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Relationship Between Employee Engagement, Kind of Initiatives, and Workplace Wellness Program Effectiveness

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
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Abstract

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by

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MBA, Union University, 2015

BS, University of Memphis, 2010

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

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Abstract

Ineffective workplace wellness programs prevent organizations from decreasing employee health and well-being costs. Workplace wellness managers lose more than $1,100 in decreased productivity each year. Grounded in the theory of planned behavior, the purpose of this quantitative correlational study was to examine the relationship between workplace wellness engagement, kind of workplace wellness initiatives, and workplace wellness program effectiveness. Data were collected from 146 workplace wellness program managers who completed the HERO scorecard. The multiple linear regression analysis results indicated the model was able to significantly predict workplace wellness program effectiveness, $F(2, 143) = 85.482$, $p = < .001$, $R^2 = .545$. Both predictors provided a significant contribution to the model, with workplace wellness engagement level ($t = 8.342$, $p = < .001$, $\beta = .543$) providing a higher contribution to the model than kind of workplace wellness initiatives ($t = 4.584$, $p = < .001$, $\beta = .298$). A key recommendation for workplace wellness program managers is to emphasize employee engagement in workplace wellness programs and choose the appropriate initiatives to ensure workplace wellness program effectiveness. The implications for positive social change include the potential for improved health and well-being within the U.S. workforce.

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Dedication

I dedicate this doctoral study to my family. To my amazing husband, Mike, for always encouraging me and taking on extra responsibilities in our home and with our children to support me through this doctoral journey. He is the main person in my life who believes in me and pushes me to achieve my goals. I will forever be grateful to him. To my children, Landon and Charleston, for reminding me that my accomplishments impact who they are as they grow from childhood into adulthood. Through their tiny eyes, I see the desire in their hearts to accomplish great things. That is what allowed me to push through when times were hard. Finally, to my sister, Nicole, for introducing me to the DBA program and assuring me that my dreams are within reach.

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Section 1: Foundation of the Study

Many organizational leaders have a vested interest in finding effective workplace wellness programs. However, many of them need guidance to find program evaluation strategies and gather data to demonstrate the value of the workplace wellness program (Grossmeier, Calitz, et al., 2020). In the current study, I examined the relationships between level of workplace wellness engagement, kind of workplace wellness initiatives, and the effectiveness of workplace wellness programs. In this section, I present the background of the problem, problem statement, purpose statement, nature of the study, research question, hypotheses, theoretical framework, and operational definitions. In addition, I identify assumptions, limitations, and delimitations and explain the significance of the study.

Background of the Problem

For a workplace wellness program to be effective, it must produce behavior change to benefit organizational costs. Organizations incur significantly higher costs for employees with risk factors associated with blood glucose, obesity, stress, depression, and physical inactivity due to increased health care costs, decreased retention, decreased engagement, lost productivity, absenteeism, and presenteeism (Geist & Cass, 2018; Gingerich et al., 2018; Goetzel et al., 2020). Many workplace wellness initiatives improve employee health and lower costs for organizations (Geist & Cass, 2018; Gingerich et al., 2018). Business leaders need to improve return on investment (ROI) and value on investment (VOI) by implementing effective workplace wellness programs that lower risks for chronic conditions and improve the health and well-being of employees

(Rucker, 2017). According to Grossmeier and Johnson (2020), the strongest outcomes for VOI are demonstrated through research when workplace wellness initiatives have leadership support, strategic plans, measurable goals, supportive policies and work environment, and ongoing evaluation of the effectiveness of initiatives. To decrease costs associated with employee health and well-being, business leaders could create effective workplace wellness programs by implementing individual workplace wellness initiatives that employees engage in and produce results.

Problem Statement

Organization leaders rely on the use of workplace wellness programs to lower operational expenses by choosing effective workplace wellness programs (Jones et al., 2019). Research on effective workplace wellness programs is potentially valuable because workplace wellness managers lose more than $1,100 in decreased productivity each year, which leads to lost profits, when workplace wellness managers do not use effective workplace wellness programs (Bailey et al., 2018). The general business problem was that workplace wellness managers fail to execute workplace wellness programs effectively because they do not know the predictors of effective workplace wellness programs resulting in decreased profits for their organization. The specific business problem was that some workplace wellness program managers do not understand the relationship between level of workplace wellness engagement, kind of workplace wellness initiatives, and the effectiveness of workplace wellness programs.

Purpose Statement

The purpose of this quantitative correlational study was to examine the relationship between level of workplace wellness engagement, kind of workplace wellness initiatives, and the effectiveness of workplace wellness programs. The targeted population consisted of workplace wellness program managers who used the Health Enhancement Research Organization (HERO) tool, the HERO scorecard. The independent variables were level of workplace wellness engagement and kind of workplace wellness initiative. Workplace wellness engagement was defined as the manager's opinion of employee engagement level in workplace wellness initiatives. The kind of workplace wellness initiative was defined as the number and type of initiatives. The dependent variable was the effectiveness of workplace wellness programs. Workplace wellness programs were defined as the manager's perception of their workplace wellness program's effectiveness. The implications for positive social change include the potential to improve the health and well-being of the workforce in the United States, leading to a healthier population with fewer injuries and illnesses.

Nature of the Study

The three kinds of research methods are quantitative, qualitative, and mixed methods (Taguchi, 2018). The quantitative method is appropriate when researchers intend to test a statistical hypothesis of discrete variables, predict outcomes, or investigate cause-and-effect relationships (Taguchi, 2018). The quantitative method was appropriate for my study because I tested statistical hypotheses to predict relationship outcomes of discrete variables. In contrast, the qualitative method is appropriate when a researcher

intends to explore a phenomenon through interviews, observations, or field notes (Taguchi, 2018). The qualitative method was not appropriate because I did not need to explore a phenomenon to satisfy the study's purpose. The mixed-methods approach is appropriate to examine a problem or phenomenon from a quantitative and qualitative perspective (Taguchi, 2018). The mixed-methods approach was not appropriate because I did not have a qualitative component to this study.

The two kinds of designs I considered for this study were correlational and ex post facto. The correlational design is appropriate when the researcher examines a relationship between variables (Conn, 2017). The correlational design was appropriate because I researched the relationship between variables workplace wellness engagement level, kind of workplace wellness initiatives, and the effectiveness of workplace wellness programs to investigate the extent to which the variables were related. In contrast, the ex post facto design is appropriate when the researcher seeks to find a consequence or examine an impact or influence between independent variables and the dependent variable (Conn, 2017). The ex post facto design was not appropriate for my study because I did not examine an impact or influence between variables after the fact (ex post facto) using archival data.

Research Question

What is the relationship between workplace wellness engagement level, kind of workplace wellness initiatives, and the effectiveness of workplace wellness programs?

Hypotheses

Null Hypothesis (H_0): There is no statistically significant relationship between

workplace wellness engagement level, kind of workplace wellness initiatives, and the effectiveness of workplace wellness programs.

Alternative Hypothesis (H_1): There is a statistically significant relationship between workplace wellness engagement level, kind of workplace wellness initiatives, and the effectiveness of workplace wellness programs.

Theoretical Framework

The theory of planned behavior, developed by Ajzen in 1991, was the framework for my study. The theory of planned behavior has three components: perceived behavioral control, subjective norms, and attitude (Ajzen, 1991). These components were related to the variables of the current study (level of workplace wellness engagement, kind of workplace wellness initiative, and workplace wellness program effectiveness). The first component, perceived behavioral control, was related to the kind of workplace wellness initiative. Next, subjective norms were related to workplace wellness engagement. Finally, attitude was related to workplace wellness program effectiveness.

Perceived Behavioral Control

Perceived behavioral control was related to the kind of workplace wellness initiative employers choose. The perceived behavioral control component originated from the self-efficacy theory developed by Bandura in 1977 (Bandura et al., 1980). Perceived behavioral control relates to a person's beliefs about their ability to perform a task or behavior successfully (Parkinson et al., 2017). Because the kind of workplace wellness initiative was defined as the number and type of initiatives, employers must choose a specific kind of workplace wellness initiative to offer to employees.

Subjective Norms

Subjective norms related to the workplace wellness engagement level. The component of subjective norms originated from the theory of reasoned action (Fishbein & Ajzen, 1975). The theory of reasoned action founded by Fishbein focused on how behavioral intention impacts behavior (Fishbein & Ajzen, 1975). According to Cheng et al. (2019), subjective norms involve how individuals think that people important to them would approve of their behavior. Because workplace wellness engagement was defined as the manager's opinion of employee engagement level in workplace wellness initiatives, employers must understand how employees engage in workplace wellness initiatives by considering that subjective norms involve social pressure and what individuals believe others expect.

Attitude

Attitude was related to workplace wellness program effectiveness. The component of attitude also originated from the theory of reasoned action (Fishbein & Ajzen, 1975). According to Cheng et al. (2019), attitude involves the positive and negative feelings felt from performing a specific behavior. Because workplace wellness program effectiveness was defined as manager's perception of workplace wellness program effectiveness, managers must understand how attitude influences employee behavior change intentions.

The theory of planned behavior was the optimal framework for this study. Ajzen (1991) expanded on the theory of reasoned action by adding the concept of perceived behavioral control to the two constructs used by Fishbein in the theory of reasoned action

to develop the theory of planned behavior used for the framework of this study (Bandura et al., 1980; Fishbein & Ajzen, 1975). The theory of planned behavior provided a lens for understanding if workplace wellness program effectiveness could benefit employer profitability. Therefore, the theory of planned behavior may guide business owners to better understand behavioral intentions and how they relate to workplace wellness program effectiveness.

Operational Definitions

Attitude: The degree to which an individual has a favorable or unfavorable attitude toward a specific behavior (Tornikoski & Maalaoui, 2019). Attitude is the positive and negative feelings an individual feels from performing a specific behavior (Cheng et al., 2019; O'Connell et al., 2020). A more detailed explanation of attitude involves the person's rational and emotional preference toward performing a behavior (Wenhold & White, 2017).

Perceived behavioral control: The ease or difficulty perceived by an individual about a specific behavior (Tornikoski & Maalaoui, 2019). Perceived behavioral control combines self-efficacy with perceived control (Xiao & Wong, 2020). Self-efficacy is the confidence an individual has about their ability to do something, while perceived control involves the level of control an individual has about doing something (Xiao & Wong, 2020).

Subjective norms: Social pressures produced by normative beliefs (O'Connell et al., 2020; Wenhold & White, 2017) and, more specifically, the perceived social pressure related to a specific behavior (Tornikoski & Maalaoui, 2019).

Assumptions, Limitations, and Delimitations

Assumptions

Assumptions require postulation because there is no evidentiary proof of certainty, which requires one to assume (Lewis-Beck et al., 2004). There were two assumptions for my study. The first assumption was that subjects were truthful in answering questions. The second assumption was that the participants were in appropriate positions to answer the questions as who they portrayed themselves to because the instrument was a free online survey that did not require verification of participants. To mitigate the risks, I used an instrument with strong validity and reliability.

Limitations

Limitations exist when research is constrained due to uncontrollable factors (Edmonds & Kennedy, 2017). There were two limitations in my study. One limitation was that larger organizations are more equipped to use the instrument due to staffing and heightened focus on workplace wellness programs. The second limitation was that the subjects must have been willing to participate voluntarily. Because of these limitations, the entire population may not have been represented.

Delimitations

Delimitations detail the reasoning of the researcher to bring light to the scope of the core interests related to the study (Theofanidis & Fountouki, 2018). There were two delimitations for my research. The first delimitation was that the study consisted of data on workplace wellness program managers who used the HERO tool (the HERO scorecard). The second delimitation was the use of responses from Version 4 of the

HERO scorecard. This study's boundaries included analysis of secondary data from Version 4 of the HERO scorecard.

Significance of the Study

Understanding the contribution to effective business practice was vital to explain why this study could be of value to businesses. Replacing unhealthy behaviors with behaviors that will improve health is key to workplace wellness program effectiveness (Lowensteyn et al., 2019). As workplace wellness initiatives continue to grow in importance for organizations, the need to evaluate employee engagement and workplace wellness program effectiveness is important for understanding the significance of workplace wellness programs to businesses and society (Bailey et al., 2018; Jones et al., 2019). Understanding the significance of workplace wellness programs to businesses and society could produce social change.

Contribution to Business Practice

This study may be significant to business practice because it may provide information for business owners to mitigate the rising costs of health care benefits to the employee and employer. This study may also provide information for business owners to lower operational expenses and improve employee productivity. This study's findings could also benefit researchers studying employee engagement and organizational culture.

Implications for Social Change

The implications for social change include the potential for improved health and well-being of the U.S. workforce. For example, improvements in blood pressure, cholesterol, glycated hemoglobin, weekly physical activity, stress levels, sleep, and

cardiovascular age gap were observed through specific kinds of workplace wellness initiatives (Lowensteyn et al., 2019). Effective workplace wellness programs enable employees to change their behavior and improve their health. As a result, risk factors for diseases could decrease (Lowensteyn et al., 2019). A decrease in the mentioned risk factors could improve the health and well-being of the U.S. workforce and produce social change.

A Review of the Professional and Academic Literature

The purpose of this quantitative correlational study was to examine the relationship between level of workplace wellness engagement, kind of workplace wellness initiatives, and the effectiveness of workplace wellness programs. In this literature review, I critically analyze and synthesize the extant literature related to the theory of planned behavior and the existing body of knowledge regarding workplace wellness. I also discuss the literature concerning the independent variables of the level of workplace wellness engagement and the kind of workplace wellness initiative as well as the dependent variable of the effectiveness of workplace wellness programs. A critical analysis and synthesis of the literature available regarding each variable served as an exhaustive and comprehensive review of the recent research on the effectiveness of workplace wellness programs. The literature review is arranged to provide data relevant to the theory of planned behavior and the potential for business leaders to benefit from effective workplace wellness programs. The topics for this review of the relevant professional and academic literature are (a) the theory of planned behavior, (b) complementary theories to the theory of planned behavior, (c) alternative theories to the

theory of planned behavior, (d) instrumentation, (e) level of workplace wellness engagement, (f) kind of workplace wellness initiatives, and (f) effectiveness of workplace wellness programs.

I reviewed books, peer-reviewed articles, and other resources to answer the research question for this study: What is the relationship between level of workplace wellness engagement level, kind of workplace wellness initiatives, and the effectiveness of workplace wellness programs? The hypotheses were the following:

H_0: There is no statistically significant relationship between workplace wellness engagement level, kind of workplace wellness initiative, and the effectiveness of workplace wellness programs.

H_1: There is a statistically significant relationship between workplace wellness engagement level, kind of workplace wellness initiative, and the effectiveness of workplace wellness programs.

A critical analysis and synthesis of each variable serves as an exhaustive and comprehensive review of the previous and recent research on the effectiveness of workplace wellness programs.

Strategies for Searching the Literature

For this review, I exhaustively searched the following academic, business, and health databases for relevant literature: Science Direct, SAGE Journals, SAGE Knowledge, Emerald Insight, Oxford Academic, JMIR Publications, Wiley Online Library, Hindawi, Ingenta Connect, Springer Link, MDPI Open Access, and Taylor & Francis Online. To ensure that the journal articles included in the literature review were

published in peer-reviewed journals, I used Ulrich's Periodical Directory for validation. The following keyword search terms were used: *workplace wellness, health promotion, theory of planned behavior, self-efficacy, perceived behavioral control, subject norms, attitude, workplace well-being, health maintenance, disease prevention, wellness programs, corporate wellness, company culture, chronic conditions, economics, VOI, ROI,* and *employee engagement*. Most (82.2%) of the sources in the literature review were published within 5 years of my anticipated approval for the doctoral study (see Table 1).

Table 1

Frequency and Percentage of Resources in the Literature Review

Resource	Within 5 years	Older than 5 years	Total	Percentage
Books	0	1	1	2.22%
Peer-reviewed articles	37	5	42	93.33%
Other resources	0	2	2	4.44%
Total	37	8	45	100%

Theory of Planned Behavior

The theory of planned behavior was the framework for this study. My goal was to examine the likelihood of an individual to engage in a specific health behavior based on their decisions and intentions. Similarly, the theory of planned behavior provides insight on how likely an individual is to engage in a health behavior based on their decisions and intentions (Tornikoski & Maalaoui, 2019). The three components of the theory of planned behavior are perceived behavioral control, subjective norms, and attitude (Ajzen,

1991). Perceived behavioral control involves the ease or difficulty perceived by an individual about a specific behavior (Tornikoski & Maalaoui, 2019). Subjective norms are defined as the perceived social pressure related to a specific behavior (Tornikoski & Maalaoui, 2019). Attitude refers to the degree to which an individual has a favorable or unfavorable attitude toward a specific behavior (Tornikoski & Maalaoui, 2019). The theory of planned behavior provides a comprehensive roadmap to determine an individual's behavior change intentions from their perceived behavioral control, subjective norms, and attitude toward the behavior (Ajzen, 1991). Therefore, this framework helped me achieve the goal of examining the likelihood of an individual to engage in a specific health behavior based on their decisions and intensions.

