

WEAVER, GRACIELEE M., PH.D. An Examination of the Quality of Workplace Health Promotion Initiatives among U.S. Organizations that Completed the Well Workplace Checklist (WWC) Assessment. (2018)  
Directed by Dr. Daniel L. Bibeau. 88 pp.

Half of all U.S. adults have at least one chronic condition which requires constant self-management. Fortunately, Workplace Health Promotion (WHP) initiatives have the potential to impact more than 129 million full-time employees in the U.S. Although benchmarks have been established to guide the development and implementation of quality WHP initiatives, the prevalence of high-quality WHP initiatives is limited.

This dissertation delves into differences in the quality of WHP initiatives, characteristics associated with varying levels of quality, and changes in quality of WHP initiatives over time. To examine the quality of WHP initiatives among U.S. organizations that completed the checklist from 2008 through 2015, this study uses the Well Workplace Checklist (WWC) data collected by the Wellness Council of America (WELCOA) to assess performance against the WELCOA 7 Benchmarks.

Results indicate distinct profiles of performance against benchmarks that are predicted by the characteristics of organizations. Results also show that organizations which reassess the quality of their WHP initiatives using the WWC across years are likely to improve the performance of their initiatives against quality benchmarks. Thus, continued assessments and tailored supports may be key for improving performance of WHP initiatives against quality benchmarks.

AN EXAMINATION OF THE QUALITY OF WORKPLACE HEALTH PROMOTION  
INITIATIVES AMONG U.S. ORGANIZATIONS THAT COMPLETED THE  
WELL WORKPLACE CHECKLIST (WWC) ASSESSMENT

by

GracieLee M. Weaver

A Dissertation Submitted to  
the Faculty of The Graduate School at  
The University of North Carolina at Greensboro  
in Partial Fulfillment  
of the Requirements for the Degree  
Doctor of Philosophy

Greensboro  
2018

Approved by

---

Committee Chair

APPROVAL PAGE

This dissertation written by GracieLee M. Weaver has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

Committee Chair \_\_\_\_\_

Committee Members \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
Date of Acceptance by Committee

\_\_\_\_\_  
Date of Final Oral Examination

## TABLE OF CONTENTS

	Page
LIST OF TABLES .....	v
LIST OF FIGURES .....	vi
DEFINITION OF KEY TERMS .....	vii
CHAPTER	
I. INTRODUCTION .....	1
Purpose of the Study .....	3
Significance.....	4
II. LITERATURE REVIEW .....	5
Introduction.....	5
History & Evolution of WHP .....	6
Benchmarks for WHP.....	9
Assessing WHP Quality.....	14
Variations in WHP Quality.....	15
Specific Aims.....	16
III. PRELIMINARY METHODS.....	21
Design .....	21
Sample.....	21
Measures .....	22
Analysis.....	24
Limitations .....	29
Summary.....	29
IV. PROFILES OF PERFORMANCE AGAINST QUALITY BENCHMARKS FOR WORKPLACE HEALTH PROMOTION AMONG U.S. ORGANIZATIONS .....	31
Introduction.....	31
Purpose.....	32
Methods.....	33
Sample.....	33

Measures .....	33
Analysis.....	34
Results.....	35
Sample Characteristics.....	35
Latent Profile Analysis .....	38
Logistic Regression Analysis.....	40
Discussion.....	43
Limitations .....	48
Implications.....	48
V. CHANGES IN WORKPLACE HEALTH PROMOTION QUALITY BENCHMARK SCORES FOR U.S. ORGANIZATIONS OVER TIME.....	50
Introduction.....	50
Purpose.....	52
Methods.....	53
Sample.....	53
Measures .....	53
Analysis.....	55
Results.....	55
Sample Characteristics.....	55
Repeated Measures HLM .....	59
Discussion.....	64
Limitations .....	68
Implications.....	68
VI. CONCLUSION.....	70
Key Findings.....	71
Limitations .....	74
Implications.....	75
VII. REFLECTION AND LESSONS LEARNED .....	78
REFERENCES .....	81

## LIST OF TABLES

	Page
Table 1. Benchmarks and Guidelines for Quality Workplace Health Promotion (WHP).....	10
Table 2. Foci of Benchmark Questions.....	18
Table 3. Correlation between Benchmarks .....	25
Table 4. Correlations between Benchmarks and Organizational Characteristics.....	26
Table 5. Characteristics of Organizations (N=3,728).....	36
Table 6. Characteristics of WHP Initiatives for Organizations (N=3,728) .....	37
Table 7. Logistic Regression for Performance Profiles with Organization Characteristics.....	42
Table 8. Total Number of WWC Entries Completed .....	56
Table 9. Number of WWC Entries by Year and Level of Exposure to the WWC (i.e. number of the WWC entry).....	57
Table 10. Sample Characteristics for Organizations at Their First WWC Entry (N=577) .....	58
Table 11. Repeated Measures HLM for Changes in WWC Scores.....	60
Table 12. Repeated Measures HLM for Each of the WWC Benchmark Scores .....	61

## LIST OF FIGURES

	Page
Figure 1. Profiles of Performance Based Upon Average Scores Against Quality Benchmarks .....	39

## DEFINITION OF KEY TERMS

**Health Promotion :** the process of enabling people to improve their health, with a focus on social and environmental interventions in addition to individual behavior

**Workplace Health Promotion :** a multi-level approach to addressing health and health-related behaviors of employees, also commonly referred to as worksite wellness or employee wellness

**Occupational Health and Safety :** controlling workplace hazards to create safe and healthy workplaces for the purpose of reducing risks of injury and illness in the workplace

**Employee Assistance Programs :** programs to address and resolve specific employee issues related to factors that influence job performance (e.g. alcohol use, family, emotional, or financial issues)

**Disease Management :** increasing one's control over intrapersonal chronic disease related issues

**Absenteeism :** days absent from work, not present during expected/scheduled work hours due to illness or family illness

**Productivity :** amount of work that employees produce

**Return-on-investment :** the ratio of financial investment and financial returns (costs vs. savings)

**Value-on-investment :** focus on additional measures of added value, beyond just a financial return (e.g. absenteeism, employee engagement, productivity, recruitment, retention, etc.)



## **CHAPTER I**

### **INTRODUCTION**

Improving population health and reducing health care costs are crucial at a time when half of all U.S. adults have at least one chronic condition (Ward, Schiller, & Goodman, 2014). With 86% of current health care costs being spent on the treatment of chronic conditions – \$700 billion for the treatment of diabetes, heart disease, and cancer alone – interventions aimed at improving health are imperative (Gerteis et al., 2014; CDC, 2018). The treatment of chronic conditions requires patient self-management to adhere to both medication regimens as well as lifestyle behavior changes (Bodenheimer et al., 2002; Fielding, 1984; Osterberg & Blaschke, 2005). Given that working-age adults spend a significant proportion of waking hours at work, the workplace makes for an opportune site to implement interventions aimed at increasing self-management, improving population health, and reducing health care costs. For these reasons, workplaces have become a popular channel for health promotion efforts, offering the opportunity to reach over 129 million full-time employees in the nation (Bureau of Labor Statistics, n.d.).

WHP is a multi-level approach to addressing the health and health-related behaviors of employees within an organization. WHP may include changes to organizational policies, changes in the physical environment within an organization, the creation of an explicit role for wellness coordinators within organizations, or the implementation of health-related programs for employees. Other common terms

sometimes used interchangeably with WHP include worksite wellness or employee wellness; however, this dissertation will use the term WHP. The implementation of quality WHP initiatives is important to health professionals and employees because of the potential to improve health status and quality of life (Mattke et al., 2013; O'Donnell, 2014). Employers are interested in WHP initiatives for a variety of reasons including reducing of health care costs, improving employees' health, and increasing morale, retention, and productivity (Goetzel et al., 2014; O'Donnell, 2014; Weaver et al., 2018). As decision-makers for WHP, employers also have a personal stake in WHP because they bear much of the responsibility for the health care costs of their employees (O'Donnell, 2014; Vesely, 2012). However, research suggests that positive outcomes are more likely with comprehensive and high-quality WHP (Goetzel et al., 2014; Terry et al., 2008). Thus, these benchmarks are indicators of quality WHP initiatives that are expected to lead to outcomes of interest for employers and wellness professionals.

To guide the implementation of quality WHP, several agencies have established sets of quality benchmarks. The Wellness Council of America (WELCOA) established the first set of quality benchmarks for WHP in 1991 using systematic reviews of the literature and interviews with expert researchers, academics, and practitioners. Since then, agencies such as the US Department of Health and Human Services and the Health Enhancement Research Organization (HERO) developed other sets of benchmarks and guidelines. Studies helped to identify quality benchmarks for WHP by examining the characteristics of best-practice WHP initiatives based on the impacts and comprehensiveness of the approach as well as accounting for expert opinions on best

practices in WHP (Chapman, 2004; O'Donnell et al., 1997). The commonalities among more recent quality benchmarks and the WELCOA benchmarks suggest a clear consensus regarding essential components that make up a quality WHP initiative. However, the mere existence of benchmarks and guidelines for quality WHP initiatives have not addressed the lack of organizations providing WHP initiatives.

National surveys have provided a snapshot of the types of organizations that are implementing WHP (Christenson & Kiefhaber, 1988; Grosch et al., 1998; Linnan et al., 2008; Mattke et al., 2013). Of the estimated 50% of organizations that are implementing a WHP initiative (Mattke et al., 2013), only 6% are implementing an initiative of high-quality, based on national guidelines and benchmarks (Linnan et al., 2008; Weaver et al., 2018). Given that high-quality WHP initiatives are scarce, despite the presence of quality benchmarks and national guidelines, it may be particularly important to examine organizations' performance against quality benchmarks and identify factors that could may be related to the quality of WHP initiatives.

### **Purpose of the Study**

The performance of organizations' WHP efforts against quality benchmarks is largely unknown. National surveys highlight the proportion of organizations implementing comprehensive WHP initiatives based upon the Healthy People Guidelines (Linnan et al., 2008). Studies have also been conducted to validate quality assessments (Goetzel et al., 2014; Goetzel et al., 2014; Roemer et al., 2013). However, research has not yet explored the overall quality of WHP initiatives based on benchmark performance nor the evolutions of WHP initiatives as measured by quality benchmarks over time.

With a limited amount of research, it is difficult to discern the applicability and utility of quality benchmarks. Thus, the purpose of this study is to examine the quality of organizations' WHP initiatives against a set of benchmarks.

This study will use WELCOA's Well Workplace Checklist (WWC) data to examine the quality of WHP among a convenience sample of organizations across the nation. These data include over 4,600 entries from over 3,700 organizations across the nation. It is the largest and longest running dataset that assesses the quality of WHP using established benchmarks. These data offer the opportunity to examine organizations' performance against benchmarks, the relationship between the characteristics of organizations and their performance against quality benchmarks, and the development of organizations' WHP quality over time.

### **Significance**

This study will fill a gap in the literature by examining the quality of WHP practices across the nation as well as trends and variations in performance. Upon successful completion of this study, it is expected that researchers and practitioners will better understand the quality of WHP initiatives across different types of organizations and how WHP initiatives may be expected to evolve over time. Researchers and practitioners may be able to (1) estimate the level of WHP quality based upon organizational characteristics and (2) tailor WHP resources to be more context-specific for organizations.

## **CHAPTER II**

### **LITERATURE REVIEW**

#### **Introduction**

For many decades employers and employees have been interested in keeping a healthy and able workforce. Much of the attention for health-related programs in the workplace started out with addressing concerns about safety and injuries during the industrial era (Fertman, 2015). Over time, changes in the nature of work, increasing health care costs, and the rising prevalence of chronic conditions initiated a shift to broaden the focus of health promotion in the workplace.

This need to contain rising health care costs was a major driving force for the national efforts encouraging health promotion in workplaces (Fielding, 1984; Vesely, 2012). As chronic conditions continued to rise in prevalence and costs, studies highlighted the importance of addressing chronic conditions through both medications and lifestyle behavior changes (Fielding, 1984). In response to rising costs and the need to address lifestyle behavior changes, the nation's first health objectives, published in 1980, recommended that health promotion interventions be implemented within worksites (Cottrell et al., 2018).

By the early 1990s, the Wellness Council of America (WELCOA) developed benchmarks to guide the quality of health promotion programs in workplaces. These

benchmarks have been used to assess and recognize high-quality workplace health promotion (WHP) initiatives. However, only a limited amount of research has studied the process and quality for workplace health promotion based upon these benchmarks. Below I will review the recent history and evolution of WHP, describe the development and utility of quality benchmarks, and identify research questions to examine the use of benchmarks in practice and research using the benchmark data collected by WELCOA from 2008 through 2015.

### **History & Evolution of WHP**

Health has been a consideration among employers within organizations for decades. The integration of health within workplaces primarily started out with addressing safety and injury risk prevention. However, the primary focus for addressing health in the workplace shifted to health promotion and prevention by the late 1970s and early 1980s (Fertman, 2015; O'Donnell, 2014). This shift was prompted by increasing health care costs, the rising prevalence of chronic conditions, the public health shift towards a focus on prevention and health promotion, and the potential for WHP initiatives to reach a large population of working-age adults (Fielding, 1984). Also, during this time, employers were responsible for an increasing percentage of health care costs for their employees (O'Donnell, 2014). Since this early evolution of WHP, health professionals continued to encourage the implementation of WHP through national policies and guidelines to improve the health of Americans, as outlined below.

The nation's first set of health objectives recommended workplaces as a channel for health promotion efforts, as detailed in the Surgeon General's Report on Health

Promotion and Disease Prevention in 1980 (Cottrell et al., 2018). In response to this recommendation within the Healthy People Objectives for the nation, the Office for Disease Prevention conducted the first National Workplace Health Promotion Activities Survey to learn more about organizations' WHP practices (Christenson & Kiefhaber, 1988; Goetzel et al., 2007). Results from this national survey corroborated the utility of workplaces as a channel to address population health and encouraged the continued efforts to implement WHP within organizations across the nation (Christenson & Kiefhaber, 1988).

Of the organizations that completed the National Workplace Health Promotion Activities Survey, the most common WHP activities mentioned were smoking cessation, exercise/fitness, back care, stress management, the use of health risk assessments, and off-the-job accident prevention (Christenson & Kiefhaber, 1988). This survey also found that the prevalence of WHP activities were lower for organizations with fewer employees (Christenson & Kiefhaber, 1988). By contrast, large companies such as Johnson & Johnson, Mattel, and Control Data Corporation, were offering multi-level WHP initiatives. Johnson & Johnson became an important leader in the expansion of WHP across the nation when they conducted a study which described the benefits of WHP within their organization (Fielding, 1984; Vesely, 2012).

Seminal shifts in the field of public health influenced the continued expansion of WHP initiatives. Events such as the Ottawa Charter for Health Promotion and the development of the Social Ecological Model (SEM) for health promotion initiated a new movement for the field of public health. These events encouraged public health

professionals to examine the multi-level factors that can influence the health of individuals (DeJoy & Southern, 1993; Stokols, Pelletier, & Fielding, 1996). Thus, community-based interventions that addressed multiple levels across the SEM were implemented and evaluated. An example of this was the Stanford Five-City Project. These interventions, including one which incorporated health promotion programs at both the community and workplace level, demonstrated the effectiveness of community-based interventions guided by the SEM (Allen, 1990).

