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Exploring Relationship Among Programmatic Expertise, Work Engagement, and Turnover Intentions Across Different Generation Cohorts in State and Local Governmental Public Health Agencies

Stephanie L. Irvin

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ENGAGEMENT, AND TURNOVER INTENTIONS ACROSS DIFFERENT
GENERATIONAL COHORTS IN STATE AND LOCAL GOVERNMENTAL PUBLIC
HEALTH AGENCIES

by

STEPHANIE LASTESHA IRVIN

(Under the Direction of Bettye Apenteng)

ABSTRACT

This study examined the relationship among public health programmatic competencies, work engagement, and turnover intentions among state and local public health workers. It also explored the moderating role of generational cohorts in these relationships. It employed a quantitative secondary data analysis using the 2021 PHWINS survey, a collaboration between the de Beaumont Foundation and The Association of State and Territorial Health Officials. The study's principal findings shed light on critical relationships within the public health workforce: Firstly, an increase in programmatic expertise among public health professionals is linked to increased work engagement, particularly notable within the Millennial cohort. Secondly, a noteworthy inverse correlation is observed between programmatic expertise and turnover. This connection is partially mediated by work engagement. Lastly, the study finds that work engagement significantly reduces turnover, with a more pronounced effect observed among the Generation X cohort. These findings emphasize the intricate interplay between programmatic expertise, work engagement, and turnover within different generational cohorts in the public health sector. The study's findings have significant implications for crafting and implementing retention strategies that leverage the unique preferences of each generation.

INDEX WORDS: Competency, Generation cohorts, PH WINS, Public Health workforce, Work engagement, Turnover intention,

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STEPHANIE LATESHA IRVIN

B.S., Fort Valley State University, 2011

MPH, Fort Valley State University, 2014

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in Partial Fulfillment of the Requirements for the Degree

DOCTOR OF PUBLIC HEALTH

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STEPHANIE LASTESHA IRVIN

Major Professor: Bettye Apenteng
Committee: Kwabena Boakye
                          Samuel Opoku

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DEDICATION

This study is dedicated to my autistic son, Peyton Elijah. This journey has been just as much of a sacrifice for you as it has been for me. As I pursued my dreams, you were patient, understanding, and encouraging through the countless late nights and long weekends spent finishing coursework and writing my dissertation. My hope is that through my journey, you will see that all your dreams will come true, no matter how big, as long as you are willing to put in the hard work.

I also dedicate my dissertation to my wonderful parents, Mamie and Anthony Irvin, whose words of encouragement and persistent faith in me have given me the strength to complete this journey. I appreciate all that y'all have done for me way more than you will ever know.

I dedicate this work to my grandmother, Clara Irvin, and best friend, Sharniese Reynolds. Even though you are not with us any longer, I am so very grateful for all that you did for me, for the reassurance that I could do this, and for just being there when I needed you.

Last but by no means least, I dedicate this work and give special thanks to my husband, DeShawn. Thank you for being there throughout this process, for being a shoulder to cry on, for helping me celebrate the victories, and for being my biggest cheerleader.

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I am thankful to my support system (family, friends, GSU classmates, and carpool buddies) for supporting me in the writing of this dissertation. I truly appreciate the checking in and words of encouragement. The helpful tips and reminders helped a lot. Thank you.

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CHAPTER 1

INTRODUCTION

Background

According to the Commonwealth Fund, the United States spends more on health care than other developed countries but produces some of the worst health outcomes (Tikkanen & Abrams, 2020). The United States continuously faces public health challenges and emergencies, such as disease outbreaks and natural disasters. Health threats can arise, and the role of all public health professionals is to protect the community's health from the unexpected (Redd et al., 2017). However, the nation's public health infrastructure is consistently underfunded, intensifying the severity of these public health issues (Filip et.al.,2022).

The primary role of the public health workforce is to address significant health crises within the community. However, public health remains misunderstood by not only the public but the dedicated practitioners who provide its essential services. Public health means many things to various individuals. The multi-dimensionality of the public health image reflects the diversity in the population it serves. To some people, the public health workforce exemplifies a broad social system. To others, the image is still that of the body of knowledge, research, interventions, and techniques that can be applied to health-related issues and problems (Turnock, 2018). However, for most of the public, public health primarily involves services and activities that are provisions of medical care to indigent populations that are provided by governmental public health agencies (Waterfield, 2019).

Public health is the science of protecting and improving the health of families and communities through promoting healthy lifestyles, conducting research for disease and injury prevention, and detecting and controlling infectious diseases (CDC Foundation, 2023). Public health practice is consistently growing as population health needs evolve globally. Unfortunately, despite over a century of public health advances in reducing and eliminating injuries and diseases while increasing life expectancy, the public health system in the United States still faces many challenges. These challenges include emerging infectious diseases, increased burden of chronic diseases, lower than expected performance in terms of health quality, access to health care, efficiency of health services, and health equity (Bekemeier et al., 2016). Because of these endless challenges, the public health workforce needs to be up to date on the necessary knowledge and skills to effectively deliver the essential core public health services (Benjamin, 2001). Public health workers must continually ensure that essential public health services are available to those who need them at the time of need (Gebbie,1999).

The public health workforce is the central part of the public health infrastructure. Their task is to ensure the quality and accessibility of health services while focusing on the population's health needs (Gebbie, 1999). Public health professionals provide Essential Public Health Services (EPHS), regardless of the nature of the employing agency (US DHHS, 1997). Public health provides a variety of direct services, including health screenings and clinics, nutritional programs, well-child care, immunizations, prenatal care, and public health information about healthy lifestyles and practices for the community (Centers for Disease Control and Prevention, 2021).

The public health workforce is experiencing dynamic changes (Beck & Boulton, 2015; Shah & Madamala, 2015). The local and state public health workforce must respond to a growing

focus on accountability, massive budget and workforce cuts, changes in the overall health system, and new technologies (Trust for America's Health, 2013). In the face of forthcoming retirements in the public health workforce, motivating and retaining the next generation of public health leaders has emerged as a critical concern in local and state health agencies. As the majority of the public health workforce is expected to retire soon, it is crucial for leadership to understand and respond to the needs of the next generation of leaders to maintain and keep talent (Espinoza, 2012). Leadership needs to understand the challenges each cohort represents, as well as the social/generational differences they express, to train and build future operations with multi-generational groups (Espinoza, 2012).

Statement of Problem

The public health workforce faces challenges because of limited resources and infrastructure (Beck & Boulton, 2015; Shah & Madamala, 2015). The local and state public health workforce must respond to a growing focus on accountability, massive budget and workforce cuts, changes in the overall health system, and new technologies (Rutkow et al., 2014). Despite this increase in workload demand, data from the PH WINS Survey, a nationally representative survey of state public health agencies, indicates that a significant proportion of public health professionals are considering leaving their organizations within the next five years (PH WINS 2017).

As the public health workforce prepares for generational change, significant levels of retirement (Bogaert et al.,2021), and increasing voluntary turnover rates, attention to drivers of recruitment and retention, as well as capacity building, becomes critical. In the context of public health, it's crucial to emphasize that possessing programmatic expertise and maintaining a highly

engaged workforce are fundamental prerequisites for achieving enhanced productivity and ensuring employee retention.

Purpose of the Study

The purpose of this study was to explore the relationship among programmatic expertise, work engagement, and turnover intention and to assess if these relationships differ for different generational cohorts. This study aligns with the overarching objective of establishing and maintaining programmatic expertise within the public health workforce to effectively deliver Essential Public Health Services. Additionally, it offers insights that may illuminate strategies for optimizing the functionality of public health systems during periods of generational transitions.