Behavior change is key to developing effective workplace wellness programs, and the theory of planned behavior provides insight on behavior change intentions. Banerjee and Ho (2020) explained that engaging in a healthy lifestyle is dependent on behavior change. Healthy lifestyles are the focus of many workplace wellness programs (Mitchell et al., 2020). Understanding the relationship that the variables of the current study (kind of workplace wellness initiative, workplace wellness engagement, and the effectiveness of workplace wellness programs) have with the three components the theory of planned behavior (perceived behavioral control, subjective norms, and attitude) could provide evidence that behavior change is key to developing effective workplace wellness programs.

Perceived Behavioral Control

In the theory of planned behavior, the direct measure of perceived behavioral control is one component that can predict someone's intentional behavior (O'Connell et al., 2020). Perceived behavioral control combines self-efficacy with perceived control (Xiao & Wong, 2020). Self-efficacy is the confidence an individual has about their ability to do something, while perceived control involves the level of control an individual has about doing something (Xiao & Wong, 2020). Perceived behavioral control combines both concepts because people believe that they will or will not be successful with their performance (Parkinson et al., 2017; Xiao & Wong, 2020). Although perceived behavioral control fuses self-efficacy with perceived control, it is evident that perceived behavioral control is not the same as self-efficacy but shares themes. Perceived behavioral control has a more significant focus on behavior change than the concept of self-efficacy alone.

Perceived behavioral control could impact lifestyle choices. Although perceived behavioral control is a person's belief about the ease or difficulty of performing a behavior, it also involves that person's anticipated obstacles (Wenhold & White, 2017). Banerjee and Ho (2020) studied healthy lifestyle intentions related to diet and physical activity using the theory of planned behavior. While examining five components (perceived behavioral control, attitudes, social norms, interpersonal communication, and attention to mass media) and their relationship to healthy lifestyle intentions, Banerjee and Ho found perceived behavioral control was the strongest predictor of healthy lifestyle intentions. Because evidence indicates that perceived behavioral control is a strong

predictor of healthy lifestyle intentions, perceived behavioral control could impact lifestyle choices. The evidence supporting healthy lifestyle intentions related to diet and physical activity could show that perceived behavioral control is a component of adopting healthy lifestyles.

Research on workplace wellness initiatives often included measures of short-term results. For example, Sutliffe et al. (2019) studied the impact of a 6-month workplace nutrition initiative using the concept of perceived behavioral control as the basis for understanding long-term adherence to the initiative. Sutliffe et al. measured results after 8 weeks and again after 4 months. After 8 weeks, Sutliffe et al. found improvements in weight, waist circumference, cholesterol, blood glucose, gastroesophageal reflux disease, depressive symptoms, and sleep. When Sutliffe et al. reassessed the participants after 4 months, the results were maintained, and participants reported reduced total pain and reduced HbA1c levels compared to the baseline. The positive improvements demonstrated by Sutliffe et al. provided evidence to support employers offering this kind of workplace wellness initiative (i.e., a workplace nutrition initiative) could produce successful results and behavior change, which could contribute to high perceived behavioral control. Therefore, the kind of workplace wellness initiative that employers choose is dependent on perceived behavioral control or the belief that the organization will or will not be successful with performance in the kind of workplace wellness initiative chosen.

Subjective Norms

Subjective norms can predict intentional behavior. In the theory of planned behavior, the direct measure of subjective norms is another component that can predict someone's intentional behavior (O'Connell et al., 2020). Subjective norms are social pressures produced by normative beliefs (O'Connell et al., 2020; Wenhold & White, 2017) and, more specifically, the perceived social pressure related to a specific behavior (Tornikoski & Maalaoui, 2019). Cheng et al. (2019) explained subjective norms more casually as individuals thinking that people important to them would approve of their behavior. Because subjective norms could predict intentional behavior, evidence on workplace wellness and subjective norms may lead to a stronger understanding of how the theory of planned behavior impacts the effectiveness of workplace wellness programs.

Higher utilization of wellness resources is evident when subjective norms influence behavior. Lin et al. (2020) explored the behavior of individuals who use the Nike+ Run Club app using the theory of reasoned action components of subjective norms and attitude. Lin et al. found that subjective norms had a greater influence on an individual's choice to use the app, observing that suggestions from family and friends (i.e., subjective norms) were the highest indicator of the individuals choosing to use the Nike+ Run Club app. Because subjective norms were an indicator for the use of the running app, higher utilization was evident from subjective norms influencing behavior. Company culture could contribute to this concept of subjective norms because

individuals could choose to engage in a behavior based on the influence they receive from others.

For workplace wellness, company culture is the main component of subjective norms. Rucker (2017) found that a focus on company culture is one strategy proven to produce engagement in workplace wellness programs. Society has modern expectations for organizations that include the evolution and integration of technology, corporate governance, communications, economic conditions, social values, demographics, and public policy (Sopow, 2020). Sopow (2020) found that when organizations fail to adapt their corporate culture to account for these expectations, it threatens the well-being of the employees and the organization. A company culture could lead to positive or negative performance related to the health and well-being of employees. Combining the component of subjective norms with the other components of the theory of planned behavior can be used to fully understand what drives effective workplace wellness programs.

Attitude

Attitude could predict intentional behavior related to well-being. In the theory of planned behavior, the direct measure of attitude is the last component that can predict someone's intentional behavior (O'Connell et al., 2020). Attitude is the positive and negative feelings an individual feels from performing a specific behavior (Cheng et al., 2019; O'Connell et al., 2020). A more detailed explanation of attitude involves the person's rational and emotional preference toward performing a behavior (Wenhold & White, 2017). In the theory of reasoned action, Fishbein and Ajzen (1975) explained that

an individual's underlying beliefs determine their attitude about an intended behavior. Because this is the manner that determines attitude, it is evident that attitude can predict intentional behavior. Attitude may predict behavior in other scenarios of well-being as well.

Attitude could play a role in the likelihood of an individual receiving a vaccine. According to Xiao and Wong (2020), attitude is the key component related to vaccine hesitancy. Xiao and Wong suggested that although a positive attitude increases vaccination intentions, a positive attitude may not produce behavior change but could reduce hesitancy. Alabdulla et al. (2021) also examined what influences attitude related to vaccine hesitancy and found that social media influences attitude toward vaccine uptake. Xiao and Wong (2020) recommended focusing on the other components of the theory of planned behavior along with attitude to reduce vaccine hesitancy and produce behavior change. With this evidence in mind, attitude could impact behavioral intentions; however, actual change may require other factors. Relatedly, attitude could play an integral role in the effectiveness of workplace wellness programs, but workplace wellness program managers should also consider other factors, such as perceived behavioral control and subjective norms, for producing behavior change.

Altruism could impact the effectiveness of workplace wellness programs. The term *altruism* is rooted in an individual's decision making that is selfless and contains a desire to genuinely help others (Rucker, 2017). This attitude is a strong component of leadership to promote workplace wellness programs. Solnet et al. (2020) explained that societies focus on wellness deficits resulting from lifestyles that result in high stress

situations, lack of physical activity, and psychological isolation. When organizations focus on wellness as a means for cost savings rather than genuinely caring about employees' well-being, employees may distrust their employer and be less likely to engage in workplace wellness programs. According to Rucker (2017), altruism is a strategy proven to produce workplace wellness program effectiveness. An altruistic approach is received by employees in a more trusting manner than an approach involving organizational costs; therefore, leadership displaying altruistic attitudes could produce effective workplace wellness programs.

The theory of planned behavior provides insight into how behavior changes occur so that employers can effectively deploy strategies that will work toward their goal of improving VOI and ROI. By providing effective workplace wellness initiatives for employees, employers can mitigate the costs and improve their employee population's overall health and well-being (Rucker, 2017). If employers can promote successful behavior change to prevent chronic diseases in their workforce that drive costs, they might improve their ROI and have a healthier workforce with improved morale and motivation.

Complementary Theoretical Frameworks to the Theory of Planned Behavior

The theory of reasoned action and the self-efficacy theory were precursors to the theory of planned behavior. To develop the theory of planned behavior, Ajzen (1991) expanded on the two constructs of the theory of reasoned action by adding the concept of perceived behavioral control from the self-efficacy theory (Bandura, 1977; Bandura et al., 1980; Fishbein & Ajzen, 1975). Ajzen merged the concepts of both the theory of

reasoned action and the self-efficacy theory to develop the components of the theory of planned behavior (Ajzen, 1991). Because the theory of reasoned action and the self-efficacy theory were precursors to the theory of planned behavior, both theories complement it.

Theory of Reasoned Action

The theory of reasoned action, developed by Fishbein, involves the way behavioral intention impacts actual behavior (Fishbein & Ajzen, 1975). In this theory, underlying beliefs about the intended behavior are determinants of attitude (Fishbein & Ajzen, 1975). Attitude involves the individual's attitude toward that behavior (Britta et al., 2014). Subjective norms are also a component of the theory of reasoned action and relate to a person's perception of acceptable or unacceptable behavior (Fishbein & Ajzen, 1975). Subjective norms involve an individual's decision to change a behavior or choose a specific behavior relying on approval or disapproval from others (Britta et al., 2014). The theory of reasoned action also strongly focuses on these behaviors concerning referent persons, or the people being studied (Fishbein & Ajzen, 1975). The constructs of the theory of reasoned action are essential to understanding how the theory of reasoned action is complementary to the theory of planned behavior.

Self-Efficacy Theory

The self-efficacy theory is complementary to the theory of planned behavior and adds an additional perspective to the idea of behavior change. Bandura developed the self-efficacy theory in 1977 (Bandura, 1977). The self-efficacy theory relates to a person's beliefs about their ability to perform a task or behavior successfully (Betz,

2006). In this sense, individuals who avoid behaviors, have poor performance, or tend to give up when faced with failure are considered to have low self-efficacy**.** The self-efficacy theory is also complementary to the theory of planned behavior in this study because it could be used to explain why many workplace wellness programs are ineffective.

Employee Engagement Theory

The employee engagement theory (EET) complements the theory of planned behavior because it provides insight into what motivates employees to engage in specific behaviors. EET was developed by Kahn in 1990 (Kahn, 1990). According to Kahn, for an individual to have full control over an aspect in the workplace, they must have optimal working conditions that provide employees with adequate resources to facilitate employee engagement. Furthermore, EET focuses on how employee engagement impacts goals that contribute to positive organizational performance (Shoaib & Kohli, 2017). EET is complementary to the theory of planned behavior in this study because it provides additional insight into employee engagement and strategies that motivate employees to engage in specific behaviors.

Alternative Theoretical Frameworks to the Theory of Planned Behavior

I also considered the theory of reasoned action, the self-efficacy theory, and EET as alternative theoretical frameworks for this study. The theory of reasoned action is relevant to this study because it is a precursor for the theory of planned behavior. In the theory of reasoned action, Fishbein and Ajzen (1975) identified that attitude and subjective norms influence behavioral intentions. Ajzen (1991) added the component of

perceived behavioral control to the attitude and subjective norms components to develop the theory of planned behavior. While the theory of reasoned action could be an ideal framework for the variables of workplace wellness engagement and the effectiveness of workplace wellness programs, the theory of planned behavior is more suitable for this study because the theory aligns with all three variables in this study.

Because I will be researching the effectiveness of workplace wellness programs, it is important to understand why ineffective workplace wellness programs do not produce change. Jones et al. (2019) examined the iThrive workplace wellness program through the Illinois Workplace Wellness Study and did not find improvements in medical spending, changes in health behaviors, or changes in employee productivity. In addition to the effectiveness of workplace wellness programs, I am focusing on the relationship workplace wellness engagement and the kind of workplace wellness initiative have on a program's effective. Therefore, while the self-efficacy theory could be an appropriate framework to study the effectiveness of workplace wellness programs variable alone, the theory of planned behavior is more suitable to examine all three variables in this study.

The EET has been used as a framework for studying the field of health promotion repeatedly. According to Sparks (2018), change remains constant globally; yet the health promotion field continues to use the same theories and technology over time. Sparks explained that the lack of innovation in theory related to health promotion is concerning. The alignment between Kahn's EET and this study is strong because the EET shows the employers' effect on employee engagement. However, the EET does not provide insight on the study variables of kind of workplace wellness initiatives and the effectiveness of

workplace wellness programs; therefore, the theory of planned behavior is more appropriate as the framework for this study.

Instrumentation

There are multiple resources that organizations can use to analyze their level of workplace wellness engagement, kind of workplace wellness initiatives, and the effectiveness of workplace wellness programs related to the employee engagement theory. Grossmeier, Calitz, et al. (2020) researched 4 tools that measure organizational health outcomes: the American Heart Association Workplace Wellness Health Achievement Index, the HERO Health and Well-Being Best Practices Scorecard, the CDC Worksite Health ScoreCard, and the Well Workplace Checklist. The two that aligned best with the variables of this study were the HERO Health and Well-Being Best Practices Scorecard and the American Heart Association Workplace Wellness Health Achievement Index.

Hero Scorecard

The HERO Scorecard is a tool that provides employers with guidance on best practices for workplace wellness initiatives (Rosenbaum et al., 2020). It encompasses six sections which are:

- Strategic planning
- Organizational and cultural support
- Programs
- Program integration
- Participation strategies

- Measurement and evaluation

The HERO Scorecard comprises about 60 questions (depending on the version used) and takes 45 to 60 minutes to complete (Rosenbaum et al., 2020). It is a web-based tool sufficient for employers from any industry and of any size that is normally completed by the staff member at an organization responsible for implementing the company's workplace wellness initiatives (Grossmeier, Castle, et al., 2020). When organizations focus on each section, they can easily identify gaps and develop strategies to move towards the outcomes they desire.

There are many outcomes that organizations can strive for when implementing workplace wellness programs; however, some organizations struggle with employee engagement in workplace wellness programs. According to Grossmeier, Castle, et al. (2020), organizational and leadership support are essential to gaining participation through the integration of workplace wellness programs. They found that incentives could provide a means for improving participation, but incentives alone are not sufficient to produce outcomes for organizations. Utilizing practical educational tools to benchmark workplace wellness programming can aid in accessing the gap between current programing and the implementation of strategies to evolve those programs (Grossmeier, Calitz, et al., 2020). Improving participation through integrating within organizational cultures could produce desired outcomes.

Health outcomes are typically measured related to healthcare costs. Researchers who have assessed the HERO Scorecard found that higher overall scores directly relate to improved medical costs (Rosenbaum et al., 2020). Furthermore, the HERO Scorecard

sections ease employers because they can focus on one section at a time to develop specific strategies to implement (Grossmeier, Calitz, et al., 2020). Over three years, organizations with scores over 100 on the HERO Scorecard experienced reductions in annual health care costs. Over the same 3-year period, organizations with scores under 100 experienced stable or increased health care costs over time (Rosenbaum et al., 2020). Higher scores on the HERO Scorecard are also associated with higher stock prices for publicly traded companies. Organizations that see low scores in specific sections could strive to create strategies that improve scores to produce better health outcomes. For my research purposes, I will use the HERO Scorecard as a tool to measure the level of workplace wellness engagement, kind of workplace wellness initiatives, and the effectiveness of workplace wellness programs because the sections in the HERO Scorecard have questions that directly relate to the components of the employee engagement theory (perceived behavioral control, subjective norms, and attitude).

Workplace Health Achievement Index

Like the Hero Scorecard, the American Heart Association Workplace Health Achievement Index (WHAI) is a free tool for organizations to evaluate their workplace wellness programs. The tool has 55 questions spanning 7 different categories (Grossmeier, Calitz, et al., 2020).

- Leadership
- Organizational policies and environmental supports
- Communications
- Health promotion programs

- Employee Engagement
- Community partnerships
- Reporting outcomes

While this tool would measure the level of workplace wellness engagement, kind of workplace wellness initiatives, and the effectiveness of workplace wellness programs, I chose the HERO Scorecard because the WHAI is a newer tool that is not as widely used as the HERO Scorecard. Since the HERO Scorecard is more widely used, it will provide more reliability to the study. The HERO Scorecard also has questions that are better suited to relate to the employee engagement theory.

