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A Mixed-Methods Study Examining the Impact of Incentivized Medical Insurance Premiums on Wellness Program Participation and Results at a Four-Year, Private, Midwestern University

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by

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Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work here at Lindenwood University and that I have not submitted it for any other college or university course or degree here or elsewhere.

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Abstract

The purpose of this mixed-methods study was to examine the impact that incentivized medical insurance premium rates have on wellness plan participation and aggregate wellness results at a Midwestern private, four-year university. Leveraging the Health Belief Model, the researcher sought to compare aggregate wellness results and wellness program participation before and after the medical insurance premium incentive program was implemented. The researcher utilized Likert-scale questions followed by open-ended questions to gain insight into participants' perceptions of the wellness incentive program. The quantitative portion of this study applied Thorndike's theory of connecting "A specific response is connected to a specific stimulus when it is rewarded" (Knowles et al., 2020, p. 24). The quantitative data consisted of a convenience sample provided by the third-party administrator, or TPA (Fraenkel et al., 2015, p. 11).

The results from this study revealed that the participants' prevalence of major health conditions, emotional health risks, and personal health score components were not significantly different from the TPA benchmark data in 2018 and 2019. The qualitative data revealed that participants are more likely to participate in the wellness program for the incentivized insurance premium. Additionally, most respondents selected mental health as their preferred wellness activity, indicating an opportunity for future wellness initiatives at the studied institution.

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Chapter One: Introduction

Introduction

Organized healthcare in the United States was nonexistent until the Revenue Act of 1942 was passed (Mihm, 2017). Before 1942, citizens had to pay out of pocket, leaving many individuals without care. Today, employers in the United States absorb an average of 78% of employee premium costs, making healthcare one of the highest personnel expenses next to salaries (Freedman, 2022, para. 4). Annual healthcare spending in the United States hit $4.2 trillion in 2021 and is projected to hit $6.2 trillion by 2028 (Armour, 2022). As healthcare costs continue to rise, employers must examine different opportunities to control costs, while maintaining high-quality employee benefits. Focused efforts on health awareness and prevention can exponentially affect catastrophic claims costs related to unhealthy behaviors. Resources dedicated to health and wellness in the workplace can improve employee morale and the quality of work delivered (Fu et al., 2016). Worksite wellness programs serve as interventions to protect and promote employee health, minimize the risk of and prevent catastrophic claims, and educate employees on becoming more conscious consumers (Fu et al., 2016).

The cost of running a university has increased 67% faster than inflation since the early 1980s (Kelchen, 2016). Some factors contributing to the exorbitant costs of higher education include high-level administrators, amenities, and student support staff positions (Pacheco-de-Almeida & Zemsky, 2007, p. 651). Reductions in funding to higher education institutions have increased tuition rates, cut programs, and made it more difficult than ever to adapt while meeting budgetary expectations. In some instances, public institutions have been forced to continuously make reductions without an increase

in state funding for over a decade (Mitchell et al., 2014). Private institutions remain entirely dependent on private sources, including endowments, fundraising, and tuition. At the same time, tuition rates have increased so dramatically that it is nearly impossible for students to pay for their schooling without the assistance of financial aid. In 2012, student loan debt passed the $1 trillion mark (Kantrowitz, 2016).

This study examined the impact of incentivized insurance premiums on wellness program participation and aggregate wellness results. Utilizing the Likert Scale, developed by Rensis Likert, the researcher created an online survey in *Qualtrics* to understand participants' perceptions of the insurance premium incentive and the wellness program (Sack, 2020). Leveraging the Health Belief Model framework developed by Irwin M. Rosenstock, the researcher sought to draw insights into participants' motivations for choosing to participate or not and identify opportunities to improve participants' experiences in the future (Becker, 1974, p. 410).

Rationale of the Study

A significant amount of research suggests that healthy behaviors yield positive results. However, current research linking healthy behaviors to any type of return on investment is scarce. This study added to the existing literature by focusing on participants' aggregate wellness results before and after the implementation of the insurance premium insurance incentive, as the current research concentrates on the financial return on investment, which is extremely difficult to conceptualize (Baicker et al., 2010; McLeod, 2019; Ryan, 2009). Existing studies also focus on data within corporate or public organizations, rather than an in-depth examination of medium-sized, private, four-year institutions over at least two years (Schaefer, 2015). Additionally, this

study included participants' perceptions of the program, providing a unique insight into participants' behaviors and motivations. The existing literature does not include insight into participants' perceptions of their experiences (Sam & Berry, 2010; Creswell & Plano Clark, 2011; Knowles et al., 2020).

Purpose of Study

This mixed-methods study aimed to examine the impact that incentivized medical insurance premium rates on wellness plan participation and aggregate had on wellness results at a Midwestern private, four-year university. Aggregate wellness results included major health conditions, emotional health risks, and personal health score components. The eight major health conditions identified by the third-party administrator, TPA, were anemia, cholesterol, diabetes, hypertension, kidney disease, liver disease, thyroid disease, and metabolic syndrome. Emotional health risk factors recognized by the TPA included anxiety, depression, and stress. The TPA categorized personal health components as blood pressure, LDL cholesterol, blood glucose levels, triglycerides, and tobacco usage.

A mixed-methods study allowed the researcher to utilize qualitative and quantitative data, generating greater analysis capabilities within one study to determine the impact of wellness program participation on aggregate wellness results (Creswell & Plano Clark, 2011). TPA benchmark data was compared to the participants' data before and after the monetary incentive program was implemented to determine if the prevalence of major medical conditions, emotional health risks, and personal health score components were the same in 2018 and 2019 (Fraenkel et al., 2015, p. 12). Data from 2018 and 2019 were compared to determine whether the prevalence of major medical

conditions, emotional health risks, and personal health score components were the same in 2018 and 2019.

Participants also completed an open-ended, online survey questionnaire. The Likert Scale instrument was leveraged to create a survey that was divided into three different categories that measured participants' likelihood to participate, agreement on the impact that the wellness program had on their health, if any, and the level of importance that respondents placed on the wellness program and wellness activity opportunities (McLeod, 2019). Survey questions leveraged Irwin M. Rosenstock's Health Belief Model to draw insights and identify opportunities to improve participants' experiences in the future (Becker, 1974, p. 410). Edward Thorndike's Connectionism Theory recognizes that "A specific response is connected to a specific stimulus when it is rewarded" (Knowles et al., 2020, page 24).

Hypotheses

This study had three null hypotheses and 16 sub-hypotheses. The null hypotheses stated that there was no difference between the participants' results and the national average reported by the TPA. The hypotheses were:

$H_{01:}$ Participants will not have lower proportions of major health conditions than the national average reported by the TPA in 2018 and 2019.

$H_{01a:}$ Participants will not have lower proportions of anemia in 2018 than they did in 2019.

$H_{01b:}$ Participants will not have lower proportions of cholesterol in 2018 than they did in 2019.

$H_{01c:}$ Participants will not have lower proportions of diabetes in 2018 than they did in 2019.

$H_{01d:}$ Participants will not have lower proportions of hypertension in 2018 than they did in 2019.

$H_{01e:}$ Participants will not have lower proportions of kidney disease in 2018 than they did in 2019.

$H_{01f:}$ Participants will not have lower proportions of liver disease in 2018 than they did in 2019.

$H_{01g:}$ Participants will not have lower proportions of thyroid disease in 2018 than they did in 2019.

$H_{01h:}$ Participants will not have lower proportions of metabolic syndrome in 2018 than they did in 2019.

$H_{02:}$ Participants will not have lower proportions of emotional health risks than the national average reported by the third-party vendor in 2018 and 2019.

$H_{02a:}$ Participants will not have lower proportions of anxiety in 2018 than they did in 2019.

$H_{02b:}$ Participants will not have lower proportions of depression in 2018 than they did in 2019.

$H_{02c:}$ Participants will not have lower proportions of stress in 2018 than they did in 2019.

$H_{03:}$ Participants will not have lower proportions of personal health score components out of the normal range than the national average reported by the third-party vendor in 2018 and 2019.

$H_{03a:}$ Participants will not have lower proportions of blood pressure out of the normal range in 2018 than they did in 2019.

$H_{03b:}$ Participants will not have lower proportions of LDL cholesterol in 2018 than they did in 2019.

$H_{03c:}$ Participants will not have lower proportions of blood glucose levels out of the normal range in 2018 than they did in 2019.

$H_{03d:}$ Participants will not have lower proportions of triglycerides out of the normal range than the national average reported by the third-party vendor in 2018 and 2019.

$H_{03e:}$ Participants will not have lower proportions of smokers in 2018 than they did in 2019.

Research Questions

The researcher sought to identify whether the incentivized medical insurance plan had any impact on participants' health and wellness program participation. Assessment of respondents' views and opinions provided a better understanding of the perception of the wellness program. The research questions were:

RQ1: How did the wellness program change participants' health, if at all?

RQ2: How did the insurance premium incentive impact wellness program participation?

Limitations

Several limitations impacted the findings of this study. First, the study was limited, based on the researcher's relationship with the institution studied. Some respondents may have chosen not to respond, based on the researcher's role in the human resources department. The study analyzed aggregate wellness results for only one private, medium-sized, Midwestern, four-year institution over two years. The results of this study may or may not translate to other institutions. Furthermore, research over five years would significantly expand the results and provide data on the long-term impact of the incentivized insurance premium on aggregate wellness results.

The study relied on the TPA to provide aggregate wellness results. Neither the researcher nor the studied institution had any oversight into how the data were collected, recorded, and formatted into aggregate results. Additionally, this study captured participants' perceptions within a specific period and was subject to change. As participants receive more education about the program, their opinions will likely change. This study was limited to the number of respondents that completed the survey within the designated time frame. Participants with strong supporting or opposing opinions may have decided not to participate in the survey. Furthermore, this study evaluated the perceptions and aggregate wellness data of participants who were enrolled in the medical plan at the time of the survey. Some respondents may have been new employees who could not participate in the wellness program in 2018 and 2019, thus altering their perspective of the program before implementing the incentivized insurance premium.

Definition of Term

HIPPA: "The Health Insurance Portability and Accountability Act of 1996 (HIPAA) is a federal law that required the creation of national standards to protect sensitive patient health information from being disclosed without the patient's consent or knowledge" (CentersforDiseaseControlandPrevention.gov, 2018, para.1).

Incentives can be defined as, "Something that incites or has a tendency to incite to determination or action" (Merriam Webster's, n.d.).

Third-party administrators, or TPAs, "In health insurance, a fiscal intermediary organization that provides administrative services, including claims processing and underwriting, for other parties (e.g., insurance companies, employers) but does not carry any insurance risk" (APA Dictionary of Psychology.apa.org, n.d.).

For the purpose of this study, workplace wellness programs are defined as, "health programs are a coordinated and comprehensive set of health promotion and protection strategies implemented at the worksite that includes programs, policies, benefits, environmental supports, and links to the surrounding community designed to encourage the health and safety of all employees" (CentersforDiseaseControland Prevention.gov).

Summary

This study aimed to examine the impact of an incentivized medical insurance premium incentive on wellness program participation and aggregate wellness results. Utilizing a five-point Likert Scale, the researcher created an online survey in *Qualtrics* to understand participants' perceptions of the insurance premium incentive and the wellness program (Sack, 2020). Leveraging the Health Belief Model, the researcher analyzed

participants' responses to identify respondents' motivations for choosing to participate or not (Becker, 1974, p. 410). Higher education administrators must consider various solutions to control rising healthcare costs, while managing the exorbitant expenses required to lead successfully. Providing high-quality, affordable healthcare to employees, while remaining fiscally responsible to the institution is the ultimate balancing act. The topics are discussed in more detail in Chapter Two.

Chapter Two: Review of Literature

Less than a century ago, healthcare was unregulated, and employer-sponsored health insurance was nonexistent (Moseley, 2008). Today, news stories, blogs, podcasts, and websites are dedicated solely to the topic of healthcare. Annual healthcare spending in the United States hit $4.2 trillion in 2021 and is projected to hit $6.2 trillion by 2028 (Armour, 2022). Employers in the United States carry the burden of managing and controlling costs, so their employees receive the care they need and can afford while remaining fiscally responsible to the organization. Many institutions found themselves strapped financially as enrollment rates across the country have dramatically declined over the last decade, making it more difficult than ever to balance costs. Significant factors contribute to higher education's exorbitant cost, including high-level administrators and student support staff positions (Zemsky et al., 2006, p. 540). The cost of running a university has increased 67% faster than inflation since the early 1980s (Kelchen, 2016). Universities across the United States are amassing substantial debt as they struggle to realign their strategies to remain relevant and survive (Selingo, 2013). Employers absorb 78% of employee premium costs on average in the United States, making healthcare one of the highest personnel expenses, next to salaries (Freedman, 2022). Higher education institutions in the public and private sectors must work on creative financial solutions to balance declining enrollment and rising operational and personnel costs to survive. Chapter Two will examine the history of healthcare and higher education to illustrate why the costs of both industries continue to rise at an alarming rate. Additionally, this section will compare healthcare cost control solutions to the theoretical framework for behavior change related to health and wellness.

History of Healthcare

Understanding the origin of healthcare from its infancy is vital to conceptualizing how it progressed into the system we are familiar with today. Over the last century, science and technology generated a need for specialized professionals, as universities began to broaden their scope of formal training and technical schools became embedded within those institutions that required training beyond a high school education (Goldin & Katz, 1999). Before this time, individuals did not need to attend formal training and acquire degrees to practice medicine and law. Otto von Bismarck is credited for founding the first established system; however, healthcare has existed much longer, dating back to ancient Egypt (as cited in Lips & Urenda, 2014). The first facilities dedicated to healing and practices were temples devoted to healing gods. Prayer, sacrifices, and even mythology played a role in early healing practices by ancient doctors (Lips & Urenda, 2014). The first measures implemented toward a public healthcare system can be traced back to 7th century Rome (Peters, 2010, p. 159). Military and gladiator hospitals were often used as healthcare facilities for the general public, resembling a crude version of a modern-day ward (Bassareo et. al., 2020, p. 635). In the 1400s, community-organized "sick funds" appeared in certain professions. The idea was that members contributed to a fund that would go towards hospital care for widows and children of those killed on the job (Boissoneault, 2017). This is the earliest example of health insurance coverage.