Research Questions

To test these central ideas, this research sought to address the following specific research questions:

1. Is there a relationship between programmatic expertise and turnover intention?
2. Is the relationship between programmatic expertise and turnover intention mediated by work engagement?
3. Is the relationship among programmatic expertise, turnover intention, and work engagement moderated by generational cohort?

Research Hypotheses

The study makes the following hypotheses:

Hypothesis 1: Programmatic expertise is negatively associated with turnover intentions among state and local public health workers.

Hypothesis 2: Programmatic expertise is positively associated with work engagement among state and local public health workers.

Hypothesis 3: The relationship between programmatic expertise and turnover intentions among state and local public health workers is mediated by work engagement.

Hypothesis 4A: The relationship between programmatic expertise and work engagement is moderated by generational cohort.

Hypothesis 4B: The relationship between work engagement and turnover intention is moderated by generational cohort.

Conceptual Framework

Strauss and Howe (1991) popularized the Generational Cohort Theory (GCT) in their book Generations: The History of America's Future, 1584 to 2069. This theory suggests that social cycles repeat themselves every four generations. Each of these generations is called a cohort, which is defined as a group of individuals having a statistical factor (such as age) in common in a demographic study (Merriam-Webster, 2019). The idea of Generational Cohort Theory has the notion that there have been distinct cohorts throughout history that shared characteristics and values.

According to Generational Cohort Theory, important historical events and social changes in society affect individuals' attitudes, beliefs, values, and feelings. These events might include

traumatic episodes like public health pandemics, wars, substantial changes in the distribution of resources, heroic figures such as Martin Luther King, Jr., or experiences like Woodstock that represent a philosophy (Sessa, et al., 2007). Events that unfold during the developmental stages in life rather than later years of individuals are especially significant. Therefore, individuals born during a time, and thus corresponding to the same cohort, will often share the same feelings and understanding styles. Furthermore, Jutkiewicz and Brown (1998) assumed these effects persist over time. The main alternative to generational cohort theory is the supposition that beliefs, attitudes, values, and feelings are primarily a function of maturity and age rather than generation. Generational cohort theory diverges from this perspective, arguing that changes across generations are primarily a function of social events rather than biological processes (Sessa, Kabacoff, Deal, & Brown, 2007).

The Generational Cohort Theory provides a framework for understanding generational differences in local and state governmental public health agencies. Applying the Generational Cohort Theory to this study, it is expected that there will be shared influences in how generational cohorts navigate the workplace, leading to varying responses to the workplace environment and potentially different mechanisms of turnover. Accordingly, it is hypothesized that generational cohorts will moderate the programmatic expertise–work engagement–turnover relationship.

Significance and Relevance of the Study

According to the Council on Linkages, an examination of public health competencies identifies basic skills for the effective delivery of public health services by assessing employees' knowledge and skills, identifying training needs, developing workforce development, and training plans, creating job descriptions, and conducting performance evaluations (Core Competencies for

Public Health Professionals, 2021). An effective application of public health competencies can benefit the organization and individuals within them. Research shows that focusing on public health competencies development helps improve and strengthen the public health workforce for efficient and effective delivery of public health services (Core Competencies for Public Health Professionals, 2021).

Competency in work-related knowledge, skills, and behavior has been shown to positively and significantly affect work engagement (Ida et.al.,2020). Foundational competencies have also been associated with work commitment among employees (Haruna & Marthandan, 2017; Nasrul, Masdupi, & Syahrizal, 2019). High work engagement, in turn, has been linked to improvement in work performance, decreased employee turnover, and reduced intention to quit (Yalabik, 2013).

Among both public- and private-sector employers, employee engagement, in general, has been identified as a key factor in productivity, job satisfaction, and higher employee retention (Smith, Spears-Jones, Acker, & Dean, 2020). Highly engaged employees are motivated to do their best, place organizational interests above personal interests, be innovative, and contribute to a community work environment (Marrelli, 2011). In contrast, disengaged employees become more focused on tasks rather than results, do not have positive relationships with their colleagues or supervisors (Fernandez, 2007), have low or no energy at work, are opposed to change, and usually have a negative outlook (Marrelli, 2011). Employee disengagement is associated with high turnover, which costs time and resources in hiring replacements, slows productivity while new employees are trained on the job, and causes loss of institutional memory (Fernandez, 2007; Fragoso et al., 2016; Liss-Levinson et al., 2015). However, within public health, the linkages

among professional competencies, work engagement, and organizational outcomes have not been explored, representing a knowledge gap.

Further, although maintaining a well-prepared public health workforce in governmental agencies has been a long-held policy concern (K. M. Gebbie & Turnock, 2006), there is a clear gap in understanding how generational influences may impact workplace experience, processes, and outcomes in state and local governmental public health agencies. Understanding similarities and differences amongst generational cohorts, when it comes to intentions to stay can help leadership maximize employee longevity (Wiedmer, 2015) and help organizations develop generation-specific strategies to retain and motivate employees from each generation in their workplace (Chapman & Radford, 2015).

Research Plan and Unit of Analysis

This quantitative study will utilize secondary data from the only nationally representative survey of the United States public health workforce – the Public Health Workforce Interests and Needs Survey (PH WINS). This study explores the association among programmatic competencies, work engagement, and turnover and assesses whether these relationships differ for different generational cohorts. This study fits into the long-term goal of ensuring a competent public health workforce to fulfill the Essential Public Health Services and may shed light on ways to optimize public health functioning during generational transitions.

Data for this study will come from the 2021 PH WINS conducted by the Association of State and Territorial Health Officials (ASTHO) and de Beaumont Foundation. PH WINS is the largest state governmental public health agency workforce survey of its kind (Castrucci, 2018),

and is the only national survey of state and local governmental public health agency workforce that collects individual-level data (Castrucci, 2018). In the 2021 iteration, the survey was adapted with revisions to evaluate the potential impact of the COVID-19 pandemic on the workforce. This included investigating factors such as deployment to COVID-19 response positions, overall well-being, and the nation's heightened emphasis on health equity and the recognition of "Racism as a Public Health Crisis (RaPHC))" (Robins et al., 2023).

PH WINS 2021 had 3 sampling frames: state health agencies (SHAs), Big Cities Health Coalition (BCHC) members, and local health departments (LHDs) (Robins et al., 2023). All participating agencies were surveyed using a census approach. The survey instrument had 5 domains: addressing public health issues, COVID-19 response, demographics, workplace environment, and training needs. PH WINS aimed to inform the public health workforce regarding future development initiatives, create a key workforce development metrics baseline, and explore the public health workforce's attitudes, morale, and work climate (Leider et.al, 2019).

In the 2021 PH WINS, forty-seven state health agencies (SHAs), twenty-nine major city health departments (members of the Big Cities Health Coalition), and 259 additional local health departments (LHDs) participated (PH WINS, 2023). This sample used a census approach to achieve a nationally representative sample. A total of 137,446 respondents were invited to participate, and each participating health department submitted a list of the names and email addresses of all staff (Robins et al., 2023). After accounting for email issues and staff departures, the number of possible respondents was 128,340 (de Beaumont Foundation, 2023). The PH WINS survey gathered 44,732 responses, reflecting a response rate of 35% (Robins et al., 2023). This rate is comparably lower than previous years (48% in 2017), a decline that was anticipated given

the significant demands placed on the workforce by the COVID-19 pandemic (de Beaumont Foundation, 2023).