Level of Workplace Wellness Engagement

Chronic conditions were examined related to employee engagement in workplace wellness programs. For individuals to have full control over an aspect in the workplace, they must have optimal working conditions that provide employees with adequate resources to facilitate employee engagement (Kahn, 1990). Because the United States spends more than any other country on health care annually (over $3.2 trillion), chronic conditions such as: heart disease, cancer, diabetes, and chronic obstructive pulmonary disease are vital to consider when examining employee engagement in workplace wellness programs (Adams, 2018). Considering that these chronic conditions are preventable by modifications in specific behaviors, preventing chronic conditions through improved employee engagement in workplace wellness programs may lead to lower health care costs if employees have adequate resources for enhanced employee engagement.

The level of employee engagement plays a pivotal role in workplace wellness program success. Bailey et al. (2018) identified a need for investment from leadership, an engaged wellness committee, and support from all levels and roles in the business. They found barriers with limited policy support and identified the importance of leadership buy-in, employee input, policy support, and economic benefits for the business in producing successful implementation (Bailey et al., 2018). When employers in Sweden implemented mandatory exercise initiatives, they saw a decrease in cardiovascular mortalities and a 22% decrease in absenteeism (Clack & Fraser, 2019). The researchers' findings demonstrated the significance of employee engagement in workplace wellness programs for lowering health risks (Clack & Fraser, 2019). They also found that the number of workplace wellness initiatives offered did not equate to more positive health outcomes; however, employee engagement in the programs did. Simply offering a workplace wellness program to employees may not have a positive impact unless employees engage in the workplace wellness program.

To understand employee engagement, I will also explain employee engagement in a general sense regarding company culture without respect to workplace wellness. Geist and Cass (2018) explained how faculty from many academic disciplines started new classes with an innovative culture promoting health and wellness to improve student engagement on college campuses. They found a positive impact on solving global health issues and improving social cohesiveness among students. Similarly, Ahmetoglu et al. (2018) examined the ability of entrepreneurial behavior to lead to innovation within organizations. They found that improvements in organizational culture correlated with

positive changes within an organization's ability to innovate. Because research suggests that changes in culture could improve employee engagement in general, organizations that promote a culture of wellbeing could achieve adequate employee engagement in workplace wellness programs, lending positive results in employee health and wellbeing.

Integration of Wearable Devices and Wellness Applications

There are many different forms of workplace wellness programs. Fleming (2020) explained how many workplace wellness programs promote employee engagement by incorporating wearable devices and wellness applications. Organizations use wearable devices at an increasing rate to improve employee participation and engagement. Traditionally wearable devices tracked steps. Over time, many wearable devices have incorporated tracking for mood, health indicators, sleep, heart rate, and calories in addition to steps (Fleming, 2020). Considering the findings presented previously from Adams (2018) stating that the United States spends more than any other country on health care annually for chronic conditions, the emerging technology allowing for expansive tracking by wearable device could be an effective tool for addressing issues with employee engagement.

Millennial Lifestyle Considerations

Millennials use many wellness-related products and services at work. With more than half of the workforce comprising of millennials, organizations must take an innovative approach to employee engagement (Alexander & Fry, 2019). Employers can start by understanding what matters to millennials. Millennials tend to be less loyal to a specific company than past generations (Alexander & Fry, 2019). In fact, Gibson et al.

(2017) used an incentive-based workplace wellness program rooted in behavioral economics to examine engagement in health promotion activities. Employees of all ages used the wellness program, including employees with chronic conditions and high medical costs in the year prior. They observed higher levels of engagement with employees aged 44 years and under (Gibson et al., 2017). Furthermore, Alexander and Fry (2019) found that millennials are more responsive to peer affirmations over authority figure support, like other generations. According to social media, they are more likely to focus on well care over healthcare concepts and rely heavily on the views (Alexander & Fry, 2019). Because millennials use many wellness-related products and services, employers need to offer integrated services for millennial lifestyle preferences to allow for a millennial's version of work-life balance.

Improving Organizational Cultures

Many organizations seek to improve their culture because improvement in organizational culture can be a powerful driver in organizational innovation. Lopez et al. (2019) explained that human diversity gives rise to innovative cultures and can facilitate enhanced teamwork. On the other hand, Ahmetoglu et al. (2018) found that an entrepreneurial culture accelerates the productivity of entrepreneurial employees rather than making the whole workforce more innovative. The business strategy advances that proved to work for small to mid-sized businesses with successful workplace wellness programs were related to the concepts of innovation, company culture, employee-centric, environment, and altruism (Rucker, 2017). Understanding that organizational culture is a powerful concept that innovative companies focus is vital to understanding how

improving organizational cultures could impact the level of workplace wellness program engagement. Furthermore, choosing the type of organizational culture shift an organization makes should depend on the organization's desired outcomes.

As stated, organizational culture shifts are an integral component of employee engagement. Research shows that increased entrepreneurial behavior or a shift in organizational culture impacts innovation and productivity (Ahmetoglu et al., 2018). Conversely, Gibson et al. (2017) used an incentive-based workplace wellness program rooted in behavioral economics to examine engagement in health promotion activities and found no statistically significant relationship between employee engagement and medical spending. Terry (2019) suggests that the terms a "culture of health approach" or "sociological approach" replace the term "comprehensive wellness programs" to better identify which workplace wellness initiatives encompass health screening, health education, social and physical environment, integration with organizational structure, and integration to other programs like employee assistance programs. The available research provides insight that improved organizational cultures could lead to workplace wellness innovation by improving employees' health and well-being. However, the kind of workplace wellness program and type of outcome expected are significant components to consider.

Kind of Workplace Wellness Initiatives

The kind of workplace wellness initiatives offered to an organization could impact the outcome of the organizational investment. According to Grossmeier and Johnson (2020), the strongest outcomes for the value of investment are demonstrated

through research when workplace wellness initiatives have leadership support, strategic plans, measurable goals, supportive policies and work environment, and ongoing evaluation of the effectiveness of initiatives. One study on workplace wellness initiatives cannot, on its own, serve as an indicator of all workplace wellness initiative effectiveness. (Grossmeier & Johnson, 2020). In this study, the definition of kind of workplace wellness initiatives involves the number and type of initiatives offered in the workplace. To further examine this independent variable, I will analyze the number of workplace wellness initiatives offered and then the type of workplace wellness initiatives offered.

Number of Workplace Wellness Initiatives

Employers can offer workplace wellness programs with any number of initiatives included. iThrive, a wellness program offered through the Illinois Workplace Wellness Study, had three components: annual biometric screenings, an annual health risk assessment (HRA), and weekly wellness activities (Jones et al., 2019). The researchers found an increase in the health screening utilization and an increase in the number of employees who believed management values the health and safety of their employees. However, the Illinois Workplace Wellness Study did not find any effects related to medical spending, changes in health behaviors, or changes in employee productivity (Jones et al., 2019). If the employers considered health screening utilization increases and improvements in employee perception of management beneficial, they might consider iThrive an effective workplace wellness program. If the organization's perception of effectiveness is related to medical spending, changes in health behaviors, or changes in employer productivity, they might consider iThrive ineffective.

Some organizations implement programs with more components than described in the Illinois Workplace Wellness Study. The SoSu-life tool had six components: diet tracking, exercise habit tracking, personalized feedback, suggestions for activities and programs, practical tips and tricks, and a series of social features (Balk-Moller et al., 2017). According to Balk-Moller et al. (2017), active participation was low, and the tool was too technically difficult and time-consuming. The researchers observed higher interaction levels between peers looking to make healthy lifestyle changes (Balk-Moller et al., 2017). The tool had a higher number of workplace wellness initiatives than iThrive, and the situation introduces the same conundrum as with iThrive. If organizations value a high level of interaction between peers over high levels of employee engagement in the program, they may consider this workplace wellness program effective.

Type of Workplace Wellness Initiatives

The type of workplace wellness initiative could determine what outcomes are produced. Through an exhaustive literature review, Meyera et al. (2017) explored how proper ergonomics can improve the sustainability of the workforce by focusing solely on ergonomics as a workplace wellness initiative. The researchers determined that when there is no balance between an employee's capacity and the demand of their job, that could be detrimental to employee well-being (Meyera et al., 2017). Conversely, as mentioned previously, Sutliffe et al. (2019) studied the impact of a 6-month workplace nutrition initiative to understand long-term adherence to the initiative. After 8 weeks, they found improvements in weight, waist circumference, cholesterol, blood glucose, gastroesophageal reflux disease, depressive symptoms, and sleep (Sutliffe et al., 2019).

When reassessed after four months, the results were maintained, and participants reported reduced total pain, reduced HbA1c levels compared to the baseline. A workplace wellness initiative focused solely on ergonomics could lead to effective workplace wellness programs, while the positive improvements demonstrated by Sutliffe et al. provided evidence to support that organizations offering this kind of workplace wellness initiative could produce successful results got employee health and wellbeing.

There are many different types of workplaces wellness initiatives to meet organizational needs. According to Solnet et al. (2020), societies focus on wellness deficits resulting from lifestyles that result in high stress, lack of physical activity, and psychological isolation. Researchers who have assessed the HERO Scorecard found that higher overall scores directly relate to improved medical costs (Rosenbaum et al., 2020). When organizations focus on wellness as a means for cost savings rather than genuinely caring about employees' well-being, employees may distrust their employer and be less likely to engage in workplace wellness programs (Solnet et al., 2020). In their study, Solnet et al. (2020) focused heavily on the relationship between the employee and the organization to understand workplace wellness programs' effectiveness. They found that the kind of workplace wellness initiative is not the only aspect to consider to gauge workplace wellness program effectiveness. The relationship between an employee and employer and the employee's trust in the organization is also important.

It is evident here that the number and type of workplace wellness initiatives play a role in determining workplace wellness program effectiveness. Because organizations could offer many kinds of workplace wellness initiatives, there is likely not a consensus

that definitively determines if workplace wellness programs are effective or are not effective. Grossmeier and Johnson (2020) came to their conclusions related to the strongest outcomes for value on investment by analyzing the ongoing research from the HERO scorecard and multiple recently released case studies that examined the factors that drive success in workplace wellness initiatives. An instrument that encompasses this variable to this extent could be beneficial to break down the barriers associated with the differences in the many kinds of workplace wellness initiatives available. Ultimately, organizations should define the outcomes they would like to see from a workplace wellness program and choose the kind of initiatives based on evidence that the program could produce the outcomes they seek.

Effectiveness of Workplace Wellness Programs

Researchers demonstrate conflicting results in the literature on the ability of workplace wellness programs to produce cost savings to be effective. ROI, VOI, and health care costs could measure workplace wellness program effectiveness (Cheon et al., 2020; Goetzel et al., 2020; Rucker, 2017). Rucker (2017) stated that many business leaders do not think workplace wellness initiatives are worth the expense because they need to see an ROI or VOI to prove the worth of workplace wellness. The most significant outcomes for the value of investments are demonstrated through research when workplace wellness initiatives have leadership support, strategic plans, measurable goals, supportive policies and work environment, and ongoing evaluation of the effectiveness of initiatives (Grossmeier & Johnson, 2020). Because there are conflicting results in the literature on workplace wellness programs and their ability to produce cost

savings to be effective, analyzing the differences between the effective and ineffective workplace wellness programs could be beneficial.

Determining how previous researchers have considered a workplace wellness program effective or ineffective is a starting point to analyzing the differences between effective and ineffective workplace wellness programs. Goetzel et al. (2020) reviewed the risk-cost relationship between workplace wellness programs and health care costs, finding significantly higher health care costs for employees with risk factors associated with blood glucose, obesity, stress, depression, and physical inactivity. Cheon et al. (2020) suggested considering program relevance to the target population when designing effective workplace wellness initiatives. Workplace wellness program effectiveness could be measured differently by workplace wellness program managers; however, most research demonstrated that effective workplace wellness programs improve operational expenses (Balk-Moller et al., 2017; Gingerich et al., 2018; Goetzel et al., 2020; Rucker, 2017). Therefore, adding additional research to the body of literature on workplace wellness program effectiveness could provide a better understanding to determine if a workplace wellness program is effective or ineffective.

In some situations, a workplace wellness program could be effective for one population and not another. Even though workplace wellness programs became popular in both areas in response to increasing rates of chronic conditions, Western European countries see more positive health outcomes than the United States (Clack & Fraser, 2019). In 2018, the United States economy was ranked number one in the world. However, they spent over $3.3 trillion on health care each year, and health outcomes and

life expectancy are superior in other developed nations (Clack & Fraser, 2019). In the United States, absenteeism costs employers $225.8 billion per year, according to the Centers for Disease Control and Prevention (CDC, 2016). This amount equates to $1685 per employee. Despite workplace wellness program prevalence increasing, only 10% of workplaces worldwide have access to them (Clack & Fraser, 2019). The United States offers a higher number of workplace wellness programs and spends more on workplace wellness programs than any other country. Still, Clack and Fraser (2019) found that other countries had better health outcomes than the United States. The United States could learn from Western European countries. To try the same concepts that have worked well, they must first identify why Western European countries have more positive results than the United States.

Laws and regulations may stand in the way of successful implementation, prohibiting workplace wellness programs from being effective. Fleming (2020) explained that privacy regulations in the United States have not caught up to the available innovative technology and that workplace wellness programs pose legal and ethical challenges. Better outcomes were observed in countries that had mandatory exercise requirements (Clack & Fraser, 2019). When employers in Sweden implemented mandatory exercise initiatives, they saw a decrease in cardiovascular mortalities and a 22% decrease in absenteeism. Specific to the United States, there is a concern from a data privacy perspective, the potential for abuse or discrimination, and a lack of employee autonomy when employees use wearable devices (Fleming, 2020). Furthermore, Rothstein (2017) explained the barriers that regulations from the Health Insurance

Portability and Accountability Act of 1996 (HIPAA), Americans with Disabilities Act (ADA), Genetic Information Nondiscrimination Act (GINA) place on workplace wellness programs in The United States. While The United States is making strides with legislation related to workplace wellness, this could explain why certain workplace wellness programs are more effective for one population than another.

Many factors could determine the effectiveness of workplace wellness programs and understanding an organization's desired outcomes could be key to defining what an effective workplace wellness program is for that organization. Organizational leaders should identify what outcome they seek from a workplace wellness program and then choose the kind of initiatives based on their expected outcomes. Some common outcomes from workplace wellness programs addressed in this literature review are: improvements in ROI and VOI, improvements in medical spending, changes in health behaviors, increases in productivity, decreases in absenteeism, and improved chronic condition occurrences. Organizational leaders should also consider legal, ethical, and privacy regulations to develop or choose a workplace wellness program that will effectively produce the desired outcomes that they expect.

Transition

Section 1 included an introduction to the concepts related to workplace wellness programs. In this section, I discussed the supportive elements for the foundation of the study including: the background of the problem, the problem statement, the purpose statement, the nature of the study, the research question, and the hypotheses. In addition, I introduced the theoretical framework, the theory of planned behavior, provided

operational definitions, discussed the assumptions, limitations, and delimitations of the study, and explained the significance of the study, including the contribution to business practice and implications for social change. Section 1 also included a review of the professional and academic literature consisting of: (a) strategies for searching the literature; (b) a review of the theory of planned behavior; (c) a discussion of complementary theoretical frameworks to the theory of planned behavior; (d) an examination of alternative theoretical frameworks to the theory of planned behavior; and (e) a synthesis of the research on the available instrumentation, the level of workplace wellness engagement, the kind of workplace wellness initiatives, and the effectiveness of workplace wellness programs.

Section 2 includes a restatement of the purpose statement of the study and a description of my role as the researcher in this quantitative research. I discuss the criteria for participant eligibility, describe the research method and design, population and sampling procedures, as well as discuss the ethical implications of the research. In addition, I describe the data collection instruments and techniques, data analysis procedures, and the validity of the study.

Section 2: The Project

In this section, I explain my research project. This includes a restatement of the purpose of the study and a description of my role as the researcher in this quantitative research. I also discuss the participants, the research method and design, the population and sampling procedures, and the ethical implications of the research. In addition, I describe the data collection instruments and techniques, data analysis procedures, and validity of the study. The section concludes with a summary of key points from Section 2.