As the Roman Empire converted to Christianity, churches provided refuge for the sick and the poor, thus influencing religious undertones that we still see in hospitals today. Religious institutions tended to those in need when doctors only made house calls

to wealthy patrons who could afford to self-pay for their care (Cilliers & Retief, 2002). However, even within the most sacred of institutions, those who could afford to make donations would receive better housing assignments within these early facilities well into the 1800s (Gormley, 2010). In fact, "This approach was expanding in the late 1800s so that in 1842, the first 'pay' hospital was opened in London with eight private single-bed rooms" (Bassareo et. al., 2020, p. 636). Accordingly, 'pay' hospitals began opening in heavily populated areas to care for the growing number of patients. Additionally, "As time passed, each country set up its arrangements for the meeting and keeping people healthy, treating the sick and protecting from infectious diseases," setting the foundation for modern-day medicine and healthcare (Cilliers & Retief, 2002).

Doctors were not required to have a college degree to practice medicine, and religion had the most significant influence on medicine before the 1890s (Goldin & Katz, 1999). Ancient Egyptian priests served as healers under the council of gods (Antoniou et al., 2011); mythology influenced medical practices so deeply that religious temples also served as schools for practitioners in ancient Greece (Lips & Urenda, 2014); and the gladiators of ancient Rome implemented the first healthcare facility (Cilliers & Retief, 2002). Medical practice was focused on treating immediate needs, rather than preventative care. Moreover, "As a general rule, the more the human beings became civilized—leaving agrarian life, building towns, forging trade routes to connect to one another and fighting wars for supremacy— the more pandemics showed up" (Bassareo et. al., 2020, p. 635).

The life expectancy was only 29 years during the 1300s, before the Black Death wiped out nearly two-thirds of the European population (Mellinger, 2006). When an

individual was ill in the 1300s, their ailment was usually too advanced to be treated, and little could be done to improve their condition (Mellinger, 2006). Thus, the need for keeping people healthy and preventing the spread of infectious diseases began to take priority. Different healthcare models took shape worldwide as medicine, and its costs progressed.

Healthcare System Models

Healthcare systems generally fall into one of four main models: The Bismarck Model, the Beveridge Model, the National Health Insurance Model, and the Free Market Model (Wallace, 2013). Most countries adopt systems that are comprised of a combination of two or more models. There are many misconceptions about the different healthcare systems around the world, so it is essential to recognize the strengths and weaknesses of each system to fully comprehend them (Chung, 2017). Global healthcare can be more simply organized into three categories: single-payer, social healthcare, and market-driven. Single-payer systems are completely controlled by the government and funded through tax dollars and can be compared to the Veterans Health Administration in the United States. Social health care is comparable to Medicare and Medicaid. In some countries, citizens have access to basic care; however, employers sponsor buy-up plans for employees, similar to a la carte options for Medicare (Chung, 2017). Other countries implementing social health care leverage a mixed model in which the government acts as a single-payer; however, providers remain private (Chung, 2017). Market-driven healthcare models do not have organized healthcare systems, and citizens must pay out of pocket for healthcare (Reid, 2009). Individuals in these countries do not have the option to purchase employer-sponsored health insurance, nor are there any government-

sponsored programs. Uninsured individuals in the United States would be comparable to this model. A more in-depth look at the four different models is discussed in the next section.

The Bismarck Model

Germany has the world's oldest social healthcare system (Cilliers & Retief, 2002). Implemented by Chancellor Otto von Bismarck of Germany in the 1880s, Bismarck's Model set the foundation for group healthcare as we know it today (Ross, 2002). Coined the "Health Insurance Law," Bismarck's government-sponsored health coverage for the working class was the first national system of its kind, thus turning Germany into a welfare state (Boissoneault, 2017). Bismarck's true purpose for his proposal is debated; however, the idea was to eliminate poverty due to sickness and reduce the social costs of illness (Starr, 1982). One of the most important results of Bismarck's policy was the remarkable effect on mortality rates, emigration, and improved health knowledge within Germany (Bauernschuster et al**.,** 2017).

Germany was Europe's largest labor exporter in the mid-1800s, with many citizens emigrating to the United States (Esteves & Khoudour-Castéras, 2008). More than one million of these workers left Germany in the 1850s alone, and the government soon realized the effects of emigration on the military and the economy (Esteves & Khoudour-Castéras, 2008). The industrial revolution was instrumental in shifting healthcare. Before this, most German workforce consisted of farmers or domestic servants paid with room and board and little to no currency (Boissoneault, 2017). Skilled laborers and factory workers began receiving currency, making it easier for laborers to organize and pay into sickness funds. Germany began mandating government-sponsored

health and welfare benefits to maintain the workforce, setting the foundation for group healthcare (Murray, 2007). Mortality rates dropped by nearly 9% among blue-collar workers by 1900, and, "Emigration decreased dramatically in the years leading up to World War I, in part because workers could take sick days if they stayed in Germany" (Boissoneault, 2017, para. 11).

Other countries worldwide, including the United States, took notice and began implementing similar versions (Ross, 2002). The Bismarck model is a system in which employers and employees make financial contributions. While this model does not aim to make profits, it is not considered a form of universal coverage and requires employment for those who wish to utilize it (Wallace, 2013). Furthermore, providers and facilities can privatize and set their rates.

The Beveridge Model

The Beveridge Model was developed in the United Kingdom by Sir William Beveridge in the 1940s after the financial devastation of WWII and is indeed defined as a universal healthcare model (Wallace, 2013). In this model, the government acts as a single-payer and controls what providers can and cannot do. Additionally, most doctors are government employees. There are no out-of-pocket fees or market competition, and all tax-paying citizens are guaranteed coverage under the Beveridge Model (Wallace, 2013). However, citizens must pay higher taxes regardless of their utilization. The government is responsible for the quality of care, often restricting services that result in greater patient waiting times. For example, in 2017, the median wait time for joint replacement surgery was between four and 12 months in Canada – a procedure that could be scheduled in less than four weeks in the United States (Barua, 2016).

The Beveridge model intends to create healthcare equality. However, individuals who are able can still be treated more quickly or travel outside of the country to seek immediate care (Carvel, 2003). Healthcare budgets often compete with other government spending priorities in countries that utilize the Beveridge model, making it challenging to maintain an adequate tax funding level during emergency crises and inflation (Lamerie, 1999; Wallace, 2013). More government control means that a healthcare system may limit potentially life-saving services deemed too costly, too new, or have a low probability of success (Wallace, 2013). Those who can afford these treatments in the private sector can obtain necessary services, thus creating additional inequalities by limiting access to care for individuals who are required to pay into a system in which they are still unable to access services.

One example of government-sponsored healthcare in the United States is the Department of Veterans Affairs (VA). The VA is an extensive system, and veterans are a unique group of people to serve who often have complex needs (Korb & Toofen, 2021). Implementing a "one size fits all" approach does not always work, and patients typically need a personalized approach to healthcare to change their behaviors (Shulkin, 2019). Dr. David Shulkin (2019), a physician and former healthcare executive, who served as Secretary of the VA between 2016 and 2018, spoke about some of the problems that existed at the time that he was appointed, explaining that,

> When I was first summoned to Washington, there were chilling reports of excessive wait times for VA care in many parts of the country. There was also an unacceptable breakdown in delivery of mental health and addiction care, which left veterans of Iraq and Afghanistan to fend for themselves

> during epidemics of traumatic brain injuries and posttraumatic stress — neglect that led to myriad suicides and overdoses. The VA health care system was all but publicly declared to be on life support. (p. 1)

Over the last decade, the argument for privatizing VA benefits has been heavily debated in the United States. Under Dr. Shulkin, the VA employed efforts to make veteran benefits more competitive by working closely with the private sector. These efforts enabled the VA to expand mental health services, implement telehealth, and implement measures to lower service wait times (Schulkin, 2019). Most notably, these changes led to the VA's adoption of an electronic health record system, providing greater access to data that could impact future decisions. Budgetary and regulatory restrictions do not consistently allow the VA to provide personalized care independently. The VA serves a niche demographic, and their obligation to understand and work with veterans cannot be replicated in the private sector (Shulkin, 2019).

The National Insurance Model

The National Insurance Model is a blend of the Bismarck and Beveridge models. Thus, this model does not require an extensive assessment, as the Bismarck and Beveridge models have been discussed at length. Countries implementing this model have a universal health insurance program like the Beveridge Model. However, medical providers are private, meaning they set their service rates, and citizens have the option to purchase buy-up policies as they would in countries that implement the Bismarck model (Chung, 2017). Overutilization of non-urgent services is cause for concern in countries that utilize this model (Miller, 2017). On the other hand, this model allows the government to limit the medical services paid for by the universal plan, meaning services

can be denied even if they are deemed necessary. Long wait times for procedures are cited as the most severe health policy issue within the national insurance model (Miller, 2017). These issues are prevalent in the Beveridge model as well. In 2017, the median wait time for joint replacement surgery was between four and 12 months in Canada – a procedure that could be scheduled in less than four weeks in the United States (Barua, 2016). Individuals who defer care are at risk for serious consequences:

> In certain instances, they can also result in poorer medical outcomes—transforming potentially reversible illnesses or injuries into chronic, irreversible conditions, or even permanent disabilities. In many instances, patients may also have to forgo their wages while waiting for treatment, resulting in an economic cost to the individuals and the economy in general. (Moir & Barua, 2021, para. 9)

The Free Market Model

The Free Market Model best describes the model that the United States has adopted; however, aspects of the Bismarck and Beveridge models are evident within the different health insurance options available. The government does not finance healthcare, providers can set their rates, and participants have the freedom to choose which providers, facilities, and procedures they elect (McKalip, 2016). Participants have the choice of what type of coverage to select based on their needs and the needs of their families. Though, it is important to note that the United States does not ultimately employ a free-market model. A true free-market model is a system in which there are no or very minimal government regulations in place. Aside from Medicare, Medicaid, and Veterans Affairs, insurance in the United States is not government-sponsored; however,

many federal and state mandates have been implemented to ensure ethical practices within health plan designs (McKalip, 2016).

Healthcare in the United States has sparked fierce debate spanning decades. Supporters highlight that citizens have the right to choose providers, facilities, and treatment options and can receive immediate treatment. For instance, an individual diagnosed with late-stage cancer has the freedom to seek a second or third opinion and choose from a variety of treatment options, including those that may be experimental. The patient can choose a treatment plan and begin to receive care immediately (McKalip, 2016). Under the Beveridge model, this same patient would be given a single treatment plan option based on government guidelines and their case would be waitlisted before care could begin (Zieff et al., 2020).

The free market model provides the freedom of choice; however, it does not come without some inefficiencies. Critics often argue that the free market model creates inequalities in healthcare that generate barriers to preventive care (Zieff et al., 2020). For example, individuals with low socioeconomic status and a predisposition for diabetes may be less likely to seek preventive care due to financial barriers. Individuals who do not seek proper care and manage their diabetes are at an increased risk of developing comorbidities (McBride, 1997). However, many countries, including the United States, have implemented government-sponsored programs to combat financial barriers to healthcare for certain groups of qualifying individuals: Medicare for the elderly, Medicaid for those who are disabled or are of low socioeconomic status, and veterans. Thus, the question becomes, Why are these groups of individuals still not accessing care that has already been made available to them? The answer is extremely complex.

Accessibility, confusion about coverage and where to go with questions, and poor patient experiences have been cited as reasons that the utilization among these groups of covered individuals to continue to defer care (Allen et al., 2017). Information is a powerful tool, but it is only valuable if the recipient knows how to use it.

Healthcare in the United States

Understanding the origins of healthcare in the United States when discussing its impact on today's society is critical. A significant debate currently surrounds health insurance across the globe; however, everyone can agree that health insurance coverage is a highly costly, yet necessary reality (Simpson, 2019). Healthcare in the United States originated in the late 19th century and was organized by unions and employers to provide sick time off for industrial workers, referred to as "sickness funds" (Murray, 2007, p. 623). The government was solicited to provide additional support as the "sickness funds" developed (Murray, 2007, p. 623). The fact that health insurance coverage in the United States was a solution to rising health costs is somewhat ironic (Ross, 2002).

In the early 1900s, several professional groups, backed by the American Association for Labor Legislation (AALL) and President Roosevelt's Progressive Party, began to advocate for health insurance, leading to the first form of health insurance in the United States (Ross, 2002). The alliance had two intentions for their proposal. First, the organizers examined ways to "reduce the social costs of illness by providing effective medical care and creating monetary incentives for disease prevention" (Starr, 1982, p. 81). Fascinatingly, the proposal was exceptionally progressive, including monetary incentives for disease prevention. Early proponents of health insurance in the United

States realized the value of preventative care and how it could impact costs associated with disability, due to illness or injury and lost productivity. Bacteriology became a recognized science by the early 1900s, prompting the expansion of public health efforts to educate the community about the spread of disease and preventative care (Rosenkrantz, 1972). Second, the organizers sought to, "eliminate sickness as a cause for poverty by distributing individual wage losses and medical costs through insurance" (Ross, 2002, p. 131). It is important to remember that at this time, personal hygiene habits were not recognized as preventative care, and many did not have access to clean water or sanitization supplies. In fact, "Draft registration during World War I revealed that a substantial portion of the male population was either physically or mentally unfit for combat" (Fee, 1987). Draft registration also revealed that the morbidity rates were highest among the poor (Fee, 1987). Interestingly, there is a clear correlation between poverty levels and poor health that can be found anywhere in the world at any time. America's entry into WWI prevented the proposal from moving forward, though it found its way back to the agenda in the 1920s (Ross, 2002).