Definition of Terms

The following terms are used throughout this research:

Turnover: the rate at which employees leave the workforce and are replaced (Oxford Languages, 2022).

Turnover Intention: a deliberate willingness to exit an organization (Tett & Meyer, 1993).

Public Health Workforce: the population of employed individuals that work in governmental public health agencies, academia, hospitals, foundations, and nonprofit organizations that represents the multiple disciplines such as epidemiology, environmental health, health education, prevention medicine, administration, health law, nursing, and information technology (Erwin & Brownson, 2017).

Public Health Competencies: identify basic skills for the effective delivery of public health services by assessing employees' knowledge and skills, identifying training needs, developing workforce development and training plans, creating job descriptions, and conducting performance evaluations (Core Competencies for Public Health Professionals, 2021).

Programmatic expertise: a term used to describe an individual's proficiency in a particular programmatic area. It encompasses both content knowledge and technical skills that are specific to that area. (PH WINS, 2021). In this dissertation, the term programmatic expertise will be used interchangeably with the term programmatic competency.

Employee engagement: the level of enthusiasm and dedication a worker feels toward their job (Scott, Hogden, Taylor, & Mauldon, 2022).

Work engagement: characterized by a positive, fulfilling, and energized state of mind and behavior in the workplace (Bakker & Demerouti, 2008).

Generational cohort: groups of people with the same social, political, economic, and cultural experiences during early adulthood who would share similar values throughout their lives (Rudolph et al., 2021). A generational cohort is represented by the group of individuals whose characteristics, values, beliefs, and attitudes have been impacted by societal changes and historical events occurring during their developmental years (Lyons & Kuron, 2014).

Essential Public Health Services: The 10 Essential Public Health Services describe the public health activities that all communities should take on and serve as the framework for the National Public Health Performance Standards instruments (Centers for Disease Control and Prevention, 2019).

Public Health Workforce Interests and Needs Survey (PH WINS): The first assessment to describe the state of the public health workforce focused on worker perspectives on emerging national initiatives and workplace environment indicators (NORC, 2015). PH WINS is the source of the data for this research.

State Health Agencies (SHAs): State governmental agency that is primarily responsible for public health of entire state's population (Erwin & Brownson, 2017).

Local Health Departments (LHDs): Administrative agency of either local or state government that is concerned with and responsible for the public health of a population in a jurisdiction that is smaller than a state (Erwin & Brownson, 2017).

Big Cities Health Coalition (BCHC): a forum for the health departments in the largest metropolitan areas of the United States to exchange ideas and strategic plans to promote and protect the health of the people they serve. Coalition membership criteria requires that the health departments be locally governed and located within the top thirty most urban areas with a population greater than 400,000 (or if outside the top thirty, population must be greater than 800,000) (Big Cities Health Coalition,2018).

Organization of the Study

This dissertation is structured in five chapters. Chapter One introduces the research background, highlighting the study's context, purpose, and rationale. Chapter Two presents a comprehensive review of the literature on public health competencies, turnover, employee work engagement, generational cohorts, and the Generational Cohort Theory framework that underpins this study. Chapter Three explains the methodology employed in the study, which covers research design, data collection, and analysis. This chapter describes the sampling strategy, instrumentation, and data collection procedures, as well as the data analysis techniques employed in this research. Chapter Four reports on the significant findings of the study, relating them back to the research questions and study objectives. This chapter presents the results of the statistical analysis. Chapter Five provides an in-depth discussion of the research findings, including their implications and contributions to the literature. It concludes this dissertation by offering recommendations for practice, policy, and further research. It also discusses the significant limitations of the study and

provides suggestions for future research to address these limitations. Overall, this dissertation presents a novel contribution to the understanding of the relationship between programmatic expertise, turnover intentions, work engagement, and generational cohorts, with implications for policy and practice in the field.

CHAPTER 2

LITERATURE REVIEW

Understanding the dynamics and details of the public health domain is essential in explaining the landscape of public health workforce engagement, turnover intentions, and the mediating role of employee engagement in shaping outcomes. This literature review embarks on a comprehensive exploration across multiple dimensions within public health, spanning from the fundamental overview of public health to the core competencies essential for professionals in this field. Examining the distinctions of programmatic expertise and its relationship with employee outcomes such as work engagement and turnover intentions, this review aims to uncover the relationship between these elements. Additionally, this section provides an explanation of research using the theoretical framework of generational Cohort Theory. This review sheds light on the underexplored areas in literature, particularly in examining the mediating role of employee engagement in the relationship between programmatic expertise and turnover, and the potential moderating influence of generational cohorts in shaping these associations. This review highlights the existing gaps in understanding these complex relationships, paving the way for further exploration and insight into the ever-evolving realm of public health workforce dynamics.

Overview of Public Health

There are many definitions of public health. Public health is a multidisciplinary field that encompasses efforts to protect and improve the health of communities and populations (Waterfield,2019). The Centers for Disease Control and Prevention (CDC) defines public health

as the science and art of preventing disease, prolonging life, and promoting health through the organized efforts and informed choices of society, organizations, public and private communities, and individuals (CDC, 2023). Similarly, the CDC Foundation defines public health as the science of protecting and improving the health of families and communities through the promotion of healthy lifestyles, research for disease and injury prevention, and detection and control of infectious diseases (CDC Foundation, 2023). Operating within a collaborative framework, public health engages a network comprising governmental agencies, academia, healthcare providers, foundations, and non-profit organizations. This collective effort forms the backbone of initiatives aimed at improving and safeguarding community health.

Despite the evolving nature of public health practice, public health definitions have remained consistent. According to the American Public Health Association, public health serves the crucial purpose of promoting and safeguarding community health across various spheres of life—where people live, learn, play, and work (American Public Health Association, 2022). This critical role finds expression through an array of initiatives encompassing policy recommendations, health education, outreach programs, and extensive research aimed at disease detection and injury prevention (CDC, 2022). The significance of public health in contemporary times cannot be overstated, particularly in the wake of recent formidable health crises like the COVID-19 pandemic that have significantly impacted communities across the United States (CDC, 2019). Such challenges underscore the indispensable role of public health in continually striving to enhance and protect community health.

Even with these challenges, the public health professional's role is to provide Essential Public Health Services (EPHS), regardless of the nature of the employing agency (US DHHS, 1997). EPHS refers to the 10 public health activities that should be undertaken in all

communities, according to the Core Public Health Functions Steering Committee (CDC, 2010). Established over two decades ago, this committee, comprising individuals from key public health organizations and U.S. Public Health Service agencies, aimed to create standardized frameworks for these essential services, providing clarity and guidance for public health functions identified by the Institute of Medicine (IOM), now known as the Health and Medicine Division (HMD) Committee on Public Health. These standards, known as 'The 10 Essential Public Health Services', are composed of three main components: assessment, assurance, and policy development. The original 10 Essential Public Health Services that public health professionals should undertake include:

1. Monitor health status to identify and solve community health problems

2. Diagnose and investigate health problems and health hazards in the community

3. Inform, educate, and empower people about health issues

4. Mobilize community partnerships and action to identify and solve health problems

5. Develop policies and plans that support individual and community health efforts

6. Enforce laws and regulations that protect health and ensure safety

7. Link people to needed personal health services and assure the provision of health care

8. Assure competent public and personal health care workforce

9. Evaluate effectiveness, accessibility, and quality of personal and population-based

10. Research for new insights and innovative solutions to health problems.

 (Centers for Disease Control and Prevention (CDC), 2014).