Purpose Statement

The purpose of this quantitative correlational study was to examine the relationship between level of workplace wellness engagement, kind of workplace wellness initiatives, and the effectiveness of workplace wellness programs. The targeted population consisted of workplace wellness program managers who use the HERO tool (the HERO scorecard). The independent variables were level of workplace wellness engagement and kind of workplace wellness initiative. Workplace wellness engagement was defined as the manager's opinion of employee engagement level in workplace wellness initiatives. The kind of workplace wellness initiative was defined as the number and type of initiatives. The dependent variable was the effectiveness of workplace wellness programs. Workplace wellness programs were defined as the manager's perception of their workplace wellness program's effectiveness. The implications for positive social change include the potential to improve the health and well-being of the

workforce in the United States, leading to a healthier population with fewer injuries and illnesses.

Role of the Researcher

Determining the researcher's view is the first step to identifying the role of the researcher. The role of the researcher for a research study is to consider valid and reliable data to answer the study's research question (Yin, 2018). Yin's view on research is from the post-positivist approach and focuses on objectivity, validity, and generalizability to produce a deep understanding of specific cases (Yazan, 2015; Yin, 2018). As explained by Yin (2018), a postpositivist approach critiques the positivist approach by adding more dimensions related to validity and reliability, which was an appropriate view for my research. My perspective for this study aligned with Yin's worldview of the postpositivist approach by identifying that biases exist. Accordingly, I used a quantitative data collection method and statistics to provide new information about the research topic.

The role of the researcher expands when factoring in the data collection process. Understanding that research integrity is integral for study validity and reliability is the next step to developing the role of the researcher. Research integrity is dependent on the researcher's ability recognize their biases (Cumyn et al., 2019). To ensure research validity and reliability, researchers must consider their relationship with the topic and participants (Perna et al., 2019). I worked with clients on workplace wellness programs for over 10 years and recognized that my relationship with the topic of workplace wellness programs and my relationship with potential participants for data collection could have created biases in the current study. For the data collection process in this

study, I chose to use secondary data from the HERO organization because they are a reputable workplace wellness organization; this helped mitigate personal biases related to the topic and participants that could have emerged in collecting the data myself.

Participants

The participants consisted of workplace wellness program managers who used the HERO tool (HERO scorecard Version 4) and completed it. I used secondary data gathered by the HERO organization. I gained access to the data from the HERO organization by participating in a professional 200+ hour internship. Upon applying for the internship, I submitted my research question to the organization, and they verified that the secondary data from the HERO scorecard Version 4 met the criteria to answer the research question.

Research Method and Design

Research Method

I selected quantitative methodology to examine the relationship between the level of workplace wellness engagement, kind of workplace wellness initiatives, and effectiveness of workplace wellness programs. Researchers typically use qualitative, quantitative, or mixed methods as their research methodology (Rutberg & Bouikidis, 2018). The quantitative method is appropriate when researchers intend to test a statistical hypothesis of discrete variables, predict outcomes, or investigate cause-and-effect relationships (Taguchi, 2018). Furthermore, quantitative research requires a large sample of participants to validate or nullify assumptions using numerical data (Davies & Fisher,

2018). This method was appropriate for my study because I tested statistical hypotheses to predict relationship outcomes of discrete variables.

The qualitative method was not appropriate for this study. The qualitative method is appropriate when a researcher intends to explore a phenomenon through interviews, observations, or field notes (Taguchi, 2018). Qualitative researchers collect, analyze, and interpret data using interviews, focus groups, document review, and observation (Yin, 2018). The qualitative method was not appropriate for this study because I did not need to explore a phenomenon in my research.

The mixed-methods approach was not appropriate for this study because I did not explore a phenomenon. The mixed-methods approach is appropriate to examine a problem or phenomenon from a quantitative and qualitative perspective (Taguchi, 2018). Mixed-methods researchers use triangulation to provide stronger validity if both methods produce similar findings (Taguchi, 2018; Turner et al., 2017). I did not choose the mixed-methods approach because I did not have a qualitative component to this study.

Research Design

The two kinds of designs I considered for this study were correlational and ex post facto. The correlational design is appropriate when the researcher examines a relationship between variables (Conn, 2017). When researchers use the correlational design, they use statistics to determine the positive or negative relationships between variables (Bloomfield & Fisher, 2019). The correlational design was appropriate because I examined the relationship between variables workplace wellness engagement level,

kind of workplace wellness initiative, and effectiveness of workplace wellness programs to investigate the extent to which the variables were related.

In contrast to the correlational design, the ex post facto design was not appropriate for this study. The ex post facto design is appropriate when the researcher seeks to find a consequence or examine an impact or influence between independent and dependent variables (Conn, 2017). Researchers using the ex post facto design seek to analyze two or more groups of variables (Blakeslee, 2020). The ex post facto design was not appropriate for the current study because I did not examine an impact or influence between variables or analyze two or more groups of variables.

Population and Sampling

Population

Population and sampling are two components that are integral to the validity of quantitative research. The population for this study consisted of workplace wellness program managers who used the HERO scorecard. The HERO scorecard is a free resource available to organizations in the United States and international organizations (Rosenbaum et al., 2020). For this study, I chose to use data from 1,334 organization respondents in the United States that completed Version 4 of the HERO scorecard. This population provided accurate information on the research question: What is the relationship between workplace wellness engagement level, kind of workplace wellness initiatives, and the effectiveness of workplace wellness programs?

Sampling

The two basic methods for sampling in quantitative research are probability and nonprobability. Quantitative researchers must choose which method is appropriate for their study. In the probability method (also known as random sampling), the targeted population members are randomly selected, reducing the possibility for bias (Buchanan et al., 2018). However, the nonprobability method of sampling allows researchers to select participants from a targeted population (Link, 2018). The nonprobability method helps the researcher to generalize results to a broader population. Because probability sampling allows researchers to provide an equal chance for everyone in the target population to be represented, I used probability sampling for my research.

Convenience and simple random sampling are two subcategories that were considered. Convenience sampling complements a nonprobability method, while simple random sampling complements a probability method. In convenience sampling, the selection of available participants involves choosing participants who fit the study criteria, and biases exist due to a lack of generalizability (Emerson, 2021). Because of the increase in the potential for bias and choosing the probability method for sampling, convenience sampling was not appropriate.

I chose simple random sampling for this study. Simple random sampling occurs when researchers use data from the population at random (Tyrer & Heyman, 2016). This option allows the same probability for everyone in the target population to be part of the sample and reduces biases. Because random sampling reduces bias and complements the probability method of sampling, this was the most appropriate option for my study.

According to Green and Salkind (2017), researchers use the G*Power analysis to provide the researcher with the appropriate sample size. I used G*Power analysis to determine the appropriate sample size for the multiple linear regression in this study. I used two independent predictor variables and a priori power analysis. I assumed a medium effect size (f = .15) and alpha = .05, with a minimum power of .80 and a maximum power of .99. This resulted in a minimum sample size of 68 to achieve a power of .80, and a maximum sample size of 146 to achieve a power of .99. Therefore, I used a random sample between 68 and 146 responses from the secondary data set (see Figure 1 and Figure 2).

Figure 1

*G*Power3 Analysis for Minimum Sample Size*

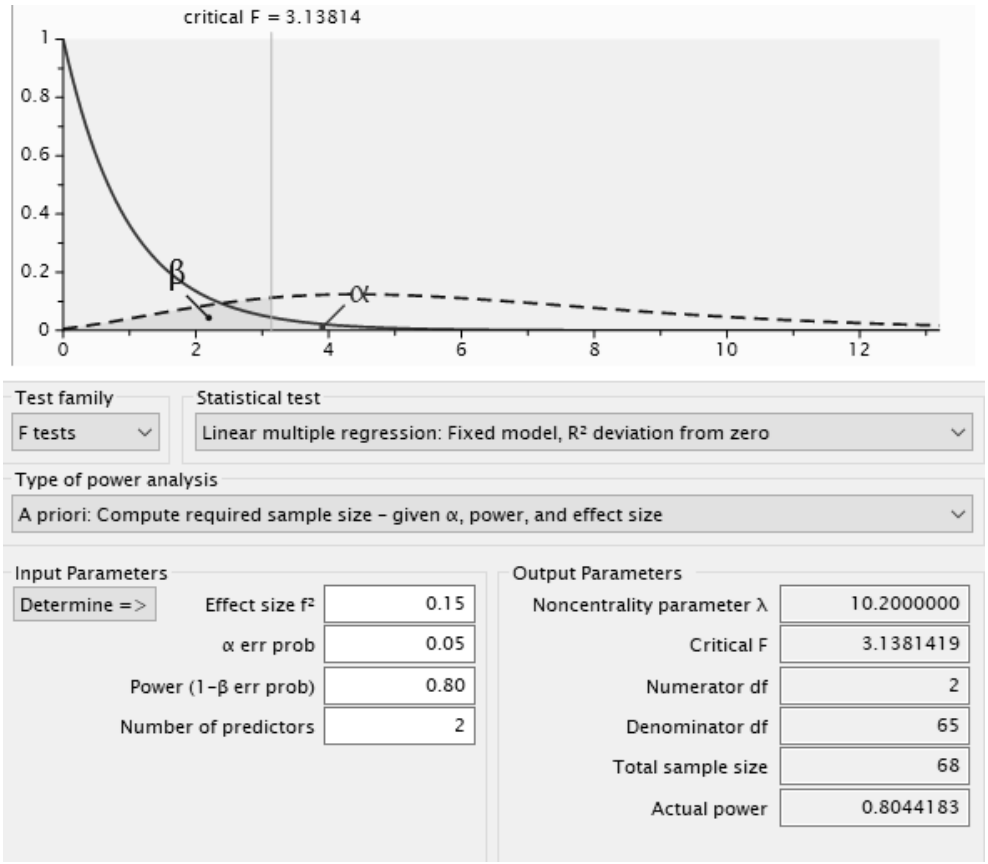
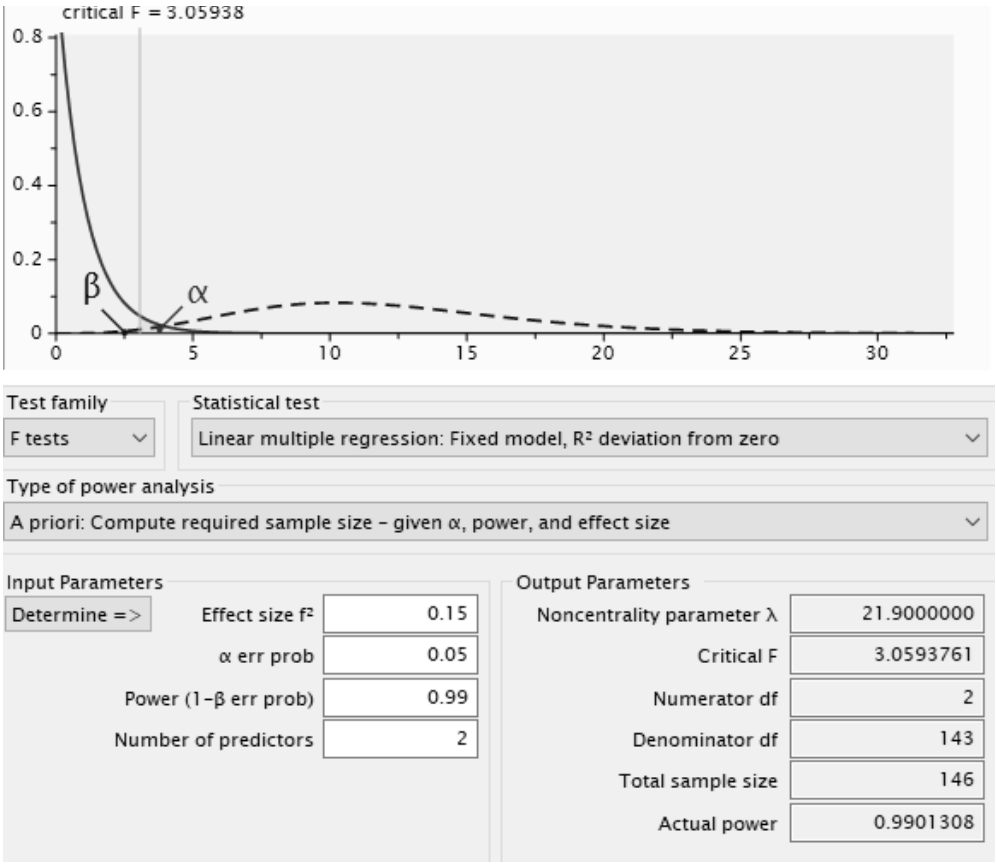


Figure 2

*G*Power3 Analysis for Maximum Sample Size*



Ethical Research

Before conducting their study, researchers must consider the negative impacts that could arise when using human participants. It is the responsibility of the researcher to uphold ethical standards to mitigate the potential for conflicts of interest between the participants and the research (Cumyn et al., 2019). As a researcher, I took ethical responsibility by ensuring ethical research compliance as set forth by the guidelines from *The Belmont Report* (U.S. Department of Health & Human Services, 1979) and Walden University's Institutional Review Board (IRB) process.

For this study, I collected data from a secondary source (the HERO organization). According to Connelly (2014), secondary data sets do not require the consent of a participant; however, in situations such as surveys, consent may be implied through survey instructions and the participants' ability to provide data voluntarily. Before an organization completes the HERO scorecard, they must agree to the terms of the statement of permissible use. The statement of permissible use has a section that stated "individual, identified responses to the Scorecard will be released only with the permission of the respondent. The names of the organizations completing the Scorecard (but no contact information) will be available upon request and may be published" ("The HERO Health and Well-Being Best Practices Scorecard," 2017). Based on the Walden University and *The Belmont Report* (U.S. Department of Health & Human Services, 1979) guidelines, my study complied with ethical considerations. The Walden University IRB approval number was 04-25-22-1021024.

Data Collection Instruments

For this study, I gained permission to use secondary data from the HERO organization's HERO scorecard Version 4 by enrolling in their internship program (see Appendix B). The HERO scorecard is an instrument for stakeholders to identify and learn about health and wellbeing best practices. The HERO scorecard was designed for organizations of all sizes in the United States and is used to measure relevant concepts related to six sections (strategic planning, organizational and cultural support, programs, program integration, participation strategies, and measurement and evaluation).

For each variable in the current study, I used the scores from questions that I selected from the HERO Scorecard that addressed each variable. For the first independent variable (level of workplace wellness engagement), I used scores from questions in Section 2 (organizational and cultural support) and Section 5 (participation strategies; see Appendix A). For the second independent variable (kind of workplace wellness initiatives), I used scores from questions in Section 2 (organizational and cultural support) and Section 3 (programs). For the dependent variable (the effectiveness of workplace wellness programs), I used scores from questions in Section 1 (strategic planning), Section 2 (organizational and cultural support), Section 3 (programs), Section 4 (program integration), and Section 6 (measurement and evaluation).

Because I used secondary data from the instrument, the only time needed to complete my study was a brief time period to obtain the data from the organization and run statistical analyses on the data that had been collected from the instrument. The scoring system allows for a maximum of 200 points, and the weight of each question's point value was determined based on the creators' judgment and available research on the importance of each component's impact on the success of health and wellbeing programs ("The HERO Health and Well-Being Best Practices Scorecard," 2017). I chose a ratio scale for each variable because the questions on the HERO scorecard and their alignment with the independent and dependent variables of this study.

The HERO Scorecard was appropriate for this study because the six sections are comprised of questions related to level of workplace wellness engagement, kind of workplace wellness initiatives, and the effectiveness of workplace wellness programs.

The HERO organization also tested the HERO Scorecard through formal statistical analyses on data collected from a convenience sample of 845 organizations that completed it to find that it had validity and reliability (Imboden et al., 2020).

Through the statistical analysis of the HERO Scorecard, validity and reliability were evident, and the same valid and reliable instrument was used in this study. In the statistical analysis, the organization used the ratio of chi-square to degrees of freedom, the comparative fit index, Tucker Lewis index, and the root mean square error of approximation (Imboden et al., 2020). The researchers used a significance of $p < .05$ for all analyses. All domains had sufficient reliability that ranged from .74 to .85 (Imboden et al., 2020). The researchers confirmed a need for a four-factor exploratory model due to the confirmatory factor analysis, and the four factors implemented were organizational and leadership support, program comprehensiveness, program integration, and incentives. According to Imboden et al. (2020), fit statistics for the four factors confirmatory factor analysis were acceptable ($x2$ [246] ¼ 958.28, comparative fit index ¼ .855, the goodness of fit index¼ .825, root mean square error of approximation ¼ .084). The factor loadings ranged from 0.46 to 0.91, with alphas for each factor ranging from .75 to .86, and the correlations between the factors ranging from .33 to .69. Based on the results from testing the validity and reliability of the HERO Scorecard, the effects were statistically significant.