In the 1920s, The Committee on the Costs of Medical Care (CCMC) was established to research methods for designing an organizational solution to health care between 1927 and 1932 (Ross, 2002). One of the most intriguing findings by the committee chose to support a model that was backed by the medical profession rather than those who would be utilizing these benefits or even a combination of the two. The committee's findings throughout their five-year study resulted in four primary themes that were published in their final report titled, "Medical Care for the American People":

> (1) medical services were provided by physician groups, (2) costs were distributed over persons and time using an insurance program, (3) funds and services dedicated to disease prevention were increased, and (4) community agencies coordinated medical care services. However, its recommendations were delivered to a society unprepared to reorganize health care using an economic model rather than the autonomous, industrial model supported by the medical profession. (Ross, 2002, p.129)

To better understand the CCMC's findings, it is essential to remember that there was no organized group healthcare in the United States and that this was the official first large-scale research initiative into creating a healthcare system. The committee's findings conceptualized the first model of true group healthcare in the United States and became the mainstay of financing health insurance.

Each of these fundamental themes is still prevalent in the U.S. healthcare system. The first theme suggested by the CCMC was intended to urge medical professionals to organize groups of physicians within hospitals to maintain high standards (Ross, 2002). Hospitals have many different quality controls in place to ensure that patients receive adequate care, including rotation schedules to regularly check on patients and cleanup protocols to ensure safety. The second theme summarized that all public health services should be available to the entire population (Ross, 2002). Public health departments are funded through tax dollars and continue to provide services to their local jurisdictions. Vaccinations, testing, and sexual education programs are all excellent examples of the second theme. Theme three recognizes the value and importance of preventative care and suggests that costs should be funded through taxes, "group payments" (insurance), or

both (Ross, 2002, p. 129). Medicare, Medicaid, and employer-sponsored health insurance are still very relevant, and all examples of funding through taxation, group payments, and a combination of the two. Medicare can be coordinated with employer-sponsored coverage. Finally, theme four guides the government's role in healthcare, suggesting that state agencies regularly evaluate services and that improved education should be made available for medical professionals at all levels (Ross, 2002).

Healthcare as a Part of Total Compensation

Education, medicine, and technology have profoundly impacted how healthcare developed into the different systems that exist today. Politics significantly influenced the evolution of higher education between 1890 and 1940. Prior to this time, doctors were not required to have a college degree or even formal training to practice medicine. Advancements in science and technology generated a need for specialized professionals during this time that required training beyond a high school education (Goldin & Katz, 1999). Before the 1870s, hospitals ran strictly on donations. Public funding for researching advancements in medicine and technology transformed professional medical training in the 1890s. Universities began to transition from theological-based schooling to scientific research institutions, greatly influencing the speed at which science, health, and technology advanced during this period (Goldin & Katz, 1999).

The Revenue Act of 1942 imposed wage freezes and tax penalties on companies' profits (Mihm, 2017). Wage freezes, tax penalties, and labor shortages prompted businesses to search for loopholes. Health insurance as a benefit was excluded from the tax penalty allowing organizations to deduct premiums from their profits and attract employees (Mihm, 2017). However, this tax exclusion was not available for purchasing

insurance outside of employment, thus laying the foundation for financing health insurance in the United States (McKalip, 2016). The basic objectives of The Revenue Act of 1942 are still present to this day. Most Americans obtain health insurance coverage through their emloyers, unless they are eligible for government-sponsored healthcare, and businesses can still receive tax benefits for offering employer-sponsored insurance. While organizations receive tax break benefits for providing health insurance, they still need to fund these benefits in a way that offers affordable coverage for all parties. Providing a rich benefits plan while remaining fiscally responsible to the organization is the ultimate balancing act. Over time, healthcare became very costly for employers, inextricably linking health insurance to employee wages as a part of the total compensation (McKalip, 2016).

In 2021, the average annual cost to employers was estimated at $13,360 per employee and was expected to increase by 5% by the end of 2022 (Miller, 2021). Access, education, and affordability are essential to controlling costs for any plan. Individuals who do not seek proper care and manage their conditions are at an increased risk of developing comorbidities and generating catastrophic claims (McBride, 1997). More significant claims mean higher costs for employers. When analyzing an employee's total compensation, employer contributions towards insurance premiums are a significant expense. Organizations must calculate out how much their contributions towards each employee’s insurance premiums, retirement matching (if available), and employment taxes will cost annually.

Employers in countries that implement government-sponsored coverage face similar issues. In Europe, it is a legal requirement to obtain publicly funded or private

coverage, though certain requirements based on one's income level (InterNations, 2022). If an individual makes below a certain income level, he/she must register for publicly funded insurance; however, this person is not allowed to purchase a supplemental private policy in addition to the public policy (InterNations, 2022). In Germany, employees and employers pay a tax towards the publicly supported healthcare system. However, employers still provide and contribute towards supplemental policies, and employees still pay premiums (InterNations, 2022). Out-of-pocket costs still apply to certain services under the supplemental plans and workers who choose only to take dividends insurance still pay premiums for what they owe (InterNations, 2022). Only those who qualify, meaning individuals who make less than a certain amount, receive completely free healthcare (InterNations, 2022). Workers in the United States have a similar structure to pay for healthcare, where employees pay different taxes for assistance programs like Medicare and Medicaid, in addition to a portion of their medical insurance premiums (Tolbert, 2016).

Employers in the United States carry a very heavy burden of balancing the employee and employer costs for medical insurance. The average annual growth in healthcare spending was 4.2% between 2010 and 2019 for employers and employees (Kurani et al., 2022). In 2014 alone, the average raise in the United States was 4%, yet the average increase in medical insurance premiums was 10% (Tolbert, 2016). Unfortunately, "rising costs and increased utilization, fueled by a resurgence in deferred care, are driving employers to find new ways to control costs while providing employees with affordable, high-quality care" (Miller, 2021, para. 18). In other words, employers assume the burden of controlling healthcare costs and are responsible for finding

solutions to maintaining affordable benefits. Thus, employers have had to become creative in managing the health of their populations. Telebehavioral mental health services, specialty pharmaceutical review, care management concierge services, narrowing networks, spousal carve-outs and surcharges, and outcomes-based wellness programs are examples of initiatives employers have implemented to help control costs (Miller, 2021).

Workplace Wellness Programs

The original proposal for group healthcare in the United States, backed by the American Association for Labor Legislation (AALL) and President Roosevelt's Progressive Party included monetary incentives for disease prevention (Rosenkrantz, 1972). Early proponents of health insurance in the United States realized the value of preventative care and how it could impact costs associated with disability due to illness, or injury and lost productivity. The United States' entry into WWI and WWII dramatically altered the foundation for healthcare and the early proposal of incentivizing healthy behaviors was mainly lost until the 1980s. Some of the first corporate workplace wellness programs focused mainly on reducing work-related injuries and improving productivity (Klasnick, 2019). Employers soon noticed a correlation between healthy behaviors and job performance, prompting the implementation of worksite educational programs for tobacco cessation, biometric screenings, diet and exercise, and stress management (Klasnick, 2019). Eventually, researchers and employers began to link wellness programs and education to healthcare costs and productivity. Subsequently, workplace wellness programs were integrated into employer-sponsored healthcare plans

to focus on preventive care (Klasnick, 2019). Workplace wellness programs have become extremely complex since their inception in the 1980s.

Today, employer wellness programs lower healthcare costs, reduce absenteeism, improve morale, decrease work-related injuries, and increase productivity (Society for Human Resources Management, 2022). Employers also leverage digital platforms for employees to use artificial intelligence to manage their well-being and track progress (Klasnick, 2019). Employers also implement programs and provide resources based on aggregate data derived from digital platforms (Society for Human Resources Management, 2022). If an employer can see that 75% of wellness plan participants reported feelings of stress, then administrators have a unique opportunity to focus efforts on promoting employee assistance program services, telemedicine benefits, or even some mental health activities that employees can engage at the office. However, most of the population must participate to achieve savings and workplace engagement.

Unhealthy individuals typically make up about 10% of the population, generate 90% of the claims, and are the target population (Ortaliza et al., 2021). Healthy employees are likely already engaging in healthy behaviors, though simply being considered healthy does not necessarily mean that an individual does not engage in unhealthy behaviors. Employers must continually find ways to encourage participants to engage in healthy habits. Monetary incentives for well behaviors are one way that organizations engage their employees. In fact,

> Incentives or rewards are an effective tool to change unhealthy behaviors, to adhere to healthy behaviors, to increase participation rates or to help individuals complete a program. The argument for rewarding employees

> for participating in a wellness program pulls from the basic principles of behavioral psychology: People are driven to act by the positive consequences they expect from their actions. Effective incentives will be commensurate with the effort required to practice the desired behavior. (Society for Human Resources Management, 2022)

Approximately 86% of employers offer a financial incentive for wellness plan participation, of which 78% offer the incentive as a reduction in monthly insurance premium rates (Klasnick, 2019). The idea is that employees will become more conscious about their wellness behaviors and make small changes that will amount to less healthcare spending over time.

Theoretical Framework

Behaviorism can be generically defined as observable and measurable characteristics of human behavior (Zhou & Brown, 2017). Workplace wellness programs serve as an excellent way to promote well-being and engage employees. However, behavior change is not so simple, especially for those who are not motivated to do so. "Researchers suggest that personal behaviors cause more than 50% of illnesses" (Ryan, 2009, p. 167). Unhealthy behaviors can be measured in various ways within a health or wellness plan. Prevalence of Type II Diabetes, percentage of smokers, and cholesterol levels are all examples of health and wellness metrics. The key to uncovering whether the wellness program initiatives have effectively changed health behaviors is to compare the migration of those metrics. For instance, in year one, 25% of participants were smokers and 30% were considered pre-diabetic. In year two, smokers accounted for 15% of participants and pre-diabetics accounted for 10% of participants. However, if the

percentage of smokers rose from 25% in year one to 40% in year two, the organization would need to work on motivating these individuals to change their behaviors. Comparisons like these would be very valuable to wellness program administrators, so they know where to focus their efforts. Workplace wellness programs strive to implement preventative measures targeting employees at a higher risk for chronic conditions (Mattke et al., 2013). Once those individuals have been identified, the goal is to encourage them to engage with a healthcare provider or make behavior changes.

The Health Belief Model identifies six concepts that predict health behavior, "risk susceptibility, risk severity, benefits to action, barriers to action, self-efficacy, and cues to action" (Becker, 1974, p. 410). Risk susceptibility and severity relate to one's perception of the level of risk for illness and perceived seriousness of contracting an illness respectively (Clark & Janevic, 2014). Benefits and barriers to action similarly relate to the perceived positive and negative effects of one's actions (Clark & Janevic, 2014). Self-efficacy, though not always included in Health Benefit Model studies, refers to the belief that "one can complete the behavior of interest despite considered barriers" (Rosenstock et al., 1988, p. 175). A low-income individual may perceive the cost of her medication as a barrier yet understands the importance of managing her condition as she decides to take half of her prescribed dose to make the medication last twice as long. She believes she is completing the desired behavior within the limits of her perceived barriers. Cues to action refer to the stimuli that trigger an action. The concepts of the Health Belief Model suggest that preventative health behaviors and following prescribed medical advice will produce positive outcomes (Clark & Janevic, 2014).

The Health Belief Model serves as an excellent guide to health behaviors. However, there are a few limitations. The model assumes that the individual places a high value on health and well-being (Clark & Janevic, 2014). Economic, cultural, and environmental factors may hinder an individual from taking the prescribed course of action. When an individual does not place a high value on health or believe that they have barriers that prevent them from placing a high value on health, the model may not be useful or relevant to predicting or even incentivizing healthy behaviors. Participants must at least understand the importance of health and well-being and value the reward to be successful. How does an organization get a diverse demographic of employees to value their health and well-being and comply with prescribed actions?

Edward Thorndike's Connectionism Theory states, "A specific response is connected to a specific stimulus when it is rewarded," clearly illustrating the role of the incentivized insurance premium as it relates to the participant (Knowles et al., 2020, p. 24). Participants who engage in healthy behaviors are rewarded with a monetary incentive in the form of a lower monthly medical insurance premium. Thorndike's development of operant conditioning further explains, "Responses that produce a satisfying effect in a particular situation become more likely to occur again in that situation, and responses that produce a discomforting effect become less likely to occur again in that situation" (Gray, 2011, pp. 108–109).

The concept of positive reinforcement based on Thorndike's theory is directly applicable to the idea of rewarding participants on a medical insurance plan for healthy behaviors with a lower monthly insurance premium. Irwin M. Rosenstock's Health

Belief Model provides a direct health behavior context to Thorndike's Connectionism Theory.

Providing education and resources on managing lifestyle changes is necessary to motivate participants (Mattke et al., 2013). Education is "an activity undertaken or initiated by one or more agents that are designed to effect changes in the knowledge, skill, and attitudes of individuals, groups, or communities" (Knowles et al., 2020, p. 26). It would be ill-advised for an employer to implement a program that provides an incentive for healthy behaviors without providing the appropriate resources to be successful. Education is particularly important when articulating the purpose of the program.

Summary

Annual healthcare spending in the United States hit $4.2 trillion in 2021 and is projected to hit $6.2 trillion by 2028 (Armour, 2022). As medical costs continue to rise dramatically, employers carry the burden of managing and controlling costs, so employees receive the care that they need and can afford, while remaining fiscally responsible to the organization. Education, access, and one's value of personal well-being are crucial to preventive care and maintaining healthcare costs. If a group of individuals does not understand how to use or access their benefits, they will likely not be able to modify their behaviors. Furthermore, one's value of personal well-being plays a significant role in undertaking the preferred course of action (Clark & Janevic, 2014). Understanding the origin of healthcare from its infancy is vital to conceptualizing how it progressed into the systems we are familiar with today. Healthcare has an incredibly long history and has taken centuries to evolve, illustrating the obstacles administrators

face when working to implement change. Higher education institutions experiencing declining enrollments and budget cuts must seek creative solutions to mitigate healthcare costs while maintaining a sustainable program for participants.

Chapter Three: Research Method and Design

This mixed-methods study aimed to examine the impact of incentivized medical insurance premium rates on wellness plan participation and aggregate wellness results at a Midwestern private, four-year university, during the fall of 2018 and the fall of 2019. A significant amount of research suggests that healthy behaviors influence one's health (Ryan, 2009). However, little research is available linking healthy behaviors to any type of return on investment – whether that be wellness program participation or improved wellness results within a medical insurance plan. Employers want to know the return on the investment of a wellness program at work, as they require significant resources to maintain. The return on investment of a wellness program is difficult to compute into actual dollars (Sam & Berry, 2010). A mixed-methods study allowed the researcher to utilize qualitative and quantitative data, generating greater analysis capabilities within one study to determine what impact, if any, that wellness program participation had on aggregate wellness results (Creswell & Plano Clark, 2011).