Figure 1: The Original 10 Essential Public Health Services (CDC, 2014)
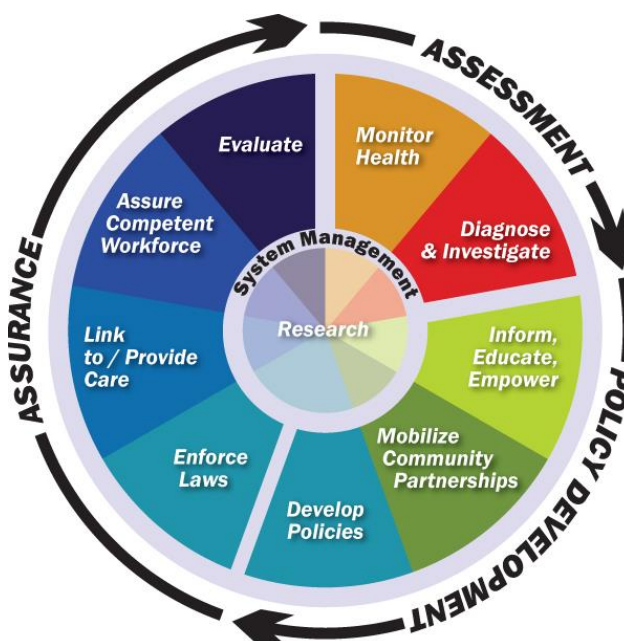
In 2020, the 10 EPHS was revised and now centers on equity and incorporates concepts relevant to current and future public health practice (PHNCI, 2020). To achieve equity, the new 10 EPHS actively promote policies, systems, and environmental conditions that support ideal health and seek to eliminate systemic and structural barriers that have resulted in health inequities (Miller, 2021). The revised 10 Essential Public Health Services (EPHS) include:

1. Assess and monitor population health status, factors that influence health, and community needs and assets.

2. Investigate, diagnose, and address health problems and hazards affecting the population.

3. Communicate effectively to inform and educate people about health, factors that influence it, and how to improve it

4. Strengthen, support, and mobilize communities and partnerships to improve health.

5. Create, champion, and implement policies, plans, and laws that impact health.

6. Utilize legal and regulatory actions designed to improve and protect the public's health

7. Assure an effective system that enables equitable access to the individual services and care needed to be healthy.

8. Build and support a diverse and skilled public health workforce.

9. Improve and innovate public health functions through ongoing evaluation, research, and continuous quality improvement.

10. Build and maintain a strong organizational infrastructure for public health.

   (Public Health National Center for Innovations (PHNCI), 2020)

Figure 2: The New 10 Essential Public Health Services (PHNCI, 2020)
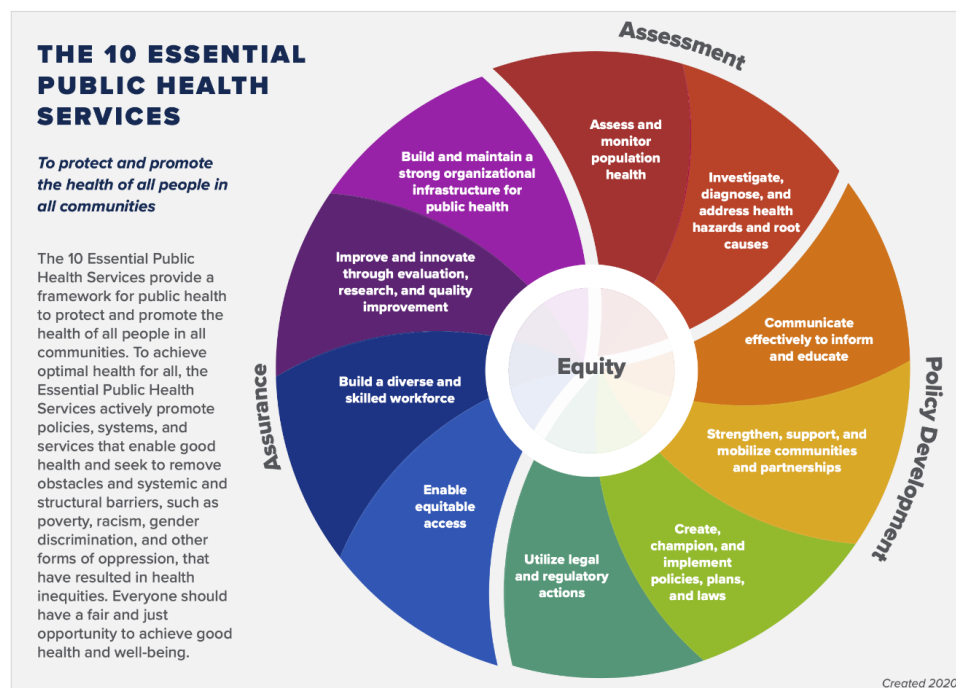
Overview of Public Health Workforce

The public health workforce comprises individuals from diverse professional

backgrounds, employed in governmental public health agencies, academia, hospitals,

foundations, and nonprofit organizations. These professionals represent a multitude of

disciplines, including epidemiology, environmental health, health education, preventive

medicine, administration, health law, nursing, and information technology (Erwin & Brownson,

2017). Public health workers are defined as all those responsible for providing the essential

public health services regardless of the organization in which they work (Allin et al., 2005).

Additionally, many public health professionals hold affiliations with other disciplines, and this

complicates the perception of public health as a singular, unified profession (Waterfield, 2019).

Public health professionals who are employed outside of governmental public health

agencies are hard to categorize, and not all employees of governmental public health agencies

have public health duties associated with their job descriptions (Waterfield, 2019). According to

the Bureau of Labor Statistics, as of May 2020, there were approximately 652,900 individuals

employed in public health-related occupations in the United States (Bureau of Labor Statistics,

2023). Approximately 51% percent of the public health workforce is employed at the local level,

30% are at the state level, and 19% are at the federal level. (Beck, Boulton, & Coronado,2014).

Public Health Workforce Challenges

Despite having more than 600,000 public health workers in the United States, the percentage of

public health workers to the number of persons served has decreased over the years in both

governmental and voluntary public health agencies (Waterfield,2019). Amidst this decline in the

ratio of public health workers to those served, evaluating the size and composition of the public

health workforce within the United States has posed a persistent challenge for both public health

officials and researchers (Moore, Perlow, Judge, & Koh, 2006). This challenge exists due to the

diverse employment settings and lack of standardized worker classifications (Public Health

Foundation,2012). Consequently, this deficiency compromises public health leadership's ability

to gauge workforce capacity, predict future trends, and craft effective policies (Beck, Boulton, &

Coronado, 2014).

Additionally, current evidence indicates that the public health workforce is inadequately staffed

(Castrucci, 2018). Public health experts argue that when the public health workforce is not

properly prepared to address the forces of change and deal with the key emerging issues, they

run the risk of being incorporated into the healthcare system and the essential role of being the

bearer of social justice will be lost (Erwin & Brownson,2017). Health threats can arise at any

time, and the role of public health professionals is to protect the health of the community from

the unexpected (Redd et al., 2017). As states and communities continue to work to address health

risks, including natural disasters and disease outbreaks, inadequate supply and preparation of the

public health workforce may result in substantial disruption of efforts to protect, promote, and

improve the health of people in the community (New Workforce Survey, 2019).