Imboden et al. (2020) found statistically significant effects on perceived effectiveness for all four implemented practices. The most substantial effect the researchers found was for organizational and leadership support. Incentives had the

subsequent most substantial effect, followed by program comprehensiveness and integration (Imboden et al., 2020). Since there is a strong basis that the HERO Scorecard provides valid and reliable results, I determined that this instrument was optimal for this study.

Data Collection Technique

The data for level of workplace wellness engagement, kind of workplace wellness initiatives, and the effectiveness of workplace wellness programs computed and reported by the HERO organization by gathering the data from the HERO scorecard Version 4 from 2016 to 2020 for each of the 146 cases formed the population and the sample of the study. Because I used secondary data, there was not a need to use data collection approaches. The performance of a pilot study was not required for the present research study because the data are from a secondary source that is a trustworthy research organization. I will not personally store data because they will be housed on the organizations internal systems that I will gain access to through an internship program with the organization.

Data Analysis

The research question for this study is as follows: What is the relationship between level of workplace wellness engagement level, kind of workplace wellness initiatives, and the effectiveness of workplace wellness programs? The hypotheses were as follows:

H_0: There is no statistically significant relationship between workplace wellness engagement level, kind of workplace wellness initiative, and the effectiveness of

workplace wellness programs.

H_1: There is a statistically significant relationship between workplace wellness engagement level, kind of workplace wellness initiative, and the effectiveness of workplace wellness programs.

I used a multiple regression analysis of the data from the independent and dependent variables through IBM SPSS software Version 28 for Windows. I chose a ratio scale for each variable due to questions on the HERO scorecard and their alignment with the variables. In addition, I implemented data cleaning strategies.

When a researcher checks data for outliers, accuracy, validity, and generalization, it is referred to as data cleaning (Yasar et al., 2019). To implement data cleaning strategies in this study, all participants must have completed the entire scorecard to submit it to the HERO organization; however, some organizations completed the scorecard multiple times. If an organization completed the scorecard more than once, I only used the data from the most recent completion for that organization. Previous scorecard data from that organization was not included in the dataset.

With multiple regression analysis, researchers can test relationships between two or more independent variables with a dependent variable (Pederson, 2017). According to Ulgen and Poyrazoglu (2020), a multiple linear regression analysis is easy to understand and interpret. This study included the two independent variables (level of workplace wellness engagement and kind of workplace wellness initiatives) and the dependent variable (the effectiveness of workplace wellness programs). Green and Salkind (2017) suggested using linear regression when there are more than two quantitative variables,

and there is a clear distinction between the independent and dependent variables. Furthermore, in multiple regression analysis, researchers can identify correlations between independent and dependent variables (Pederson, 2017). Because I sought to determine the correlations between the independent variables and the dependent variable, multiple linear regression analysis was the appropriate data analysis tool.

Two-way analysis of variance (ANOVA) and Pearson's correlation coefficient are two additional ways to analyze data. The two-way ANOVA uses averages of group variation and divides cases into multiple levels (Green & Salkind, 2017). The primary purpose of a two-way ANOVA is to measure the influence of two independent variables on the dependent variable (Harring & Johnson, 2018). Pearson's correlation coefficient allows researchers to analyze the degree to which the variables have a linear relationship (Green & Salkind, 2017). Because a two-way ANOVA analysis measures the influence of two independent variables on the dependent variable and Pearson's correlation coefficient only analyzes two variables, multiple linear regression was a better option for the data analysis in my study.

In this study, I evaluated the assumptions of linearity, independence of residuals (errors), normality, homoscedasticity, and multicollinearity. The assumption of linearity requires a linear relationship between independent and dependent variables (Teig et al., 2018). This assumption is tested by using a P-P plot, histogram, and scatter plot. If there is a violation, a researcher should perform bootstrapping (Neiheisel, 2017). A violation of the independence of residuals assumption arises when the distance between the regression line and the data points is unrelated (Pederson, 2017). When this assumption is

violated, researchers can use the Durbin-Watson test to inspect the data point residuals (Pederson, 2017). For the assumption of normality, there is an assumption that there is equal distribution of data throughout the sample population. If a violation occurs, researchers can examine the histogram to verify the data normality, use the Kolmogorov-Smirnov test, or use the Shapiro-Wilk test (Musselwhite & Wesolowski, 2018). The violation of the homoscedasticity arises when the same variance for each independent variable is not present (Yang et al., 2019). This assumption can be assessed by creating a scatter plot diagram in SPSS. Multicollinearity could exist when the study's variables are closely related (Neys, 2017). To evaluate multicollinearity, I viewed the variance inflation factor (VIF). If there was a violation of the multicollinearity assumption, I used the VIF to mitigate errors. If researchers assume data purity, their findings can be misleading (Willes, 2017). Therefore, I examined potential errors and ran appropriate protocols to ensure the accuracy of the data analysis.

A researcher can make inferences about the statistical data when the data have been cleaned and tested for assumptions. Inferential statistics is when a researcher infers the results of the statistical analyses to a larger population (Seaman, 2018). For inferential statistics, I used the probability value (*p* value) and effect sizes. When considering the null hypothesis, I considered a *p* value of <.05 to reject the null hypothesis. For the effect size, I used a medium effect size of .15. The inferences made from the findings in this study were made based on the null hypothesis being rejected. Considering the *p* value, as a researcher, I made inferences on the independent variables predicting the dependent variable.

I used G*Power analysis to determine the appropriate sample size for the multiple linear regression in this study. I used two independent predictor variables and a priori power analysis. I assumed a medium effect size (f = .15) and alpha = .05, with a minimum power of .80 and a maximum power of .99. This resulted in a minimum sample size of 68 to achieve a power of .80, and a maximum sample size of 146 to achieve a power of .99. Therefore, my study used a random sample between 68 and 146 responses from the secondary data set.

Study Validity

Reliability and validity are two constructs used to measure quality (Yin, 2018). According to Heale and Twycross (2015), validity is the accuracy of measurements, while reliability is the accuracy of the instruments. Accurate research for a quantitative study is important because without validity and reliability in a quantitative research study, the information does not have credibility.

Validity can be categorized into internal and external categories. In terms of validity, internal validity and external validity should both be considered. Internal validity is how inferences can be made regarding the causal relationship between two variables, while external validity involves the ability for outcomes to be generalized (Torre & Picho, 2016). Understanding the criteria for testing validity is important for researchers to ensure they choose the right analysis for their data set.

For this study, threats to internal validity were not a concern. If researchers can eliminate viral hypotheses and infer causal relationships among variables without a high risk of error, the study possesses internal validity (Green & Salkind, 2017). Threats to

internal validity can occur at any stage of research (Torre & Picho, 2016). Moreover, for internal validity, researchers focus on the independent variable predicting or causing the dependent variable. Because this study is nonexperimental design (i.e., correlational), threats to internal validity were not a concern.

Researchers who provide reliable inferences on a topic past the current topic context exemplify external validity (DeMonbrun et al., 2017). In this study, I included multiple strategies to ensure external validity including the use of the probability method of sampling. In the probability method, the targeted population members are randomly selected, reducing the possibility for bias (Buchanan et al., 2018). A reduction in the possibility for bias enables strong external validity.

Sample size should be considered when addressing reliability. Reliability is the accuracy of the instruments (Heale & Twycross, 2015). To ensure reliability, I used G*Power to determine the appropriate sample size for this study.

I used the G*Power Version 3.1.9.7 software to determine the optimal sample size for the study. According to G*Power software analysis, the number of respondents required for this survey, according to G*Power software analysis, ranged from 68 to 146. I used an appropriate sample size to mitigate risks to the external validity. An additional measure to reduce threats to external validity is to limit the researcher's influence on participants (Matthay & Glymour, 2020). I used secondary data, so there was no threat regarding researcher influence on participants.

Transition and Summary

The research project was the focus of Section 2. The components of the research project included the purpose statement, the role of the researcher, participants, research method and design, population and sampling, ethical research, data collection instruments, data collection technique, data analysis, and study validity. Section 3 will provide details on the study's findings, implications for social change, and business practices recommendations.

Section 3: Application to Professional Practice and Implications for Change

The purpose of this quantitative correlational study was to examine the relationship between level of workplace wellness engagement, kind of workplace wellness initiatives, and the effectiveness of workplace wellness programs. I collected data from the HERO scorecard Version 4 and calculated scores for questions related to workplace wellness engagement level, kind of workplace wellness initiatives, and the effectiveness of workplace wellness programs. Then, I added the scores of the questions for each unique variable. Next, I used SPSS software Version 28 for Windows to input the data and ran statistical analyses using multiple linear regression. I found that workplace wellness engagement level and the kind of workplace wellness initiatives made a statistically significant contribution to the effectiveness of workplace wellness programs.

Presentation of the Findings

The research question was the following: What is the relationship between workplace wellness engagement level, kind of workplace wellness initiatives, and the effectiveness of workplace wellness programs? I chose a multiple linear regression analysis for this study. The study included the two independent variables (workplace wellness engagement level and kind of workplace wellness initiatives) and the dependent variable (effectiveness of workplace wellness programs). The hypotheses were as follows:

H_0: There is no statistically significant relationship between workplace wellness engagement level, kind of workplace wellness initiatives, and the effectiveness of

workplace wellness programs.

H_1: There is a statistically significant relationship between workplace wellness engagement level, kind of workplace wellness initiatives, and the effectiveness of workplace wellness programs.

Green and Salkind (2017) suggested using linear regression when there are more than two quantitative variables and a clear distinction between the independent and dependent variables. Furthermore, in multiple regression analysis, researchers can identify correlations between independent and dependent variables (Pederson, 2017). Because I sought to determine the correlations between the independent variables and the dependent variable, I chose a multiple linear regression analysis as the optimal statistical test for the beforementioned hypotheses.

Assumptions

I evaluated the assumptions of linearity, independence of residuals (errors), normality, homoscedasticity, and multicollinearity. The assumption of linearity requires a linear relationship between independent and dependent variables (Teig et al., 2018). A violation of the independence of residuals assumption arises when the distance between the regression line and the data points is unrelated (Pederson, 2017). For the assumption of normality, there is an assumption that there is equal distribution of data throughout the sample population. The violation of homoscedasticity arises when the same variance for each independent variable is not present (Yang et al., 2019). Multicollinearity could exist when the study's variables are closely related (Neys, 2017). If researchers assume data

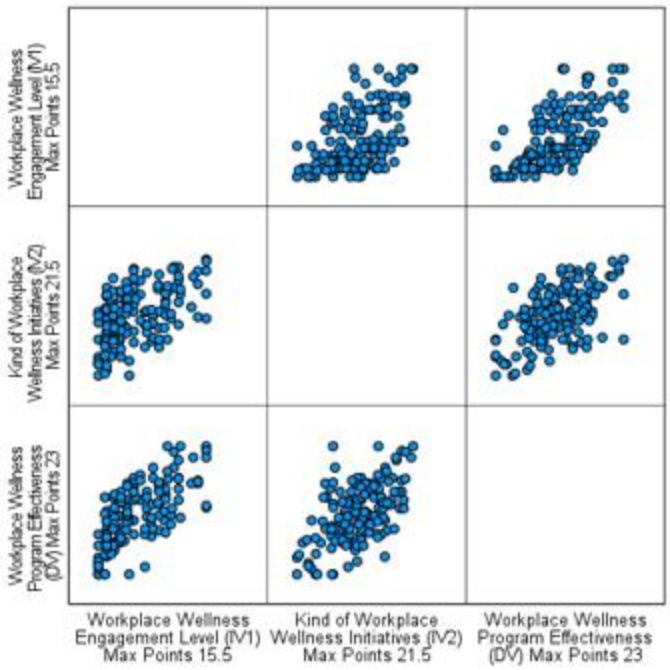
purity, their findings can be misleading (Willes, 2017). Therefore, I examined potential errors and ran appropriate protocols to ensure the accuracy of the data analysis.

Linearity

The assumption of linearity requires a linear relationship between independent and dependent variables (Teig et al., 2018). This assumption is tested by using a scatter plot. If there is a violation, a researcher should perform bootstrapping (Neiheisel, 2017). To test for linearity, I looked at the scatter plots to determine whether there was a linear relationship between each independent variable and the dependent variable (see Figure 3). There was a clear linear relationship between each independent variable and dependent variable. Therefore, there was no violation, and bootstrapping was not required.

Figure 3

Scatter Plot of Linearity Between Variables



Independence of Residuals (Errors)

A violation of the independence of residuals assumption arises when the distance between the regression line and the data points is unrelated (Pederson, 2017). When this assumption is violated, researchers can use the Durbin-Watson test to inspect the data point residuals (Pederson, 2017). To test for the independence of residuals, I checked the scatter plot for a pattern and long runs of positive or negative residuals. The scatter plot did not show a pattern or any long runs of positive or negative residuals (see Figure 4). According to the Durbin-Watson test, a value between 0 and .4 indicates the independence of residuals. The value was 1.653; therefore, the data met the assumption of independence of residuals (see Table 2).

Figure 4

Scatter Plot of Residuals

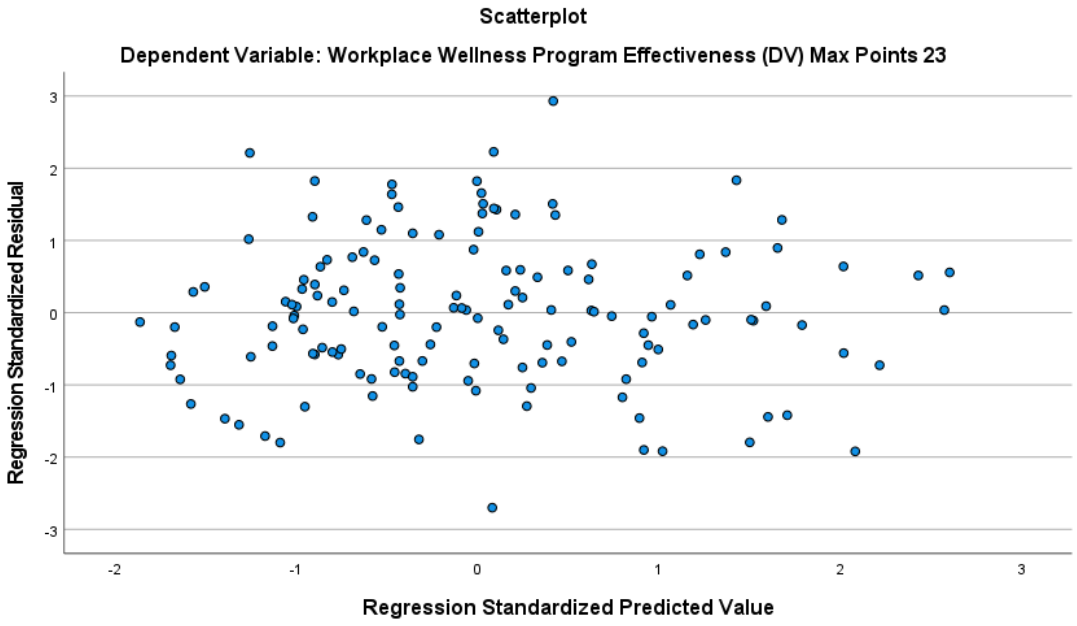


Table 2

Durbin-Watson Test Model Summary

		Change Statistics		
F Change	*df*1	*df*2	Sig. *F* Change	Durbin-Watson
85.482	2	143	<.001	1.653

Normality

For the assumption of normality, there is an assumption that there is equal distribution of data throughout the sample population. If a violation occurs, researchers can examine the histogram, use the Kolmogorov-Smirnov test, or use the Shapiro-Wilk test to verify the data normality (Musselwhite & Wesolowski, 2018). Although the

histogram did not exactly show a normal distribution (see Figure 5), the Kolmogorov-Smirnov test (see Table 3), Shapiro-Wilk test (see Table 3), and Q-Q plot (see Figure 6) showed normal distribution. The Kolmogorov-Smirnov test result was .2, which was not statistically significant, indicating that the assumption of normality was met. Similarly, the Shapiro-Wilk test result was .226, which was not statistically significant, indicating that the assumption of normality was met. Based on the findings from the Shapiro-Wilk test, the Kolmogorov-Smirnov test, and the Q-Q plot, the assumption of normality was determined to have been met.