In 2018, employees enrolled in the medical insurance plan were only obligated to complete a biometric screening to receive the incentivized medical insurance premium rate for the 2019 calendar year, and wellness program participation was voluntary. However, wellness program participation was required during the 2019 calendar year for employees enrolled in the medical insurance plan to maintain the incentivized medical insurance premium rate for the 2020 calendar year. Participants were given a personal health score generated by the third-party administrator based on criteria relating to specific lifestyle health risks. Personal health scores generated in 2018 determined whether the participant needed to maintain or improve their score by the fall of 2019 to

maintain the wellness premium incentive for 2020. Biometric screening scores generated in 2019 determined whether the participant would be eligible for the wellness participation rate in 2020.

Utilizing Edward Thorndike's Connectionism Theory, the researcher analyzed the impact that incentivized medical insurance premiums had on participants' behaviors, aggregate wellness results, and wellness participation at a Midwestern private, four-year university. The quantitative portion of this study applied Thorndike's theory of connecting "A specific response is connected to a specific stimulus when it is rewarded" (Knowles et al., 2020, p. 24). Participants were asked to rate their experiences and perceptions about the wellness and incentive programs. The secondary data consisted of a convenience sample that was provided by the third-party administrator (Fraenkel et al., 2015, p. 12). The data revealed the prevalence of major medical conditions among the participants. The researcher utilized this data to compare the prevalence of major medical conditions before and after the monetary incentive program was implemented (Fraenkel et al., 2015, p. 12). Since this data set was comprised of a much larger group that could not be broken down, the researcher utilized percentages of the sample that the TPA provided.

The qualitative portion of this study asked several open-ended questions aimed at developing a deeper sense of participants' perceptions of the wellness and incentive programs. Participants were asked to share any thoughts about their experiences and perceptions about the wellness and incentive programs. Each survey question leveraged Irwin M. Rosenstock's Health Belief Model to draw insights and identify opportunities to improve participants' experiences in the future. The researcher used a Likert Scale to

develop the questions for the survey. An optional open-ended question followed each question. Open-ended questions allowed the researcher to gain a deeper understanding of participants' perspectives on the incentivized wellness program and why they rated the previous question the way that they did. This portion of study enabled the researcher to examine participants' levels of willingness to participate in the wellness program before and after the medical insurance premium incentive was added in 2018 and 2019, respectively. Additionally, surveys generated constructive feedback from participants regarding their willingness to participate before and after implementing the medical insurance premium incentive in 2018 and 2019, respectively. The researcher sought to draw insight into how the implementation of the insurance premium incentive and wellness program participation were received by participants and identify opportunities that existed to improve participants' experiences in the future. A review of the literature shows that "Persons with chronic conditions improve their health by managing specific health behaviors, a process that requires behavior change" (Ryan, 2009, p. 168).

The methodology and applicable theories are discussed in this chapter. This chapter will review the research design and the methods and instrumentation used. The researcher will then review and discuss the research questions, the population and sampling, data collection, and analysis of the procedures.

Research Site

The researcher collected two different data sets at a private, Midwestern four-year higher education institution that had been in operation since 1827. At the time of the study, the research institution employed over 1,700 employees, including over 200 faculty, approximately 650 staff, including administrators, and over 900 adjunct

instructors. Only full-time, benefit-eligible faculty and staff enrolled in the medical insurance plan at the time of the study were eligible to participate in the study. Of the approximately 850 benefit-eligible employees, about 500 were enrolled in the medical insurance program at the time of the study. This provided the researcher with a pool of applicants large enough to account for the possibility of participants choosing not to complete the survey.

The research site also boasted a robust internal wellness program that had been embedded into its culture for several years before the study. Participation was voluntary and not tied to medical insurance premiums before the fall of 2018. Employees would receive regular communication regarding various wellness activities that focused on the different dimensions of wellness: mental, physical, social, financial, spiritual, and environmental. Each month, the program administrator would work with the institution's College of Science, Health, and Technology to create different wellness activities to host throughout the year. Before implementing the insurance premium incentive, participants would earn wellness points for completing these activities that they could use towards various wellness prizes. Wellness points were awarded in different increments depending on the wellness activity. Wellness program participants were able to continue earning wellness points after the implementation of the insurance premium incentive. All employees, including those who were part-time or not enrolled in the medical insurance plan, could participate for wellness points.

Before the implementation of the insurance premium incentive, participation was steady; however, most of the participants were already health-conscious individuals. The program administrator saw an opportunity to reach those who may not otherwise be

motivated to change their behaviors by implementing a monetary incentive. The benefits director sent out communication, during open enrollment in the fall of 2018 announcing that employees enrolled in the medical insurance plan had the opportunity to earn and maintain an incentive on their monthly insurance premiums by completing a biometric screening.

Aggregate health and wellness data were collected by the third-party administrator via biometric screenings from wellness program participants in the fall of 2018 and again in the fall of 2019. It is important to note that not all employees enrolled in the medical insurance plan chose to participate in the biometric screenings in 2018 and 2019. Participation in the biometric screenings was voluntary for eligible participants; however, it meant that those who chose not to be screened would not be eligible to receive the insurance premium incentive. Some participants who participated in 2018 chose to not participate in 2019 or left the institution. Employees hired in 2019 were not able to participate in 2018. Additionally, only those enrolled in the medical insurance plan received a biometric screening. However, all employees could still participate in the wellness program activities for wellness points. Before the implementation of the insurance premium incentive, wellness points were awarded for participation in different activities and were based on the type of activity, and participants saved their points for different prizes throughout the academic year. All participants, regardless of their enrollment status, received wellness points after the insurance premium incentive was implemented.

Participants

This study aimed to examine the impact that incentivized medical insurance premium rates have on wellness plan participation and aggregate wellness results at a small private midwestern university. Participants in this study included all active, full-time, benefit-eligible staff and faculty employees enrolled in the medical insurance plan. At the time of the study, there were 498 total employees enrolled in the medical insurance plan, which included 311 staff and 187 faculty. Members of the human resources department and dissertation committee were the only employees excluded from the survey. All 498 benefit-eligible staff and faculty employees enrolled in the medical insurance plan at the time of the study were included in the survey.

Instrumentation

Once the researcher received approval from the Institutional Review Board of the researched institution, as well as permission to use the university as a study site (see Appendix B), randomly selected university staff and faculty who were enrolled in the medical insurance plan at the time of the study were asked to answer a voluntary 16-question survey (see Appendix A). The researcher developed an online survey in *Qualtrics* utilizing the Likert Scale developed by Rensis Likert, followed by corresponding open-ended questions to gain additional insight as to why participants provided the rating they did in the previous question. The survey was self-administered through email. Participants who chose to complete the survey were provided an informed consent form (see Appendix C) for the researcher to use the content of the survey. The survey was made available for two weeks. The researcher expected a minimum of 20

completed surveys of the 100 that were sent out; however, 27 were received. This provided the researcher with a diverse selection of responses to analyze.

The five-point Likert Scale survey allowed participants to rate their thoughts regarding the wellness program, their participation, the medical insurance premium incentive, and their wellness program experiences. Each Likert-Scale question was followed by an open-ended question to allow participants to share their thoughts on why they chose the rating they did in the previous question. The Likert Scale combined with the open-ended questions allowed the researcher to gather information about participants' thoughts, experiences, and preferences (Sack, 2020).

Participants chose from five different rating options for each Likert-Scale question. The Likert Scale instrument was divided into three categories to measure participants' likelihood to participate, agreement on the impact that the wellness program had on their health, if any, and the level of importance that respondents placed on the wellness program and wellness activity opportunities (McLeod, 2019). The first question asked participants if they participated in the wellness program. Question two asked why respondents chose to participate and gave them an opportunity to describe shared reasoning about their participation status. Questions three, five, and seven focused on participants' likeliness to engage with the wellness program before implementing the monetary incentive. Questions four, six, and eight gave participants an opportunity to share their thoughts on their participation status and as well as their likelihood to continue participation.

Question nine asked participants to rate their level of agreement with whether the wellness program had any impact on their health, and question 10 provided participants

the opportunity to provide insight as to whether they changed any habits that impacted their health resulting from their participation in the wellness program.

Question 11 asked participants to rate their likelihood to either begin participating in the wellness program or continue participating in the wellness program. An open-ended question followed, asking the respondents to share their thoughts on why they gave the rating they did in the previous question.

Questions 13 and 14 asked participants to share what they liked most and least about the wellness program and why. These questions were open to the participants to provide feedback about their thoughts on the program. Question 15 asked participants to choose the challenge they liked most from a list of five options. This was followed by an open-ended question asking participants to share their thoughts on why they chose the activity they did in the previous question.

Results from this instrument allowed the researcher to identify the following: 1) the likelihood of respondents to participate in the wellness program before the monetary insurance premium incentive, 2) the likelihood of respondents to participate in the wellness program after the monetary insurance premium incentive 3) motivating factors for wellness program participation 4) level of agreement on the impact that the wellness program had on their health 5) the level of importance that respondents placed on the wellness program and wellness activities.

The researcher's primary interest was to capture participants' thoughts, experiences, and preferences relating to the wellness program. Likert Scales are one of the most frequently utilized psychometric tools in educational research for their ability to quantify shared attitudes, perceptions, and opinions (Joshi et al. 2015). Since its

inception in 1932, the Likert scale has evolved and been utilized in thousands of research studies (Clark & Watson, 1995). According, to Park (2017) "an attitude can be defined as preferential ways of behaving/reacting in a specific circumstance rooted in relatively enduring organization of belief and ideas (around an object, a subject or a concept) acquired through social interactions" (p. 97).

The validity, as it relates to Likert scales, can be categorized through two major perspectives: 1) construct validity (Cronbach & Meehl, 1955) and 2) test validity (Hood, 2009). The construct validity perspective was introduced to validate theoretical attributes that cannot be measured in absolute terms (Colliver et al., 2012). Individual experiences and perspectives are examples of construct validity. The qualitative portion of this study relies on participant feedback. Test validity focuses on "whether or not a test measures what it purports to measure" (Kelley, 1927, p. 14). In other words, validity is whether the statement is true or false. The quantitative portion of this study relies on the data provided by the TPA and the statistical tests conducted to realize significant differences between 2018 and 2019. However, citing the *Standards for Educational and Psychological Testing* (American Educational Research Association et al., 2014), Clark and Watson (2019) rejected the concept that there are multiple "types of validity," focusing on validity as a singular concept (as cited in Jebb et al. 2021). The construct validity perspective of this instrument has been endorsed by Clark and Watson (1995, 2019) and is the "standard set forth by governing agencies for the North American educational and psychological measurement supracommunity" (as cited in Jebb et al. 2021). Clark and Watson's (1995, 2019) development of construct validity has been referenced in thousands of postsecondary researches over the last 25 years (as cited in

Jebb et al., 2021). Examples included the analysis of psychological practices (Sellbom & Tellegen, 2019), assessment of content validity (Haynes et al. 1995), evaluation of guidelines and criteria (Colquitt et al. 2019), exploration of scale structure (Cooksey & Soutar, 2006), and measurement of attitudes (Likert, 1927).

Data Collection

The researcher compiled a list of all the full-time, benefit-eligible university employees actively enrolled in the medical insurance plan at a private, Midwestern, four-year higher education institution. After obtaining the necessary approvals, the researcher compiled the initial list of active employees enrolled in the medical insurance plan. This information was then provided to the human resources information system specialist in Excel format. All members of the human resources department and the researcher's committee members were removed from the Excel spreadsheet. The human resources information system specialist then chose every 10th individual until a sample group of 100 employees was reached. Once the desired sample size was reached, the human resources information system specialist created an email group through Microsoft 360 to be shared with the researcher, while keeping the individuals' identities within that distribution group anonymous. The sample size of 100 was the "optimum number necessary to enable valid inferences to be made about the population" (Marshall, 1996, p. 522). The researcher was then able to send out an email request to the study distribution group with a link to the survey.

The survey was delivered through the online survey system, *Qualtrics*. Survey results were collected by the human resources information system specialist and provided to the researcher with all individual data de-identified in Excel format. This allowed the

researcher to organize the data for better analysis. Once the data were analyzed, the researcher could interpret and report the results. All randomly selected participants received an email consent form and a link to the *Qualtrics* from the researcher. Participants had two weeks to complete the survey. The researcher expected to receive 20 responses. However, the survey received a 27% response rate.

Third-Party Administrator Data

A third-party administrator collected health and wellness data from participants during biometric screenings in 2018 and again in 2019. Biometric screening results were then organized by the TPA and reported to the researcher in aggregate format with all identifiable data removed. The researcher focused on the three largest segments of the aggregate data for health conditions, emotional health risks, and personal health score components comprised of lifestyle health risks. Each segment was then broken down into subcategories that enabled the researcher to further analyze the results and compare proportions of the study institution's data to national average proportions reported by the TPA in 2018 and 2019. Major health conditions reported by the TPA included anemia, cholesterol, diabetes, hypertension, kidney disease, liver disease, thyroid disease, and metabolic syndrome. Emotional health risks included anxiety, depression, and stress. Personal health score components included blood pressure, LDL cholesterol, blood glucose, triglycerides, and tobacco usage. Participants' personal health scores ultimately determined eligibility for the insurance premium incentive for the following calendar year.

Hypotheses

This study had three null hypotheses and 16 sub-hypotheses. The null hypotheses stated that there was no difference between the participants' results and the national average reported by the TPA. The hypotheses and sub-hypotheses were as follows:

$H_{01:}$ Participants will not have lower proportions of major health conditions than the national average reported by the TPA in 2018 and 2019.

$H_{01a:}$ Participants will not have lower proportions of anemia in 2018 than they did in 2019.

$H_{01b:}$ Participants will not have lower proportions of cholesterol in 2018 than they did in 2019.

$H_{01c:}$ Participants will not have lower proportions of diabetes in 2018 than they did in 2019.