Health Risk Assessments (HRAs) became commonly used in workplaces in the 1990s (Vesely, 2012), which influenced a broader scope of WHP activities. The use of HRAs led to organizations' development of disease management programs targeted at the most common high-risk conditions experienced by employees (Caldwell, 1997; Vesely, 2012). Although these programs may be useful for increasing knowledge and self-management, they could also be limiting for employees if disease management programs are targeted only towards high-risk conditions (Vesely, 2012).

Along with the continued expansion and scope of WHP, the desirability of WHP also increased. Health care costs continued to rise in the early 1990s, with employer insurance premiums reaching double-digit annual percentage increases (Cottrell et al., 2018; Vesely, 2012). Given these increasing health care costs, the most common reasons for implementing WHP initiatives reported by employers were costs, medical care utilization, and absenteeism (Chapman, 2012). Evaluation studies reported positive impacts on these outcomes of interest among WHP initiatives that were multi-component with rigorous and replicable study designs (Chapman, 2012). Results from these



evaluation studies encouraged continued implementation of WHP initiatives among organizations across the nation and highlighted the need for quality benchmarks.

These fundamental shifts in the fields of public health and WHP in the early 1990s led to the establishment of benchmarks and guidelines which were intended to serve as standards for implementing high-quality WHP initiatives. Since their inception, benchmarks have been used as a guide for developing high-quality WHP initiatives, assessing the quality of WHP, and recognizing high-quality WHP initiatives. Although these benchmarks have been useful for advancing the field of WHP, research related to these benchmarks has been lacking. Research has not yet examined the applicability, relevance, or outcomes associated with these benchmarks for organizations across the nation. Included below is a discussion of the development of quality benchmarks, the assessments associated with benchmarks, and the research needs related to the standards for quality WHP.

### **Benchmarks for WHP**

Benchmarks and guidelines for developing quality WHP initiatives have been established by several organizations such as the Wellness Council of America (WELCOA), the American Productivity and Quality Center (APQC), the Health Enhancement Research Organization (HERO), and the US Department of Health and Human Services (see Table 1). Despite some variations across these sets of benchmarks, there is a consensus regarding many of the components that make up a quality WHP initiative. As the field of WHP has evolved, the guidelines for developing quality WHP initiatives also expanded to provide direction for employers interested in WHP initiatives.

Table 1. Benchmarks and Guidelines for Quality Workplace Health Promotion (WHP).

<b>Organization</b>	<b>Benchmarks / Guidelines</b>	<b>Year</b>	<b>Development Process</b>
Wellness Council of America (WELCOA)	(1) Senior Leader Support, (2) Wellness Teams, (3) Data Collection, (4) Operating Plan, (5) Programming, (6) Supportive Environments, (7) Evaluation	1991	Systematic reviews, expert panel interviews, pilot testing of checklist to assess benchmarks
American Productivity and Quality Center (APQC)	(1) Strong top management support, (2) WHP linked with business objectives, (3) Evaluation component, (4) Supportive environment, (5) Effective communication programs, (6) Incentive programs	1996	Systematic reviews, expert panel interviews, surveys regarding practices, interviews and site visits with “best practice” companies
APQC / MED-STAT	(1) senior management involvement, (2) interdisciplinary wellness teams, (3) identifying a wellness champion(s), (4) engagement of wellness staff, (5) alignment between wellness and overall business strategy, (6) data collection and evaluation, (7) constant communication, (8) an emphasis on improving quality of life, (9) constant commitment to improve WHP, and (10) having fun	1998	Systematic reviews, expert panel interviews, surveys regarding practices, interviews and site visits with “best practice” companies
US Department of Health and Human Services	(1) Health education, (2) Supportive social and physical environments, (3) Integration of WHP into organization’s benefits and human resources, (4) Linking related programs, (5) Health-related screening and education programs	2000	Healthy People 2010 National Worksite Health Promotion Survey
Health Enhancement Research Organization (HERO)	(1) Strategic planning, (2) Leadership engagement, (3) Program-level management, (4) Programs delivered, (5) Engagement methods, (6) Measurement and evaluation	2006	Review of literature, previously established benchmarks, and criteria for WHP recognition awards.

The Wellness Council of America (WELCOA) established one of the first sets of benchmarks for high-quality WHP initiatives. In 1991, WELCOA designated seven benchmarks for quality WHP which were based upon systematic reviews and external expert panel interviews regarding successful, results-oriented WHP initiatives (WELCOA, 2017). The seven benchmarks designated by WELCOA were: (1) senior leader support, (2) wellness teams, (3) data collection, (4) operating plans that integrate wellness, (5) programs to promote health, (6) supportive environments and (7) the evaluation of WHP.

WELCOA then developed the Well Workplace Checklist (WWC) for organizations to assess the quality of their WHP initiatives. The WWC assessment is based upon the WELCOA seven benchmarks. Upon completion of the WWC, organizations receive a report based on their performance against each of those seven benchmarks. Organizations could also submit additional documentation to be considered for an award that acknowledges the quality of their WHP. Both the WWC and Well Workplace Awards continue to be used by organizations that desire to implement high-quality WHP.

In 1996, the American Productivity and Quality Center (APQC) sponsored a benchmarking study to identify its own set of benchmarks to serve as guidelines for quality WHP. This benchmarking study identified and recruited organizations by conducting interviews with experts and examining prior literature that reported characteristics thought to be associated with “best practices” such as excellent communication related to employee health, evidence of performance against outcomes of

interest to employers, and diversity of workplace characteristics. A survey was sent to organizations to determine other common characteristics of these organizations' WHP initiatives (O'Donnell, 1997). The best practices for WHP initiatives identified were: (1) strong top management support, (2) WHP linked with business objectives, (3) evaluation component, (4) supportive environment, (5) effective communication programs, and (6) incentive programs.

The APQC continued these efforts by partnering with other organizations to conduct the Health and Productivity Management (HPM) Consortium Benchmarking Study. This study used surveys, interviews, and site visits to determine best practices. The best practices most common among organizations participating in this study were: (1) senior management involvement, (2) interdisciplinary wellness teams, (3) identifying a wellness champion(s), (4) engagement of wellness staff, (5) alignment between wellness and overall business strategy, (6) data collection and evaluation, (7) constant communication, (8) an emphasis on improving quality of life, (9) constant commitment to improve WHP, and (10) having fun (Goetzel et al., 2001).

By the year 2000, a national effort to establish guidelines for quality WHP was presented within the first Healthy People 2010 objectives. Those guidelines stated that quality WHP initiatives should be comprehensive and include the following components: (1) health education, (2) supportive social and physical environments, (3) integration of the WHP into the organization's benefits and human resources infrastructure, (4) linking related programs such as employee assistance programs (EAP) into worksite health promotion; and (5) health-related screening and education programs (Linnan et al., 2008;

US DHHS, 2000). National guidelines continued to promote the implementation of WHP across the nation.

The Health Enhancement Research Organization (HERO) agency also established a set of benchmarks, which were based upon its review of award programs to recognize quality WHP. HERO referred to the WELCOA Well Workplace Awards, the Health Project's C. Everett Koop National Health Awards, the Partnership for Prevention's Health Management Initiative Assessment, and the Department of Health and Human Services' Partnership for Healthy Workforce 2010 (HERO, 2014). HERO's guidelines for quality WHP include (1) strategic planning, (2) leadership engagement, (3) program-level management, (4) programs delivered, (5) engagement methods, and (6) measurement and evaluation.

Following the establishment of their benchmarks, HERO worked with experts and leaders in the field of WHP to develop the HERO Scorecard assessment. The HERO Scorecard was developed in 2006, tested for validity and reliability, and made accessible for organizations to complete online. The HERO Scorecard is still used today and is intended to provide organizations with an assessment of foundational strengths and weaknesses for developing quality WHP initiatives, based upon those six areas identified by the Health Enhancement Research Organization (HERO) agency (Goetzel et al., 2007). HERO suggests that organizations with higher scores on this quality assessment will produce a financial return-on-investment (Goetzel et al., 2014).

Although there are differences in the benchmarks identified by these agencies, the overlap between their benchmarks suggests a clear direction for developing WHP. These

sets of benchmarks coincide with the shifts towards multi-level interventions guided by the Social Ecological Model and the integration of multiple health and safety programs in workplaces. For instance, guidelines and benchmarks suggest that higher quality WHP initiatives address multiple levels of the Social Ecological Model (SEM). Although the field of WHP continues to evolve, these benchmarks set a foundation for developing high-quality WHP initiatives.

### **Assessing WHP Quality**

These sets of benchmarks developed by several organizations serve as guidelines for quality WHP initiatives. However, it is important that organizations have a way to assess and provide direction for improving the quality of their WHP initiatives. Thus, in an effort to support WHP research and practice, multiple assessments and checklists were developed.

WELCOA and HERO have developed assessments specific to quality benchmarks. Other assessments such as the Centers for Disease Control and Prevention (CDC) Worksite Health Scorecard (HSC), the Checklist of Health Promotion Environments at Worksites (CHEW), and the Worksite Health Promotion Readiness Checklist (WRCL) have been developed to help organizations assess multiple aspects of organizations' characteristics and practices for WHP initiatives (Baase et al., 2014; Fonarow et al., 2015). Although these checklists may prove to be useful tools for practitioners, their absence of a benchmark-related foundation makes it difficult to truly assess the quality of an organizations' WHP.

Benchmark-specific assessments allow for organizations to examine the overall quality of their WHP efforts. Research using these assessments can provide important information related to the quality of WHP across different types of organizations, how the quality of WHP develops over time, and what outcomes could be associated with quality WHP. For example, initial analyses using the WWC data indicated that smaller organizations were less likely to have higher quality WHP initiatives than were large organizations, and organizations with newly developed WHP initiatives were more likely to have lower quality than organizations with WHP in place for more than one year (Weaver et al., 2018). Additionally, HERO conducted studies to determine the relationship between the HERO Scorecard and various outcomes. Organizations scoring high on the HERO Scorecard were more likely to have reduced health care costs over the 3 years of the study, while organizations with low scores were more likely to have health care costs that remained stable (Goetzel et al., 2014). Unfortunately, little other research has been conducted using benchmarks.

### **Variations in WHP Quality**

With multiple benchmarks and assessments to guide the development of quality WHP, there is an assumption that all organizations should meet the same standards for quality to have a positive impact on the health of their employees. Some guidelines encourage the implementation of a wide variety of programming which may not be feasible for all types of organizations. This highlights the importance of exploring the applicability and relevance of quality benchmarks for organizations of varying characteristics.

National surveys that have been conducted further demonstrate the importance of looking at variations in WHP quality across organizational characteristics. For instance, the National Worksite Health Promotion Survey found that only 6.9% of 730 participating organizations were conducting comprehensive WHP initiatives, as defined by the five components of the Healthy People guidelines (Linnan et al., 2008). This survey also found that larger organizations and those with a wellness staff person had more comprehensive WHP initiatives (Linnan et al., 2008). Similarly, the Rand Employer Survey showed that about half of all U.S. employers offer WHP and large employers offer more comprehensive WHP than small companies (Mattke et al., 2013).

Results from these national surveys and previously conducted studies suggest that organizational characteristics are related to WHP practices (Linnan et al., 2008; Mattke et al., 2013; Weaver et al., 2018). A review of the literature also suggests the importance of relevant and tailored programming as opposed to a wide variety of programming (Fonarow et al., 2015). Thus, more research regarding the applicability and relevance of benchmarks for organizations of varying size and characteristics could help benchmarks become better suited and more widely adopted by all types of organizations that desire quality WHP.

### **Specific Aims**

Research regarding the quality of WHP among organizations across the nation is limited. Although there are multiple sets of benchmarks to serve as guidelines for quality WHP, national surveys show that many organizations are not implementing high-quality WHP initiatives. Although some national surveys have looked at the proportion of



organizations integrating aspects of quality guidelines within their WHP initiatives, research has not examined organizations' performance against each benchmark. Specifically, no research has been conducted to examine performance against the first set of quality benchmarks which were developed by the Wellness Council of America (WELCOA).

WELCOA developed the Well Workplace Checklist (WWC) as a tool to assess performance against WELCOA's 7 Benchmarks. The WWC includes 100-items measuring performance against the 7 benchmarks as well as items to gather data about the characteristics of organizations and their WHP initiatives. Table 2 provides information regarding the number of questions and the focus of each benchmark assessed in the WWC. Given that the WWC has been publicly available on WELCOA's website since 2008, the data provide opportunities to examine WHP performance of organizations, factors that may influence performance across quality benchmarks, and trends or changes in performance against the benchmarks over time. Thus, this study will examine the quality of WHP initiatives among organizations across the nation using the WWC.

The long-term goal of this research is to provide direction to employers and health professionals developing high-quality WHP initiatives. The overall objective of this study is to examine the quality of WHP initiatives among organizations across the nation using WELCOA's benchmarks. The central hypothesis is that performance against quality benchmarks is lacking and varies as a function of organizational characteristics. The central hypothesis will be tested with the following specific aims:

Table 2. Foci of Benchmark Questions.

Benchmark	# of items	Concepts measured
1. Senior Leader Support	10	resource allocation for WHP, delegation of wellness responsibilities, communication related to wellness, and role modeling for WHP
2. Wellness Teams	8	size, composition, and history of wellness teams
3. Data Collection	16	data collected about employees, the environment, and the organization related to WHP
4. Operating Plan	8	integration of wellness into the organizations' mission, objectives, plans and strategies
5. Programming	17	interventions for various wellness topics being offered within the organization
6. Supportive Environments	33	policies and access to benefits for multiple wellness topics
7. Evaluation	8	tracking and monitoring of WHP performance against various outcomes

1. Examine profiles of performance against a set of quality benchmarks for WHP.

The research question driving this specific aim is (1) are there distinct profiles of performance against the WELCOA 7 Benchmarks that characterize the overall quality of WHP initiatives as indicated by their WWC scores? The working hypothesis is that typical patterns of performance against the 7 benchmarks will form distinct performance profiles for the quality of WHP initiatives. A follow-up research question important to this specific aim is: Are these profiles of performance significantly different as it relates to average benchmark scores?

2. Examine the relationship between the characteristics of organizations and their performance against quality benchmarks.

The research question driving this specific aim is (2) are organizational characteristics related to performance profiles that are based on WWC benchmark scores for WHP initiatives? The working hypothesis is that size will be negatively related to organizations' performance against the benchmarks. In other words, large organizations will have different performance profiles than small organizations. We also hypothesize that the longer organizations have been implementing WHP initiatives the higher they will perform against quality benchmarks. Thus, we may see different performance profiles for organizations just starting WHP initiatives versus those in place for more than one year.

3. Examine the changes in performance against quality benchmarks over time.

The research questions for this specific aim are: (3) are there changes in organizations' performance against quality benchmarks with more exposure to the WWC as a result of repeated WWC assessments over time? (4) is the starting point for performance against quality benchmarks higher for organizations whose initial WWC entry was submitted while the ACA was enacted? and (5) are there differences in rates of change over time across WWC benchmarks? This specific aim will examine the relationship between exposure to the WWC and WWC scores, the relationship between scores for initial WWC entries and the timing of those entries, and how those relationships may vary across benchmarks. The working hypothesis is that organizations will improve their performance against the WELCOA 7 Quality Benchmarks over time

with repeated exposure to the WWC. Additionally, given that the ACA provides incentives to encourage high-quality WHP initiatives, it is expected that WWC scores will be higher for those that completed the WWC for the first time once the ACA was enacted.