Figure 5

Histogram

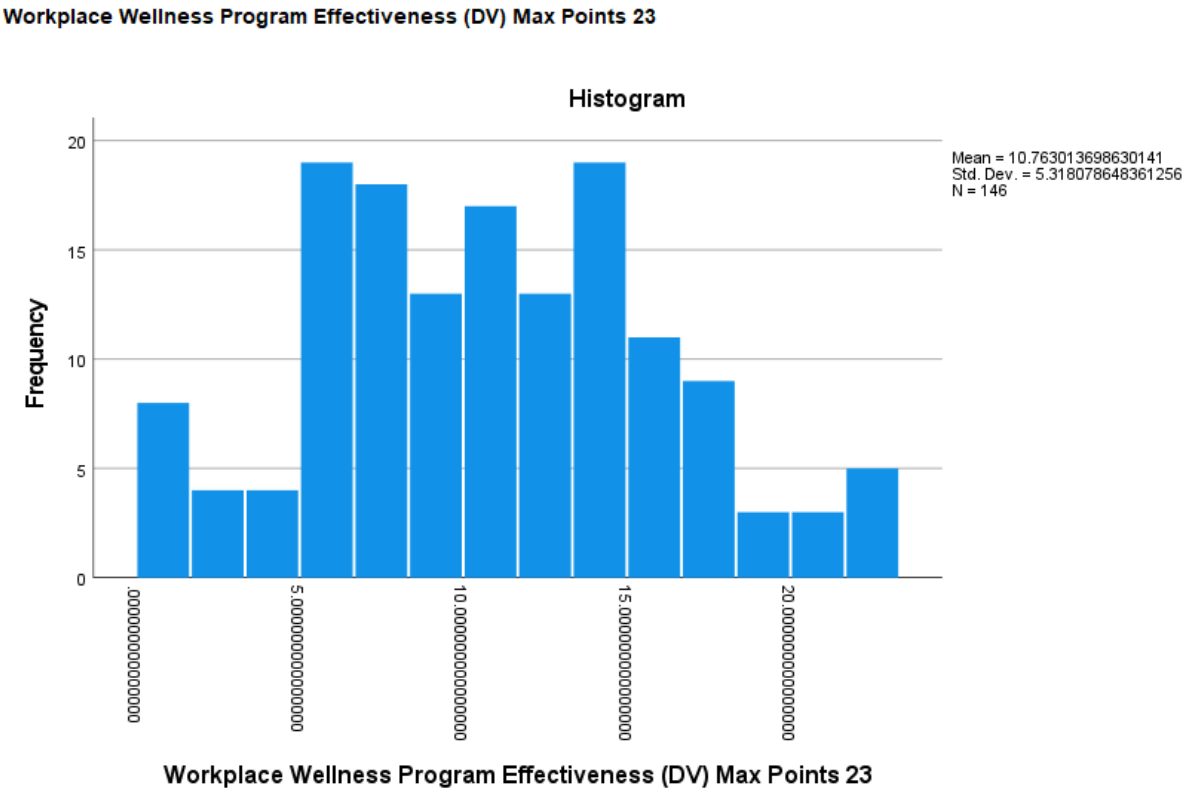


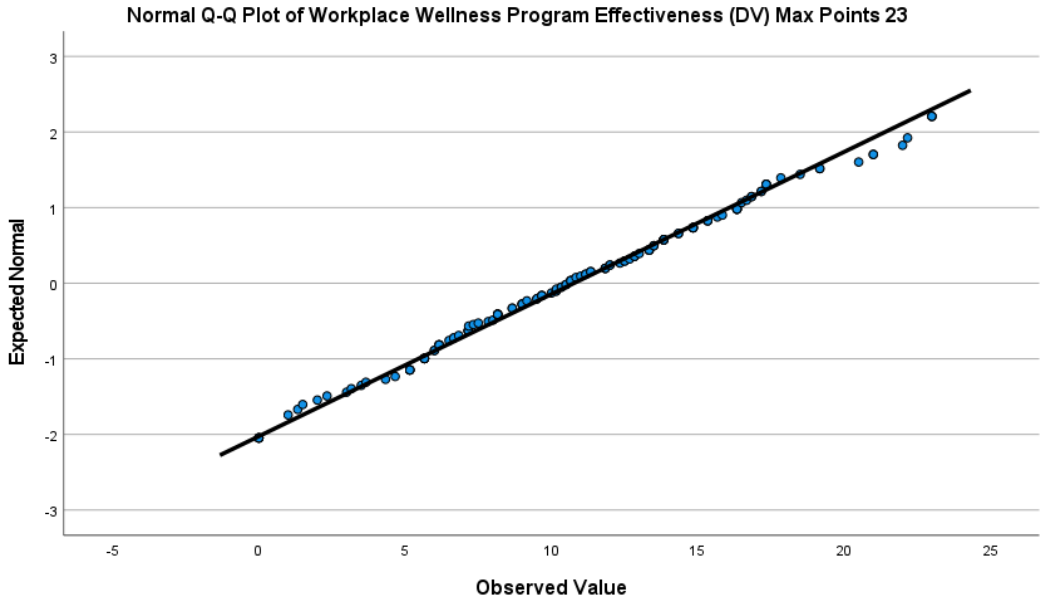
Table 3

Test of Normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	*df*	Sig.	Statistic	*df*	Sig.
Workplace wellness Program effectiveness	.051	146	.200	.988	146	.226

Figure 6

Q-Q Plot



Homoscedasticity

The violation of homoscedasticity arises when the same variance for each independent variable is not present (Yang et al., 2019). This assumption can be assessed by creating a scatter plot diagram in SPSS (see Figure 4). Multicollinearity could exist when the study's variables are closely related (Neys, 2017). Based on the scatter plot

results, the data met the assumption of homoscedasticity because they were scattered and did not create a pattern.

Multicollinearity

Multicollinearity could exist when the study's variables are closely related (Neys, 2017). To evaluate multicollinearity, I used the variance inflation factor (VIF). A VIF of 10 or higher would signify that the assumption of multicollinearity is not met (Glen, 2015). The VIF for the variables in this study was 1.329; therefore, the assumption of multicollinearity was met (see Table 4).

Table 4

Variance Inflation Factor

Variable	Variance Inflation Factor (VIF)
Workplace wellness engagement level	1.329
Kind of workplace wellness initiative	1.329

Dependent variable: Workplace wellness program effectiveness

Descriptive Statistics

The analyzed data included scores from 146 responses of the HERO scorecard Version 4 completed prior to 2021. The data were obtained from organizations ranging in size from 1 employee to 65,000 employees. Table 5 presents the study variables' descriptive statistics, including the mean and standard deviation for the sample of 146 responses. As seen in Table 5, the mean score for workplace wellness engagement level was 5.40 with a standard deviation of 4.22, the mean score for kind of workplace

wellness initiatives was 10.89 with a standard deviation of 4.80, and the mean score for workplace wellness program effectiveness was 10.76 with a standard deviation of 5.32. The mean scores for each variable indicated the average scores from the responses on the questions in the HERO Scorecard that were used to measure that variable. The larger the standard deviation was from the mean, the more spread out from the mean the scores for that variable were. The mentioned scores for each variable showed that workplace wellness engagement level, with the lowest standard deviation, had scores more consistent with the mean than the scores from the other two variables. Workplace wellness program effectiveness had the largest standard deviation, indicating less consistent scores with the mean for that variable than the scores for the other two variables.

Table 5

Descriptive Statistics

Variable	Mean	Standard Deviation
Workplace wellness engagement level	5.40	4.22
Kind of workplace wellness initiative	10.89	4.80
Workplace wellness program effectiveness	10.76	5.32

Note. $N = 146$.

Inferential Statistics

For the multiple linear regression, the *F* statistic tests the significance of the entire regression. At an $\alpha = .05$ (two-tailed), with an *F* statistic of 85.482, this regression was statistically significant because the *p* value was < .001 (see Table 6). Based on the *F* statistic, the regression was statistically significant, meaning it rejected the null hypothesis that there is no statistically significant relationship between workplace

wellness engagement level, kind of workplace wellness initiatives, and the effectiveness of workplace wellness programs. Because the sample size was large at 146 (to achieve a power of .99) and there were only two independent variables, the R^2 was appropriate rather than the adjusted R^2. An R^2 of .545 meant that the regression explained 54.5% of the total variation in the dependent variable. The multiple regression formula where workplace wellness engagement level is abbreviated as WWEL, kind of workplace wellness initiatives is abbreviated as KWWI, and workplace wellness program effectiveness is abbreviated as WWPE, produces the model of WWPE = (.685)WWEL + (.331)KWWI + 3.465. The model (see Table 6) significantly predicted workplace wellness program effectiveness: $F(2, 143) = 85.482$, $p = <.001$, $R^2 = .545$. The R^2 (.545) value indicated 54.5% of variations in workplace wellness program effectiveness was accounted for by the linear combination of variables. Workplace wellness engagement level and kind of workplace wellness initiatives were statistically significant with workplace wellness engagement level ($t = 8.342$, $p = < .001$, $\beta = .543$) accounting for a higher contribution to the model than kind of workplace wellness initiatives ($t = 4.584$, $p = < .001$, $\beta = .298$; see Table 7).

Table 6

ANOVA and Model Summary

	α	*F*	*p* value	R^2
Regression	.05	85.482	<.001	.545

The unstandardized β numbers were used in the regression analysis equation. The standardized coefficients of β standardized the contributions of the variables to allow for

comparison so that the variances of the dependent and independent variables are equal to 1 (Van Ginkel, 2020). A higher standardized coefficient of β indicates a stronger effect. Therefore, the contribution of workplace wellness engagement level was much greater at .543 than that of kind of workplace wellness initiatives at .298. The *p*-values of < .001 show statistical significance for workplace wellness engagement level and kind of workplace wellness initiative. The greatest unique contribution was to workplace wellness engagement level. Workplace wellness engagement level and kind of workplace wellness initiatives significantly contributed to a change in the workplace wellness program effectiveness. The coefficients proved that each of the independent variables contributed meaningful information in the prediction of the dependent variable (see Table 7).

Table 7

Coefficients

Variable	Unstandardized β	Standardized β	*t*	*p* value
Workplace wellness engagement level	.685	.543	8.342	< .001
Kind of workplace wellness initiative	.331	.298	4.584	< .001

The model significantly predicted workplace wellness program effectiveness: $F(2, 143) = 85.482$, $p = <.001$, $R^2 = .545$. The R^2 (.545) value indicated 54.5% of variations in workplace wellness program effectiveness was accounted for by the linear combination of variables. Workplace wellness engagement level and kind of workplace wellness initiatives were statistically significant with workplace wellness engagement level (*t* =

8.342, $p = < .001$, $\beta = .543$) accounting for a higher contribution to the model than kind of workplace wellness initiatives ($t = 4.584$, $p = < .001$, $\beta = .298$).

Theoretical Discussion of the Findings

This study's findings extend the knowledge of the relationship between workplace wellness engagement level, kind of workplace wellness initiatives, and workplace wellness program effectiveness by answering the research question: What is the relationship between workplace wellness engagement level, kind of workplace wellness initiatives, and the effectiveness of workplace wellness programs? The study results indicated that the relationship between workplace engagement level and workplace wellness program effectiveness is statistically significant, and the relationship between kind of workplace wellness initiatives and workplace wellness program effectiveness is statistically significant.

The multiple linear regression model results demonstrated that the workplace wellness engagement level and kind of workplace wellness initiatives components were statistically significant ($p = < .001$) in workplace wellness program effectiveness. This study aligns with Bailey et al. (2018) and Clack and Fraser (2019), suggesting that workplace wellness engagement level and kind of workplace wellness initiatives predict workplace wellness program effectiveness.

The theory of planned behavior was the framework for this study. My goal in selecting this theory was to examine an individuals' likelihood to engage in a specific health behavior based on their decisions and intentions. The three components of the theory of planned behavior are perceived behavioral control, subjective norms, and

attitude (Ajzen, 1991). Perceived behavioral control involves the ease or difficulty perceived by an individual about a specific behavior (Tornikoski & Maalaoui, 2019). Subjective norms are defined as the perceived social pressure related to a specific behavior (Tornikoski & Maalaoui, 2019). Attitude refers to the degree to which an individual has a favorable or unfavorable attitude toward a specific behavior (Tornikoski & Maalaoui, 2019). Each component of the theory of planned behavior relates to a variable of this study. The kind of workplace wellness initiatives that employers choose is dependent on perceived behavioral control or the belief that the organization will or will not be successful with performance in the kind of workplace wellness initiative chosen. For workplace wellness, company culture is the main component of subjective norms. Company culture could contribute to this concept of subjective norms because individuals could choose to engage in behavior based on the influence they receive from others. Attitude could impact behavioral intentions. Therefore, attitude could play an integral role in the effectiveness of workplace wellness programs.

Workplace Wellness Engagement Level

Clack and Fraser (2019) found that the number of workplace wellness initiatives offered did not equate to more positive health outcomes; however, employee engagement in the programs did. The recent literature by Bailey et al. (2018) and Clack and Fraser and the findings from this study align with the idea that workplace wellness engagement level predicts workplace wellness program effectiveness. In contrast to recent literature by Clack and Fraser, the findings from this study also determined that the kind of workplace wellness initiatives predict workplace wellness program effectiveness.

Kind of Workplace Wellness Initiative

To examine this independent variable, I analyzed the number of workplace wellness initiatives offered and the type of workplace wellness initiatives offered through the responses to the questions in the HERO scorecard. Recent research by Clack and Fraser (2019) and Grossmeier and Johnson (2020) suggested that workplace wellness program engagement level predicts workplace wellness program effectiveness at a higher level than the kind of workplace wellness initiatives. Research by Clack and Fraser and Grossmeier and Johnson aligns with the current study because this study found that workplace wellness engagement level contributed to workplace wellness program effectiveness at a much higher level than the kind of workplace wellness initiatives. However, this study showed a statistically significant result that the kind of workplace wellness initiatives predicts workplace wellness program effectiveness. Recent research by Balk-Moller et al. (2019) and Jones et al. (2019) shows conflicting results related to the kind of workplace wellness initiatives predicting workplace wellness program effectiveness.

Effectiveness of Workplace Wellness Programs

Many factors could determine the effectiveness of workplace wellness programs and understanding an organization's desired outcomes could be vital in defining what an effective workplace wellness program is for that organization. Cheon et al. (2020), Goetzel et al. (2020), and Rucker (2017) demonstrated conflicting results in the literature on the ability of workplace wellness programs to produce cost savings to be effective. To mitigate the differences in what makes a program successful for different organizations,

the questions from the instrument used for this study allow an organization to identify effectiveness on their terms. Workplace wellness program effectiveness could be measured differently by workplace wellness program managers; however, most research demonstrated that effective workplace wellness programs improve operational expenses (Balk-Moller et al., 2017; Gingerich et al., 2018; Goetzel et al., 2020; Rucker, 2017). Based on the objectivity of the questions in the instrument, this study could provide a basis for researchers to mitigate conflicting results by implementing other factors (i.e., workplace wellness engagement level and kind of workplace wellness initiatives) that predict workplace wellness program effectiveness.

Analysis and Interpretation of Findings

The multiple linear regression performed confirmed that workplace wellness engagement level and the kind of workplace wellness initiatives made a statistically significant contribution to the effectiveness of workplace wellness programs. The findings from this study align with research by Clack and Fraser (2019) and Grossmeier and Johnson (2020) on workplace wellness engagement level because this study determined that workplace wellness engagement level predicts workplace wellness program effectiveness. In contrast to research by Balk-Moller et al. (2019) and Jones et al. (2019), the findings from this study also determined that the kind of workplace wellness initiatives predict workplace wellness program effectiveness.

Applications to Professional Practice

For a workplace wellness program to be effective, it must produce behavior change to benefit organizational costs. Geist and Cass (2018), Gingerich et al. (2018),

and Goetzel et al. (2020) suggested that organizations incur significantly higher costs for employees with risk factors associated with blood glucose, obesity, stress, depression, and physical inactivity due to increased health care costs, decreased retention, decreased engagement, lost productivity, absenteeism, and presenteeism. However, there are conflicting results in research on what factors predict effective workplace wellness programs. This study confirms that business leaders can implement effective workplace wellness programs by focusing on workplace wellness engagement and the kind of workplace wellness initiatives. To decrease costs associated with employee health and well-being, business leaders could create effective workplace wellness programs by implementing individual workplace wellness initiatives that employees engage in and produce results.