$H_{01d:}$ Participants will not have lower proportions of hypertension in 2018 than they did in 2019.

$H_{01e:}$ Participants will not have lower proportions of kidney disease in 2018 than they did in 2019.

$H_{01f:}$ Participants will not have lower proportions of liver disease in 2018 than they did in 2019.

$H_{01g:}$ Participants will not have lower proportions of thyroid disease in 2018 than they did in 2019.

$H_{01h:}$ Participants will not have lower proportions of metabolic syndrome in 2018 than they did in 2019.

$H_{02:}$ Participants will not have lower proportions of emotional health risks than the national average reported by the third-party vendor in 2018 and 2019.

$H_{02a:}$ Participants will not have lower proportions of anxiety in 2018 than they did in 2019.

$H_{02b:}$ Participants will not have lower proportions of depression in 2018 than they did in 2019.

$H_{02c:}$ Participants will not have lower proportions of stress in 2018 than they did in 2019.

$H_{03:}$ Participants will not have lower proportions of personal health score components out of the normal range than the national average reported by the third-party vendor in 2018 and 2019.

$H_{03a:}$ Participants will not have lower proportions of blood pressure out of the normal range in 2018 than they did in 2019.

$H_{03b:}$ Participants will not have lower proportions of LDL cholesterol in 2018 than they did in 2019.

$H_{03c:}$ Participants will not have lower proportions of blood glucose levels out of the normal range in 2018 than they did in 2019.

$H_{03d:}$ Participants will not have lower proportions of triglycerides out of the normal range than the national average reported by the third-party vendor in 2018 and 2019.

$H_{03e:}$ Participants will not have lower proportions of smokers in 2018 than they did in 2019.

Research Questions

This mixed methods study intended to identify whether the incentivized had any impact on participants' health and wellness program participation. The assessment of the respondents' views and opinions provided a better understanding of the perception of the wellness program. The qualitative portion of this study utilized reliable and valid behavioral theories and included the following research questions:

RQ1: How did the wellness program change participants' health, if at all?

RQ2: How did the insurance premium incentive impact wellness program participation?

Quantitative Procedures

Quantitative data analysis reviewed differences that existed between the various dependent variables. The national average of the prevalence of major health conditions and emotional health risks, and personal health score components reported by the TPA served as the independent variables (Bluman, 2019). The dependent variables were the prevalence of major medical health conditions, emotional health risks, and personal health score components of the employees who participated in the wellness program. The researcher collected the TPA's 2018 and 2019 participant wellness results and transferred the information into an Excel (.xlsx) spreadsheet. All wellness results were aggregated by the TPA prior to the researcher receiving the data to protect the participants' identity and personal health information.

The researcher conducted a Chi-Square goodness of fit test to determine if the observed prevalence of major medical conditions, emotional health risks, and personal health score components of participants' results were the same as the national average

reported by the TPA in 2018 and 2019. A two-sample test of proportions determined if the prevalence of participants' personal health score components were the same in 2018 and 2019. This allowed the researcher to determine whether participants' health scores improved after the second biometric screening in 2019.

Qualitative Procedures

Qualitative data were gathered from responses through an online *Qualtrics* survey. The researcher compiled a list via Excel of all the employees enrolled in the medical insurance plan at the time of the survey. This list was provided to the human resources information system specialist to create an email list that consisted of at least 100 randomized participants. The human resources information system specialist selected every 10th individual on the list and repeated this until 100 participants had been chosen. Once the participant list had been finalized, the human resources information system specialist created an email group with all participants. This allowed the researcher to be able to send the *Qualtrics* survey via email without being able to see which participants were included in the email group. Survey results were collected by the human resources information system specialist and provided to the researcher with all individual data de-identified in Excel format. This allowed the researcher to organize the data for better analysis. Once the data were analyzed, the researcher could interpret and report the results. All randomly selected participants received an email consent form and a link to the *Qualtrics* from the researcher. Participants had two weeks to complete the survey.

Reflexivity

Reflexivity referred to the recognition that researchers, themselves, were a part of the social world studied, thus reflected in the research findings (Palaganas et al., 2017). According to Malterud (2001), a researcher's background lends ability to influence the investigation, its methodology, its results, and the interpretation of the qualitative data. The researcher of this study had a vested interest, due to her position within the human resources department at the studied institution. As such, the researcher had to be mindful that her thoughts, experiences, and preferences did not influence the data collection and analysis process. The steps taken to preserve validity, reliability, and anonymity are outlined in the data collection section of this chapter.

The researcher's position and years of experience at the studied institution gave her a unique opportunity to completely comprehend the thoughts, experiences, and comments shared by the survey respondents. The qualitative portion of this study focused on investigating participants' perceptions and experiences of the wellness program. The researcher's background in health insurance and wellness program administration assisted in developing the research questions and analyzing the responses received. It also gave the researcher valuable feedback about respondents' experiences with opinions of the wellness program to highlight significant themes within the data.

Summary

This chapter reviewed how this study extended the literature on workplace wellness program participation and incentivized medical insurance premiums at a private, Midwestern higher education institution. The aggregate wellness data allowed the researcher to evaluate the wellness program's impact on participants' wellness results.

Survey results assisted the researcher's evaluation of the wellness program's impact on participation. Likert-scale questions determined participants' likeliness to participate in the wellness program and their agreement on whether it impacted their health and habits. Open-ended questions provided deeper perspectives and opinions. Though this study involved reflexivity, the researcher's position at the studied institution and years of professional experience as a benefits administrator provided a platform to fully realize the impact of the wellness program and medical insurance premium incentive on participants' perspectives and opinions. Chapter Four will present the findings from the study based on the methodology outlined in this chapter.

Chapter Four: Analysis

The purpose of this mixed-methods study was to examine the impact that incentivized medical insurance premium rates have on wellness plan participation and aggregate wellness results at a Midwestern private, four-year university. Leveraging the Health Belief Model, the researcher sought to compare aggregate wellness results and wellness program participation before and after the medical insurance premium incentive program was implemented. The researcher utilized Likert-scale questions followed by open-ended questions to gain insight into participants' perceptions of the wellness incentive program.

All randomly selected employees received an emailed consent form and a link to the *Qualtrics* survey. Each participant received the same survey. Each survey contained Likert-scale questions followed by open-ended questions to gain a deeper understanding of participants' perspectives on the incentivized wellness program and why they rated the previous question the way they did. The survey received a 27% response rate. In total, 27 responses were received.

Data analysis applied selected statistical techniques to summarize and illustrate the most significant differences between the various dependent variables. The national average data consisting of the prevalence of major health conditions and emotional health risks, and personal health score components reported by the TPA served as the independent variables (Bluman, 2019). The dependent variables were the prevalence of major medical health conditions, emotional health risks, and personal health score components of the employees who participated in the wellness program.

Hypotheses

The researcher investigated the following null hypotheses and sub hypotheses:

$H_{01:}$ Participants will not have lower proportions of major health conditions than the national average reported by the TPA in 2018 and 2019.

$H_{01a:}$ Participants will not have lower proportions of anemia in 2018 than they did in 2019.

$H_{01b:}$ Participants will not have lower proportions of cholesterol in 2018 than they did in 2019.

$H_{01c:}$ Participants will not have lower proportions of diabetes in 2018 than they did in 2019.

$H_{01d:}$ Participants will not have lower proportions of hypertension in 2018 than they did in 2019.

$H_{01e:}$ Participants will not have lower proportions of kidney disease in 2018 than they did in 2019.

$H_{01f:}$ Participants will not have lower proportions of liver disease in 2018 than they did in 2019.

$H_{01g:}$ Participants will not have lower proportions of thyroid disease in 2018 than they did in 2019.

$H_{01h:}$ Participants will not have lower proportions of metabolic syndrome in 2018 than they did in 2019.

$H_{02:}$ Participants will not have lower proportions of emotional health risks than the national average reported by the third-party vendor in 2018 and 2019.

$H_{02a:}$ Participants will not have lower proportions of anxiety in 2018 than they did in 2019.

$H_{02b:}$ Participants will not have lower proportions of depression in 2018 than they did in 2019.

$H_{02c:}$ Participants will not have lower proportions of stress in 2018 than they did in 2019.

$H_{03:}$ Participants will not have lower proportions of personal health score components out of the normal range than the national average reported by the third-party vendor in 2018 and 2019.

$H_{03a:}$ Participants will not have lower proportions of blood pressure out of the normal range in 2018 than they did in 2019.

$H_{03b:}$ Participants will not have lower proportions of LDL cholesterol in 2018 than they did in 2019.

$H_{03c:}$ Participants will not have lower proportions of blood glucose levels out of the normal range in 2018 than they did in 2019.

$H_{03d:}$ Participants will not have lower proportions of triglycerides out of the normal range than the national average reported by the third-party vendor in 2018 and 2019.

$H_{03e:}$ Participants will not have lower proportions of smokers in 2018 than they did in 2019.

Research Questions

Additionally, the researcher investigated the following research questions:
RQ1: How did the wellness program change participants' health, if at all?
RQ2: How did the insurance premium incentive impact wellness program participation?

Likert Scale

As discussed in Chapter Three, the five-point Likert scale utilized three different measurements: participants' likelihood to participate, agreement on the impact that the wellness program had on their health, if any, and the level of importance that respondents placed on the wellness program and wellness activity opportunities (McLeod, 2019). Each measurement focused on one of the four main themes: participants' thoughts on the wellness program, their participation, the medical insurance premium incentive, and their wellness program experiences. Each Likert-Scale question was followed by an open-ended question that allowed participants to share their thoughts on why they chose the rating they did in the previous question.

Statistical Tests

The TPA identified the prevalence of eight major health conditions: anemia, cholesterol, diabetes, hypertension, kidney disease, liver disease, thyroid disease, and metabolic syndrome. A Chi-Square goodness of fit test compared the prevalence of major health conditions, emotional health risks, and personal health score components of wellness program participants' results to the TPA benchmark data in 2018 and 2019. A

z-test for difference in proportions was completed for each major medical condition to dive deeper into how the participants' results compared to the TPA benchmark data for 2018 and 2019. Finally, a two-sample *z*-test for difference of proportions compared the number of participants who scored out of the normal range in their personal health score components to the TPA benchmark data in 2018 and 2019. The critical value for all tests was set at $\alpha = .05$.

Results

Null Hypothesis 01: Participants will not have lower proportions of major health conditions than the national average reported by the TPA in 2018 and 2019.

A goodness of fit test compared the relationship between the prevalence of major health conditions within the participants' results to the TPA benchmark data in 2018. The analysis revealed the prevalence of major health conditions in 2018 was the same; $\chi^2(7, n = 595) = 6.96$, $p = .433$. The researcher failed to reject the null hypothesis and concluded that the prevalence of major health conditions in 2018 was the same as the as the TPA benchmark. The proportions of each category for 2018 are included in Table 1.

A goodness of fit test compared the relationship between the prevalence of major health conditions within the participants' results to the TPA benchmark data in 2019. The analysis revealed the prevalence of major health conditions in 2019 was the same; $\chi^2(7, n = 514) = 10.66$, $p = .154$. The researcher failed to reject the null hypothesis and concluded that the prevalence of major health conditions in 2019 was the same as the TPA benchmark. The proportions of each category in 2019 are included in Table 2.

Table 1

Contingency Table for 2018 Major Health Conditions

	Anemia	Cholesterol	Diabetes	Hypertension	Kidney Disease	Liver Disease	Thyroid Disease	Metabolic Syndrome	Total
Participants	13	229	52	39	17	103	18	124	595
National Average	11.9	238	59.5	35.7	23.8	89.25	17.85	136.85	612.85
	0.10	0.34	0.95	0.31	1.94	2.12	0.00	1.21	6.96

Table 2

Contingency Table for 2019 Major Health Conditions

	Anemia	Cholesterol	Diabetes	Hypertension	Kidney Disease	Liver Disease	Thyroid Disease	Metabolic Syndrome	Total
Participants	14	214	41	27	19	88	8	103	514
National Average	15.42	215.88	51.4	35.98	15.42	77.1	15.42	107.94	534.56
	0.13	0.02	2.10	2.24	0.83	1.54	3.57	0.23	10.66

Null Hypothesis 01a: Participants will not have lower proportions of anemia in 2018 than they did in 2019.

A two-sample test of proportions took a deeper dive into participants' results and determined the difference between the rates of anemia in 2018 and 2019. The analysis revealed the prevalence of anemia in 2018 (n=13, 2.3%) was not significantly different from the prevalence of anemia in 2019 (n=14, 2.6%); z = -.32, p = .747. The researcher failed to reject the null hypothesis and concluded that the prevalence of anemia was the same in 2018 and 2019. The proportions of each category for 2018 and 2019 are included in Table 3.

Null Hypothesis 01b: Participants will not have lower proportions of cholesterol in 2018 than they did in 2019.

A two-sample test of proportions took a deeper dive into participants' results and determined the difference between the rates of cholesterol in 2018 and 2019. The analysis revealed the prevalence of cholesterol in 2018 (n=229, 40.2%) was not significantly different from the prevalence of cholesterol in 2019 (n=214, 40.1%); z = .03, p = .097. The researcher failed to reject the null hypothesis and concluded that the prevalence of cholesterol was the same in 2018 and 2019. The proportions of each category for 2018 and 2019 are included in Table 3. The statistical analysis revealed that the prevalence of cholesterol was not significantly different. However, the p-value illustrated that there was a notable difference in the prevalence of cholesterol between 2018 and 2019.

Null Hypothesis 01c: Participants will not have lower proportions of diabetes in 2018 than they did in 2019.

A two-sample test of proportions took a deeper dive into participants' results and determined the difference between the rates of diabetes in 2018 and 2019. The analysis revealed the prevalence of diabetes in 2018 (n=52, 9.1%) was not significantly different from the prevalence of diabetes in 2019 (n=41, 7.7%); $z = .84$, $p = .403$. The researcher failed to reject the null hypothesis and concluded that the prevalence of diabetes was the same in 2018 and 2019. The proportions of each category for 2018 and 2019 are included in Table 3.

Null Hypothesis 01d: Participants will not have lower proportions of hypertension in 2018 than they did in 2019.

