudon, C., O’Dowd, T. (2012). Managing patients with multi-modality: Systemic review of interventions in primary care and community settings. BMJ, 345, e5205. doi:10.1136/bmj.e5305

Smith, S. M., Wallace, E., O'dowd, T., & Fortin, M. (2016). Interventions for improving outcomes in patients with multimorbidity in primary care and community settings. *Cochrane Database of Systematic Reviews*. doi:10.1002/14651858.cd006560.pub3

Srebnik, D., Connor, T., & Sylla, L. (2013). A pilot study of the impact of housing first-supported housing for intensive users of medical hospitalization and sobering services. *American Journal Of Public Health*, *103*(2), 316–321. doi:10.2105/AJPH.2012.300867

Sullivan, G. M., & Feinn, R. (2012). Using effect size—or why the *p* value is not enough. *Journal of Graduate Medical Education, 4*(3), 279–282. doi:10.4300/JGME-D-12-00156.1

Swan, M., Ferguson, S., Chang, A., Larson, E., & Smaldone, A. (2015). Quality of primary care by advanced practice nurses: A systematic review. *International Journal for Quality in Healthcare, 27*(5), 396-404. doi:10.1093/intqhc/mzv054

Tanbakuchi, A. (2009). *Introduction to hypothesis testing.* Retrieved from www.u.arizona.edu/~Kuchi/Courses/MATH167/Files/LH_LEC.0600.HypTest.IntroProp.pdf

Tarasuk, V., Cheng, J., de Oliveira, C., Dachner, N., Gundersen, C., & Kurdyak, P. (2015). Association between household food insecurity and annual healthcare costs. *CMAJ: Canadian Medical Association Journal = Journal De L'association Medicale Canadienne, 187*(14), E429–E436. doi:10.1503/cmaj.150234

Taylor, Y. J., Spencer, M. D., Mahabaleshwarkar, R., & Ludden, T. (2017). Racial/ethnic differences in healthcare use among patients with uncontrolled and controlled diabetes. *Ethnicity & Health*, *24*(3), 245-256. doi:10.1080/13557858.2017.1315372

Thornton, R. L., Glover, C. M., Cene, C. W., Glik, D. C., Henderson, J. A., & Williams, D. R. (2016). Evaluating strategies for reducing health disparities by addressing the social determinants of health. *Health Affairs*, *35*(8), 1416-1423.doi:10.1377/hlthaff.2015.1357

Tripathy, J. P. (2013). Secondary data analysis: Ethical issues and challenges. *Iranian Journal of Public Health*, *42*(12), 1478–1479. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4441947/

Trochim, W., Donnelly, J., & Arora, K. (2006). *Research methods: The essential knowledge base* (1st ed.). Boston, MA: Cengage Learning.

Turnock, B. J. (2014). *Essentials of public health* (3rd ed.). Burlington, MA: Jones & Bartlett Learning.

Wallace, E., Salisbury, C., Guthrie, B., Lewis, C., Fahey, T., & Smith, S. M. (2015). Managing patients with multimorbidity in primary care. *BMJ, 350*(2). doi:10.1136/bmj.h176

Wang, Z., Li, X., Chen, M., & Si, L. (2018). Social health insurance, healthcare utilization, and costs in middle-aged and elderly community-dwelling adults in China. *International Journal for Equity in Health, 17*(1). doi:10.1186/s12939-018-0733-0

Weiers, R. M. (2010). *Introduction to business statistics*. Boston, MA: Cengage Learning.