Implications for Social Change

Based on this study's findings, workplace wellness engagement level and the kind of workplace wellness initiatives selected are essential components for producing effective workplace wellness programs. Effective workplace wellness programs are vital for improving employee health and well-being. The findings from this study provide areas of focus for workplace wellness program managers to successfully implement effective workplace wellness programs.

The implications for social change include the potential for improved health and well-being of the US workforce. When an organization successfully implements effective workplace wellness programs, employees can change their behavior and improve their health. As a result, risk factors for diseases could decrease (Lowensteyn et al., 2019). A

decrease in the mentioned risk factors could improve the health and well-being of the US workforce and produce social change.

Recommendations for Action

This study's findings demonstrated that workplace wellness engagement level and kind of workplace wellness initiatives predict workplace wellness program effectiveness. Based on this study's conclusions, I recommend that organizational leaders focus on implementing effective workplace wellness programs to benefit organizational costs. Additionally, I recommend that workplace wellness program managers emphasize employee engagement in workplace wellness programs and choose the appropriate kind of workplace wellness initiatives to ensure workplace wellness program effectiveness.

I plan to share this study's results in online commentaries through relevant research organizations designed for organizational leaders and workplace wellness program managers. I also plan to share with my network and publish in scholarly journals. Workplace wellness program effectiveness is essential to improving the health and well-being of the US workforce. Sharing the results of this study may help organizational leaders and workplace wellness program managers understand how to implement effective workplace wellness programs.

Recommendations for Further Research

Simply offering a workplace wellness program to employees may not have a positive impact unless employees engage in the workplace wellness program. In this study, I analyzed the relationship between workplace wellness engagement level, kind of workplace wellness initiatives, and workplace wellness program effectiveness. One

limitation of this study was that larger organizations are more equipped to use the instrument due to staffing and heightened focus on workplace wellness programs. My recommendation for future research is to categorize organizational size and perform the same analyses as this study to see if there is a difference between larger and smaller organizations.

The second limitation was that the subjects must be willing to participate voluntarily. Because of this limitation, the entire population may not be represented. The more organizational leaders understand the value of workplace wellness programs, the more likely they will be to participate in completing questionnaires like the HERO scorecard voluntarily. Based on this limitation, my recommendation for future research is that workplace wellness program researchers share results through relevant channels to create more awareness for organizational leaders.

Additionally, since workplace wellness engagement level was the strongest predictor of workplace wellness program effectiveness, I recommend future studies that analyze factors that could impact workplace wellness engagement level. Based on the recent research, I would recommend examining if variables such as leadership support, work environment, and organizational strategy could predict higher workplace wellness engagement levels.

Reflections

I began my DBA journey to expand on my passion for workplace wellness. Throughout the process, I developed an appreciation for the impact that academic literature can have on business. The process has been enlightening. Based on my

experience with workplace wellness programs, I was excited to contribute to developing more research in a field where research is lacking. Prior to completing my doctoral study, I worked with clients on workplace wellness programs for over 10 years and recognized that my experience could create biases. For the data collection process in this study, I chose to use secondary data from the HERO organization because they are a reputable workplace wellness organization; this helped mitigate personal biases related to the topic and participants that could be present in collecting the data myself. In working to mitigate biases, I expanded my personal and professional network. Initially, I was worried that the potential biases would hinder my research. However, I learned the appropriate strategies to mitigate risks and implemented those strategies into my research. I also believe that my experience enabled me to choose the appropriate variables so that my study would impact the field of workplace wellness programs.

Conclusion

Workplace wellness engagement level and the kind of workplace wellness initiatives offered are vital to workplace wellness program effectiveness. Effective workplace wellness programs benefit organizational costs by lowering risks associated with chronic conditions. This study focused on the relationship between workplace wellness engagement level, kind of workplace wellness initiatives, and workplace wellness program effectiveness. This study demonstrated that workplace wellness engagement level and kind workplace wellness initiatives predict workplace wellness program effectiveness. Applying the findings of this study to professional practice could help organizational leaders and workplace wellness program managers create effective

workplace wellness programs by implementing individual workplace wellness initiatives that employees engage in and produce results. Organizational leaders could positively contribute to social change by implementing effective workplace wellness programs that could improve the health and well-being of the U.S. workforce.

References

Adams, J. M. (2018). The value of wellness. *Public Health Reports*, *133*, 127–129. https://doi.org/10.1177/0033354918754543

Ahmetoglu, G., Akhtar, R., Tsivrikos, D., & Chamorro-Premuzic, T. (2018). The entrepreneurial organization: The effects of organizational culture on innovation output. *Consulting Psychology Journal: Practice and Research*, *70*(4), 318–338. https://doi.org/10.1037/cpb0000121

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-t

Alabdulla, M., Reagu, S. M., Al-Khal, A., Elzain, M., & Jones, R. M. (2021). COVID-19 vaccine hesitancy and attitudes in Qatar: A national cross-sectional survey of a migrant-majority population. *Influenza and Other Respiratory Viruses*, *15*(3), 361–370. https://doi-org.ezp.waldenulibrary.org/10.1111/irv.12847

Alexander, R., & Fry, A. (2019). Strategic design and the future of work-and-wellness. *Design for Health*, *3*(1), 135–154. https://doi.org/10.1080/24735132.2019.1584024

Bailey, M. M., Coller, R. K., & Pollack Porter, K. M. (2018). A qualitative study of facilitators and barriers to implementing worksite policies that support physical activity. *BMC Public Health*, *18,* Article 1145. https://doi.org/10.1186/s12889-018-6045-x

Balk-Moller, N. C., Larsen, T. M., & Holm, L. (2017). Experiences from a web- and app-based workplace health promotion intervention among employees in the social and health care sector based on use-data and qualitative interviews. *Journal of Medical Internet Research*, *19*(10). https://doi.org/10.2196/jmir.7278

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*(2), 191–215. https://doi.org/10.1037/0033-295X.84.2.191

Bandura, A., Adams, N. E., Hardy, A. B., & Howells, G. N. (1980). Tests of the generality of self-efficacy theory. *Cognitive Therapy and Research*, *4*(1), 39–66. https://doi.org/10.1007/BF01173354#page-1

Banerjee, S., & Ho, S. S. (2020). Applying the theory of planned behavior: Examining how communication, attitudes, social norms, and perceived behavioral control relate to healthy lifestyle intention in Singapore. *International Journal of Healthcare Management*, *13*, 496–503. https://doi.org/10.1080/20479700.2019.1605687

Betz, N. (2006). Self-efficacy. *Encyclopedia of Career Development*, 720–722. https://www.doi.org/10.4135/9781412952675.n251

Blakeslee, J. R. (2020). Effects of high-fidelity simulation on the critical thinking skills of baccalaureate nursing students: A causal-comparative research study. *Nurse Education Today*, *92*, 104494. https://doi.org/10.1016/j.nedt.2020.104494

Bloomfield, J., & Fisher, M. J. (2019). Quantitative research design. *Journal of Australasian Rehabilitation Nurses' Association (JARNA)*, *22*(2), 27–30.

https://doi.org/10.33235/jarna.22.2.27-30

Britta, B., Botero, I. C., & Fediuk, T. A. (2014). Incumbent decisions about succession transitions in family firms: A conceptual model. *International Journal of Financial Studies*, *2*(1), 335–358. https://doi.org/10.3390/ijfs2040335

Buchanan, A. L., Hudgens, M. G., Cole, S. R., Mollan, K. R., Sax, P. E., Daar, E. S., Adimora, A. A., Eron, J. J., & Mugavero, M. J. (2018). Generalizing evidence from randomized trials using inverse probability of sampling weights. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, *181*(4), 1193–1209. https://doi.org/10.1111/rssa.12357

Centers for Disease Control and Prevention. (2016, April 01). *Worker productivity measures.* https://www.cdc.gov/workplacehealthpromotion/model/evaluation/productivity.html

Cheng, O., Ying Yam, C., Cheung, N., Lee, P., Ngai, M., & Lin, C. (2019). Extended theory of planned behavior on eating and physical activity. *American Journal of Health Behavior*, *43*(3), 569–581. https://doi.org/10.5993/AJHB.43.3.11

Cheon, O., Naufal, G., & Kash, B. A. (2020). When workplace wellness programs work: Lessons learned from a large employer in Texas. *American Journal of Health Education*, *51*(1), 31–39. https://doi.org/10.1080/19325037.2019.1687366

Clack, L., & Fraser, W. (2019). An examination of the impact of workplace wellness programs on health outcomes in the U.S. versus European countries. *Journal of Organizational Psychology*, *19*(4), 66–72.

Conn, V. S. (2017). Don't rock the analytical boat: Correlation is not causation. *Western Journal of Nursing Research*, *39*(6), 731–732. https://doi.org/10.1177/0193945917701090

Connelly, L. M. (2014). Ethical considerations in research studies. *Medsurg Nursing: Official Journal of the Academy of Medical-Surgical Nurses*, *23*(1), 54–55.

Cumyn, A., Ouellet, K., Côté, A. M., Francoeur, C., & St-Onge, C. (2019). Role of researchers in the ethical conduct of research: A discourse analysis from different stakeholder perspectives. *Ethics & Behavior*, *29*(8), 621–636. https://doi.org/10.1080/10508422.2018.1539671

Davies, C., & Fisher, M. (2018). Understanding research paradigms. *Journal of the Australasian Rehabilitation Nurses' Association (JARNA)*, *21*(3), 21–25.

DeMonbrun, M., Finelli, C., Prince, M., Barrego, M., Shekhar, P., & Waters, C. (2017). Creating an instrument to measure student response to instructional practices. *Journal of Engineering Education*, *106*, 273–298. https://doi.org/10.1002/jee.20162

Edmonds, W. A., & Kennedy, T. D. (2017). *An applied guide to research designs: Quantitative, qualitative, and mixed methods* (2nd ed.). Sage Publications. https://doi.org/10.4135/9781071802779

Emerson, R. W. (2021). Convenience sampling revisited: Embracing its limitations through thoughtful study design. *Journal of Visual Impairment & Blindness*, *115*(1), 76–77. https://doi.org/10.1177/0145482X20987707

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction*

to theory and research. Addison-Wesley.

Fleming, H. (2020). Navigating workplace wellness programs in the age of technology and big data. *Journal of Science Policy & Governance. 17*(1). https://doi.org/10.38126/JSPG170104

Geist, M. J., & Cass, C. (2018). Health and wellness innovation embedded in an international study abroad experience. *Transformative Dialogues: Teaching & Learning Journal, 11*(3), 1–7.

Gibson, T. B., Maclean, J. R., Carls, G. S., Moore, B. J., Ehrlich, E. D., Fener, V., Goldberg, J., Mechanic, E., & Baigel, C. (2017). Engagement in health and wellness: An online incentive-based program. *Preventive Medicine Reports, 7*, 86–90. https://doi.org/10.1016/j.pmedr.2017.05.013

Gingerich, S. B., Seaverson, E. L. D., & Anderson, D. R. (2018). Association between sleep and productivity loss among 598,676 employees from multiple industries. *American Journal of Health Promotion, 32*(4), 1091–1094. https://doi.org/10.1177/0890117117722517

Glen, S. (2015). Variance Inflation Factor. https://www.statisticshowto.com/variance-inflation-factor/

Goetzel, R. Z., Henke, R. M., Head, M. A., Benevent, R., & Rhee, K. (2020). Ten modifiable health risk factors and employees' medical costs-an update. *American Journal of Health Promotion, 34*(5), 490–499. https://doi.org/10.1177/0890117120917850

Green, S. B., & Salkind, N. J. (2017). Using SPSS for Windows and Macintosh: Analyzing and understanding data (8th ed.). Pearson Education Unlimited.

Grossmeier, J., Calitz, C., Pham, K., Lang, J. E., Mummert, A., Roemer, E. C., Kent, K. B., Koffman, D. M., Goetzel, R. Z., Rosenbaum, E., Imboden, M., Noeldner, S., Martin, S., Picarella, R., & Pitts, J. S. (2020). The art of health promotion: linking research to practice. *American Journal of Health Promotion*, *34*(3), 316–332. https://doi.org/10.1177/0890117119898026

Grossmeier, J., Castle, P. H., Pitts, J. S., Saringer, C., Jenkins, K. R., Imboden, M. T., Mangen, D. J., Johnson, S. S., Noeldner, S. P., & Mason, S. T. (2020). Workplace well-being factors that predict employee participation, health and medical cost impact, and perceived support. *American Journal of Health Promotion*, *34*(4), 349–358. https://doi.org/10.1177/0890117119898613

Grossmeier, J., & Johnson, S. S. (2020). Factors driving exemplary workplace health and well-being initiatives. *American Journal of Health Promotion*, *34*(1), 105–106. https://doi.org/10.1177/0890117119887857a

Harring, J. R., & Johnson, T. (2018). In Frey, B. (Ed.), *The SAGE encyclopedia of educational research, measurement, and evaluation* (pp. 1733–1736). SAGE Publications. https://doi.org/10.4135/9781506326139

Heale, R., & Twycross, A. (2015). Validity in quantitative studies. *Evidence Based Nursing*, *8*(3), 66–67. http://doi.org/10.1136/eb-2015-102129

Imboden, M. T., Castle, P. H., Johnson, S. S., Jenkins, K. R., Pitts, J. S., Grossmeier, J., Mangen, D. J., Mason, S., & Noeldner, S. P. (2020). Development and validity of

a workplace health promotion best practices assessment. *Journal of occupational and environmental medicine, 62*(1), 18–24. https://doi.org/10.1097/JOM.0000000000001724

Jones, D., Molitor, D., & Reif, J. (2019). What do workplace wellness programs do? Evidence from the Illinois Workplace Wellness Study. *The Quarterly Journal of Economics, 134*(4), 1747–1791. https://doi.org/10.1093/qje/qjz023

Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal, 33*, 692–724. https://doi.org/10.2307/256287

Lewis-Beck, M. S., Bryman, A., & Futing Liao, T. (2004). *The SAGE encyclopedia of social science research methods*. Sage Publications, Inc. https://doi.org/10.4135/9781412950589

Lin, C. W., Mao, T. Y., Huang, Y. C., Sia, W. Y., & Yang, C. C. (2020). Exploring the adoption of Nike+ Run Club app: An application of the theory of reasoned action. *Mathematical Problems in Engineering*, 1–7. https://doi.org/10.1155/2020/8568629

Link, M. (2018). New data strategies: nonprobability sampling, mobile, big data. *Quality Assurance in Education: International Perspective*, *26*(2), 303–314. https://doi/10.1108/QAE-06-2017-0029

Lopez, D., Jaramillo, D., & Arango, D. (2019). Innovation in corporate organizational culture: Diversity, motivation, and organizational pressure as possible realities. *Empresa y Humanismo, 22*(2), 63–85. https://doi.org/10.15582/015.XXII.2.63-85

Lowensteyn, I., Berberian, V., Berger, C., Da Costa, D., Joseph, L., & Grover, S. A. (2019). The sustainability of a workplace wellness program that incorporates gamification principles: Participant engagement and health benefits after 2 years. *American Journal of Health Promotion*, *33*(6), 850–858. https://doi.org/10.1177/0890117118823165

Matthay, E. C., & Glymour, M. M. (2020). A graphical catalog of threats to validity. *Epidemiology*, *31*, 376–384. https://doi/10.1097/ede.0000000000001161

Meyera, F., Ewejeb, G., & Tappinb, D. (2017). Ergonomics as a tool to improve the sustainability of the workforce. *Work: Journal of Prevention, Assessment & Rehabilitation*, *57*(3), 339–350. https://doi.org/10.3233/WOR-172563

Mitchell, L., Amaya, M., Battista, L., Melnyk, B., Andridge, R., & Kaye, G. (2020). Manager support for wellness champions a case study for consideration and practice implications. *Workplace Health & Safety*, *69*(3), 100–108. https://doi.org/10.1177/2165079920952759

Musselwhite, D. J., & Wesolowski, B. C. (2018). Normal distribution. In B. Frey (Ed.), *The SAGE encyclopedia of educational research, measurement, and evaluation* (pp. 1154-1157). SAGE Publications. https://doi.org/10.4135/9781506326139

Neiheisel, J. (2017). Bootstrapping. In M. Allen (Ed.), *The sage encyclopedia of communication research methods* (pp. 107-108). SAGE Publications, Inc, https://doi.org/10.4135/9781483381411.n46

Neys, J. (2017). Multicollinearity. In M. Allen (Ed.). *The Sage encyclopedia of communication research methods* (pp. 1035–1037). SAGE Publications.

https://doi.org/10.4135/9781483381411.n358

O'Connell, C., Shafran, R., Camic, P. M., Bryon, M., & Christie, D. (2020). What factors influence healthcare professionals to refer children and families to paediatric psychology? *Clinical Child Psychology & Psychiatry*, *25*(3), 550–564. https://doi.org/10.1177/1359104519836701

Parkinson, J., David, P., & Rundle, T. S. (2017). Self-efficacy or perceived behavioural control: Which influences consumers' physical activity and healthful eating behaviour maintenance? *Journal of Consumer Behaviour*, *16*(5), 413–423. https://doi.org/10.1002/cb.1641

Pederson, J. R. (2017). Multiple Regression. In M. Allen (Ed.). *The sage encyclopedia of communication research methods* (pp. 1041-1045). SAGE Publications. https://doi.org/10.4135/9781483381411.n360

Perna, L. W., Orosz, K., & Kent, D. C. (2019). The role and contribution of academic researchers in congressional hearings: A critical discourse analysis. *American Educational Research Journal, 56*(1), 111–145. https://doi.org/10.3102/0002831218788824

Rosenbaum, E., Grossmeier, J., Imboden, M., & Noeldner, S. (2020). The HERO health and well-being best practices scorecard in collaboration with Mercer (HERO Scorecard). *American Journal of Health Promotion, 34*(3), 321–323. https://doi.org/10.1177/0890117119898026d

Rothstein, M. A. (2017). Employer wellness programs challenged in court. *Hastings Center Report*, *47*(1), 4–5. https://doi.org/10.1002/hast.673

Rucker, M. R. (2017). Workplace wellness strategies for small businesses. *International Journal of Workplace Health Management, 10*(1), 55–68. https://doi.org/10.1108/IJWHM-07-2016-0054

Rutberg, N., & Bouikidis, C. D. (2018). Focusing on the fundamentals: A simplistic differentiation between qualitative and quantitative research. *Nephrology Nursing Journal, 45*(2), 209–214. Retrieved from https://library.annanurse.org/

Seaman, M. A. (2018). Inferential statistics. In, B. Frey (Ed.), *The SAGE encyclopedia of educational research, measurement, and evaluation* (pp. 818–820). SAGE Publications. https://doi.org/10.4135/9781506326139.n325

Shoaib, F., & Kohli, N. (2017). Employee engagement and goal setting theory. *Indian Journal of Health & Wellbeing*, *8*(8), 877–88.