A two-sample test of proportions took a deeper dive into participants' results and determined the difference between the rates of hypertension in 2018 and 2019. The analysis revealed the prevalence of hypertension in 2018 (n=39, 6.9%) was not significantly different from the prevalence of hypertension in 2019 (n=27, 5.1%); $z = 1.26$, $p = .208$. The researcher failed to reject the null hypothesis and concluded that the prevalence of hypertension was the same in 2018 and 2019. The proportions of each category for 2018 and 2019 are included in Table 3.

Null Hypothesis 01e: Participants will not have lower proportions of kidney disease in 2018 than they did in 2019.

A two-sample test of proportions took a deeper dive into participants' results and determined the difference between the rates of kidney disease in 2018 and 2019. The analysis revealed the prevalence of kidney disease in 2018 (n=17, 3.0%) was not significantly different from the prevalence of kidney disease in 2019 (n=19, 3.6%); $z = -0.56$, $p = .575$. The researcher failed to reject the null hypothesis and concluded that the

prevalence of kidney disease was the same in 2018 and 2019. The proportions of each category for 2018 and 2019 are included in Table 3.

Null Hypothesis 01f: Participants will not have lower proportions of liver disease in 2018 than they did in 2019.

A two-sample test of proportions took a deeper dive into participants' results and determined the difference between the rates of liver disease in 2018 and 2019. The analysis revealed the prevalence of liver disease in 2018 (n=103, 18.1%) was not significantly different from the prevalence of liver disease in 2019 (n=88, 16.5%); z = 0.70, p = .483. The researcher failed to reject the null hypothesis and concluded that the prevalence of liver disease was the same in 2018 and 2019. The proportions of each category for 2018 and 2019 are included in Table 3.

Null Hypothesis 01g: Participants will not have lower proportions of thyroid disease in 2018 than they did in 2019.

A two-sample test of proportions took a deeper dive into participants' results and determined the difference between the rates of thyroid disease in 2018 and 2019. The analysis revealed the prevalence of thyroid disease in 2018 (n=18, 3.2%) was not significantly different from the prevalence of thyroid disease in 2019 (n=8, 1.5%); z = 1.86, p = .063. The researcher failed to reject the null hypothesis and concluded that the prevalence of thyroid disease was the same in 2018 and 2019. The proportions of each category for 2018 and 2019 are included in Table 3. The statistical analysis revealed that the prevalence of thyroid disease was not significantly different; however, the p-value illustrated there was a notable difference between 2018 and 2019. The prevalence of thyroid disease was 1.7% lower in 2019 than in 2018.

Null Hypothesis 01h: Participants will not have lower proportions of metabolic syndrome in 2018 than they did in 2019.

A two-sample test of proportions took a deeper dive into participants' results and determined the difference between the rates of metabolic syndrome in 2018 and 2019. The analysis revealed the prevalence of metabolic syndrome in 2018 (n=124, 21.8%) was not significantly different from the prevalence of metabolic syndrome in 2019 (n=103, 19.3%); $z = 1.03$, $p = .305$. The researcher failed to reject the null hypothesis and concluded that the prevalence of metabolic syndrome was the same in 2018 and 2019. The proportions of each category for 2018 and 2019 are included in Table 3.

Table 3

Summary of Results for Major Medical Conditions

	2018		2019			
Risk Category	Participants		Participants		z	p
Anemia	13	2.3%	14	2.6%	-0.32	0.747
Cholesterol	229	40.2%	214	40.1%	0.03	0.097
Diabetes	52	9.1%	41	7.7%	0.84	0.403
Hypertension	39	6.9%	27	5.1%	1.26	0.208
Kidney	17	3.0%	19	3.6%	-0.56	0.575
Liver	103	18.1%	88	16.5%	0.7	0.483
Thyroid	18	3.2%	8	1.5%	1.86	0.063
Metabolic	124	21.8%	103	19.3%	1.03	0.305

Null Hypothesis 02: Participants will not have lower proportions of emotional health risks than the national average reported by the TPA in 2018 and 2019.

A goodness of fit test compared the relationship between the prevalence of emotional health risks within the participants' results to the TPA benchmark data in 2018. The analysis revealed the prevalence of major health conditions in 2018 was the same; $\chi^2(2, n = 595) = 1.59$, $p = .451$. The researcher failed to reject the null hypothesis and

concluded that the prevalence of major health conditions in 2018 was the same as the TPA benchmark. The proportions of each category for 2018 are included in Table 4.

Table 4

Contingency Table for 2018 Emotional Health Risks

	Anxiety	Depression	Stress	Total
Participants	27	25	11	63
TPA Benchmark	28	20	13	61
	0.04	1.25	0.31	1.59

A goodness of fit test compared the relationship between the prevalence of emotional health risks within the participants' results to the TPA benchmark data in 2019. The analysis revealed the prevalence of major health conditions in 2019 was the same; $\chi^2(2, n = 514) = 4.01$, $p = .135$. The researcher failed to reject the null hypothesis and concluded that the prevalence of major health conditions in 2019 was the same as the TPA benchmark data. The proportions of each category for 2018 are included in Table 5.

Table 5

Contingency Table for 2019 Emotional Health Risks

	Anxiety	Depression	Stress	Total
Participants	20	13	10	43
TPA Benchmark	28	18	12	58
	2.29	1.39	0.33	4.01

Null Hypothesis 02a: Participants will not have lower proportions of anxiety in 2018 than they did in 2019.

A two-sample test of proportions took a deeper dive into participants' results and determined the difference between the rates of anxiety in 2018 and 2019. The analysis revealed the prevalence of anxiety in 2018 (n=27, 4.7%) was not significantly different

from the prevalence of anxiety in 2019 (n=20, 4.7%); $z = -0.82$, $p = .411$. The researcher failed to reject the null hypothesis and concluded that the prevalence of anxiety was the same in 2018 and 2019. The proportions of each category for 2018 and 2019 are included in Table 6.

Null Hypothesis 02b: Participants will not have lower proportions of depression in 2018 than they did in 2019.

A two-sample test of proportions took a deeper dive into participants' results and determined the difference between the rates of depression in 2018 and 2019. The analysis revealed the prevalence of depression in 2018 (n=25, 4.4%) was not significantly different from the prevalence of depression in 2019 (n=13, 4.4%); $z = 1.82$, $p = .069$. The researcher failed to reject the null hypothesis and concluded that the prevalence of depression was the same in 2018 and 2019. The proportions of each category for 2018 and 2019 are included in Table 6. The statistical analysis revealed that the depression rates were not significantly different; however, the *p*-value illustrated that there was a notable difference between 2018 and 2019. The number of participants that self-identified as depressed decreased by 52% in 2019.

Null Hypothesis 02c: Participants will not have lower proportions of stress in 2018 than they did in 2019.

A two-sample test of proportions took a deeper dive into participants' results and determined the difference between the rates of stress in 2018 and 2019. The analysis revealed the prevalence of stress in 2018 (n=11, 1.9%) was not significantly different from the prevalence of stress in 2019 (n=10, 1.9%); $z = 0$, $p < .999$. The researcher failed to reject the null hypothesis and concluded that the prevalence of stress was not

significantly different in 2018 and 2019. The proportions of each category for 2018 and 2019 are included in Table 6.

Table 6

Summary of Results for Emotional Health Risks

	2018		2019			
Risk Category	Participants		Participants		Z	p
Anxiety	27	4.7%	20	4.7%	82	0.411
Depression	25	4.4%	13	4.4%	1.82	0.069
Stress	11	1.9%	10	1.9%	0	p < .999

Null Hypothesis 03: Participants will not have lower proportions of personal health score components out of the normal range than the national average reported by the TPA in 2018 and 2019.

A goodness of fit test compared the relationship between the personal health score components within the participants' results to the TPA benchmark data in 2018. The analysis revealed the prevalence of personal health score components in 2018 was the same; $\chi^2(4, n = 595) = 2.39$, $p = .664$. The researcher failed to reject the null hypothesis and concluded that the prevalence of major health conditions in 2018 was the same as the TPA benchmark. The proportions of each category for 2018 are included in Table 7.

Table 7

Contingency Table for 2018 Personal Health Score Components

	Blood Pressure	LDL Cholesterol	Blood Glucose	Triglycerides	Tobacco Users	Total
Participants	39	85	124	113	40	401
National Average	37	85	130	114	50	416
	0.11	0.00	0.28	0.01	2.00	2.39

A goodness of fit test compared the relationship between the personal health score components within the participants' results to the TPA benchmark data in 2019. The analysis revealed the prevalence of personal health score components in 2019 was the same; $\chi^2(4, n = 534) = 2.77$, $p = .596$. The researcher failed to reject the null hypothesis and concluded that the prevalence of major health conditions in 2019 was the same as the TPA benchmark. The proportions of each category for 2019 are included in Table 8.

Table 8

Contingency Table for 2019 Personal Health Score Components

	Blood Pressure	LDL Cholesterol	Blood Glucose	Triglycerides	Tobacco Users	Total
Participants	29	56	87	80	25	277
National Average	30	62	94	83	32	301
	0.03	0.58	0.52	0.11	1.53	2.77

Null Hypothesis 03a: Participants will not have lower proportions of blood pressure in 2018 than they did in 2019.

A two-sample test of proportions took a deeper dive into participants' results and determined the difference between the blood pressure rates in 2018 and 2019. The analysis revealed the prevalence of blood pressure in 2018 (n=39, 6.9%) was not significantly different from the prevalence of blood pressure in 2019 (n=29, 5.4%); $z = 1.04$, $p = .301$. The researcher failed to reject the null hypothesis and concluded that the blood pressure prevalence was the same in 2018 and 2019. The proportions of each category for 2019 are included in Table 9.

Null Hypothesis 03b: Participants will not have lower proportions of LDL cholesterol in 2018 than they did in 2019.

A two-sample test of proportions took a deeper dive into participants' results and determined the difference between the rates of LDL cholesterol in 2018 and 2019. The analysis revealed the prevalence of LDL cholesterol in 2018 (n=85, 14.9%) was significantly different from the prevalence of LDL cholesterol in 2019 (n=56, 10.5%); z = 2.19, p = .029. The researcher rejected the null hypothesis and concluded that the prevalence of LDL cholesterol was different in 2018 and 2019. The proportions of each category for 2019 are included in Table 9.

Null Hypothesis 03c: Participants will not have lower proportions of blood glucose levels in 2018 than they did in 2019.

A two-sample test of proportions took a deeper dive into participants' results and determined the difference between the blood glucose rates in 2018 and 2019. The analysis revealed the prevalence of blood glucose in 2018 (n=124, 21.8%) was significantly different from the prevalence of blood glucose in 2019 (n=87, 16.3%); z = 2.32, p = .020. The researcher rejected the null hypothesis and concluded that the prevalence of blood glucose was different in 2018 and 2019. The proportions of each category for 2019 are included in Table 9.

Null Hypothesis 03d: Participants will not have lower proportions of triglycerides in 2018 than they did in 2019.

A two-sample test of proportions took a deeper dive into participants' results and determined the difference between the rates of triglycerides in 2018 and 2019. The analysis revealed the prevalence of triglycerides in 2018 (n=113, 19.9%) was significantly different from the prevalence of triglycerides in 2019 (n=80, 15.0%); z = 2.14, p = .032. The researcher rejected the null hypothesis and concluded that the

prevalence of triglycerides was different in 2018 and 2019. The proportions of each category for 2019 are included in Table 9.

Null Hypothesis 03e: Participants will not have lower proportions of tobacco users in 2018 than they did in 2019.

A two-sample test of proportions took a deeper dive into participants' results and determined the difference between the rates of tobacco users in 2018 and 2019. The analysis revealed the prevalence of tobacco users in 2018 (n=40, 7.0%) was not significantly different from the prevalence of tobacco users in 2019 (n=25, 4.7%); z = 1.62, p = .105. The researcher failed to reject the null hypothesis and concluded that the prevalence of tobacco users was the same in 2018 and 2019. The proportions of each category for 2019 are included in Table 9.

Table 9

Summary of Results for Personal Health Score Components

Risk Category	2018		2019		z	p
	Participants		Participants			
Blood Pressure	39	6.9%	29	5.4%	1.04	0.301
LDL Cholesterol	85	14.9%	56	10.5%	2.19	0.029
Blood Glucose	124	21.8%	87	16.3%	2.32	0.02
Triglycerides	13	2.3%	80	15.0%	2.14	0.032
Tobacco Usage	40	7.0%	25	4.7%	1.62	0.105

Research Question 1: How did the wellness program change participants' health, if at all?

The researcher asked several questions related to the participants' behavior changes and whether they felt their health changed due to their participation in the wellness program. Each question was followed by an open-ended question which allowed respondents to elaborate their thoughts on the rating they gave in the previous question. These questions revealed how influential wellness program initiatives were on participants' health, if at all. Participation was also assessed to understand why participants chose to engage or not. The researcher also asked about the program's engagement opportunities they did not like. Three major themes emerged: employee modification of habits, the influence of insurance premium incentives on participation, and motivation for participation.

Table 10

Summary of Results for Research Question 1, Employee Modification of Habits

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
Participants made changes as a result of participation	0%	30%	26%	19%	19%
Participation impacted participants' health	4%	30%	41%	7%	11%

RQ 1 Theme 1: Employee modification of habits

The researcher sought to examine whether respondents modified their behaviors as a result of their participation in the program. The wellness program encouraged participants to make small health related behavior changes and be more mindful of unhealthy habits. Exactly 30% of respondents agreed that they made changes due to participation in the wellness program. One participant stated, "I do things one way, and the Wellness program has shown me other ways to reach the same goal." Another

shared, “Yes. I have been more mindful about fitness and general wellness goals and have added more stress relieving activities into my schedule.” One other respondent claimed, “The activities help you to form heathier habits.”

Of the 27 respondents, 38% remarked that they did not modify their behaviors due to their participation in the wellness program. One respondent commented,

> Again, I don’t think the challenges were enough to really do much for my health. Yes, drinking more water and trying to move your body for at least a certain amount of time per day is great, however, if my other bad habits outweigh those small changes, the impact of that on my health is still very minimal.