The public health workforce is experiencing dynamic changes (Beck & Boulton, 2015; Shah &

Madamala, 2015). The local and state public health workforce must respond to a growing focus

on accountability, massive budget and workforce cuts, changes in the overall health system, and

new technologies (Rutkow et al.,2014). As the public health workforce prepares for generational

change, significant levels of retirement (Bogaert et al.,2021), and increasing voluntary turnover

rates (Castrucci,2018), attention to recruitment and retention drivers and capacity building

becomes critical. Accordingly, there is a need to ensure competent/expert, engaged staff, as public health staff engagement has been shown to improve productivity and employee retention. Public health professionals' skills have been shifting from the delivery of clinical services toward policy and systemic changes, including partnering with and across the regions, to address existing and emerging public health challenges (Bogaert et. al,2019). This shift requires significant changes in the practice of public health and the essential skills needed by the public health workforce. It is critical that the state and local governmental public health workforce, as the key player in promoting and protecting the health and well-being of their communities, is proficient and competent not only in traditional public health skills but also in cross-cutting strategic skills to address this evolving approach to public health practice (Castrucci,2018). There is a large-scale retirement of the public health workforce on the horizon. Individuals in leadership roles, with long careers in public health and established knowledge of the organization and field, may leave the public health field and take this knowledge with them.

In recent years, there has been a growing need for change in public health practices and policies to address emerging health challenges and to improve population health outcomes. This change is necessary because the current status quo has shown negative consequences for public health. For example, inadequate funding, outdated policies, and limited resources have hindered public health efforts to respond to emerging health threats such as the COVID-19 pandemic (Masters et al., 2020). Additionally, the lack of a comprehensive, coordinated public health response has led to increased morbidity and mortality rates in the US (Abdullah, 2018). Furthermore, the current status quo has also been shown to have a disproportionate impact on vulnerable and marginalized populations, such as low-income, rural, and racial and ethnic minority communities (Galea &

Vaughan, 2020). Therefore, it is crucial to make the necessary changes in public health practices

and policies to improve overall health outcomes and promote health equity for all populations.

 During the COVID-19 pandemic, public health professionals were challenged with new

responsibilities and added pressure to keep their communities safe (Balio et.al, 2022). In addition

to the COVID-19 pandemic, there have been changes in what society expects from public health

organizations, with added emphasis on addressing health equity, understanding health disparities,

and cross-collaborating across regions (Balio et.al, 2022).). With the evolving public health

workforce, changing demands, and the pandemic, there is a need to distinguish competency gaps

in the current workforce.

Core Competencies for Public Health Professionals

Competence is defined as the activity, while competency is the ability to do the work

(skills and qualifications), that is, it is related to the behavior – competency describes what an

individual can do (Mrayyan et al.,2023). Ensuring the current public health workforce has

appropriate competencies to fulfill essential public health functions is challenging in many low-

and middle-income countries (Bhandari et.al.,2020). Nevertheless, many public health

professionals lack competence (Cunningham,2022).

A skilled public health workforce is a vital component of the public health infrastructure

and fundamental to the provision of essential public health services (Amos et al, 2022). Public

health competencies are dynamic and help public health departments adapt to meet the needs of

evolving public health practice when faced with such challenges as the COVID-19 pandemic, the

Ebola crisis, or increasing health inequalities (Balio et al.,2023). According to Amos et al (2022),

the COVID-19 pandemic has demonstrated the significance of competency-based training for

health departments responding to a public health emergency and ensuring the public's well-being.

The Core Competencies for Public Health Professionals (Core Competencies) have been widely used to describe foundational competencies for working in public health. Public health agencies and organizations use Core Competencies to better understand, assess, and meet their education, training, and other workforce development needs. The Core Competencies for Public Health Professionals, revised and adopted by the Council on Linkages Between Academia and Public Health Practice in October 2021, is a consensus set of competencies set of foundational or cross-cutting skills for professionals engaging in public health practice, education, and research (Amos et al, 2022). The Core Competencies contains 92 competencies organized into 8 domains reflecting skill areas within public health and three tiers, representing career stages for public health professionals (Amos et al, 2022). The eight Domains are:

1. Analytical/Assessment Skills

2. Policy Development/Program Planning Skills

3. Communication Skills

4. Cultural Competency Skills

5. Community Dimensions of Practice Skills

6. Public Health Sciences Skills

7. Financial Planning and Management Skills

8. Leadership and Systems Thinking Skill

Amidst this comprehensive framework, the Core Competencies serve as a cornerstone. Health departments at all levels of government and public health–focused academic programs

across the country use Core Competencies as a framework for workforce development

assessment, planning, and action. According to Amos et al (2022), approximately 80% of state

health departments and 45% of local health departments use the Core Competencies to support

workforce development, and more than 90% of Council on Education for Public Health (CEPH)–

accredited schools and programs of public health and schools of nursing with a public health or

community health component.

For executives, the 2017 PH WINS Survey reported competency skill gaps in (9%)

effective communication, (20%) data for decision-making, (28%) cross-sectoral partnerships,

and (28%) change management (Bogaert et. al,2019). For leadership/managers, the 2017 PH

WINS Survey results showed competency skill gaps in (19%) effective communication, (27%)

data for decision making and (35%) cultural competency (Bogaert et. al,2019). Regardless of

workforce tier level, the lowest percentages for competent public health professionals were

(18%) effective communication, (28%) data for decision-making, (31%) cultural

competency/competence, and (38%) cross-sectoral partnerships. In terms of this, it appears that

skill enhancement for many public health professionals is needed.

Public health agencies and organizations use Core Competencies to better understand,

assess, and meet their workforce development needs. However, using the Core Competencies for

Public Health Professionals can present several challenges:

1. **Adaptation to Local Context:** The competencies may not always align perfectly

    with the specific needs and priorities of local public health agencies or

    communities, requiring adaptation.

2. **Data Collection:** Assessing and measuring the achievement of competencies and their integration into practice can pose difficulties. This challenge is amplified by the sheer number of competencies, totaling 92, making data collection and reporting complex and resource-intensive. Such an extensive assessment, with over 90 questions, can lead to survey fatigue, which, in turn, raises concerns about the quality of the assessment.

3. **Updating and Relevance:** Ensuring that the competencies remain current and relevant in a rapidly evolving field requires ongoing review and updates.

4. **Resource Constraints:** Some public health agencies may lack the necessary resources, such as training and funding, to fully implement and support the competencies.

5. **Varying Educational Backgrounds:** Public health professionals often have diverse educational backgrounds, making it challenging to ensure that everyone possesses the core competencies.

These challenges underscore the need for further refining and streamline in competency measurement.

The Relationship Between Competency and Employee Outcomes

Research linking professional competencies to employee and organizational outcomes is relatively sparse in the general human resources literature and almost non-existent in the public health literature. The limited body of work suggests a positive effect of professional competency on work-related outcomes. Competent employees have the skills to be effective at their jobs, leading to increased motivation and enhanced work outcomes (Sendawula et al., 2018).

Competent staff members are less stressed about work (Kim & Jung, 2022) and more effective at job crafting, leading to enhanced work engagement (Wardani et al., 2021).

The significance of employee competence in achieving organizational success is well-established in the literature. Previous academic studies have consistently demonstrated a strong correlation between competence, job satisfaction, and commitment. Notably, research has shown that an employee's level of competence significantly influences their job satisfaction, with increasing competence leading to higher levels of job satisfaction (Muhangi, 2017).