Upon successful completion of this study, it is expected that results will contribute new insights regarding the quality of WHP initiatives among U.S. organizations over time. Results of this study may lead researchers to explore additional questions related to the applicability and utility of quality benchmarks for organizations implementing WHP. These results will have a positive impact because findings could be used to tailor materials, resources, and support for organizations based on their current WHP practices and their characteristics in an effort to help improve the quality of WHP over time.

## **CHAPTER III**

### **PRELIMINARY METHODS**

#### **Design**

This study is a one-group design that includes a convenience sample of organizations who self-selected to complete the Well Workplace Checklist (WWC) from 2008 through 2015. The WWC is publicly available on the Wellness Council of America (WELCOA) website since 2008 and is promoted through conferences, mass email mailings, WELCOA membership, and various marketing efforts. Organizations voluntarily self-select to complete the WWC. All organizations that completed the WWC one or more times were included in the dataset.

#### **Sample**

The WWC data used for this dissertation was collected by WELCOA in October 2008 through October 2015. The original dataset contained 5,433 entries. This study excluded 557 entries that were completed by the same organization within the same year. Thus, only the most recent entry per year for an organization was included in the sample. Another 138 entries were identified as mock or test entries for the purpose of obtaining a sample report of the WELCOA 7 Benchmarks and have been removed from the sample. An additional 20 entries were excluded because of missing data regarding the characteristics of the organizations. This study also excluded 75 entries that were completed by organizations located outside of the U.S. After the exclusion of WWC

entries that were repeated entries in a single year, invalid or missing entries, or international responses, the final sample consisted of 4,643 entries from 3,728 self-selected U.S. organizations. Of the 3,728 organizations included in the sample, 577 organizations repeated the checklist across years and were included in the sample for the purpose of examining changes in quality of WHP initiatives over time.

### **Measures**

The Well Workplace Checklist (WWC) was developed by the Wellness Council of America (WELCOA) via systematic literature reviews, expert interviews, and pilot testing. It is an assessment tool that is publicly available on WELCOA's website. The WWC includes 100-items that measure performance against WELCOA's 7 Benchmarks which include: (1) senior leader support, (2) wellness teams, (3) data collection, (4) operating plans that integrate wellness, (5) programs to promote health, (6) supportive environments and (7) the evaluation of WHP initiatives. The WWC also includes questions about the characteristics of organizations and their WHP initiatives.

Each of the WELCOA 7 Benchmarks are measured by a set of questions with ordinal response options which are assigned point values ranging from 0 to 100. The set of questions for Benchmark 1 (Senior Leader Support) asks about resource allocation for WHP, delegation of wellness responsibilities, communication related to wellness, and role modeling for WHP. Benchmark 2 (Wellness Teams) asks about the size, composition, and history of wellness teams as well as their methods for operating to promote wellness in the organization. Questions that encompass Benchmark 3 (Data Collection) include data collected about employee, environment, and organization as it

relates to WHP. Benchmark 4 (Operating Plans) comprises of items regarding the integration of wellness into the organizations' mission, objectives, plans, and strategies. The questions in Benchmark 5 (Programming) ask about interventions for various wellness topics being offered within the organization. Benchmark 6 (Supportive Environments) covers policies and access to benefits for multiple wellness topics. Finally, Benchmark 7 (Evaluation) includes questions about organizations tracking and monitoring of WHP performance against various outcomes.

Response options for all benchmark-related items are ordinal and assigned point values that correspond with the comprehensiveness of approach. An example from Programming is, "Over the last 12 months, our wellness initiative has offered programs on physical activity through the following formats..." with response options "awareness; awareness and education; awareness, education, and behavior change; awareness, education, behavior change, and culture enhancement". Scores for each WWC entry across all 7 benchmarks were calculated as proportions by dividing the sum of points for each benchmark by the total possible points. Overall WWC scores were also calculated by dividing the total response points for all 100 items by the total possible.

Demographic questions about organizations include industry, size, multi-site, multi-shift, and union status. Organizations selected one of 11 listed categories or wrote their response for industry type. Where possible, Standard Industrial Classification (US Department of Labor, 1987) codes were used to classify written responses, but others that were too vague were classified as "other". Size was reported by selecting the category of the number of employees. Multi-site, multi-shift, and unionization were yes/no items.

Demographic items about WHP initiatives include the age of initiatives, how initiatives are paid for, and reasons for implementing WHP. The age of WHP initiatives was reported by selecting the response option corresponding with the number of years initiatives have been in place. Payment structure for WHP initiatives was reported as either fully funded by the company, shared costs between employer and employees, fully paid by employees, or paid through some other source. The checklist also offered a list of 13 reasons for implementing WHP initiatives and organizations chose the reasons that most closely aligned with their value propositions. WELCOA membership status was also included by linking data with membership lists. More information regarding the WWC and the sample of organizations completing the WWC in 2008 through 2015 can be found in a previously published paper describing this dataset (Weaver et al., 2018).

### **Analysis**

In preparation for this study, descriptive analyses have been conducted to better understand the WWC data. A previously published paper reports frequencies for all organizational characteristics, characteristics of WHP initiatives, reasons for implementing WHP, and benchmark and checklist scores among all participating organizations (Weaver et al., 2018). Also reported in that paper were the Cronbach's Alphas to demonstrate reliability of the scales for each of the seven benchmarks. Table 3 shows Pearson correlations to examine the relationships between benchmarks and Table 4 shows Pearson correlations between benchmark scores and the characteristics of organizations to demonstrate the strength of associations between those variables. All analyses were performed using SPSS v25 (IBM Corp., 2017).



Table 3. Correlation between Benchmarks.

	<b>BM1</b>	<b>BM2</b>	<b>BM3</b>	<b>BM4</b>	<b>BM5</b>	<b>BM6</b>	<b>BM7</b>
<b>Benchmark 1 (BM1)</b> Senior Leader Support	1	.594**	.587**	.555**	.650**	.613**	.607**
<b>Benchmark 2 (BM2)</b> Wellness Teams	.594**	1	.519**	.565**	.610**	.591**	.528**
<b>Benchmark 3 (BM3)</b> Data Collection	.587**	.519**	1	.552**	.698**	.654**	.673**
<b>Benchmark 4 (BM4)</b> Operating Plans	.555**	.565**	.552**	1	.597**	.557**	.655**
<b>Benchmark 5 (BM5)</b> Programming	.650**	.610**	.698**	.597**	1	.764**	.684**
<b>Benchmark 6 (BM6)</b> Supportive Environments	.613**	.591**	.654**	.557**	.764**	1	.636**
<b>Benchmark 7 (BM7)</b> Evaluation	.607**	.528**	.673**	.655**	.684**	.636**	1

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

Table 4. Correlations between Benchmarks and Organizational Characteristics.

	<b>Sites</b>	<b>Unions</b>	<b>Shifts</b>	<b>Member</b>	<b>Age</b>	<b>Pay</b>	<b>Size</b>	<b>Health</b>	<b>Perform</b>	<b>Cost</b>	<b>Morale</b>
<b>Sites</b>	1	.123**	.220**	.087**	.120**	0.012	.390**	.030*	-.063**	.113**	-.112**
<b>Union</b>	.123**	1	.209**	-0.005	.099**	-0.028	.212**	-0.010	.041**	.038*	-.065**
<b>Shifts</b>	.220**	.209**	1	.086**	.141**	-0.026	.424**	.038**	-.029*	.099**	-.095**
<b>Member</b>	.087**	-0.005	.086**	1	.188**	.105**	.190**	.076**	-.088**	.065**	-.052**
<b>Age</b>	.120**	.099**	.141**	.188**	1	.183**	.248**	.090**	-.065**	.037*	-.053**
<b>Pay</b>	0.012	-0.028	-0.026	.105**	.183**	1	-0.014	.071**	-.060**	.073**	-.064**
<b>Size</b>	.390**	.212**	.424**	.190**	.248**	-0.014	1	0.015	-.065**	.150**	-.124**
<b>Health</b>	.030*	-0.010	.038**	.076**	.090**	.071**	0.015	1	-.270**	-.068**	-.188**
<b>Perform</b>	-.063**	.041**	-.029*	-.088**	-.065**	-.060**	-.065**	-.270**	1	-.260**	-.032*
<b>Cost</b>	.113**	.038*	.099**	.065**	.037*	.073**	.150**	-.068**	-.260**	1	-.540**
<b>Morale</b>	-.112**	-.065**	-.095**	-.052**	-.053**	-.064**	-.124**	-.188**	-.032*	-.540**	1
<b>BM1</b>	.082**	-.035*	.074**	.231**	.410**	.276**	.124**	.148**	-.070**	.046**	-.077**
<b>BM2</b>	.178**	.076**	.195**	.266**	.447**	.165**	.362**	.106**	-.076**	.049**	-.051**
<b>BM3</b>	.153**	.032*	.200**	.178**	.367**	.183**	.266**	.080**	-.035*	.113**	-.116**
<b>BM4</b>	.090**	0.024	.111**	.192**	.347**	.181**	.212**	.097**	-0.027	0.012	-.052**
<b>BM5</b>	.158**	.051**	.183**	.219**	.515**	.216**	.326**	.103**	-.068**	.090**	-.096**
<b>BM6</b>	.201**	.061**	.247**	.236**	.478**	.181**	.357**	.122**	-.077**	.073**	-.076**
<b>BM7</b>	.124**	-0.007	.123**	.193**	.361**	.202**	.199**	.073**	-.045**	.076**	-.070**

Note. \*Correlation is significant at the 0.05 level (2-tailed). \*\*Correlation is significant at the 0.01 level (2-tailed). Variable names have been shortened for this table. Sites = Multi-site; Union = Unionization status; Shifts = Multi-shift; Member = WELCOA membership status; Age = How long WHP initiatives have been in place; Pay = How WHP initiatives are paid for; Size = Number of employees; Health = Health-related reasons for implementing WHP initiatives; Perform = Performance-related reasons for implementing WHP initiatives; Cost = Cost-related reasons for implementing WHP initiatives; Morale = Morale-related reasons for implementing WHP initiatives; BM1= Senior Leader Support; BM2 = Wellness Teams; BM3 = Data Collection; BM4 = Operating Plans; BM5 = Programming; BM6 = Supportive Environments; BM7 = Evaluation.

To achieve Specific Aim 1, a Latent Profile Analysis (LPA) will be conducted to determine the patterns of performance across all benchmarks. This person-centered analysis will explore organizations' variations in performance across benchmarks and cluster organizations into groups based on the similarity of their performance against the 7 benchmarks. To reduce testing bias, only the first WWC entry for all 3,728 organizations will be included in the analysis. Fit indices such as the Lo-Mendell-Rubin, Akaike's Information Criterion (AIC), and Bayesian Information Criterion (BIC) will be used to determine the number of profiles that are most appropriate for the data. In addition to these fit indices, substantive findings, as well as the proportion of organizations in each profile, will be considered (Marsh et al., 2009). Given the correlations among benchmarks and the overlap of concepts across benchmarks, this model will allow all benchmarks to covary within each profile. A Wald Test will also be conducted to determine whether there are significant differences in mean benchmark scores across profiles, further distinguishing them as likely profiles of performance against quality benchmarks.

For Specific Aim 2, the WWC data will be analyzed to explore the relationship between organizational characteristics and the quality of WHP initiatives as measured by WELCOA's 7 Benchmarks. This will be done using Logistic Regression Analysis (LRA) to model the relationship between independent variables such as unionization, multiple sites, multiple shifts, the size of the organization, how long WHP initiatives have been in place, and industry type with the dependent variable for performance profiles which account for performance against all benchmarks. The Vermunt 3-Step Method will be

used to conduct the LRA as a mixed model in conjunction with the LPA. This allows for model fit indices to account for all covariates included in the LRA. Given that performance profiles will be used as the dependent variable for this analysis, the Vermunt 3-Step Method also strengthens the analysis by accounting for the probability of profile assignment across all organizations.

For Specific Aim 3, we want to examine changes in organizations' WWC scores over time. Hierarchical Linear Modelling (HLM) will be used to examine changes in WWC and benchmark scores. To examine changes in WWC scores over time, the HLM analysis will include 577 organizations that completed the WWC two or more times. The HLM analysis will account for organizations completing the checklist at varying time points without assuming missing data.

This analysis will be conducted as a repeated measures HLM using overall WWC scores as the dependent variable. The HLM will include the number of assessments using the WWC (i.e. level of exposure to the assessment process and feedback) and the timing of the first entry, either before or during the ACA, to address the two research questions noted in Chapter II. The characteristics of organizations and their WHP initiatives will also be included as level-2 covariates in the analysis to control for the effects of those characteristics on WWC and benchmark scores. Model 1 will be an unconditional model without level-2 covariates included. Model 2 will include level-1 and level-2 variables. The dependent variable in those models will be overall WWC scores. Separate models will also be conducted with each of the 7 benchmarks as dependent variables to examine how changes are occurring over time across benchmarks.

## **Limitations**

This study will be using secondary data that and will have its limitations. First, data collection efforts allowed organizations to voluntarily choose to complete the WWC. Thus, this will include a convenience sample of organizations assembled across years and results will not be generalizable to all organizations across the nation. The WWC is a self-reported measure completed by an employee within the organization. With a self-report measure, social desirability may also influence more positive responses seen in the WWC data. Additionally, the employee completing the WWC may respond to the best of their ability, but information may not always be accurate. Given that the WWC does not restrict participation to a particular position within organizations, reliability and comparability of responses may be limited. For those organizations that completed the checklist across multiple years, the employee who completes the WWC across years may not be the same employee each time. This could also hinder the reliability of the data.

## **Summary**

Workplace Health Promotion (WHP) has the potential to reach a large captive audience of working adults. Although WHP has the potential to increase health, reduce health care costs, improve performance, and increase morale, the quality of the WHP initiatives matters (Goetzel et al., 2014; O'Donnell, 2014; Weaver et al., 2018). In order to support the implementation of quality WHP initiatives among organizations across the country, it is important to understand current performance against quality benchmarks as well as potential organizational factors that influence quality performance. Hence, this study will examine the quality of WHP initiatives among U.S. organizations.

The completion of this study will inform researchers and practitioners of current WHP performance against quality benchmarks for organizations across the nation from 2008 through 2015. This study will also highlight characteristics that may be associated with performance and changes in organizations' quality performance over time. Understanding performance against these quality benchmarks may provide insight into their applicability or utility for different types of organizations.

This study has implications for both practitioners and researchers. For practitioners, results will highlight areas of low and high performance of WHP initiatives across the nation. This may help identify resources and supports to develop in order to enhance or improve WHP initiatives. This study will also examine the characteristics of organizations that are associated with performance against the benchmarks. This may assist practitioners with tailoring resources or targeting specific types of organizations that may have a higher need for resources across various benchmark areas. For researchers and practitioners alike, this study could highlight the utility of current benchmarks as well as areas that may need attention or further development to better guide organizations in developing the highest quality WHP initiatives. Results from this study may also be useful for future research, providing direction for targeting research around factors that influence the quality of WHP initiatives and the expected outcomes for quality WHP initiatives.