Solnet, D., Subramony, M., Golubovskaya, M., Snyder, H., Gray, W., Liberman, O., & Verma, R. (2020). Employee wellness on the frontline: An interactional psychology perspective. *Journal of Service Management, 31*(5), 939–952. https://doi.org/10.1108/JOSM-12-2019-0377

Sopow, E. (2020). Aligning workplace wellness with global change: An integrated model. *Journal of Organizational Change Management*, 33(5), 909–923. https://doi.org/10.1108/JOCM-11-2019-0334

Sparks, M. (2018). Keeping up with change—Challenges for the health promotion field. *Health Promotion International*, *33*(3), 373–377. https://doi.org/10.1093/heapro/day044

Sutliffe, J. T., Gardner, J. C., Gorman, M. M., Carnot, M. J., Wetzel, W. S., Fortin, T.,

Sutliffe, C. A., & Adams, A. (2019). Impact of a 6-month micronutrient-dense plant-rich nutrition intervention on health and well-being at the worksite. *Journal of Nutrition and Metabolism*. https://doi.org/10.1155/2019/2609516

Taguchi, N. (2018). Description and explanation of pragmatic development: Quantitative, qualitative, and mixed methods research. *System*, *75*, 23–32. https://doi.org/10.1016/j.system.2018.03.010

Teig, N., Scherer, R., & Nilsen, T. (2018). More isn't always better: The curvilinear relationship between inquiry-based teaching and student achievement in science. *Learning and Instruction*, *56*, 20–29. https://doi.org/10.1016/j.learninstruc.2018.02.006

Terry, P. E. (2019). Workplace health promotion is growing up but confusion remains about what constitutes a comprehensive approach. *American Journal of Health Promotion*, *33*(6), 845–849. https://doi.org/10.1177/0890117119854618

The HERO health and well-being best practices scorecard in collaboration with Mercer. (2017). https://hero-health.org/wp-content/uploads/2017/01/US-Scorecard-V4-writable_1.2017.pdf

Theofanidis, D., & Fountouki, A. (2018). Limitations and Delimitations in the Research Process. *Perioperative Nursing*, *7*(3), 155–163. https://doi.org/10.5281/zenodo.2552022

Tornikoski, E., & Maalaoui, A. (2019). Critical reflections – The theory of planned behaviour: An interview with Icek Ajzen with implications for entrepreneurship

research. *International Small Business Journal: Researching Entrepreneurship*, *37*(5), 536–550. https://doi.org/10.1177/0266242619829681

Torre, D. M., & Picho, K. (2016). Threats to internal and external validity in health professions education research. *Academic Medicine 91*(12), 21 https://doi/10.1097/ACM.0000000000001446

Turner, S. F., Cardinal, L. B., & Burton, R. M. (2017). Research design for mixed methods: A triangulation-based framework and roadmap. Organizational Research Methods, 20(2), 243–267. https://doi.org/10.1177/1094428115610808

Tyrer, S., & Heyman, B. (2016). Sampling in epidemiological research: issues, hazards and pitfalls. *BJPsych Bulletin*, *40*(2), 57–60. https://doi.org/10.1192/pb.bp.114.050203

Ulgen, T., & Poyrazoglu, G. (2020). Predictor analysis for electricity price forecasting by multiple linear regression. *2020 International Symposium on Power Electronics, Electrical Drives, Automation and Motion (SPEEDAM), Power Electronics, Electrical Drives, Automation and Motion (SPEEDAM), 2020 International Symposium On*, 618–622. https://doi.org/10.1109/SPEEDAM48782.2020.9161866

U.S. Department of Health & Human Services, Department of Health, Education, and Welfare. (1979, April). *The Belmont Report.* (DHEW Publication No. (O.S.) 78-0013 and No. (O.S.) 78-0014. https://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/read-the-belmont-report/index.html

Van Ginkel, J. R. (2020). Standardized regression coefficients and newly proposed estimators for R2 in multiply imputed data. *Psychometrika*, *85*(1), 185–205. https://doi.org/10.1007/s11336-020-09696-4

Wenhold, F. A., & White, Z. (2017). Dairy intake-related intentions, attitudes, subjective norms and perceived behavioural control of South African nutrition professionals. *South African Journal of Clinical Nutrition*, *30*(2), 27–33. https://doi.org/10.1080/16070658.2016.1248052

Willes, K. (2017). Data cleaning. In M. Allen (Ed.), *The sage encyclopedia of communication research methods* (pp. 338–339). SAGE Publications, Inc, https://doi.org/10.4135/9781483381411.n126

Xiao, X., & Wong, R. M. (2020). Vaccine hesitancy and perceived behavioral control: A meta-analysis. *Vaccine*, *38*(33), 5131–5138. https://doi.org/10.1016/j.vaccine.2020.04.076

Yang, K., Tu, J., & Chen, T. (2019). Homoscedasticity: An overlooked critical assumption for linear regression. *General Psychiatry*, *32*(5), 1–5. https://doi.org/10.1136/gpsych-2019-100148

Yasar, S., Arslan, A. K., Colak, C., & Yologlu, S. (2019). A developed web-based 85 software can easily fulfill the assumptions of correlation, classification and regression tasks in data processing. *2019 International Artificial Intelligence and Data Processing Symposium (IDAP), Artificial Intelligence and Data Processing Symposium (IDAP), 2019 International*, 1–5. https://doi.org/10.1109/IDAP.2019.8875914

Yazan, B. (2015). Three approaches to case study methods in education: Yin, Merriam, and Stake. *The Qualitative Report, 20*(2), 134–152. https://nsuworks.nova.edu/tqr/vol20/iss2/12/

Yin, R. K. (2018). Case study research and applications: Design and methods (6th ed.). Thousand Oaks, CA: Sage.

Appendix A: HERO Scorecard Questions by Variable

Workplace Wellness Engagement Level (Max Points for Variable 15.5 points)

11. Which of the following describes your leadership's support of health and well-being? Check all that apply. (6.50 points)

- Leadership development includes the business relevance of worker health and wellbeing (0.93 points)
- Leaders actively participate in programs (0.93 points)
- Leaders are role models for prioritizing health and work-life balance (for example, they do not send emails while on vacation, they take activity breaks during the workday, etc.) (0.93 points)
- Leaders publicly recognize employees for healthy actions and outcomes (0.93 points)
- Leaders are held accountable for supporting the health and well-being of their employees (0.93 points)
- Leaders hold their front-line managers accountable for supporting the health and well-being of their employees (0.93 points)
- A senior leader has authority to take action to achieve the organization's goals for employee health and well-being (0.93 points)
- None of the above (0.00 points)

40. Does your health engagement strategy intentionally and primarily focus on increasing employees' "intrinsic motivation" to improve or maintain their health? By this, we mean that

your program and communication strategies focus on increasing the internal value employees associate with health, independent of any direct financial rewards. Some examples of internal value or intangible rewards would be a sense of accomplishment, social involvement, recognition, or a connection to a cause. (5.50 points)

- Yes, using intrinsic motivation as the reward is the primary focus of our engagement strategy (5.50 points)
- No, our program may provide some intrinsic rewards but it's not a primary focus of our engagement strategy (0.00 points)

41. Taken all together, how effective are your program's participation strategies in encouraging employees to participate in programs, monitor their biometrics or activity levels, or take
other action to improve their health? (3.50 points)

- Very effective (3.50 points)
- Effective (2.30 points)
- Not very effective (1.20 points)
- Not at all effective (0.00 points)

Kind of Workplace Wellness Initiatives (Max Points for Variable 21.5 points)

9. Does your organization have any of the following policies relating to employee health and wellbeing? Check all that apply. (8.00 points)

- Allow employees to take work time for physical activity (1.00 points)

- Provide opportunities for employees to use work time for stress management and rejuvenation (1.00 points)
- Support healthy eating choices (for example, by requiring healthy options at company sponsored events) (1.00 points)
- Encourage the use of community resources for health and well-being (for example, community gardens, recreational facilities, health education resources) (1.00 points)
- Tobacco-free workplace or campus (2.00 points)
- Policies promoting responsible alcohol use (1.00 points)
- Support work-life balance (for example, with flex time or job share options) (1.00 points)
- None of the above (0.00 points)

10. Does your company's physical ("built") environment include any of the following? Check all that apply. (6.50 points)

- Healthy eating choices are available and easy to access (for example, healthy options in cafeteria or vending machines, cafeteria design that encourages healthy choices) (1.63 points)
- Physical activity is explicitly encouraged by features or resources in the work environment (such as a gym, walking trails, standing desks) (1.63 points)
- Stress management and mental recovery breaks are supported (for example, with "quiet" areas or gardens) (1.63 points)

- Safety is a priority within the environment (for example, ergonomic design, lighting, safety rails, etc.) (1.63 points)
- None of the above (0.00 points)

24. Does your organization provide any of the following resources to support individuals in managing their overall health and well-being? Check all that apply. (3.50 points)

- Onsite or near-site medical clinic (0.35 points)
- Employee assistance program (EAP) (0.35 points)
- Childcare and/or elder care assistance (0.35 points)
- Initiatives to support a psychologically healthy workforce (for example, resiliency training) (0.35 points)
- Legal or financial management assistance (0.35 points)
- Information about community health resources (0.35 points)
- Health advocacy program (0.35 points)
- Executive health program (0.35 points)
- Medical decision support program (0.35 points)
- Nurse advice line service (0.35 points)
- None of the above (0.00 points)

25. Does your organization offer a disease management (DM) program — whether through the health plan or a specialty vendor — that addresses any of the following conditions? Check all that apply. (Capped at 3.50 points)

- Arthritis (3.50 points)

- Asthma (3.50 points)
- Autoimmune disorders (multiple sclerosis, rheumatoid arthritis, etc.) (3.50 points)
- Cancer (3.50 points)
- Chronic obstructive pulmonary disease (COPD) (3.50 points)
- Congestive heart failure (CHF) (3.50 points)
- Coronary artery disease (CAD) (3.50 points)
- Depression (3.50 points)
- Diabetes (3.50 points)
- Maternity (3.50 points)
- Metabolic syndrome (3.50 points)
- Musculoskeletal/back pain (3.50 points)
- Obesity (3.50 points)
- We don’t offer any DM programs (0.00 points)

Workplace Wellness Program Effectiveness (Max Points for Variable 23 points)

6. To what extent is your health and well-being program viewed by senior leadership as connected to broader business results, such as increased revenue, profitability, overall success and sustainability? (3.00 points)

- To a great extent (3.00 points)
- To some extent (1.50 points)
- Not seen as connected (0.00 points)

7. Taken all together, how effective is the strategic planning process for health and well-being in your organization? (2.50 points)

- Very effective (2.50 points)
- Effective (1.67 points)
- Not very effective (0.83 points)
- Not at all effective (0.00 points)

15. Taken all together, how effective are your current organizational support strategies in promoting the health and well-being of employees? (4.50 points)

- Very effective (4.50 points)
- Effective (3.00 points)
- Not very effective (1.50 points)
- Not at all effective (0.00 points)

27. Taken all together, how effective are your health and well-being programs in promoting a healthier workforce? (4.00 points)

- Very effective (4.00 points)
- Effective (2.67 points)
- Not very effective (1.33 points)
- Not at all effective (0.00 points)

35. Taken all together, to what extent do you think the integration between your health-related vendors or programs contributes to the success of the health and well-being program? (3.00 points)

- Program integration contributes very significantly to success (3.00 points)
- Contributes significantly (2.00 points)
- Contributes somewhat (1.00 points)
- Does not contribute (0.00 points)

60. Taken all together, how effective are your data management and evaluation activities in terms of how they contribute to the success of your organization's health and well-being program? (6.00 points)

- Very effective (6.00 points)
- Effective (4.00 points)
- Not very effective (2.00 points)
- Not at all effective (0.00 points)

Appendix B: HERO Scorecard Data Use Agreement

DATA USE AGREEMENT

This Data Use Agreement ("Agreement"), effective as of (4/5/2022) ("Effective Date"), is entered into by and between (Alicia Dobrzenieski)("Data Recipient") and [redacted] ("Data Provider"). The purpose of this Agreement is to provide Data Recipient with access to a Limited Data Set ("LDS") for use in research in accord with the HIPAA and FERPA Regulations.

1. Definitions. Unless otherwise specified in this Agreement, all capitalized terms used in this Agreement not otherwise defined have the meaning established for purposes of the "HIPAA Regulations" codified at Title 45 parts 160 through 164 of the United States Code of Federal Regulations, as amended from time to time.

2. Preparation of the LDS. Data Provider shall prepare and furnish to Data Recipient a LDS in accord with any applicable HIPAA or FERPA Regulations.

3. Data to be included in the LDS. **No direct identifiers such as names may be included in the Limited Data Set (LDS).** The researcher will not name the Data Provider in the doctoral study that is published in Proquest unless the Data Provider makes a written request for the researcher to do so. In preparing the LDS, Data Provider or designee shall include the **data fields specified as follows**, which are the minimum necessary to accomplish the research: (Responses from the [redacted]corecard V4).

4. Responsibilities of Data Recipient. Data Recipient agrees to:

a. Use or disclose the LDS only as permitted by this Agreement or as required by law;

b. Use appropriate safeguards to prevent use or disclosure of the LDS other than as permitted by this Agreement or required by law;

c. Report to Data Provider any use or disclosure of the LDS of which it becomes aware that is not permitted by this Agreement or required by law;

d. Require any of its subcontractors or agents that receive or have access to the LDS to agree to the same restrictions and conditions on the use and/or disclosure of the LDS that apply to Data Recipient under this Agreement; and

e. Not use the information in the LDS to identify or contact the individuals who are data subjects.

f. Publication using this data (after graduation from Walden University DBA program) will include HERO research staff as co-authors.

g. Data shared will also be used to develop/write a commentary that will be published on [redacted]Scorecard page.

IN WITNESS WHEREOF, each of the undersigned has caused this Agreement to be duly executed in its name and on its behalf.

DATA PROVIDER

Signed: Mary Imbo

Print Name: Mary Imboden

Print Title: Director of Research, [redacted]

DATA RECIPIENT

Signed: [redacted]

Print Name: Alicia Dobrzeniecki

Print Title: Walden University DBA Student