Studies have also found a connection between competency and job performance, such that an increased competence level is positively correlated with job performance (Kim & Jung, 2022). In this context, Kim & Jung (2022) suggest that organizations with employees with higher competence levels have exceptional organizational performance, highlighting the importance of a competent workforce. The relationship between competence and work engagement is also noteworthy, with studies revealing that competence has a significant and positive impact on work engagement (Yao et al.,2022). Furthermore, in academia, competence is closely linked to work engagement, a crucial factor in enhancing employee performance and organizational success (Chen, Svetlana, & Paul, 2014). Therefore, investing in developing employees' core competencies could have far-reaching impacts on both individual and organizational levels.

Additionally, the research indicates that the improvements in job performance associated with increasing employee competence level, in turn, increases work commitment among employees (Nasrul, Masdupi, & Syahrizal, 2019). In the business field, competencies have been shown to play a pivotal role in determining work commitment, with employees exhibiting higher levels of competence displaying greater commitment to their work than their less engaged

competent counterparts (Haruna & Marthandan, 2017). However, regarding public health and human resources, the existing research on the relationship between professional competency and employee and organizational outcomes is notably limited and almost nonexistent in the literature. While employee outcomes in public health have been previously explored, they have not been specifically linked to competencies.

Therefore, the primary aim of this study was to address this critical gap in the literature by investigating the intricate connection between programmatic competency and employee outcomes within the field of public health. The existing literature suggests that when organizations provide opportunities to apply skills and knowledge at work, it facilitates the development of employee work engagement within the organization (Wardani & Oktafiansyah, 2020), consequently improving the quality of responsibility and job performance in the agency (Wardani et al., 2021). In light of this and other above-cited evidence linking competency to positive work and organizational outcomes, it is hypothesized that:

- **Hypothesis 1:** Programmatic expertise is negatively associated with turnover intentions among state and local public health workers.
- **Hypothesis 2**: Programmatic expertise is positively associated with work engagement among state and local public health workers.

Employee Work Engagement

An employee outcome explored in this study was employee work engagement. Engagement in literature is also often proposed as the antipode of burnout; Greco et al. (2006) indicated that engagement is characterized by energy, involvement, and an individual's ability to interact positively within their agency. Rock and Tang (2009) consider that engagement is an

aspect that cannot be demanded from an employee; it must be offered willingly. While the term

'engagement' usually has a positive connotation, it has levels driven by motivational indicators

and is heavily defined by personal perception.

Generally, employee work engagement can be defined as employees being able to devote

their emotional, physical, and cognitive energies toward role performance (Rich, Lepine, and

Crawford, 2010). It is described as excitement about one's work, mental strength and high-level

energy at work, mental flexibility, making an extra effort, and continuing even when the job

becomes difficult (Nasrul, Masdupi, & Syahrizal, 2019). According to Wardani et al. (2021),

work engagement can cause someone to feel important or valuable and be able to balance the

organizational environment. Such individuals aspire to enhance their skills within the

organization.

Among both public- and private-sector employers, employee engagement is a

fundamental element in productivity, job satisfaction, higher employee retention, and lower

absenteeism (Smith, Spears-Jones, Acker, & Dean, 2020). Highly engaged employees are

motivated to do their best and select organizational interests above their own (Smith, Spears-

Jones, Acker, & Dean, 2020). They are innovative contribute to a collegial work environment

(Marrelli, 2011), and are often the top contributors to their organization's performance (Trahant,

2009).

In contrast, disengaged staff become focused on the task at hand rather than outcomes,

and do not have positive relationships with their supervisors or colleagues (Fernandez, 2007).

Disengaged staff members have no low energy at work, oppose change, and usually have a

negative attitude (Marrelli, 2011). Disengagement results in high turnover, which costs time and

resources spent in hiring replacements, slow productivity while new employees learn on the job,

and causes loss of institutional memory (Fernandez, 2007; Fragoso et al., 2016; Liss-Levinson et al., 2015).

Accordingly, employee work engagement stands as a pivotal factor for organizational success, embodying a positive, energized, and fulfilling state within the workplace, surpassing mere job satisfaction (Bakker & Demerouti, 2008; Schaufeli et al., 2002). Employees engaged in their work will strive to work and be loyal to the organization (Wardani et al., 2021). Facilitating employee work engagement within organizations is worth it because it encourages employees to make improvements in their work continually (Wardani et al., 2021). Employees with high engagement will use their abilities to the fullest when they work (Wardani & Anwar,2019). This inclination toward work tasks translates to heightened job performance, creativity, and job satisfaction as a buffer against burnout and turnover intentions (Bakker & Bal, 2010). Recognized for its link to improved employee well-being and organizational triumph, work engagement has garnered attention within contemporary dynamic and competitive work environments, where motivated and engaged employees are indicated as indispensable assets for driving innovation and productivity.

Employee engagement has become a top priority for many sectors including public health. According to the literature, public health organizations continue to explore ways to gain optimal levels of performance from their employees. CDC indicates successful public health employee engagement can provide numerous benefits to public health organizations (CDC, 2020). Leadership recognizes that having a high-performing workforce is essential for growth and survival, as a highly engaged workforce can increase innovation, productivity, and bottom-line performance while reducing costs related to hiring and retention in highly competitive talent markets (Harvard Business Review,2013).

In the United States, public health employees have indicated a high level of engagement according to the 2017 Public Health Workforce Interests and Needs Survey (PH WINS) (Leider et al., 2019). However, the survey also found that employees did not perceive that creativity and innovation were rewarded, nor did they believe that communication between senior leadership and staff was good. This was a common sentiment regardless of generation (Castrucci, 2018). It is important to address these concerns, as a lack of recognition for creativity and innovation, and poor communication can lead to a decline in employee morale and retention, negatively impacting the overall effectiveness of public health agencies.

Turnover Intentions

This study examined turnover intentions, an essential employee outcome. Turnover, the rate at which employees exit a workforce and are replaced, encompasses voluntary departures, driven by personal or work-related factors, and involuntary exits, like layoffs or illness (Webster, 2022; Allen, 2008). Voluntary turnover can be when an employee leaves the organization due to personal reasons or perceived poor work conditions (Allen, 2008). It can also be for involuntary reasons like discharge, layoffs, or illness/death. The most cited reason for turnover is to accept a better position within another organization (McConnell, 2011).

Consequently, turnover intentions represent an employee's inclination or plan to leave their current job position within an organization (Tett & Meyer, 1993). It is a crucial metric often indicating dissatisfaction or discontent within the workplace. This intention doesn't necessarily equate to actual turnover; instead, it signifies a mindset or predisposition toward seeking other employment opportunities. It can stem from dissatisfaction with job roles, poor organizational culture, lack of growth opportunities, or an unsupportive work environment (Hom et al., 2012). High turnover intentions among employees can be concerning for organizations as they often

foreshadow increased actual turnover rates, leading to disruptions in workflows, loss of skilled personnel, and significant costs associated with recruitment and training of new staff (Cohen, 2019).

Turnover is driven by dissatisfaction with aspects of one's job and organization. Employee satisfaction is shaped by expectations, job fit, job design, interpersonal relationships, salary, supervisory style, and working conditions (McConnell, 2011). According to the literature, employees generally want the following from their organizations:

(1) respect from leadership and good work culture and atmosphere.

(2) acceptance by the team.

(3) fair treatment relative to others.

(4) acknowledgment of the results of their efforts.

 (5) a sense of job security.

(6) a safe working environment that promotes well-being.