## CHAPTER IV

### PROFILES OF PERFORMANCE AGAINST QUALITY BENCHMARKS FOR WORKPLACE HEALTH PROMOTION AMONG U.S. ORGANIZATIONS

#### Introduction

National surveys estimate that fewer than 7% of organizations have comprehensive or high-quality WHP initiatives, based on national guidelines and benchmarks for WHP (Linnan et al., 2008; Weaver et al., 2018). Large organizations tend to be doing more than small organizations (Hannon et al., 2012; Harris et al., 2014; Linnan et al., 2008; Mattke et al., 2013). One reason for this discrepancy is that small organizations may have fewer resources available to devote to wellness initiatives (Claxton et al., 2015; Harris et al., 2014; O'Donnell, 2014). Research also suggests variations in offerings of WHP initiatives by industry (Grosch et al., 1998; Hannon et al., 2012; Linnan et al., 2008), variations which may be associated with challenges of engaging employees across various roles and locations dependent upon industry. Thus, the characteristics of the organization may influence the quality of their WHP initiatives.

Although research suggests differences in availability of WHP by organizational characteristics, we do not know enough about how organizational characteristics or other factors are associated with the quality of WHP initiatives or performance against quality benchmarks. Research has not offered insight into what high-quality WHP initiatives look like in terms of performance against quality benchmarks. Understanding the

comprehensiveness and quality of WHP initiatives as well as factors that influence the quality of initiatives could provide valuable insights for tailoring support and resources for organizations striving to improve their wellness initiatives.

***Purpose***

The *purpose* of this study was to 1) explore subgroups of performance profiles against quality benchmarks distinguished by Well Workplace Checklist (WWC) benchmark scores and 2) examine characteristics of organizations that may be associated with subgroups of performance. This study will answer two research questions: (1) Are there distinct profiles of performance against the WELCOA 7 Benchmarks as indicated by WWC benchmark scores? and (2) Are the characteristics of organizations related to their profile of performance based on WWC benchmark scores?

Thus, this study examined whether there were distinct patterns of performance against WELCOA's seven quality benchmarks that could characterize subgroups of performance against quality benchmarks for WHP initiatives. This study examined associations between the characteristics of an organization and their designated subgroup of performance against the benchmarks. The first hypothesis was that organizations would differ significantly in the quality of their WHP initiatives, leading to distinct subgroups of performance profiles. Based on prior research findings, the second hypothesis was that there would be significant associations between company characteristics and performance profiles. Results could provide insight and guidance around resources or supports that could be tailored and targeted for organizations to help improve the quality of WHP initiatives.



## **Methods**

### *Sample*

The sample includes 3,728 organizations that self-selected to complete the WWC between October 2008 and October 2015. Although 577 of these organizations completed the checklist across multiple years from 2008 through 2015, this sample was restricted to only the first WWC entry for each organization to ensure that repeated exposure to the checklist or changes enacted in organizations over time did not influence the profiles of performance against benchmarks. Therefore, the total sample size for this study included only the first WWC entry for all 3,728 organizations.

### *Measures*

This study examined Well Workplace Checklist (WWC) data which was collected by the Wellness Council of America (WELCOA) in 2008 through 2015. The WWC includes 100-items that measure organizations' performance against WELCOA's seven quality WHP benchmarks which include: 1) senior leader support, 2) wellness teams, 3) data collection, 4) operating plan, 5) programming, 6) supportive environments, and 7) evaluation. Responses to those 100 questions are given point values that correspond with the quality or comprehensiveness of the approach. Scores for the overall checklist and each quality benchmark were calculated as proportions of potential total scores with ranges of 0-100. The overall WWC score and benchmark scores are used as dependent variables for this study.

This study also accounts for the characteristics of organizations and their WHP initiatives in the analysis. Those variables include size, industry, union status, shift work,

and multiple worksites. Organizations indicated their size by selected a category that represented the number of employees in their organization. Organizations selected one of 11 listed categories or wrote in their response for their industry type. WELCOA also provided data indicating the membership status of all participating organizations. Given its representation of about half of the sample, Services was chosen as the referent group for industry. With regards to WHP initiatives, these data include the age of wellness initiatives, how those initiatives are paid for, and organizations' top reasons for implementing wellness initiatives. Although value propositions for WHP were asked of all organizations, the question did not ask about rank ordering of the reasons for implementing WHP initiatives. Therefore, reasons were grouped into health-related, cost-related, performance-related, and morale-related reasons.

### *Analysis*

Latent profile analysis (LPA) was conducted to extract subgroups of performance profiles against WELCOA's 7 Quality Benchmarks for organizations that self-selected to complete the WWC. LPA discerns whether there are subgroups of organizations based on their performance across all benchmarks and estimates the probability of subgroup assignment for each organization in the sample. Fit indices such as the Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), and the Lo-Mendell-Rubin were used to determine the appropriate number of profiles. Wald tests were run as pairwise comparisons across all benchmarks between each of the subgroups of performance profiles to examine significant differences among means of individual benchmark scores across subgroups. (Marsh et al., 2009)

Multinomial logistic regression analysis (LRA) was conducted using the Auto-Vermunt Method to examine the relationship between characteristics of organizations and their likely subgroup designation. This method allows for both the LPA and the LRA to account for covariates in the model fit indices and accounts for organizations' probability of subgroup assignment in the LRA (Asparouhov & Muthén, 2014). All analyses were performed using MPLUS (Muthén & Muthén, 2017).

## **Results**

### *Sample Characteristics*

Table 5 shows the characteristics of the 3,728 organizations that were included in the sample. The majority were multiple-site (72.4%), multiple-shift (65.7%), or non-unionized (73.2%) organizations. Just under 25% were organizations with 100 or fewer employees and almost 30% were organizations with more than 1000 employees. Almost half of these organizations were in the services industry.

Table 6 describes some of the characteristics of the WHP initiatives of those organizations. At the time of their first WWC entry, only 38% of these organizations were WELCOA members. More than half of the organizations reported paying all costs for their employee wellness initiatives. Additionally, for more than half of these organizations, WHP initiatives were either just getting started or established for just 1-3 years. The two most frequent reasons for implementing their WHP initiatives were 1) to improve employee health and 2) to contain costs. Finally, we see that the average benchmark scores for this sample were lowest among senior leader support and highest among supportive environments and wellness teams.

Table 5. Characteristics of Organizations (N=3,728).

<b>Characteristics</b>	<b>N (%) or Mean <math>\pm</math> SD<sup>1</sup></b>
Multisite	2699 (72.4)
Multi-shift	2449 (65.7)
Unionized	1000 (26.8)
Number of Employees	
Up to 100	867 (23.3)
101-1000	1785 (47.9)
Over 1000	1076 (28.9)
Industry	
Services	1861 (49.9)
Manufacturing	573 (15.4)
Communication	59 (1.6)
Agricultural	30 (0.8)
Mining	17 (0.5)
Construction	75 (2.0)
Wholesale/retail	148 (4.0)
Transportation	62 (1.7)
Utilities	221 (5.9)
Finance	222 (6.0)
Government	347 (9.3)
Other	113 (3.0)

Note. <sup>1</sup>SD = Standard Deviation.

Table 6. Characteristics of WHP Initiatives for Organizations (N=3,728).

Characteristics	N (%) or Mean $\pm$ SD <sup>1</sup>
WELCOA Members	1416 (38.0)
Pay Structure for Wellness Programs	
Employees or Other	640 (17.2)
Shared costs	1101 (29.5)
Company	1987 (53.3)
How Long Initiative Has Been in Place	
Just started	1112 (29.8)
1-3 years	1317 (35.3)
4-10 years	912 (24.5)
More than 10	387 (10.4)
Reasons for Implementing WHP Initiatives <sup>2</sup>	
<i>Health-Related Reasons for Wellness</i>	3247 (87.1)
Improve employee health	2531 (67.9)
Improve health of dependents	436 (11.7)
Improve health of retirees	15 (0.4)
Increase health self-management	696 (18.7)
<i>Cost-Related Reasons for Wellness</i>	2423 (65.0)
Contain costs	2187 (58.7)
Produce ROI	177 (4.7)
Reduce unnecessary medical use	253 (6.8)
<i>Performance-Related Reasons for Wellness</i>	386 (10.4)
Increase performance	172 (4.6)
Enhance productivity	162 (4.3)
Reduce absenteeism	120 (3.2)
<i>Morale-Related Reasons for Wellness</i>	796 (21.4)
Improve morale	443 (11.9)
Attract and retain employees	236 (6.3)
Employee requests	204 (5.5)
Average Benchmark Scores	
Senior Leader Support Score	39.98 $\pm$ 21.30
Wellness Teams Score	52.06 $\pm$ 19.52
Data Collection Score	42.01 $\pm$ 22.70
Operating Plan Score	48.18 $\pm$ 36.44
Programming Score	40.94 $\pm$ 21.31
Supportive Environments Score	54.22 $\pm$ 18.15
Evaluation Score	42.93 $\pm$ 30.89

Note. SD = <sup>1</sup>Standard Deviation. <sup>2</sup>Organizations chose their top reasons for implementing WHP initiatives from the list shown here. Without rank ordering or limits on the number of reasons that could be chosen, these reasons were grouped into categories of health, cost, performance, and morale for the LPA and LRA.

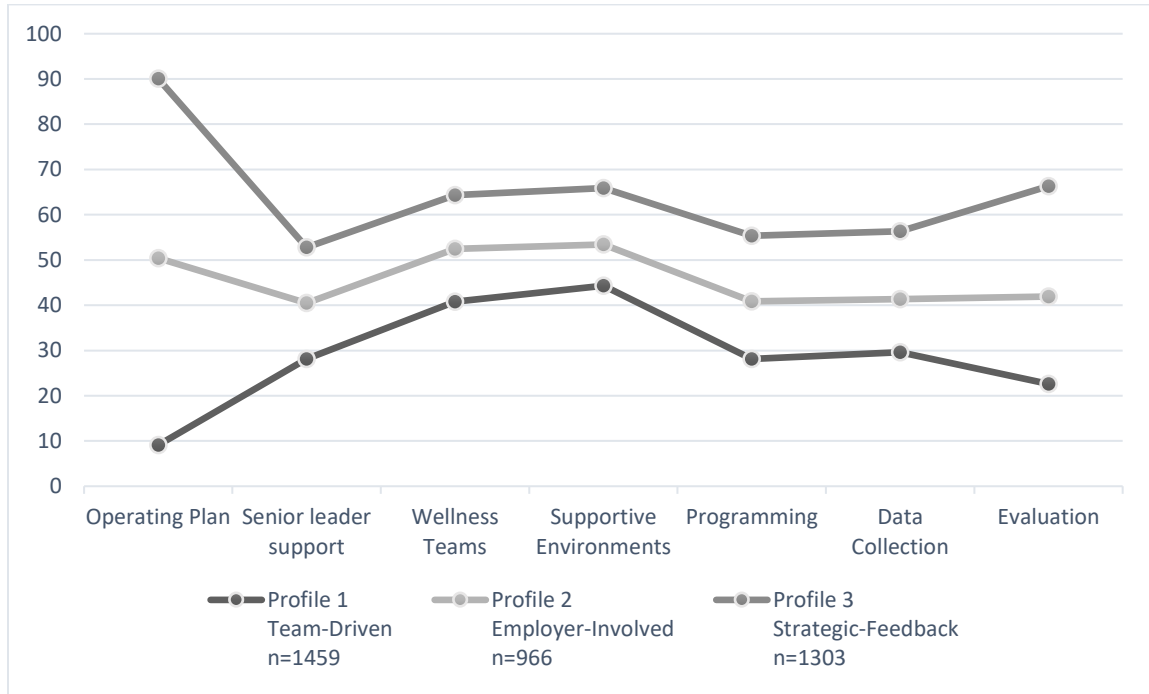
### *Latent Profile Analysis*

The LPA examined patterns of scores across all benchmarks for all organizations and grouped organizations together based upon the similarity of the patterns of their benchmark scores. The AIC, BIC, and Lo-Mendell-Rubin suggested either three or five subgroups as best fit for these data; however, subgroup proportions indicated the five-profile solution would include one subgroup with only 2% of organizations. Therefore, 3 subgroups were extracted. Results from each of the Wald tests indicated significant differences in mean scores for all benchmarks between subgroups. These subgroups illustrate likely patterns of performance against quality benchmarks for WHP initiatives.

Figure 1 shows the average scores of benchmarks for each of the three subgroups of performance profiles. Figure 1 compares average benchmark scores across each of the profiles. Profile 1 clearly has the lowest average benchmark scores and Profile 3 has the highest average benchmark scores. However, there are greater differences between subgroups in average benchmark scores for operating plan and evaluation. Figure 1 also shows the qualitative differences in the patterns of average benchmark scores for operating plan and evaluation.

In Profile 1, operating plan is the lowest average benchmark score and the two highest average benchmark scores for this subgroup are supportive environments and wellness teams. This suggests teams are in place without clear plans or strategies for WHP initiatives. Given that Profile 1 has a markedly low average benchmark score for operating plan with the highest average benchmark score being wellness teams, it was identified as the Team-Driven profile.

Figure 1. Profiles of Performance Based Upon Average Scores Against Quality Benchmarks.



Profile 2 was labeled as the Employer-Involved profile. All average benchmark scores in this subgroup range from around 40 to 53 indicating effort across all benchmarks. Although supportive environments and wellness teams are still the highest average benchmark scores for this subgroup, operating plan becomes the third highest average benchmark score in this profile. This is a qualitative difference compared to the patterns of performance in Profile 1.

In Profile 3, operating plan is the highest average benchmark, indicating that wellness is integrated into business plans, goals, and strategies. Another distinction for this subgroup is that evaluation is the second highest average benchmark score. Although all average benchmark scores are above 50, the patterns of performance against

benchmarks appear to be distinct for this subgroup. With operating plan and evaluation as the highest mean benchmark scores for this profile, it has been named the Strategic-Feedback profile because of the integration and forethought for wellness initiatives demonstrated by high average scores for these benchmarks.

### ***Logistic Regression Analysis***

Logistic regression analysis (LRA) was conducted in order to determine which organizations were likely to be assigned to each of the various subgroups of performance. Results are presented with odds ratios in Table 7. Results presented below also indicate that the size or industry of an organization may be predictive of their subgroup assignment. Additionally, as listed below, multiple characteristics of organizations' WHP initiatives were significantly associated with subgroups of performance profiles.

Regarding the characteristics of the organizations, there were no significant relationships between performance subgroups and multi-site, multi-shift, and unionization status of organizations. Related to the size of organizations, those with 100 or fewer employees were more likely to be in the Team-Driven Profile than organizations with more employees. Organizations with 101-1000 employees were also less likely to be in Employer-Involved and Strategic-Feedback profiles compared to organizations with more than 1000 employees. In addition to size, organizations that identified as Manufacturing, Transportation, or Retail industries were less likely than Services industries to be in the Strategic-Feedback Profile compared to the Team-Driven Profile. Retail and Transportation industries were also more likely to be in the Strategic-Feedback than the Employer-Involved Profile compared to Services. Additionally, organizations



that were classified as Other industry types were more likely than those in Services to be in the Employer-Involved than the Team-Driven or Strategic-Feedback subgroups.