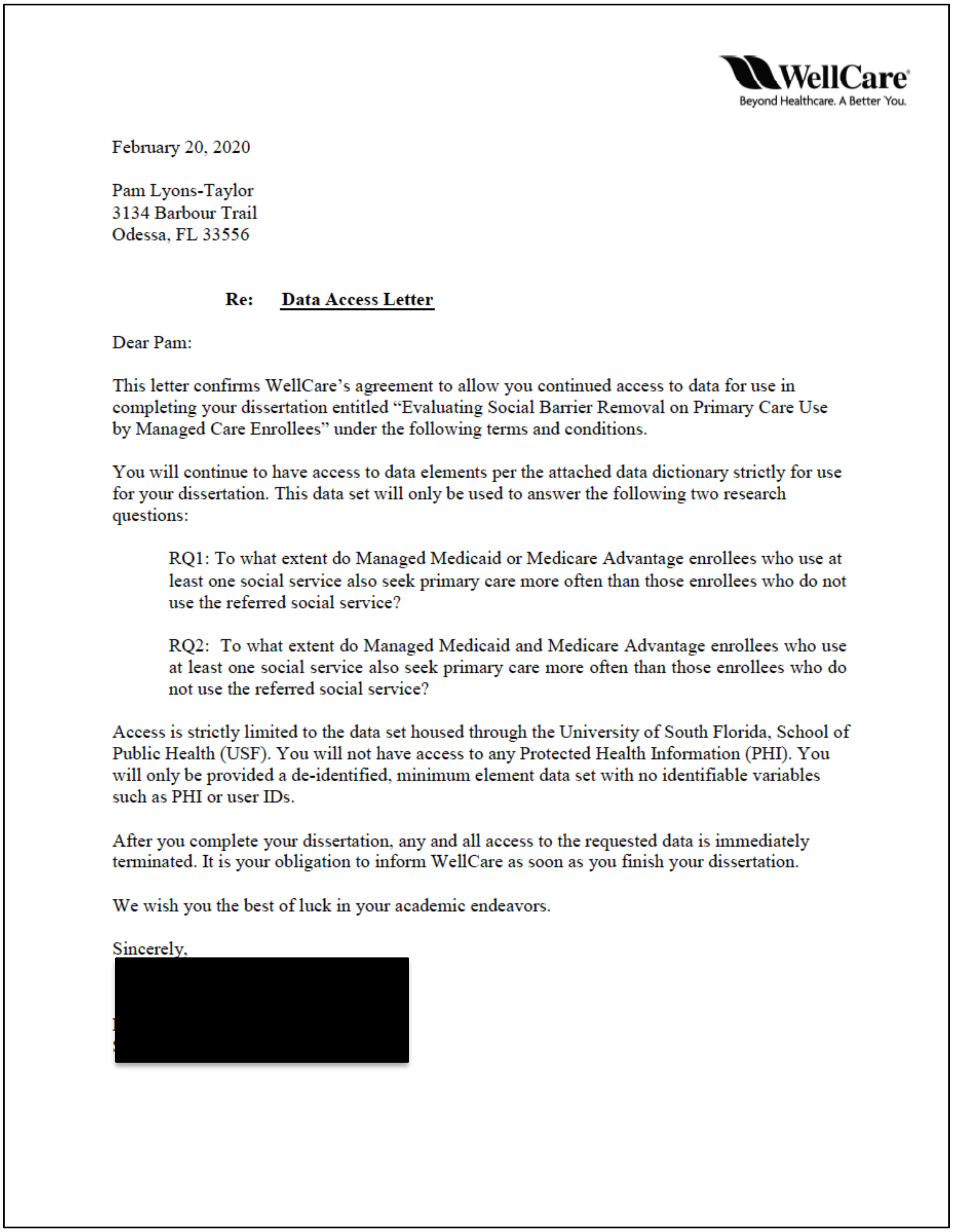
Weinick, R. M., Zuvekas, S. H., & Cohen, J. W. (2000). Racial and ethnic differences in access to and use of healthcare services, 1977 to 1996. *Medical Care Research and Review, 57*(Suppl1), 36–54.

Williams, J.A., Buxton, O., Hinde, J., Bray, J., & Berkman, L. (2017). Psychosocial workplace factors and healthcare utilization: A study of two employers.

International Journal of Health Policy and Management, 7(7), 614-622.

doi:10.15171/ijhpm.2017.132

Appendix: Data Access Letter



WellCare
Beyond Healthcare. A Better You.

February 20, 2020

Pam Lyons-Taylor
3134 Barbour Trail
Odessa, FL 33556

Re: **Data Access Letter**

Dear Pam:

This letter confirms WellCare's agreement to allow you continued access to data for use in completing your dissertation entitled "Evaluating Social Barrier Removal on Primary Care Use by Managed Care Enrollees" under the following terms and conditions.

You will continue to have access to data elements per the attached data dictionary strictly for use for your dissertation. This data set will only be used to answer the following two research questions:

> RQ1: To what extent do Managed Medicaid or Medicare Advantage enrollees who use at least one social service also seek primary care more often than those enrollees who do not use the referred social service?
>
> RQ2: To what extent do Managed Medicaid and Medicare Advantage enrollees who use at least one social service also seek primary care more often than those enrollees who do not use the referred social service?

Access is strictly limited to the data set housed through the University of South Florida, School of Public Health (USF). You will not have access to any Protected Health Information (PHI). You will only be provided a de-identified, minimum element data set with no identifiable variables such as PHI or user IDs.

After you complete your dissertation, any and all access to the requested data is immediately terminated. It is your obligation to inform WellCare as soon as you finish your dissertation.

We wish you the best of luck in your academic endeavors.

Sincerely,

[redacted]