Another stated, “I have not made any changes to my health from participating in the program. I have thought about working out more but have not done so yet.” The researcher identified an opportunity to improve participants’ future experiences through education and training from this feedback.

The researcher also examined whether respondents agreed that the wellness program had a positive impact on their health. From the 27 responses received, 30% of participants agreed that their participation in the wellness program positively impacted their health. One respondent commented, “I’m fairly active anyway, but this did hold me accountable for going to my wellness visits (which I struggle to make time for otherwise). I believe that it has definitely impacted my health.” Another shared, “I often have been “just okay” on my goals. I think the April Accountability month may have been my most successful because my partner and I were checking in with one another. That accountability helps so much!” This information provided the researcher with

enough insight to realize that the program positively impacted employees who leveraged the wellness program's tools and resources.

RQ 1 Theme 2: Influence of insurance premium incentives on participation

Table 11

Summary of Results for Research Question 1, Influence of Insurance Premium Incentives on Participation

	Extremely Likely	Likely	Neutral	Unlikely	Extremely Unlikely
How likely are you to participate in the wellness program without an insurance premium incentive?	15%	7%	22%	22%	26%
How likely are you to participate in the wellness program with an insurance premium incentive?	63%	11%	11%	4%	4%

The researcher asked several questions about participants' likelihood of participating in the wellness program with and without an insurance premium incentive. Of the 27 respondents, 26% were unlikely to participate in the wellness program without an insurance premium incentive. Responses suggested a perceived negative barrier to action and a lack of self-efficacy (Clark & Janevic, 2014; Rosenstock et al., 1988). One respondent noted, "I'm only doing it for the premium incentive," noting the monetary incentive as their motivation for participation. Another agreed and wrote, "I live a fairly healthy lifestyle, so I do not do anything "extra" for the wellness program. If it did not include the discount, I would still live how I live. Just not log it," clearly defining the monetary incentive as the only reason for participation. Additionally, time was noted as a barrier to action throughout the survey, though respondents completed the requirements needed to maintain the insurance premium incentive.

Although many positive comments were received, not all respondents agreed that their participation in the wellness program impacted their health. Exactly 19% of respondents disagreed that their participation in the wellness program impacted their health. One participant wrote,

> Although I have participated in the wellness program, I do not think the challenges are enough to impact my health. They are a GREAT way to start, but if I am not incorporating other things (on my own) in addition to the challenges, it won't make a big difference in the overall picture; my full health.

Another shared "Many of the challenges are things I am already doing."

Exactly 22% of respondents revealed that they were unlikely to participate without an insurance premium incentive. However, one participant confessed, "The incentive ensures that I participate vs. having it be voluntary". Another noted that

> I already schedule an annual doctor's appointment and visit the dentist regularly. The only benefit I see from the program participation is the annual blood draw. I like knowing some of the additional details that the blood levels tell me,

suggesting that they appreciate the health information provided but would still not participate without an insurance premium incentive.

Thorndike's Connectionism framework supports the researcher's belief that the monetary incentive strongly impacted participants' behavior modifications. Interestingly, one respondent commented regarding their likelihood to participate without the monetary incentive, "Maybe I still would because I do enjoy the challenges, but without the accountability, I may not have as good of a follow through." Yet another wrote, "I am not a big physical activity person. I do read the activities though and would maybe

participate in some things," suggesting that additional educational opportunities exist within the wellness program.

Sixty-three percent of respondents claimed they would be extremely likely to participate in the wellness program with an incentivized insurance premium. Most responses implied that participants were strictly motivated by monetary incentive. One respondent said, "I'm only doing it for the premium incentive," while another simply stated, "Save moolah." Others provided more context to their answers, with one participant claiming, "The wellness program is not difficult to satisfy the requirements for and I do not want to pay any more than I need to." Several respondents were more receptive to the bigger picture. One respondent stated, "If getting a lower insurance rate means I have to do some monthly challenges, it is worth my time and effort to make those changes or participate in those challenges to get something for my efforts in return." Another participant exclaimed, "It's a wonderful benefit!!!" This group of respondents recognizes the health benefits as well as the monetary benefits of the wellness program.

RQ 1 Theme 3: Motivation for participation

The researcher sought to identify why respondents chose to participate. Reasons cited by respondents included financial, health, and social benefits. Participants were asked what they liked most about the wellness program and why. One respondent stated,

> I like the discounted price because I really do need every little bit. I like participating in the activities. It makes me feel camaraderie with others that are participating. It adds a bit of fun to my days and a sense of accomplishment.

Another noted, “I think is it well put together. I think they are easy to follow and apply to all fitness levels so it is inclusive for all types of people with different health/fitness levels”. Several respondents agreed that the wellness program allowed them to connect with the campus community claiming,

> I really enjoy the monthly challenges. I am able to connect with coworkers about the challenge and it also gives me something to put on my calendar to work towards daily, even if it is something as small as making myself drink two extra cups of water per day,

and another participant commented, “I love the monthly challenges. It’s always fresh. There are always giveaways, auctions, and prizes. I like to feel like I’m working towards something.”

Respondents were also asked what they liked least about the program and why. One participant stated,

> The program itself is good. I do wish there were maybe levels to each challenge. Sometimes the challenges are very easy and do not really “challenge” the participant. And personally, I am the type of person who likes things already laid out for me, so if there was a beginner-friendly and intermediate version of the challenges, that would help me actually strive to do more or work a little harder. But I will most likely not strive for that on my own.

Interestingly, several respondents agreed that the wellness activities were set up so that any participant could participate, claiming, “Unsure. I don’t always like a specific challenge, but there is a good variance in the challenges and that keeps it fun and interesting.”

Research Question 2: How did the insurance premium incentive impact wellness program participation?

The researcher asked several questions about their participation in the wellness program. Specifically, the researcher wanted to know whether respondents chose to participate, why they chose to participate, and whether they would continue to participate. Additionally, each question was followed by an open-ended question to gain a deeper understanding of what motivated participants to participate or not. These themes are discussed below.

Table 12

Summary of Results for Research Question 2, The Influence of Habit Modifications on Participation Rates

	Yes	No
Do you currently participate in the wellness program?	78%	29%

RQ 2 Theme 1: The influence of habit modifications on participation rates

The researcher sought to identify how habit modifications influenced participation. Employees who began participating after the incentivized premium was added altered participation rates. Participation in the program indicated that employees were engaging in behaviors or activities that they had not previously, thus, modifying behaviors and influencing participation rates. Of the 27 participants that responded, 78% indicated that they participated in the wellness program at the time of the study. When asked why they chose to participate, respondents commented, “Financial perks, as well as health perks,” with another agreeing, “It’s a great way to connect with other members of the Lindenwood community, there are prizes, there is accountability. It's fun!” This group of respondents indicated that while the incentivized insurance premium was a

bonus, they recognize the value of the health benefits they receive, due to their participation. These responses correlate to the Health Belief Model's benefits and cues to action concepts (Becker, 1974).

Only 29% stated that they did not participate in the wellness program. When asked to provide a statement as to why they chose not to participate, one respondent commented, "I feel that my busy schedule is keeping me from taking on the Wellness Program." This respondent expressed a lack of self-efficacy due to time constraints, suggesting an opportunity for education regarding the tools and resources available within the wellness program.

Table 13

Summary of Results for Research Question 2, Motivations for Behavior Modification

	Financial	Health Benefits	Engagement
Why do you participate?	48%	11%	7%

RQ 2 Theme 2: Motivations for behavior modification

Participants were asked to expand on their reasoning for choosing to participate. An astounding 48% of respondents reported that their reason for participating was financial. One participant explained, "I am the only full-time employed member of my family with a medical plan; I am trying to keep costs down for our family." Another agreed, emanating Thorndike's connectionism theory stating, "I participate so I can receive a discount on my health insurance" (2020, p 24).

Exactly 11% of participants revealed that they participated for the health benefits. One respondent said, "I like the challenges and they correlate to healthy choices I am trying to make for myself." Another elaborated, "To maintain good health and seek

health tips and recommendations." Seven percent of respondents suggested engagement opportunities as their reason for participating. One participant exclaimed, "It's a great way to connect with other members of the Lindenwood community, there are prizes, there is accountability. It's fun!" and another remarked, "seems like just another way to stay engaged, so I participate."

Table 14

Summary of Results for Research Question 2, Motivation for Behavior Modification

	Exercise	Gratitude	Hydration	Mental Health	Nutrition
Please select your favorite type of challenge.	26%	7%	4%	33%	7%

Additionally, respondents who chose to participate were asked what their favorite type of wellness activity they enjoyed most, thus keeping them better engaged. Respondents were then asked to provide additional comments as to why they chose the category they did. Surprisingly, 33% of respondents revealed that their favorite wellness activities focused on mental health. One respondent exclaimed,

> I would actually pick all of them, but my top 3 are Mental Health, Exercise, and Gratitude. I feel that mental health is the most important, because, without it, I can't function very well. I feel that exercise and gratitude also increase mental wellbeing.

Another wrote, "This is the one thing I don't always make time for. It's something small I can do every day that I should actually do but don't always make myself do."

Twenty-six percent of participants agreed that their favorite wellness activity focused on exercise. One respondent stated, "I like when I have a reason to work out or

exercise since I am not as motivated otherwise," suggesting that the wellness program - helped them remain accountable to their physical health.

Table 15

Summary of Results for Research Question 2, The Impact of the Incentive on Participation

	Extremely Likely	Likely	Neutral	Unlikely	Extremely Unlikely
How likely are you to continue participating in the wellness program?	44%	22%	19%	4%	4%
How likely are you to participate in the wellness program with an insurance premium incentive?	63%	11%	11%	4%	4%

RQ 2 Theme 3: The impact of the incentive on participation

The researcher asked respondents if they would be likely to continue to participate in the wellness program and why. Sixty-six percent of respondents stated that they were likely to continue participating in the wellness program. After being asked why, participants wrote, "As long as there is a financial incentive to participating, I plan to continue to stay in the program," and "I enjoy it and it helps me financially." All respondents from this group revealed that the insurance premium incentive was their only motivation for continued participation.

Table 16

Summary of Results for Research Question 2, Motivation for Continued Behavior Modification

	Financial	Health Benefits
Why do you participate?	37%	11%

Finally, participants were asked why they would continue participating in the wellness program. Unsurprisingly, 37% of respondents indicated they would continue to participate because of the insurance premium incentive. One respondent simply stated, "Because I want the insurance incentive." Several other respondents provided similar comments. Of the respondents who provided an answer, 11% claimed they would continue for the health benefits, as noted by one participant, "I love it. It's easy to participate. I love that it keeps me on track." Another commented, "I enjoy it and it helps me financially."

Summary

This mixed-methods study illustrated that the participants' health results were not significantly different from the TPA benchmarks. In most categories, participants' health results were not significantly different from 2018 to 2019. However, there were several notable differences between the TPA benchmark data and participants' results for the prevalence of cholesterol, thyroid disease, and depression that deserve further exploration. The survey results revealed that respondents were more likely to participate in the wellness program with the addition of the incentivized insurance premium. Respondents noted financial and health benefits as their motivational stimuli which link directly to Thorndike's Connectionism Theory and the Health Belief Model. This is discussed in further detail in Chapter Five.

Chapter Five: Discussion

The purpose of this mixed-methods study was to determine whether implementing an incentivized insurance premium impacted wellness program participation and aggregate wellness results. Leveraging the Health Belief Model, the researcher compared aggregate wellness results and wellness program participation before and after the medical insurance premium incentive program was implemented. The researcher also utilized Likert-scale questions followed by open-ended questions to gain insight into participants' likeliness to participate and their perceptions of the wellness incentive program.

This study consisted of three hypotheses and 16 sub-hypotheses to determine if there was a significant difference between the TPA benchmark data and participants' data, participants' data between 2018 and 2019, and whether the insurance premium incentive had an impact on wellness program participation. A goodness of fit test examined H_{01} and whether there was a significant difference in the proportions of major medical conditions between the TPA benchmark data and the participants' results in 2018 and 2019. H_{01a}, H_{01b}, H_{01c}, H_{01d}, H_{01e}, H_{01f}, H_{01g}, and H_{01h} compared the proportions of participants' major medical conditions in 2018 and 2019 using a *z*-test for difference of two proportions.

A goodness of fit test examined H_{02} and whether there was a significant difference in the proportions of emotional health risks between the TPA benchmark data and the participants' results in 2018 and 2019. H_{02a}, H_{02b}, and H_{02c} compared the proportions of participants' emotional health risks in 2018 and 2019 using a *z*-test for difference of two proportions.

A goodness of fit test examined H_{03} and whether there was a significant difference in the proportions of personal health scores between the TPA benchmark data and the participants' results in 2018 and 2019. $H_{03a,}$ $H_{03b,}$ $H_{03c,}$ $H_{03d,}$ and H_{03e} compared the proportions of participants' personal health scores in 2018 and 2019 using a *z*-test for difference of two proportions.

Based on the goodness of fit tests conducted, no significant differences were found between the TPA benchmark data and the participants' results in 2018 and 2019 for major medical conditions, emotional health risks, and personal health scores. The z-test for difference of two proportions tests conducted found no significant differences for most hypotheses between the participants' 2018 and 2019 wellness data results. Only $H_{03b,}$ $H_{03c,}$ and H_{03d} relating to LDL cholesterol, blood glucose levels, and triglycerides found significant differences between the participants' 2018 and 2019 wellness data results.

The Likert Scale, combined with the open-ended questions, allowed the researcher to gather information about participants' thoughts, experiences, and preferences (Sack, 2020). Each Likert-Scale question was followed by an open-ended question to allow participants to share their thoughts on why they chose the rating they did in the previous question. Leveraging the Health Belief Model, the survey questions were divided into three different categories to measure participants' likelihood to participate, agreement on the impact that the wellness program had on their health, if any, and the level of importance that respondents placed on the wellness program and wellness activity opportunities (McLeod, 2019). Utilizing this model, the researcher

captured participants' thoughts, experiences, and preferences relating to the wellness program.