Results of the LRA found that organizations that were members of WELCOA at the time they completed the WWC were most likely to be in the Strategic-Feedback Profile. In fact, when controlling for all other covariates, organizations that were members of WELCOA were 1.54 times more likely to be in the Strategic-Feedback than the Team-Driven subgroup compared to non-members. Additionally, organizations with WHP initiatives that were paid for either partially or fully by the employer rather than initiatives that were paid for by employees or other sources were more likely to be in the Employer-Involved and Strategic-Feedback Profiles than the Team-Driven profile. Thus, investment of time and resources in WHP initiatives by employers appear to be associated with improved quality.

Compared to organizations that were just getting started, organizations with WHP initiatives in place for one year or longer were more likely to be in the Employer-Involved or Strategic-Feedback Profiles than the Team-Driven Profile, and more likely to be in the Strategic-Feedback than the Employer-Involved subgroup. The reasons that organizations indicated for implementing WHP initiatives seemed to be mostly unrelated to their subgroup of performance against benchmarks. However, there was a significant relationship suggesting that organizations with a health-related reason for implementing WHP initiatives were more likely to be in the Strategic-Feedback profile than the Team-Driven profile.

Table 7. Logistic Regression for Performance Profiles with Organization Characteristics.

	Team-Driven (T-D) as Referent		Employer-Involved (E-I) as Referent
	E-I	SF	Strategic Feedback (SF)
Multisite	0.96	0.97	1.01
Multi-shift	0.97	1.16	1.19
Unionized	0.87	0.96	1.11
Number of Employees			
Up to 100	0.59**	0.40***	0.68*
101-1000	0.77*	0.52***	0.67**
Over 1000	--	--	--
Industry			
Services	--	--	--
Manufacturing	0.90	0.75*	0.83
Communication	1.17	0.84	0.72
Agricultural	2.53	1.79	0.71
Construction	1.58	0.53	0.84
Wholesale/retail	1.03	0.58*	0.56*
Transportation	1.31	0.44*	0.34**
Utilities	1.11	1.05	1.17
Mining	1.02	0.61	0.60
Finance	0.98	1.14	1.16
Government	0.89	0.78	0.88
Other	2.06**	1.11	0.54*
WELCOA Member	1.14	1.54***	1.35**
Pay Structure for WHP			
Employees or Other	--	--	--
Shared costs	1.82***	1.96***	1.07
Company	2.19***	2.59***	1.18
How Long Initiatives in Place			
Just started	--	--	--
1-3 years	2.38***	4.05***	1.70***
4-10 years	2.57***	5.62***	2.19***
10+ years	2.48***	5.34***	2.15***
Health-related reasons	1.07	1.46*	1.37
Costs-related reasons	0.85	0.85	1.00
Performance-related reasons	0.94	1.28	1.36
Morale-related reasons	1.04	1.00	0.96

Note. Reported as odds ratios. \* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001

## **Discussion**

This study sought to identify subgroups of performance profiles that characterize performance against seven benchmarks for quality WHP initiatives among self-selecting organizations that completed the WWC for the first time. Performance profiles provide information regarding the types of processes that are in place for organizations to support their WHP initiatives. Profiles of performance paint a picture of the overall WHP initiatives that are likely to be in place within organizations across the nation. This study identified three subgroups of performance profiles which were classified as Team-Driven, Employer-Involved, and Strategic-Feedback.

In the first profile, the Team-Driven profile, employee wellness teams are in place without the support of goals, plans, or strategies implemented across all levels of the organization. These organizations have not established wellness as a priority or strategy in which to invest, as evidenced by the low operating plan scores. Although quality benchmarks suggest that having a wellness team is an important component of quality for WHP initiatives, they also suggest that strategic planning and the integration of wellness within the organization are equally important. Therefore, organizations in this profile may benefit from continuing to improve performance against other quality benchmarks.

Organizations that were just getting started with WHP initiatives were more likely to be in this subgroup. Organizations may have started WHP initiatives at the request of employees who volunteered to lead the effort. Additionally, organizations that pay some or all of the costs for WHP initiatives were less likely to be in the Team-Driven profile than organizations where employees or other sources cover costs. Employers in this

profile may have fewer resources or commitment to invest financial resources and integrate wellness into business strategies, missions, and goals.

Smaller organizations, those with less than 1000 employees in this sample, were most likely to be in the Team-Driven Profile, which aligns with prior research findings that smaller organizations are less likely to be offering WHP (Harris et al., 2014; Linnan et al., 2008; Mattke et al., 2013). Smaller organizations may not have the organizational slack or resources to support more extensively developed WHP initiatives (Claxton et al., 2015; Harris et al., 2014; O'Donnell, 2014). Given that smaller workplaces may have challenges with both capacity and readiness to implement WHP initiatives, it may be important to couple assessments of WHP quality with assessments for readiness to implement WHP initiatives (Baase et al., 2014; Faghri et al., 2010; Harris et al., 2014). Additionally, knowing that resources may be limited for smaller organizations, quality indicators may need to be developed specifically for smaller organizations to identify potential areas for improvement within the bounds of what is feasible. There may also be a need to look at resource sharing across smaller organizations as a strategy to improve quality across each of them.

The characteristics of organizations that are likely or not likely to be in the Team-Driven profile or performance subgroup suggests that an investment made by employers is important to the quality of WHP initiatives, as measured by benchmarks in the WWC. Although investments in WHP initiatives may depend upon the capacity and resources within the organization, an investment made by employers also represents a value placed on WHP initiatives. In fact, findings from an Optum survey indicate that companies with

a culture of health have committed to a budget for health and wellness as well as invested in health and wellness incentives for employees (Marlo et al., 2016).

Profile 2, the Employer-Involved profile, represents organizations in which employers are becoming more involved in WHP initiatives by taking steps to integrate wellness into their business operating plans and strategies. However, the two highest mean benchmark scores in this profile were also wellness teams and supportive environments. The organizations that were likely to be in the Employer-Involved profile had similar characteristics to those that were likely to be in the Team-Driven profile.

The third profile, the Strategic-Feedback profile, was characterized by organizations with wellness highly integrated into business operating plans and strategies as well as a planned evaluation of WHP initiatives. This profile also had high mean scores for wellness teams and supportive environments, though higher mean scores than the other two subgroups. This higher performing profile may be the profile that characterizes high-quality WHP initiatives, based on the WELCOA 7 Benchmarks.

Organizations with an active WELCOA Membership were most likely to be in the Strategic-Feedback profile. WELCOA membership offers access to resources, programs and other supports that are often structured around WELCOA's 7 Benchmarks which could be a contributing factor to the higher mean benchmark scores. However, we lack data regarding how long organizations may have been members of WELCOA or the utilization of membership resources prior to filling out the checklist. It is possible that WELCOA members are more likely to be in the Strategic-Feedback profile based on the financial resources that they've invested into wellness initiatives, including their payment

for membership with WELCOA. Connecting to a third-party agency like WELCOA may demonstrate a viable commitment to improving WHP while gaining access to strategies and resources to do so.

We also see that indicating health-related reasons as the value proposition for WHP initiatives may be associated with the Strategic-Feedback profile when compared to the Team-Driven profile. Although organizations could choose a multitude of reasons for implementing WHP initiatives, indicating health-related reasons seems to suggest a humanitarian or personal growth approach rather than a revenue or business-focused value proposition. Perhaps health-related reasons for implementing WHP initiatives encourage a culture of health within organizations. Establishing a culture of health within organizations with higher quality programs may be expected to produce additional outcomes of interest (CDC, 2016; Goetzel et al., 2014; Marlo et al., 2016).

Organizations in manufacturing, retail, and transportation industries were less likely than those in the Services industry to be in the Strategic-Feedback Profile than the Team-Driven Profile. Retail and Transportation organizations were also less likely to be in the Strategic-Feedback Profile than the Employer-Involved Profile. It appears that these industry types are less likely to implement higher quality WHP initiatives such as those represented by the Strategic-Feedback Profile. When compared to the services industry, employees in these industries may be more segmented in their positions making it more difficult to organize people together. Therefore, these industry types may have more difficulty with organizing and implementing WHP initiatives based on contextual challenges, such as having employees spread across different areas at varying times.

This study depicts performance profiles against WELCOA's seven quality benchmarks, highlighting specific benchmarks that may need attention among different types of organizations that are interested in assessing and/or improving the quality of their WHP initiatives. We see that organizations that are just starting WHP initiatives may need assistance with developing an operating plan that integrates wellness-related goals and objectives. Smaller organizations and those in specific industries could be important targets for providing support specific to operating plans and may benefit from networks or partnerships to support the sharing of resources. These subgroups of performance and the characteristics of organizations associated with varying profiles may reinforce the notion for a need to amend quality assessments to make them specific to different industry types and for organizations with varying resource limitations. Such assessments may prove useful for tailoring the supports that are offered to organizations.

This study also highlights the need for continued research related to quality benchmarks for WHP initiatives. For instance, research could explore how these benchmarks relate to variations in organizations' capacity for implementing WHP initiatives. With a smaller population of employees, perhaps smaller organizations do not need the same organizational development structure as larger organizations in order to have a quality WHP initiative. The findings also suggest that future research could assess whether smaller organizations need a separate set of quality benchmarks that are more in line with their capacity and business models. Given the distinctions in operating plans across performance profiles, research may also need to explore factors associated with increasing organizations' commitment to strategically integrate wellness-related goals

and objectives with their missions, visions, and business models. Finally, research could explore outcomes associated with performance profiles. Understanding how benchmarks are associated with various outcomes or value propositions of interest may help employers and employees commit to, invest in, and strive for quality WHP initiatives that meet their health and wellness goals.

### ***Limitations***

These subgroups of performance profiles may only be representative of performance that we could expect to see for organizations that are interested in assessing their WHP initiatives. Regardless, these profiles offer new insights related to organizations' patterns of performance against quality benchmarks across a period of 8 years. Even though all benchmark scores were calculated to be proportions with the same scale, standard deviations are much larger for Operating Plan and Evaluation benchmarks due to the limited number of questions included in those benchmarks. Thus, performance scores for these benchmarks may be likely to vary more than other benchmarks because of the lesser number of questions that comprise the benchmarks. Nevertheless, these subgroups of performance profiles represent performance against the benchmarks as they have been assessed via the WWC.

### ***Implications***

Comprehensive and high-quality WHP initiatives are recommended by scholars and policy-makers alike via national guidelines and benchmarks (Fonarow et al., 2015; US DHHS, 2000; US DHHS, n.d.). Without a comprehensive approach and supportive environment for WHP, effectiveness may be limited (Chen et al., 2015; Terry et al.,



2008). Companies that want to improve their WHP initiatives can utilize checklists such as the WWC, CDC Worksite Health Scorecard, HERO Scorecard or others to assess the quality and comprehensiveness of WHP initiatives (Baase et al., 2014).

Given the broad range of topics and practices that may be considered WHP (Fielding, 1984; Goetzel et al., 2014; Terry et al., 2008), exploring these profiles of performance against quality benchmarks aids in understanding the makeup of organizations' WHP initiatives. Thus, these subgroups of performance against quality benchmarks and the organizational characteristics associated with subgroups may help us tailored resources and supports that would be most helpful to improve the quality of WHP initiatives among U.S. organizations. For instance, smaller organizations, those just getting started, or those in which companies are not investing their own money to support WWI may be targeted for tailored resources on grassroots efforts in WWI or how to engage executives to integrate wellness into business operating plans and strategies.

Health promotion practitioners as employees or consultants could use these performance profiles to assist with targeting employers for organizational development or direct services and program development based on an organization's profile related characteristics. For instance, practitioners may link small companies, or those just starting, to create a community-wide network for cost and service sharing opportunities. Knowing the expected profiles of performance for different types of organizations could help determine which organizations to link together in this way. Finally, continued research to validate these benchmarks against outcomes of interest to stakeholders will be necessary to encourage wide-spread implementation of quality WHP initiatives.

## **CHAPTER V**

### **CHANGES IN WORKPLACE HEALTH PROMOTION QUALITY BENCHMARK SCORES FOR U.S. ORGANIZATIONS OVER TIME**

#### **Introduction**

National efforts to encourage more organizations to implement workplace health promotion (WHP) initiatives have been made using objectives and incentives for WHP initiatives (Cottrell et al., 2018; Mattke et al., 2013; US DHHS, 2000; US DHHS, n.d.). For example, Healthy People Objectives include goals to increase the implementation of WHP initiatives nationwide (US DHHS, 2000; US DHHS, n.d.). The Patient Protection and Affordable Care Act (ACA) provides financial supports and incentives for implementing WHP within organizations across the country (Mattke et al., 2013). However, research does suggest that implementing a high-quality WHP initiative is more likely to lead to outcomes of interest for employers, employees, and public health professionals (Goetzel et al., 2014; Terry et al., 2008). So, it may be important to examine how organizations are evolving or changing in the quality of their WHP initiatives over time.

Benchmarks for quality WHP initiatives were established to serve as guidelines and indicators for achieving various outcomes (Goetzel et al., 2014; Terry et al., 2008). Noticeably, there are commonalities among the multiple sets of national benchmarks and measures of quality for WHP (Baase et al., 2014; Fonarow et al., 2015; Terry et al.,

2008), which suggests consistency and consensus in the guidelines and standards for the field. However, only 6% of U.S. organizations are estimated to be implementing a high-quality or comprehensive WHP initiative (Linnan et al., 2008; Weaver et al., 2018). Larger organizations tend to implement WHP initiatives at higher rates and more comprehensively than small organizations (Mattke et al., 2013; O'Donnell, 2014), but even among organizations with more than 750 employees, only 24% incorporated all 5 components for a comprehensive WHP initiative based on the Healthy People Objectives for the nation (Linnan et al., 2008).

While national surveys have given point-in-time estimates of the proportion of organizations implementing WHP initiatives, studies have not examined changes in WHP initiatives measured by quality benchmarks over time and although we may expect to see improvements in the quality of WHP initiatives with assessments over time research has not substantiated this claim. Given the existence of national benchmarks and the ACA push for WHP initiatives, the expectation is that over time all organizations are continually working toward meeting quality benchmarks and improving their WHP initiatives. Specifically, after the rollout of the ACA, there are incentives for organization that encourage the implementation of high-quality WHP initiatives. Additionally, assessments that are based on quality benchmarks could offer direction and guidance for organizations striving to improve their WHP initiatives. Thus, we would expect to see that organizations completing quality assessments over time would improve the quality of their WHP initiatives based on the feedback and direction received from completing those assessments.

### *Purpose*

The *purpose* of this study was to examine longitudinal changes in WHP initiatives based on performance against WELCOA's 7 Benchmarks for U.S. organizations that completed the Well Workplace Checklist (WWC). If the WWC assessment is an effective intervention tool, there would be significant increases in performance against the WWC associated with more exposure to the WWC over time. Thus, this study examined the relationship between the number of WWC assessments (i.e. the level of exposure to the WWC assessment process and feedback) and WWC scores. In other words, were there changes in organizations' performance against the WWC with repeated WWC assessment over time?

In order to determine whether first time WWC entry scores were higher for those organizations that completed their first WWC entry during the ACA, this study included a timing variable based on whether an organization's first WWC entry was completed in 2008-2009 (prior to the ACA) or 2010-2015 (during the ACA). This study controlled for the characteristics of organizations' WHP initiatives including WELCOA membership status, how WHP initiatives are paid for, and the duration of time that organizations have been implementing WHP initiatives. Additionally, the study controlled for organizational characteristics such as company size, multiple sites, multiple shifts, unionization, and industry type.