(7) knowledge of organizational policies and plans.

 (8) work recognition/rewards.

(9) respect for belief and differences.

(10) fair compensation

(McConnell, 2011).

Turnover poses a significant financial strain on organizations, and the absence of positive work environment factors perceived by employees can notably drive this trend. Understanding the underlying causes of turnover intentions is paramount for organizations seeking to retain talent and stabilize their workforce. Notably, burnout and employee disengagement are often viewed as pivotal factors contributing to high turnover rates (Willard-Grace, 2019). Burnout,

characterized by persistent exhaustion and diminished competence (Meeusen, 2011), has been linked to adverse mental and physical health outcomes (Bakker, 2009; Maslach, Schaufeli, & Leiter, 2001). Moreover, studies highlight the contagious nature of burnout among colleagues, emphasizing the need for group-level intervention (Bakker, 2009; Schaufeli & Bakker, 2004).

Employee turnover in local and state public health departments is a concern and is associated with reducing public health services and workforce capacity (Beck, 2015). Turnover is also a crucial concern for local and state health departments because of the expense of recruiting and training new personnel. High staff turnover negatively affects health services by increasing workload, damaging team morale, generating disruptions and incompetence in work processes, and causing a loss of institutional knowledge (Bonenberger. et al.,2014). Protecting the community's health depends on maintaining enough competent workers to deliver essential public health services (Public Health Foundation,2022). Thus, turnover can have negative effects on public health services provided to the community.

Governmental public health employee turnover rates are high yearly (Leider et. al, 2023). While turnover rates in the public health workforce within the United States have grown, the public health professional's role and services have expanded (Bell & Khodeli, 2004). Recent studies of the governmental workforce have indicated that an increasing proportion of public health employees intend to leave the workforce soon. In governmental public health, 39% of the local workforce and 47% of the state workforce are planning to retire or considering leaving their organization (Sellers, Leider & Gould E, 2019). If every employee who stated they planned to leave did, state and local public health agencies would need to replace more than 80,000 staff in the coming years (Leider et al., 2021). This is problematic even if a significant number were to move to other governmental public health organizations because filling their positions or

retraining existing staff can be very costly (Cho, Johanson, & Guchait,2009). This level of employee turnover could be detrimental to our nation's ability to deliver essential public health services.

Understanding and addressing the root causes behind turnover intentions are crucial for organizations aiming to retain talent and maintain workforce stability. Studies of employee retention and turnover have identified a multitude of factors associated with employees' decision to stay or leave (Griffeth & Hom, 2001; Lee, Gerhart, Weller, & Trevor, 2008; Mitchell, Holtom, Lee, Sablynski, & Erez, 2001). Within public health, according to Leider et. al (2021), factors associated with turnover include job dissatisfaction and pay dissatisfaction, as well as employee characteristics such as being younger than 36 years or older than 55 years, having a tenure of 5 years or more, and being a senior manager. As observed in public health organizations, recent studies of public sector employees have also found high turnover generally. Similar predictors of turnover intentions have been identified in these settings, including job satisfaction, pay satisfaction, professional development, skill development opportunities, loyalty to the organization, a sense of accomplishment, shared decision-making, and length of tenure (Kang, Croft & Bichelmeyer, 2021).

Notably, findings from the PH WINS Survey emphasize a concerning rise in job turnover within the public health sector, despite high job satisfaction levels (PH WINS, 2017). The survey highlights dissatisfaction with pay, limited career advancement opportunities, and unfavorable workplace environments as primary reasons employees contemplate leaving their organizations (PH WINS, 2017). Given the fight for skilled public health workers with public health expertise in the field and ongoing recruitment challenges within governmental public health agencies,

recruitment of employees to fill vacancies (Leider et al., 2021) efforts to increase our understanding of the nuanced drivers of turnover become critical.

Mediating Role of Employee Engagement in the Programmatic Expertise to Turnover Relationship

The existing literature does not explore the mechanism explaining the association between programmatic competency and turnover. This study aimed to fill this critical gap in research. Previous studies have identified employee engagement as a mediator connecting professional competency to various work-related outcomes. For instance, Sendawula et al. (2018) discovered that enhancing employee competence through training positively influenced performance, with engagement partially mediating this relationship. A positive work climate is anticipated to drive higher engagement levels, subsequently reducing turnover probabilities. This notion is supported by prior research indicating that employee engagement mediates the link between work climate and turnover across diverse sectors, including healthcare (Collini, Guidroz, & Perez, 2015; Saks, 2006).

Several studies have established a relationship between high work engagement and enhanced work outcomes, including increased work performance, decreased turnover, and intentions to quit (Yalabik, 2013). Furthermore, evidence suggests that employee engagement serves as a mediator between job satisfaction, commitment, job performance, and intentions to quit (Yalabik, 2013). Additionally, research has demonstrated that employee engagement mediates the relationship between motivational factors and job performance (Júnior, Ferreira, & Valentini, 2021). Employees with low commitment tend to disengage from their work, leading to performance issues, increased turnover intentions, and actual departures.

Building upon these findings, it is hypothesized that:

- **Hypothesis 3:** The relationship between programmatic expertise and turnover intentions among state and local public health workers is mediated by work engagement.

Conceptual Framework- Generational Cohort Theory (GCT)

Generational Cohort Theory (GCT) has gained significant attention in the literature as it offers a framework to understand the influence of historical events and social changes on the attitudes, beliefs, values, and feelings of individuals belonging to different generational cohorts, such as Baby Boomers, Generation X, Millennials, and Generation Z. The theory suggests that social cycles repeat themselves every four generations, with each generation having distinct characteristics and values that are shaped by historical events and social changes. The GCT posits that individuals born during the same time and corresponding to the same cohort will often share similar feelings and understanding styles, and these effects are assumed to persist over time.

While some scholars argue that beliefs, attitudes, values, and feelings are primarily a function of maturity and age rather than generation, the GCT diverges from this perspective, arguing that changes across generations are primarily a function of social events rather than biological processes. This theory helps explain differences and similarities among age groups, highlighting how historical events and social trends contribute to shaping individuals' attitudes, perspectives, and behaviors across various domains, including work, politics, and culture. The GCT has been applied in various fields, including public health agencies, where it provides a framework for understanding generational differences in the workplace.

The main alternative to generational cohort theory is the supposition that beliefs, attitudes, values, and feelings are primarily a function of maturity and age rather than generation. Generational cohort theory diverges from this perspective, arguing that changes across

generations are primarily a function of social events rather than biological processes (Sessa, Kabacoff, Deal, & Brown, 2007).

The use of the word generational cohort is merely a method to identify that they are all in a different age bracket as well as life-shaping events that have formed their cohort, thus a distinct generation of study (Semonis, 2021). Ting et al. (2018), define a generational cohort as a concept to recognize how a group born in the same period, shares related social experiences, and major external events during their formative years (Ting, Lim, Run, Koh, & Sahdan,2018). Ting et al. (2018) as well as Strauss & Howe (1991), and Rogler (2002) argued in support of Mannheim's (1952) theory that a cohort's values and norms are formed during that developmental period based in part on the internal and external events that occurred in that time.

The Moderating Role of Generational Cohorts in the Relationships among Programmatic Expertise, Work Engagement, and Turnover Intentions

The generational cohort theory informs the study's motivation to explore the moderating role of generational cohorts in the mechanism influencing turnover intention. Applying the theory to this study, it is anticipated that there would be shared influences in how generational cohorts navigate the workplace, leading to varying responses to the workplace environment and potentially different mechanisms of turnover.