Discussion of Quantitative Results

Major Health Conditions

Null hypothesis H_{01} examined the prevalence of eight major health conditions identified by the TPA: anemia, cholesterol, diabetes, hypertension, kidney disease, liver disease, thyroid disease, and metabolic syndrome. The researcher compared the relationship between the prevalence of major health conditions within the participants' results to the TPA benchmark data in 2018 and 2019. Results from this Chi-Square goodness of fit test revealed that participants' prevalence of the eight major medical conditions was the same as the TPA benchmark data in 2018 and 2019 and confirmed that the prevalence of major medical conditions was not more or less than the TPA benchmark data.

Null hypotheses H_{01a}, H_{01b}, H_{01c}, H_{01d}, H_{01e}, H_{01f}, H_{01g}, and H_{01h} determined whether participants' prevalence of the identified eight major health conditions differed from 2018 to 2019. Specifically, the researcher sought to identify whether participants' results improved from 2018 to 2019 after implementing the incentivized insurance premium. Based on the two-sample tests for difference of proportions run on participants' results from 2018 and 2019, no significant differences were found for anemia, cholesterol, diabetes, hypertension, kidney disease, liver disease, thyroid disease, or metabolic syndrome. These results conclude that the prevalence of major health conditions is normal.

Emotional Health Risks

Null hypothesis H_{02} was used to examine the prevalence of three emotional health risks identified by the TPA: anxiety, depression, and stress. The researcher compared the relationship between the prevalence of emotional health risks within the participants' results to the TPA benchmark data in 2018 and 2019. Results from this Chi-Square goodness of fit test revealed that participants' prevalence of emotional health risks was the same as the TPA benchmark data in 2018 and 2019 and confirmed that the prevalence of major medical conditions was not more or less than the TPA benchmark data. These results conclude that the prevalence of major health conditions is normal.

The researcher used null hypotheses H_{02a}, H_{02b}, and H_{02c} to identify participants' prevalence of emotional health risks from 2018 to 2019. Specifically, the researcher sought to identify whether participants' results improved from 2018 to 2019 after implementing the incentivized insurance premium. Based on the two-sample tests for difference of proportions that were run on participants' results from 2018 and 2019, no significant differences were found for anxiety, depression, or stress.

Personal Health Score Components

The researcher used null hypothesis H_{03} to examine the proportions of personal health score components identified by the TPA: blood pressure, LDL cholesterol, blood glucose, triglycerides, and tobacco usage. The researcher compared the relationship between the proportions of personal health score components within the participants' results to the TPA benchmark data in 2018 and 2019. Results from this Chi-Square goodness of fit test revealed that participants' proportions of personal health score components were the same as the TPA benchmark data in 2018 and 2019 and confirmed that the prevalence of major medical conditions was not more or less than the TPA

benchmark data. These results conclude that the prevalence of major health conditions is normal.

The researcher used null hypotheses H_{03a}, H_{03b}, H_{03c}, H_{03d}, and H_{03e} to identify whether participants' proportions of personal health score components differed from 2018 to 2019. Specifically, the researcher sought to identify whether participants' results improved from 2018 to 2019 after implementing the incentivized insurance premium. Based on the two-sample tests of proportions that were run on participants' results from 2018 and 2019, no significant differences were found for H_{03a} (blood pressure) and H_{03e} (tobacco usage). However, the two-sample tests of proportions run on H_{03b} (LDL cholesterol), H_{03c} (blood glucose), and H_{03d} (triglycerides) revealed that participants' results were significantly different in 2018 and 2019. Participants' LDL cholesterol results decreased by 4.4% in 2019. Blood glucose levels decreased by 5.5% in 2109. Triglyceride levels significantly increased by 12.7% in 2019.

Several factors could have contributed to the significant change in participants' LDL cholesterol, blood glucose levels, and triglycerides between 2018 and 2019. Citing one of the limitations of this study, it is possible that employees who screened in 2018 left the studied institution before the screenings in 2019. Additionally, there could have been employees who chose to screen in 2018 but not in 2019. Both scenarios could have altered the results, especially if these individuals had significantly higher levels of these personal health score components.

Discussion of Qualitative Results

The researcher leveraged the Health Belief Model to compare aggregate wellness results to the open-ended survey questions to analyze participants' perceptions of the wellness incentive program. Participants' responses to the Likert scale and open-ended questions revealed the following themes for research question 1: employee modification habits, the influence of the insurance premium incentive on participation, and motivation for participation. Additionally, the following themes were identified for research question 2: participation rates, motivation for behavior modification, and the impact of the incentive on participation.

Surprisingly, exactly 30% of respondents agreed that they modified their behaviors as a result of their participation and that the wellness program impacted their health. Further research into these respondents' results would significantly impact the existing literature. These behavior modifications link to the Health Belief Model's benefits to action, self-efficacy, and cues to action concepts. Respondents realized positive outcomes for participation, recognized their ability to modify their behaviors, and were motivated by the monetary incentive (Rosenstock et. al., 1988).

Unsurprisingly, 74% of respondents indicated that they were more likely to participate with the added incentive. This behavior modification directly relates to Thorndike's theory of connecting, "A specific response is connected to a specific stimulus when it is rewarded" (as cited in Knowles et al., 2020 page 24, para. 3). Participants were motivated to change their behaviors for a monetary incentive. Additionally, these specific behavior changes cued the Health Belief Model's benefits to

action concept (Becker, 1974, p. 410). Respondents perceived a positive outcome for participating in the program (Clark & Janevic, 2014).

At the time of the study, 78% of respondents claimed they participated in the wellness program. When participants were asked why they chose to participate, they disclosed that financial and health benefits motivated their behaviors. Exactly 37% of respondents said they would continue participating for the financial benefits. Eleven percent of respondents agreed that they would continue their participation in the program for the health benefits. Many of the respondents value the health benefits, though the financial incentive is clearly the main reason most will continue to participate. Only 7% of respondents declared social engagement as their motivation for participation; however, this was not determined to be a main theme by the researcher.

Limitations

The researcher identified several limitations within this study. The researcher's position at the studied institution could have limited the number of responses received in addition to how participants responded to the survey. Some individuals may not have felt comfortable responding, since the subject of the survey was related to wellness. On the other hand, some participants were skeptical about the TPA collecting personal health information, as demonstrated by one respondent who stated, "It is too invasive, " when asked why they chose not to participate. The researcher's position within the institution could have encouraged this participant to express concern over their personal health information.

The study analyzed aggregate wellness results for only one private, medium-sized, Midwestern, four-year institution. The results of this study may or may not

translate to other institutions. Larger or smaller institutions would determine different population sizes, thus generating different response rates. Demographic data would significantly impact the aggregate wellness results. Gender, income, age, and education levels are all factors that can influence health data (Bachrach, 2014, p. 6).

This study evaluated the perceptions and aggregate wellness data of participants who were enrolled in the medical plan at the time of the study. Some respondents may have been new employees who were unable to participate in the wellness program in 2018, thus altering their perspective of the program before implementing the incentivized insurance premium.

Recommendations for Future Research

Future research should explore aggregate wellness data within an organization over several years. Additional research would provide significant insight into the impact of a wellness program over time. As cited in this study, the researcher compared data over two years. Reviewing this data over five years would generate valuable insight into how the incentive motivated behavior changes, thus changing aggregate wellness results. This information would help improve education for participants about the value of the program. Additionally, larger scale studies focused on the how demographic data impacts aggregate wellness results across the country would be very valuable for organizations and TPAs developing outcomes-based incentive programs. Such information would assist administrators in implementing wellness initiatives that focus on the needs of their population.

Further research should also be conducted on the sustainability of an incentivized wellness program over time. Changes in administration, budget cuts, and poor

management can affect the success of any initiative. It would also examine participant engagement and how their perceptions change over time with additional education and resources. Managing wellness programs is very complex and requires expert oversight to be successful. Outcomes-based wellness programs need dedicated resources to operate at full capacity and be successful. The education, personnel, and financial resources required to successfully implement and manage an incentivized wellness program are critical areas that deserve additional research. Administrators could utilize research focused in these areas to better anticipate personnel and financial needs when building an outcomes-based incentivized wellness program.

Additional exploration of the impact that the incentives had on the targeted individuals within the population would be invaluable to the literature. It would be interesting to learn whether high-risk individuals made any behavior modifications due to the insurance premium incentive and if their wellness results improved, and by how much. This data could be used to strengthen a financial return on investment study. Additional surveys could be designed to ask participants more specific questions about their health behaviors before and after the implementation of the incentivized insurance premium to better gauge how participants modified their behaviors. The researcher could also conduct focus groups or interviews to obtain greater insight into participants' motivations for modifying their behaviors.

Conclusion

This study focused on a single, medium-sized, four-year institution over two years. Additional research spanning several years and capturing individual participants' wellness journeys would provide insight into how perceptions of the

program change over time, how wellness data changes, if at all, and the potential financial return on investment would be a powerful tool for health plan administrators to leverage. However, this study contributed to the existing literature by providing a foundation for future long-term studies of an insurance premium incentive's impact on different groups. The research presented in this study also provided insight into the resources required to manage and maintain a successful outcomes-based wellness program that could be explored further. Healthcare and higher education have garnered global attention and will continue to evolve quickly. The history of healthcare presented in this study illustrates how administrators have struggled to find solutions to costs and coverage for centuries. Higher education has experienced significant changes over the last century, directly impacting, thus changing, the healthcare industry. Funding for advancements in medicine and technology and education requirements and licensing for medical professionals have dramatically impacted the delivery and cost of healthcare. Health insurance remains one of the largest personnel costs for employers and one of the most difficult to manage, as many factors can impact a plan. Providing affordable healthcare and wellness education are effective cost-control measures. Though not all large claims can be prevented, focused efforts on preventative healthcare will mitigate potential catastrophic claims. As higher education institutions examine ways to navigate declining enrollment numbers, they must seek creative solutions to balance significant budget cuts with the operational costs of maintaining the organization.

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Appendix A: Survey Questions

1. Do you currently participate in the wellness program?

2. Why or why not?

3. How likely are you to participate in the wellness program without an insurance premium incentive?

1 – Extremely Likely

2 – Likely

3 – Neutral

4 – Unlikely

5 – Extremely Unlikely

4. Please share your thoughts on why you selected the rating in the previous question.

5. How likely are you to participate in the wellness program with an insurance premium incentive?

1 – Extremely Likely

2 – Likely

3 – Neutral

4 – Unlikely

5 – Extremely Unlikely

6. Please share your thoughts on why you selected the rating in the previous question.

7. I felt that my participation in the wellness program impacted my health.

1 – Strongly Agree

2 – Agree

3 – Neither Agree or Disagree

4 – Disagree

5 – Strongly Disagree

8. Please share your thoughts on why you selected the rating in the previous question.

9. I made changes to my health as a result of my participation in the wellness program.

1 – Strongly Agree

2 – Agree

3 – Neither Agree or Disagree

4 – Disagree

5 – Strongly Disagree

10. Please share your thoughts on why you selected the rating in the previous question.

11. How likely are you to continue participating in the wellness program?

1 – Extremely Likely

2 – Likely

3 – Neutral

4 – Unlikely

5 – Extremely Unlikely

12. Please share your thoughts on why you selected the rating in the previous question.

13. What do you like most about the wellness program and why?

14. What do you like least about the wellness program and why?

15. Please select your favorite type of challenge.

Exercise

Mental Health

Hydration

Gratitude

Nutrition

16. Please share your thoughts on why you selected the option in the previous question.

Appendix B: Permission to use survey and the study site

This is a very exciting study. I agree to the use of the data.

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From: Terry, Candace <CTerry@lindenwood.edu>
Sent: Wednesday, April 28, 2021 11:57 AM
To: Ayres, Deb <DAyres@lindenwood.edu>
Subject: Prospectus Data

Good Afternoon,

As you know, I am working towards obtaining my doctoral degree. My committee has approved me to move forward with IRB approval; however, I will need your approval of my data in order to do so. My prospectus is attached and I have outlined pertinent information regarding the data that I will be using for my study.

- The quantitative data includes aggregate health related wellness data that has been collected by a TPA. ALL participant information will be deidentified and provided to me in an aggregate format.
- The secondary data includes individuals who were enrolled into the medical insurance plan in 2018 & 2019 who also participated in the wellness program.
- The qualitative data consists of individuals who participated in the 2018 and 2019 September and October internal wellness program challenges.
- The HR coordinator collected all of the participant data and deidentified it prior to providing it to me.
- I will also conduct a survey via Qualtrics that the HR analyst will assist with to ensure anonymity. The analyst will pull a list of randomly selected individuals who are on the medical insurance plan to send the survey out to and submit the deidentified results back to me.

I am seeking your permission to utilize this data, conduct the survey, and utilize internal resources for data collection purposes. Please let me know what questions you have. Thank you!

Appendix C: Informed Consent

You are being asked to participate in a survey conducted by Candace Terry. We are doing this study to examine the impact that incentivized medical insurance premium rates have on wellness plan participation and aggregate wellness results. It will take about 20 minutes to complete this survey.

Your participation is voluntary. You may choose not to participate or withdraw at any time by simply not completing the survey or closing the browser window.

There are no risks from participating in this project. We will not collect any information that may identify you. There are no direct benefits for you participating in this study.

By clicking the link below, I confirm that I have read this form and decided that I will participate in the project described above. I understand the purpose of the study, what I will be required to do, and the risks involved. I understand that I can discontinue participation at any time by closing the survey browser. My consent also indicates that I am at least 18 years of age

Vitae

CANDACE L. TERRY

Colleges and Universities

2007-2011: Bachelor of Arts in Business Administration from Lindenwood University; 2012-2013: Master of Business Administration in Business Administration/Management from Lindenwood University; 2017-2018: Master of Arts in Gerontology from Lindenwood University; 2018-present: pursuing Doctorate of Education in Instructional Leadership (expected to graduate in December of 2022) from Lindenwood University

Professional Employment History

2014-present: Benefits Director at Lindenwood University

2012-2014: Staff Accountant at Lindenwood University

Awards

2021: Lindenwood University was recognized St. Louis Business Journal's healthiest employer

2020: Lindenwood University recognized as Community Strong's healthiest employer in St. Charles

2011: Graduated Summa Cum Laude from Lindenwood University