Finally, to better understand the changes occurring over time, this study examined changes in scores across each of the 7 quality benchmarks measured in the WWC over time. Thus, in addition to models using the overall WWC scores as the dependent

variable, 7 separate models were run to examine the relationship of the number of WWC assessments, timing of the first entry, and organizational characteristics to each of the 7 benchmark scores. In other words, are each of the benchmark scores changing at different rates over time related to level of WWC exposure or the timing of the first WWC entry?

## **Methods**

### *Sample*

A total of 3,728 organizations in the U.S. self-selected to complete the WWC from the time it was made publicly available on WELCOA's website in 2008 through October 2015 when the data were downloaded and cleaned by the research team at UNCG. Given that the purpose of the study is to examine changes in performance against benchmarks over time, 3,151 organizations that completed the checklist only one time from 2008-2015 were excluded. The final sample for this study includes 577 organizations with 2 or more WWC entries completed across years from 2008-2015.

### *Measures*

The WWC is an organizational assessment tool that includes demographic questions about the organization as well as 100 items to measure organizations' performance against WELCOA's 7 Benchmarks which include (1) senior leader support, (2) wellness teams, (3) data collection, (4) operating plans that integrate wellness, (5) programs to promote health, (6) supportive environments and (7) the evaluation of WHP initiatives. More information about the WWC can be found in earlier chapters as well as a previously published article (Weaver et al., 2018). This study used overall WWC scores

and benchmark scores as dependent variables that represent the quality of organizations' WHP initiatives.

To examine changes in performance against quality benchmarks over time, this study included a variable to demonstrate the number of WWC entries across years. The level of exposure to the WWC assessment process was determined by assigning a number to each WWC entry was assigned a number that corresponded with the order of the entry within the series of total entries for each organization. In other words, for organizations that repeated the WWC assessment 2 or more times, the first entry was exposure 1 and the second entry was the exposure 2. To examine the variations in starting performance against quality benchmarks, determined by initial or first time WWC entries, a binary variable was created based on the year of first time WWC entries being before the passing of the ACA (e.g. 2008, 2009) or during the ACA (e.g. 2010-2015).

This study also controls for demographic variables that represent the characteristics of organizations (e.g. multi-site, multi-shift, unionization, number of employees, and industry type) and their WHP initiatives (e.g. length of time WHP initiatives had been in place, how WHP initiatives are paid for, WELCOA membership status, and reasons for implementing WHP initiatives). All variables have been described in earlier measures sections. However, in this study industry was made dichotomous, using Services as the referent group based on the large proportion of organizations in Services. Additionally, for this study, the reasons that WHP initiatives were implemented was grouped into 4 main categories: health, cost, morale, and performance.

### *Analysis*

In order to examine changes in WWC scores among U.S. organizations over time, a repeated measures Hierarchical Linear Model (HLM) was used. HLM accounts for the time-varying covariates while also accommodating the intermittent reassessments completed by organizations at various times within the study time frame. Model 1 was run with overall WWC scores as the outcome variable and the number of WWC assessments (i.e. level of exposure) as the timing variable, while also accounting for the timing of the first WWC entry. Model 2 added the following covariates in the HLM analysis: membership to WELCOA, the age of the WHP initiatives, how WHP initiatives are paid for, size of the organization, industry type, multi-site, multi-shift, and unionization status, as well as value propositions, or reasons, for implementing WHP initiatives. Seven separate models were also run with each of the 7 benchmarks as outcome variables while including the timing variables and covariates in the model. AIC, BIC, and likelihood ratio statistics were used to determine the fit of the model. Analyses were performed using SPSS v25 (IBM Corp., 2017).

### **Results**

#### *Sample Characteristics*

Of the 577 organizations that completed the WWC 2 or more times, 429 completed the WWC only twice, as seen in Table 8. To show the variations in the number of reassessments using the WWC as well as the variations in timing of reassessments using the checklist, Table 9 displays the different levels of exposure to the checklist across the years of the study timeframe. Only 36 organizations completed the

WWC more than 3 times, thus a much smaller proportion of the sample across years includes 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup>, or 7<sup>th</sup> entries. This table also shows the variations in the timing of organizations first WWC entry across years, represented by the 1<sup>st</sup> exposure to the checklist. Years 2008-2009 represent the years prior to the passing of the ACA and years 2010-2015 represent the years for which the ACA was enacted.

Table 10 shows the characteristics of participating organizations at their first WWC entry. At the time of their first entry, just over 25% of organizations were just getting started with WHP initiatives. About 45% of the sample were members of WELCOA at the time of their first WWC entry. Half of participating organizations reported all costs for their WHP initiatives were paid for entirely by the company. Half of these organizations had 101-1000 employees and about 34% had more than 1000 employees. More than half of the sample consisted of organizations in the services industry. Mean benchmark scores for initial WWC entries were highest among Supportive Environments, Wellness Teams, and Operating plan, although standard deviations for Operating Plan and Evaluation were considerably larger than other benchmarks.

Table 8. Total Number of WWC Entries Completed.

# of Total Entries	# of Organizations
2	429
3	112
4	27
5	5
6	2
7	2



Table 9. Number of WWC Entries by Year and Level of Exposure to the WWC (i.e. number of the WWC entry).

<b>Year</b>	<b>1<sup>st</sup> Entry</b>	<b>2<sup>nd</sup> Entry</b>	<b>3<sup>rd</sup> Entry</b>	<b>4<sup>th</sup> Entry</b>	<b>5<sup>th</sup> Entry</b>	<b>6<sup>th</sup> Entry</b>	<b>7<sup>th</sup> Entry</b>	<b>Total Entries</b>
2008	70 (100.0)	-	-	-	-	-	-	70
2009	167 (84.3)	31 (15.7)	-	-	-	-	-	198
2010	150 (61.7)	83 (34.2)	10 (4.1)	-	-	-	-	243
2011	119 (43.3)	137 (49.8)	17 (6.2)	2 (0.7)	-	-	-	275
2012	49 (22.0)	134 (60.1)	33 (14.8)	6 (2.7)	1 (0.4)	-	-	223
2013	14 (9.2)	83 (54.6)	39 (25.7)	14 (9.2)	1 (0.7)	1 (0.7)	-	152
2014	8 (6.5)	79 (64.2)	23 (18.7)	4 (3.3)	7 (5.7)	1 (0.8)	1 (0.8)	123
2015	-	30 (43.5)	26 (37.7)	10 (14.5)	-	2 (2.9)	1 (1.4)	69
<b>Total Entries</b>	<b>577</b>	<b>577</b>	<b>148</b>	<b>36</b>	<b>9</b>	<b>4</b>	<b>2</b>	<b>1353</b>

Table 10. Sample Characteristics for Organizations at Their First WWC Entry (N=577).

Characteristics	N (%) or M ± SD
Duration of WHP efforts	
Just started	146 (25.3)
1-3 years	211 (36.6)
4-10 years	152 (26.3)
More than 10	68 (11.8)
Pay Structure for WHP	
Employee or Other	95 (16.5)
Shared costs	191 (33.1)
Company	291 (50.4)
WELCOA Member	261 (45.2)
Reasons for wellness programs <sup>1</sup>	
Health-related	515 (89.3)
Cost-related	404 (70.0)
Performance-related	51 (8.8)
Morale-related	98 (17.0)
Number of Employees	
Up to 100	91 (15.8)
101-1000	289 (50.1)
Over 1000	197 (34.1)
Multi-site	440 (76.3)
Multi-shift	415 (71.9)
Unionized	159 (27.6)
Industry	
Services	300 (52.0)
Manufacturing	86 (14.9)
Communication	4 (0.7)
Agricultural	1 (0.2)
Mining	4 (0.7)
Construction	7 (1.2)
Wholesale/retail	14 (2.4)
Transportation	10 (1.7)
Utilities	17 (2.9)
Finance	57 (9.9)
Government	61 (10.6)
Other	16 (2.8)
Overall WWC Scores	48.28 ± 17.85
Senior Leader Support	43.55 ± 22.04
Wellness Teams	56.08 ± 19.48
Data Collection	45.50 ± 21.51
Operating Plan	52.40 ± 36.16
Programming	44.70 ± 21.01
Supportive Environments	58.24 ± 17.27
Evaluation	46.82 ± 30.61

Note. <sup>1</sup>Reasons were grouped into four categories based on the WWC list of reasons.

### *Repeated Measures HLM*

Results from the repeated measures HLM analyses are presented in Table 11 and Table 12. Model 1 was run with the number of WWC entries (i.e. level of exposure) and the timing of organizations' first WWC entries examine variations in performance against quality benchmarks across years. Results for model 1, without covariates in the model, indicate that average WWC scores increase by just over 4 points for each exposure or reassessment completed. The timing of first-time entries was included as a variable to examine variations in starting performance against benchmarks. Organizations that completed their first WWC entry during the ACA had 5.35 points lower on the overall WWC than organizations that completed their first WWC entry in 2008 or 2009.

Model 2 controlled for the characteristics of organizations and their WHP initiatives. Among characteristics for which organizations have more choice or control over, all covariates were significantly related to overall WWC scores. Organizations that were implementing WHP initiatives for 1-3 years scored almost 14 points higher on the WWC than those that were just getting started. The longer that organizations had been implementing WHP initiatives, the higher they scored on the WWC. Organizations with a membership to WELCOA at the time that they completed the checklist scored almost 4 points higher than non-members. Employers paying some or all costs for WHP initiatives scored at least 6 points higher than organizations for which employees or other sources funding their WHP initiatives. Lastly, organizations that reported a health-related reason for implementing WHP initiatives scored 3.87 points higher than those that did not report a health-related reason.

Table 11. Repeated Measures HLM for Changes in WWC Scores.

Fixed Effect	Model 1		Model 2	
	Coefficient	<i>p</i> -value	Coefficient	<i>p</i> -value
<b>Intercept</b>	48.12	<0.001	24.40	<0.001
Number of WWC assessments	4.16	<0.001	1.51	<0.001
ACA in place for first exposure	-5.35	<0.001	-3.21	0.001
Age of WHP efforts				
Just starting			--	--
1-3 years			13.97	<0.001
4-10 years			18.82	<0.001
More than 10 years			21.12	<0.001
Membership to WELCOA			3.89	<0.001
Pay Structure for WHP				
Employees or other funding source			--	--
Shared costs			6.30	<0.001
Company-funded			6.02	<0.001
Health-related reasons			3.87	0.004
Cost-related reasons			1.68	0.084
Performance reasons			0.83	0.555
Morale reasons			1.43	0.223
Number of employees				
Up to 100			-6.82	<0.001
101-1000			-3.93	<0.001
Over 1000			--	--
Multi-site			2.62	0.008
Multi-shift			2.21	0.020
Unionized			-2.81	0.003
Services industry			0.59	0.521

Note. Variance Components Covariance Structure. Model 1: AIC = 11226.38; BIC = 11252.43; -2 Log Likelihood = 11216.38. Model 2: AIC = 10802.72; BIC = 10912.13; -2 Log Likelihood = 10760.72.

Table 12. Repeated Measures HLM for Each of the WWC Benchmark Scores.

Fixed Effect	Senior Leader Support	Wellness Teams	Data Collect.	Operating Plan	Programs	Supportive Environ.	Eval.
<b>Intercept</b>	16.08**	40.12**	18.44**	15.59*	23.82**	35.96**	13.73*
Num. of Assessments	1.43**	0.80	1.80**	4.04**	1.48**	0.70	3.10**
ACA for 1 <sup>st</sup> exposure	-3.42**	-5.24**	-0.40	-5.12**	-3.50**	-4.57**	-5.59**
Age of WHP efforts							
Just starting	--	--	--	--	--	--	--
1-3 years	12.49**	9.75**	14.85**	20.83**	15.98**	11.25**	22.03**
4-10 years	17.63**	13.97**	18.31**	26.96**	22.32**	15.78**	26.85**
More than 10 years	19.51**	17.13**	20.13**	31.02**	25.08**	18.09**	27.23**
WELCOA Membership	4.39**	4.14**	3.65**	5.77**	3.63**	3.10**	4.96**
Pay Structure for WHP							
Employees or other	--	--	--	--	--	--	--
Shared costs	10.28**	4.87**	4.52**	8.44**	5.42**	7.06**	8.36**
Company-funded	10.08**	4.68**	5.84**	9.57**	3.86**	5.12**	9.91**
Health-related reasons	6.57**	4.88**	1.87	9.75**	3.18*	4.35**	1.30
Cost-related reasons	1.15	1.11	3.80**	0.30	0.33	1.65	2.79
Performance reasons	0.61	0.33	2.63	3.71	-0.81	1.70	0.02
Morale reasons	1.86	1.78	2.78	-1.28	-0.19	2.17	0.30
Number of employees							
Up to 100	-1.86	-12.13**	-6.03**	-8.91**	-7.77**	-7.79**	-3.38
101-1000	-2.13	-6.94**	-2.15	-7.34**	-5.46**	-2.53*	-5.20**
Over 1000	--	--	--	--	--	--	--
Multi-site	2.24	1.81	3.33*	3.23	1.91	3.13**	5.60**
Multi-shift	-0.94	0.95	4.70**	0.83	2.31*	2.47*	2.07
Unionized	-3.97**	0.78	-4.95**	-3.26	-2.61*	-0.85	-5.17**
Services industry	1.44	1.95	-1.00	2.57	0.27	1.09	1.18

Note. \*  $p < 0.05$ ; \*\*  $p < 0.01$

Consistent with prior research, organizations with more than 1000 employees scored almost 7 points higher than organizations with 100 or fewer employees and almost 4 points higher than organizations with 101-1000 employees. Organizations with multiple sites or multiple shifts scored at least 2 points higher than organizations that were not multi-site or multi-shift. Finally, unionized organizations scored 2.81 points lower on the WWC entry than organizations that were non-unionized.

While controlling for these covariates, both the number of WWC assessments and the timing of the first-time WWC entries were significantly related to overall WWC scores. For each additional exposure to or reassessment with the WWC, organizations overall WWC scores increased by 1.51 points. After controlling for the characteristics of organizations, organizations that submitted their first WWC entries in years while the ACA was in place (i.e. 2010-2015) scored 3.21 points lower on their first WWC entries than organization that submitted their first entries prior to the ACA.

To examine changes in specific benchmark scores over time, HLM was run with each of the 7 benchmarks as dependent variables. Results are presented in Table 12. There were significant associations among the characteristics of organizations WHP initiatives and their scores across the 7 benchmarks. First, the length of time that WHP initiatives had been in place for organizations suggests that across all benchmarks, scores are higher for longer standing WHP initiatives. WELCOA membership is associated with higher scores across all benchmarks. Organizations that are investing financial resources to pay some or all costs of WHP initiatives also had higher scores across all benchmarks than organizations in which employees or other sources were funding WHP initiatives.

Finally, organizations that indicated a health-related reason for implementing WHP initiatives performed higher across all benchmarks *except* for Data Collection and Evaluation. On the other hand, organizations that indicated a cost-related reason for implementing WHP initiatives significantly scored higher on the Data Collection benchmark.

With regards to the characteristics of the organizations, organizations with 100 or fewer employees scored significantly lower than organizations with more than 1000 employees across all benchmarks *except* Senior Leader Support and Evaluation. Organizations with 101 to 1000 employees scored significantly lower than organizations with more than 1000 employees across all benchmarks *except* for Senior Leader Support and Data Collection. Organizations with multiple sites scored significantly higher on Data Collection, Supportive Environments, and Evaluation benchmarks. Organizations with multiple shifts scored significantly higher on for Data Collection, Programming, and Supportive Environments. Finally, unionized organizations scored significantly lower on Senior Leader Support, Data Collection, Programming, and Evaluation.

After controlling for these covariates, scores increased with each additional exposure to the WWC for the Senior Leader Support, Data Collection, Operating Plans, Programming, and Evaluation benchmarks. With each additional exposure to or reassessment with the WWC, organizations scores for Operating Plan and Evaluation increased by more than 3 points. For organizations that completed their first WWC entry in years during the ACA (i.e. 2010-2015), scores were significantly lower across all benchmarks *except* for Data Collection.

## **Discussion**

This study examined longitudinal changes in performance against quality benchmarks over time related to organizations' level of exposure to or reassessments using the checklist and organizations' initial performance against benchmarks based on when first-time WWC entries were completed. There were 577 organizations with repeated WWC entries from 2008 through 2015. There were significant relationships between performance against benchmarks and the level of exposure to the WWC process and feedback as well as the timing of first entries submitted by organizations.

Organizations WWC scores increased with each exposure or each additional reassessment using the WWC. There could be several explanations for the significant relationship between exposure and performance. Increased exposure to the checklist may be a measure of organizations' commitment to WHP, as they are investing their time to reassess their performance using the WWC across years. Organizations may be reassessing their performance against benchmarks specifically because of changes that they have made related to their WHP. It's also possible that the WWC assessment and its resulting report serve as an intervention tool, identifying benchmarks and actions that could be taken to improve the quality of WHP initiatives. It's also important to acknowledge the limitation of the WWC being a self-report instrument which could motivate social desirability in responses, especially with regards to reassessment entries. Unfortunately, the data do not yet exist to help explain the motivations for reassessing using the WWC nor the specific reasons behind increases in performance that are associated with repeated exposure to the checklist.



This significant positive relationship between the number of WWC assessments and performance against quality benchmarks was consistent across all benchmarks except for Wellness Teams and Supportive Environments. These two benchmarks also had the highest mean scores among organizations' first WWC entries. Perhaps their higher mean scores at baseline reflect organizations' capacity for taking actions to improve the quality of Wellness Teams and Supportive Environments. In other words, those may be benchmarks for which actions may be easier to enact at the start but more challenging to improve upon.

Organizations that submitted their first WWC entry in years while the ACA was enacted had significantly lower overall WWC scores than organizations that submitted their first WWC entry prior to the passing of the ACA. Organizations that sought out and completed the WWC assessment prior to the passing of the ACA, while the checklist was newly available online, may be early adopters of the WWC and possibly early adopters of WHP initiatives. The passing of the ACA and the inclusion of incentives for quality WHP initiatives may have encouraged organizations to complete the WWC assessment, even if they had not had a previously active WHP initiative. Organizations may have been interested in knowing their baseline performance and acquiring strategies for improving the quality of their initiatives in an effort to obtain incentives for WHP initiatives in the future.

Also, for organizations that submitted their first WWC entry in years while the ACA was enacted, scores were significantly lower across all benchmarks *except* for Data Collection. The WWC assesses the use of data collection instruments such as health risk

assessments, health screenings, as well as collecting data on health care and worker's compensation claims. Perhaps these types of data collection were commonplace for many organizations prior to the passing of the ACA, making it less likely that organizations would score significantly lower for years following the passing of the ACA.

While controlling for the characteristics of organizations and their WHP initiatives, this study found significant relationships between those characteristics of organizations and their WWC benchmark scores. Organizations investing their own financial resources to fund WHP initiatives score higher across all quality benchmarks, although the Senior Leader Support, Wellness Teams, Programming, and Supportive Environments benchmark scores were higher for organizations that shared those costs with employees. Thus, organizations that are investing more of their resources to fully-fund WHP initiatives may be more motivated to collect data and evaluate their WHP initiatives to determine the return of their investment. Similarly, organizations that indicated cost-related reasons for implementing WHP initiatives scored significantly higher for Data Collection. This may be related to the use of health risks, health screenings, health care and worker's compensation claims data being used to assess costs associated with health and WHP initiatives.

Organizations that indicated health-related reasons for implementing WHP initiatives scored higher across all benchmarks *except* for Data Collection and Evaluation. It is possible that health-related reasons for implementing WHP initiatives are representative of shifts away from the return-on-investment for WHP initiative towards a value-on-investment. The field may be starting to shift away from the use of health care

claims or health screenings towards values such as employee needs, satisfaction, overall wellbeing, or morale. Given that the WWC was developed in earlier years, these new values and measures for WHP initiatives may not be reflected. Thus, future research should consider the relevancy of the data collection items included in the WWC.

Additionally, organizations with longer standing WHP initiations on average perform higher on the WWC, and across all benchmarks, than those just getting started with WHP initiatives. This continued commitment to implementing and sustaining WHP initiatives may be key to improving performance against quality WHP benchmarks over time. Increased exposure to the WWC through continued reassessment of WHP initiatives across years may also be related to an organizations' commitment to implementing quality WHP initiatives. Although organizations are implementing WHP initiatives for a variety of reasons, those value propositions could change over time. Future research may benefit from further examination of the value propositions among organizations that are sustaining and improving the quality of WHP initiatives over time.

The WWC may be useful in providing guidance to organizations by introducing ideas and strategies to help improve performance against the benchmarks. Organizations that invest their time to reassess the quality of their WHP initiatives over time using the WWC did improve their performance against quality benchmarks. Unfortunately, we can only speculate the factors that contribute to those improvements in performance over time. Additionally, it was expected that WWC scores would be higher for organizations that completed their first WWC entry during years for which the ACA was enacted. However, WWC scores were lower among first-time WWC entries during the ACA,

compared to those submitted prior to the passing of the ACA. The ACA reflects changes in value propositions as well as a broader focus on health and wellbeing of individuals which may not be represented within WHP assessments that were developed prior to the ACA (Anderko et al., 2012). If this is the case, it may suggest the need for new assessments that reflect shifts away from financial returns towards new value propositions for WHP initiatives.

### ***Limitations***

This study includes a convenience sample of organizations assessing the quality of their WHP initiatives using the WWC. Therefore, results are generalizable only to organizations that self-assess their WHP initiatives using the WWC. The WWC data is self-reported by individuals in organizations that are interested in assessing the quality of their WHP initiatives. It is possible that social desirability is a factor when responding to the WWC. Repeated exposure to the checklist may further influence social desirability and the pressure to see changes in performance across years. Recall error could also influence responses, especially to items that ask about actions taken in the last 12 months. These factors could explain improved performance with repeated exposure to the self-reported WWC.

### ***Implications***

Research has shown that company size, access to outside resources for WHP, and a history with implementing WHP has a positive influence on the comprehensiveness and effectiveness of WHP initiatives being implemented within organizations (Mattke et al.,

2013; Linnan et al., 2008). However, to date, there has not been a study to look at the changes in organizations' performance against WHP benchmarks over time.

For organizations that assess the quality of WHP initiatives using the WWC, improvements are being made over time. Although first-time entries that were completed after the ACA had lower starting scores, there were significant increases associated with more exposure to the WWC. Continued assessment of WHP initiatives may represent more commitment to and investment in WHP initiatives that could lead to improved quality.

Practitioners could use the WWC as a tool to help organizations identify areas for improvement related to quality benchmarks for WHP initiatives. Encouraging the investment of time and exposure to the WWC assessment as well as the resulting report that includes suggested actions to improve the quality of initiatives may be one strategy to help organizations with continued improvements to their WHP initiatives. Continued research to develop and test new measures to assess WHP initiatives and evaluate outcomes based on shifting value propositions may be needed to provide guidance for those implementing WHP initiatives.

## **CHAPTER VI**

### **CONCLUSION**

This study aimed to explore profiles of performance against a set of benchmarks for organizations that completed the Well Workplace Checklist (WWC), examine the relationship between performance and organizational characteristics, and examine changes in performance against the benchmarks over time. The overall purpose of the study was to gain an understanding of performance against WELCOA's 7 Benchmarks among organizations across the nation from 2008 through 2015. Hence, the research questions guiding this study were:

- (1) Are there distinct profiles of performance against the WELCOA 7 Benchmarks that characterize overall quality of WHP initiatives as indicated by their WWC benchmark scores?
- (2) Are organizational characteristics related to profiles of performance based on WWC benchmark scores?
- (3) Are there changes in organizations' performance against the WWC with repeated assessment of WHP initiatives over time?
- (4) Is the starting point for performance against quality benchmarks higher for organizations whose initial WWC entry was submitted while the ACA was enacted?
- (5) Are there differences in rates of change over time across WWC benchmarks?

## **Key Findings**

This study was consistent with prior findings that small organizations are doing less than larger companies for WHP initiatives (Linnan et al., 2008; Mattke et al., 2013; Harris et al., 2014). Small companies were more likely than those with more than 100 employees to be in the Team-Driven profile with employee wellness teams leading their WHP initiatives without strong organizational supports in place. Additionally, these smaller organizations tend to perform significantly lower across most of WELCOA's quality benchmarks, compared to those organizations with more than 1000 employees. Small organizations likely continue to be limited in their capacity to perform higher across quality benchmarks for WHP initiatives. Given that research has highlighted the challenges of implementing WHP initiatives for small organizations for multiple years, perhaps it is time to develop a quality assessment specifically for small organizations to help identify feasible action steps for small organizations to improve the quality of their WHP initiatives within the confines of resource limitations. This tailored assessment would need to take into account the limited capacity and resources of small organizations, focusing on addressing needs specific to their employee population.

Additionally, this study found other resource-related variations in performance against quality benchmarks. Organizations that invested financial resources to support their WHP initiatives performed higher against quality WHP benchmarks. Those with active an active membership to WELCOA were more likely to be in the Strategic-Feedback profile and score higher on the WWC and across all quality benchmarks. Additionally, organizations that paid some or all costs to fund WHP initiatives were least

likely to be in the lower performing Team-Driven profile. Both membership to WELCOA and direct costs for WHP initiatives require monetary resources available to support WHP in organizations. Thus, it is not surprising that larger organizations are more likely to have WELCOA memberships, score higher on the WWC, and have wellness integrated into business operating plans and evaluation strategies.

Organizations may not always be able to use financial resources for WHP initiatives, especially smaller organizations or those with fewer resources. However, organizations may have the ability to continue to implement and sustain WHP initiatives over time. Although the mere existence of a WHP initiative may not be sufficient to improve the health of employees or meet other outcomes, it seems as though organizations that have continued to invest their time into implementing WHP initiatives over time have improved the quality of those initiatives to some extent. For instance, the longer that WHP initiatives had been in place the higher the scores across each of the quality benchmarks. Perhaps the commitment to sustain WHP initiatives over time uncovers strategies that are or are not working so that the quality of WHP initiatives could be improved.

The reasons that organizations choose to implement WHP initiatives is also related to performance against quality benchmarks. Organizations that specified health-related reasons for WHP initiatives were most likely to be in the Strategic-Feedback profile, indicating more integration of WHP into business operating plans and evaluation strategies. Indicating a health-related reason for implementing WHP initiatives was also related to higher performance across all quality benchmarks *except* for Data Collection



and Evaluation. It may be that employers implementing WHP initiatives for health-related reasons are more likely to portray a sense of care and support to employees as opposed to employers that implement WHP initiatives for cost-related reasons. Despite the findings that health-related reasons are associated with higher performance against quality benchmarks, research has not examined outcomes associated with high-quality WHP initiatives. It may be beneficial to examine whether organizations' performance against quality benchmarks is associated with the specific outcomes that employers are interested in achieving with WHP initiatives.

It seems that employers could benefit from investing their time in consistent and continued assessment of WHP initiatives. Organizations that reassess the quality of their initiatives using the WWC were likely to increase performance against the benchmarks over time. Employers' increased exposure to the WWC report may highlight specific areas of strength and areas for improvement against the benchmarks that provide strategies to implement to improve the quality of initiatives. This would suggest an intervention effect of the WWC leading to improved scores with assessments. However, it is also possible that organizations which reassess the quality of their initiatives across years have more commitment to WHP initiatives, demonstrated by their investment of time to reassess their performance against quality benchmarks. It may be employers' dedication to implement and assess WHP initiatives that leads to their increased performance against quality benchmarks over time.

Early adopters of the WWC assessment performed higher with their first WWC assessment than late adopters (i.e. organizations that completed the WWC for the first

time after the passing of the ACA). This was true across all benchmarks *except* for Data Collection, which asks about data collection using measures that may be less common or less desired as the field of WHP shifts towards different value propositions such as morale or satisfaction. Despite the differences in variations of performance between early and late adopters of the WWC, organizations still appear to improve the quality of their WHP initiatives over time with increased exposure to or reassessments with the WWC. However, this also raises questions regarding the currency and relevancy of the WWC as the field shifts towards different value propositions. In fact, WELCOA is presently undergoing updates and changes to the WWC that will address the currency of the assessment tool, including the items included in the Data Collection benchmark.

### **Limitations**

This dissertation includes a convenience sample of organizations that self-selected to complete the WWC assessment, limiting the generalizability of results. Still, these results provide insight into the expected performance against quality benchmarks for organizations that seek out self-assessments of their WHP initiatives. Given that the WWC is a self-report measure, there are also limitations related to the reliability of the instrument. There may be recall bias for the employee completing the WWC, especially for questions that start with the stem “in the last 12 months...”. Although there is not data to indicate the reasons that employees may be completing the checklist, there may be increased social desirability if employees are completing the WWC to work towards receiving an award for high-quality initiatives or if they are completing the WWC as a performance review for their position. Including data that captures the reasons for

completing the WWC in the future may help to assess some of the differences in responses based on those reasons. Also, for organizations that completed the WWC assessment across years, the respondent of the WWC may change across years which could impact the reliability of results. Future studies could examine inter-rater and intra-rater reliability could provide more help to reduce limitations associated with the reliability of the instrument. Despite these limitations, results of this dissertation have implications for both practice and research.

### **Implications**

The WWC is a tool that organizations can access to assess their performance against quality benchmarks for WHP initiatives. It is publicly available for organizations to complete as often as desired. Organizations that complete the checklist receive a report based on their performance which highlights areas of strength and areas for improvement. The WWC may provide guidance to organizations seeking to improve the quality of their WHP initiatives. Therefore, employers may find these results helpful for completing a free assessment and comparing their results to organizations that may be similar to theirs.

Subgroups of performance profiles highlight variations in the quality of WHP initiatives as well as specific quality benchmarks that may need attention across different types of organizations that are interested in assessing and/or improving the quality of their WHP initiatives. Encouraging continual reassessment of the quality of WHP initiatives may be one strategy to guide organizations towards making changes to improve WHP initiatives. However, it is important to consider the differing levels of resources and capabilities of organizations. There may be needs for tailored assessment

tools based on varying levels of capacity and resources for WHP initiatives across different types of organizations.

Continued research should examine the relevance of benchmarks and assessments of quality across various types of organizations. Some guidelines for best practices encourage the implementation of a wide variety of programming which may not be feasible for all types of organizations. Small organizations with fewer resources available to spare for WHP effort may not have the capacity to implement a wide variety of programs. There may also not be a desire or need to implement a broad range of programming for organizations. It may be more important to have relevant and tailored programming as opposed to a wide variety of programming (Fonarow et al., 2015). Additionally, assessments and checklists available as resources to organizations have been tested and validated (Goetzel et al., 2014; Roemer et al., 2013). Nevertheless, more research may be necessary to test the validity of those assessments across different types and sizes of organizations, since a single set of criteria are probably not appropriate for the extensive variety of employer organizations that exist in the U.S.

To encourage employers to develop high-quality WHP based upon benchmarks, there needs to be supporting evidence that high-quality WHP initiatives will lead to the improved health of employees or other desired outcomes such as improved morale, increased productivity, increased retention of employees. With evidence to support these outcomes associated with quality benchmarks, employers may be more likely to adopt and implement quality WHP initiatives. One study found a positive relationship between quality benchmark performance and reduced health care costs; however, this study was

conducted with only 33 organizations and only examined health care costs over a three-year period (Goetzel et al., 2014). As paradigms in WHP shift towards new value propositions on health, quality of life, recruitment and retention of talent, and other outcomes of interest to stakeholders, there may be an increased need to explore relationships between quality metrics and these outcomes of interest in order to better inform all stakeholders (Mattke et al., 2013; O'Donnell, 2014).

## **CHAPTER VII**

### **REFLECTION AND LESSONS LEARNED**

This section describes my overall experience in carrying out the dissertation and ends with my thoughts about what I have learned in the process will inform my future work. My interest in WHP grew out of personal experiences, the increasing need to address lifestyle behaviors, and the extensive reach that worksites offer. Practice and research seem to focus much of their WHP work on specific wellness-related programs offered to employees. When the opportunity arose to work with secondary benchmark data collected by the Wellness Council of America (WELCOA), I was excited to explore more about the overall WHP initiatives within organizations across the nation.

First and foremost, my goal for this study was to learn more about the current practices and performance of WHP initiatives against benchmarks. I feel that it is important to understand what organizations are doing and how their performance measures up against quality benchmarks so that we can begin to identify specific areas for which additional supports and strategies are needed. If we believe that these benchmarks are indicators of quality, then we would want to develop tools to assist organizations with improving their performance against these quality benchmarks.

I was also driven by my personal goal to increase my own knowledge and expertise working with large datasets. I was able to learn and experience conducting new statistical analyses suited to these data. I was able to conduct analyses to better

understand the relationships between organizations' characteristics and performance against quality benchmarks for WHP initiatives. The Latent Profile Analysis allowed for the opportunity to examine subgroups of performance against the benchmarks which painted a picture of overall WHP initiatives measured by quality benchmarks that may be likely among U.S. organizations. These data included organizational-level data across eight years, which made the Hierarchical Linear Model a good fit for looking at changes over time while accounting for characteristics of the organizations. Both of these approaches were new analyses for me to learn and understand.

There were also challenges in working with these data. This was a large dataset that had not been downloaded or cleaned prior to my involvement. Given that this was a publicly available assessment tool, the data were muddled with entries that had been identified as mock or student entries. One way to identify those that were mock entries was to use search terms such as "test", "mock", or "student" to easily highlight those that needed to be omitted from the data. The only other way to identify those that were mock entries was to scroll through more than 4,000 entries to look for entries that stood out based on company name, address, position, or individual completing the WWC. As a new researcher, this was a valuable experience to get exposure to working with a large dataset as well as the depth of cleaning that may be necessary for working with future datasets.

Another challenge of working with these data was related to response options. For example, an item asking about annual budgets for WHP initiatives was open-ended for respondents to write in a response. The wide-variety of written responses made this question unusable in data analysis. Working with secondary data, you do not always have

the opportunity to provide input prior to data collection processes. Although this presents challenges, it may also help with developing new instruments or refined processes for future research opportunities. In this case, I had the opportunity to provide feedback to WELCOA and have input on the advisory board to develop a new version of the WWC.

Completing this dissertation has come with many lessons learned, not just about organizations' performance against quality benchmarks for WHP initiatives. Understanding and interpreting results are not just about appropriately running analyses, especially when it comes to using secondary data. It is essential to be familiar with the process from start to finish – how data collection instruments were developed, what items were measured, relationships among constructs measured, the make-up of data entries, and a comprehensive knowledge of the field. Working with a large dataset can take a lot of time to become familiar with the data, including variables that may be of interest as well as possible missing, outlying, invalid, or otherwise erroneous data. This can and often should be a reiterative process to ensure accurate results.

This experience will influence my work going forward in many ways. I am especially grateful for the experiential learning of the Hierarchical Linear Modeling approach, knowing that I may be working with similar data structures that require multi-level modelling in the future. I now have a clearer grasp of the time that it takes to become familiar with data, clean data, and conduct analyses which I think will be useful when discussing and planning for future projects. Finally, the increased knowledge gained related to quality benchmarks for WHP initiatives will inform research questions that will guide my work going forward.



## REFERENCES

- Allen, T. (1990). Three Community Programs Change Heart Health Across the Nation. Info memo Special Edition.
- Anderko L, Roffenbender JS, Goetzel RZ, Millard F, Wildenhaus K, et al. (2012). Promoting Prevention Through the Affordable Care Act: Workplace Wellness. *Prev Chronic Dis*, 9:120092.
- Asparouhov, T., & Muthén, B. (2014). Auxiliary variables in mixture modeling: Three-step approaches using M plus. *Structural Equation Modeling: A Multidisciplinary Journal*, 21(3), 329-341.
- Baase C, Flynn J, Goetzel R, Pronk N, Terry P, White J. (2014). Environmental Scan: Measuring a Culture of Health. Edina, MN: Health Enhancement Research Organization.
- Bodenheimer, T., Lorig, K., Holman, H., & Grumbach, K. (2002). Patient self-management of chronic disease in primary care. *Jama*, 288(19), 2469-2475.
- Bureau of Labor Statistics. (n.d.). Monthly number of full-time employees in the United States from May 2017 to May 2018 (in millions, unadjusted). In *Statista - The Statistics Portal*. Retrieved June 29, 2018, from <https://www.statista.com/statistics/192361/unadjusted-monthly-number-of-full-time-employees-in-the-us/>.

- Caldwell, B. (1997). Disease Management Expands Scope of Health Promotion Programs. *Employee Benefit Plan Review*, 51(11).
- Centers for Disease Control and Prevention. (2016). Workplace Health Promotion. Retrieved July 2018 from <https://www.cdc.gov/workplacehealthpromotion/model/index.html>.
- Centers for Disease Control and Prevention. (2018). Health and Economic Costs of Chronic Diseases. National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP). Retrieved August 2018 from <https://www.cdc.gov/chronicdisease/about/costs/index.htm>.
- Chapman, L. S. (2004). Expert opinions on "best practices" in worksite health promotion (WHP). *American Journal of Health Promotion*, 18, 6.
- Chapman, L. S. (2012). Meta-evaluation of Worksite Health Promotion economic return studies: 2012 Update. *American Journal of Health Promotion*, 19(6), 1–11.
- Chen, L., Hannon, P. A., Laing, S. S., Kohn, M. J., Clark, K., Pritchard, S., & Harris, J. R. (2015). Perceived workplace health support is associated with employee productivity. *American Journal of Health Promotion*, 29(3), 139-146.
- Christenson, G. M., & Kiefhaber, A. (1988). Highlights from the National Survey of Worksite Health Promotion Activities. *Health Values*, 12(2), 29-33.
- Claxton, G., Rae, M., Long, M., Panchal, N., Damico, A., Kenward, K., & Whitmore, H. (2015). Employer Health Benefits 2015 Annual Survey. Retrieved from <http://kff.org/health-costs/report/2015-employer-health-benefits-survey/>

- Cottrell, R. R., Girvan, J. T., McKenzie, J. F., & Seabert, D. (2018). *Principles & foundations of health promotion and education*. San Francisco: Benjamin Cummings.
- DeJoy, D. M., & Southern, D. J. (1993). An integrative perspective on work-site health promotion. *Journal of Occupational Medicine: Official Publication of the Industrial Medical Association*. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/8113926>
- Faghri, P. D., Kotejoshyer, R., Cherniack, M., Reeves, D., & Punnett, L. (2010). Assessment of a worksite health promotion readiness checklist. *Journal of Occupational and Environmental Medicine, 52*(9), 893–9.
- Fertman, C. I. (2015). *Workplace Health Promotion Programs: Planning, Implementation, and Evaluation*. San Francisco: Jossey-Bass.
- Fielding, J. E. (1984). Health promotion and disease prevention at the worksite. *Annual Review of Public Health, 5*(5), 237–265.
- Fonarow, G. C., Calitz, C., Arena, R., Baase, C., Isaac, F. W., Lloyd-jones, D., ... Antman, E. M. (2015). Workplace Wellness Recognition for Optimizing Workplace Health A Presidential Advisory from the American Heart Association, 480–498.
- Gerteis J, Izrael D, Deitz D, LeRoy L, Ricciardi R, Miller T, Basu J. (2014). Multiple Chronic Conditions Chartbook. *Agency for Healthcare Research and Quality*, Rockville, MD.

- Goetzel, R. Z., Guindon, A. M., Turshen, I. J., & Ozminkowski, R. J. (2001). Health and Productivity Management: Establishing Key Performance Measures, Benchmarks, and Best Practices. *Journal of Occupational & Environmental Medicine*, 43(1), 10–17.
- Goetzel, R. Z., Henke, R. M., Benevent, R., Tabrizi, M. J., Kent, K. B., Smith, K. J., ... Anderson, D. R. (2014). The predictive validity of the HERO Scorecard in determining future health care cost and risk trends. *Jour of Occu and Environ Med / American College of Occupational and Environmental Medicine*, 56(2), 136–44.
- Goetzel, R. Z., Henke, R. M., Tabrizi, M., Pelletier, K. R., Loeppke, R., Ballard, D. W., ... Metz, R. D. (2014). Do workplace health promotion (wellness) programs work? *Journal of Occupational and Environmental Medicine / American College of Occupational and Environmental Medicine*, 56(9), 927–34.
- Goetzel, R. Z., Shechter, D., Ozminkowski, R. J., Marmet, P. F., Tabrizi, M. J., & Roemer, E. C. (2007). Promising Practices in Employer Health and Productivity Management Efforts: Findings from a Benchmarking Study, 49(2).
- Grosch, J. W., Alterman, T., Petersen, M. R., & Murphy, L. R. (1998). Worksite health promotion programs in the U.S.: factors associated with availability and participation. *American Journal of Health Promotion*, 13, 1.

- Hannon, P. A., Garson, G., Harris, J. R., Hammerback, K., Sopher, C. J., & Clegg-Thorp, C. (2012). Workplace health promotion implementation, readiness, and capacity among mid-sized employers in low-wage industries: a national survey. *Journal of occupational and environmental medicine/American College of Occupational and Environmental Medicine*, 54(11), 1337.
- Harris, J. R., Hannon, P. a, Beresford, S. a, Linnan, L. a, & McLellan, D. L. (2014). Health promotion in smaller workplaces in the United States. *Annual Review of Public Health*, 35, 327–42.
- Health Enhancement Research Organization (HERO). (2014). About HERO. Accessed April 18, 2017 from <http://hero-health.org/about-hero/>.
- IBM Corp. (2017) IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corporation.
- Linnan, L., Bowling, M., Childress, J., Lindsay, G., Blakey, C., Pronk, S., ... Royall, P. (2008). Results of the 2004 National Worksite Health Promotion Survey. *American Journal of Public Health*, 98(8), 1503–1509.
- Marlo, K., Serxner, S., Kichlu, R., & Ratelis, E. (2016). *Achieving a culture of health in the workplace*. Eden Prairie, MN. Retrieved from <https://broker.uhc.com/assets/culture-of-health-white-paper-optum.pdf>.
- Marsh, H. W., Lüdtke, O., Trautwein, U., & Morin, A. J. S. (2009). *Classical Latent Profile Analysis of Academic Self-Concept Dimensions: Synergy of Person- and Variable-Centered Approaches to Theoretical Models of Self-Concept*. *Structural Equation Modeling: A Multidisciplinary Journal* (Vol. 16).

- Mattke, S., Liu, H., Caloyeras, J. P., Huang, C. Y., Busum, K. R. Van, Khodyakov, D., & Shier, V. (2013). Workplace Wellness Programs: Services Offered, Participation, and Incentives. *RAND Corporation*. Retrieved from [https://aspe.hhs.gov/system/files/pdf/76661/rpt\\_wellness.pdf](https://aspe.hhs.gov/system/files/pdf/76661/rpt_wellness.pdf).
- Muthén, L.K. and Muthén, B.O. (1998-2017). Mplus User's Guide. Eighth Edition. Los Angeles, CA: Muthén & Muthén.
- O'Donnell M. (1997). Benchmarking best practices in workplace health promotion. *Am J Health Promot*, 1, 1–8.
- O'Donnell, M. P. (2014). *Health promotion in the workplace: Improving awareness, enhancing motivation, building skills, and creating opportunities 4<sup>th</sup> ed.* Troy, MI: American Journal of Health Promotion.
- Osterberg, L., & Blaschke, T. (2005). Adherence to medication. *New England Journal of Medicine*, 353(5), 487-497.
- Roemer, E. C., Kent, K. B., Samoly, D. K., Gaydos, L. M., Smith, K. J., Agarwal, A., ... Goetzel, R. Z. (2013). Reliability and Validity Testing of the CDC Worksite Health ScoreCard. *Journal of Occupational and Environmental Medicine*, 55(5), 520–526.
- Stokols, D., Pelletier, K. R., & Fielding, J. E. (1996). The ecology of work and health: research and policy directions for the promotion of employee health. *Health Education Quarterly*, 23(2), 137–158.

- Terry, P. E., Seaverson, E. L. D., Grossmeier, J., & Anderson, D. R. (2008). Association Between Nine Quality Components and Superior Worksite Health Management Program Results. *Journal of Occupational & Environmental Medicine*, 50(6), 633–641.
- US Department of Health and Human Services. (2000). *Healthy people 2010: understanding and improving health*. Washington, DC: Government Printing Office.
- US Department of Health and Human Services. (n.d.). Educational and Community-Based Programs. Retrieved July 2018, from <https://www.healthypeople.gov/2020/topics-objectives/topic/educational-and-community-based-programs/objectives>
- US Department of Labor. (1987). SIC Code Lookup. Retrieved July 2018, from [https://www.osha.gov/pls/imis/sic\\_manual.html](https://www.osha.gov/pls/imis/sic_manual.html)
- Vesely, R. (2012). Shaping Up: Workplace Wellness in the 80s and Today. *Workforce*. Accessed April 18, 2017 from <http://www.workforce.com/2012/07/18/shaping-up-workplace-wellness-in-the-80s-and-today/>.
- Ward BW, Schiller JS, Goodman RA. (2014). Multiple chronic conditions among US adults: a 2012 update. *Prev Chronic Dis*.
- Weaver, G. M., Mendenhall, B. N., Hunnicutt, D., Picarella, R., Leffelman, B., Perko, M., & Bibeau, D. L. (2018). Performance Against WELCOA’s Worksite Health Promotion Benchmarks Across Years Among Selected US Organizations. *American Journal of Health Promotion*, 32(4), 1010-1020.

Wellness Council of America (WELCOA). (2017). Learn About the Award. The Well  
Workplace Award Application. Accessed on April 18, 2017 from  
<http://wellworkplaceawards.org/>