Several generational cohorts make up the current healthcare and public health workforce, each with unique characteristics and work attitudes. According to a study by The Advisory Board Company (2016), Baby Boomers, born between 1946 and 1964, tend to be loyal, hardworking, and have years of experience in healthcare leadership roles (Advisory Board Company,2016). Generation X, born between 1965 and 1980, values work-life balance and is often adaptable to change, making them well-suited for roles that require flexibility and problem-solving skills (PwC,2019). A study by the Society for Human Resource Management found that

Millennials, born between 1981 and 1996, prioritize work that has a social impact, value

collaboration, and social connection, and have a strong desire to learn and grow (Society for

Human Resource Management, 2016). In the healthcare industry, they may excel at teamwork

and innovation (Cohen & Friedman, 2015). Lastly, a report by Deloitte highlights that Gen Z,

born between 1997 and 2012, are known for their comfort with technology and desire for social

justice and inclusion, making them well-suited for healthcare roles that require technological

skills and a focus on equity (Deloitte, 2020).

Public health leadership must develop strategies to accommodate these generational

differences and create suitable conditions for each cohort to attract and retain necessary

personnel. A tailored approach for each generation optimizes recruitment and retention

outcomes, fostering a productive and cohesive workforce. To achieve this, public health

leadership must research to understand how each cohort navigates the workplace. The workplace

cannot operate with a one-size-fits-all approach, as failure to recognize generational differences

may result in decreased job satisfaction, higher turnover rates, and hindered productivity.

Understanding a cohort's basic perspective or core value and what motivates them is a critical

function of every organization and leadership.

Research conducted by Poole (2021) in the customer service sector unequivocally

demonstrates that generational differences significantly moderate the correlation between

positive practices and employee engagement. The study highlights a profound discrepancy in

employee engagement levels among Millennials based on the presence or absence of positive

practices within their organizations, unlike the responses observed in other generational cohorts.

Poole's findings underline a critical insight: while the utilization of positive practices has a

commendable and affirmative impact on employee engagement for Generation X and Baby

Boomers, the stark contrast in employee engagement levels due to the absence of positive practices is notably more pronounced in Millennials. This research illuminates a distinctive generational pattern, emphasizing the urgency for organizations to adapt their practices to meet the expectations and needs of different generations.

As such, it is essential to investigate the potential role of generational cohorts in the relationship between programmatic expertise, work engagement, and turnover intentions. Understanding the unique competencies and attitudes of different generational cohorts can provide public health organizations with a framework to create a more effective and diverse workforce capable of addressing the multifaceted challenges of the public health sector. This is crucial for improving healthcare outcomes and organizational performance. Given the above-cited evidence it is hypothesized:

- **Hypothesis 4A:** The relationship between programmatic expertise and work engagement is moderated by generational cohort.

- **Hypothesis 4B:** The relationship between work engagement and turnover intention is moderated by generational cohort.

Figure 3:Conceptual Model
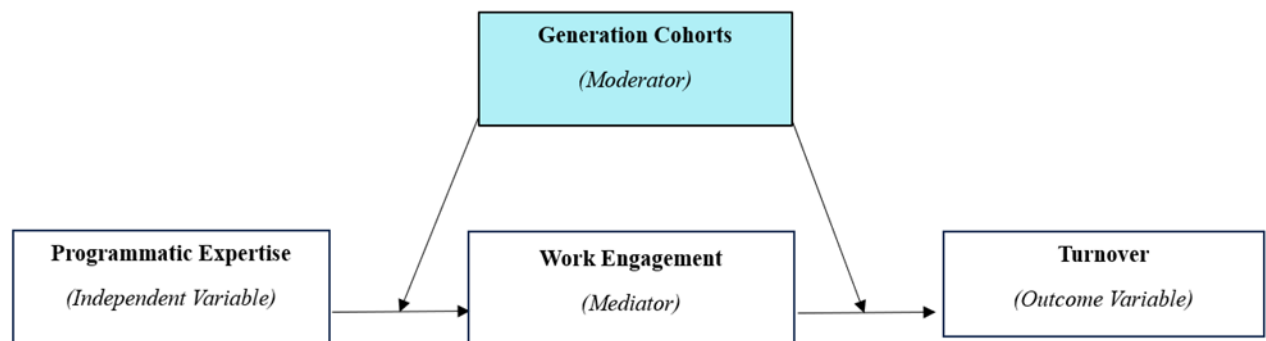
The study's conceptual model is illustrated in Figure 3. This model aims to explore how programmatic expertise, work engagement, and generational differences overlap and influence turnover intentions among individuals within the study context.

Gaps in the Literature and Summary

This chapter reviewed the existing literature on programmatic expertise, turnover intentions, and workplace engagement. Additionally, a brief description of programmatic expertise, turnover intentions, and work engagement was discussed within the context of the US. Numerous studies have independently covered programmatic expertise, turnover, and employee work engagement. However, the literature review revealed gaps in assessing the impact of programmatic expertise on work engagement and turnover. This study fills this gap by examining the associations among programmatic expertise, workplace engagement, and turnover. The study assesses the moderating role of generational cohorts in these relationships. The next chapter presents the methodology of this study.

CHAPTER 3

METHODOLOGY

This chapter aims to describe the methodology for this quantitative study designed to examine the moderating role of generational cohort correlation in the relationships among programmatic competencies, work engagement, and turnover among public health professionals employed at local and state health agencies. Studies investigating the relationship between generational cohorts, work engagement, programmatic expertise, and turnover intention have been limited. A quantitative approach is applicable when the study investigates the relationships between variables (Creswell, 2003). The research design, including the data sources, study sample, analysis method, ethical concerns, and methodological limitations, are discussed in this chapter.

Study Design

This observational cross-sectional quantitative study utilized secondary data from the only nationally representative survey of the United States public health workforce. This study explored the association among programmatic expertise, work engagement, and turnover and assessed whether these relationships differ for different generational cohorts. Operationally, the intention of the study is to answer the three research questions:

1. Is there a relationship between programmatic expertise and turnover?

2. Is the relationship between programmatic expertise and turnover mediated by work engagement?

3. Is the relationship among programmatic expertise, turnover, and work engagement moderated by generational cohort?

This study fits into the long-term goal of ensuring a competent public health workforce to fulfill the Essential Public Health Services and may shed light on ways to optimize public health functioning during generational transitions.

Data Source

Data for this study came from the 2021 Public Health Workforce Interests and Needs Survey (PH WINS) conducted by the Association of State and Territorial Health Officials (ASTHO) and de Beaumont Foundation. PH WINS is the largest state governmental public health agency workforce survey of its kind (Castrucci, 2018). PH WINS is the only national survey of state and local governmental public health agency workforce that collects individual-level data (Castrucci, 2018). PH WINS changed the blueprint for practice and research related to the state health agency (SHA) workforce (Bogaert et al.,2019). PH WINS stands as a unique survey, offering the workforce invaluable insights that have enhanced endeavors related to recruitment, retention, workforce development, and strategic planning within agencies and departments throughout the United States (Robins et al., 2023). PH WINS is ideal for this study because it is the first and only national data source that allows for the investigation of generational differences in the local and state governmental public health agencies.

The 2021 PH WINS was the third iteration of PH WINS. While it builds on the 2014 and 2017 fielding, several major changes have occurred since the first iteration. The most significant change in the 2021 PH WINS pertained to staffing inclusion for State Health Agency-Central Office (SHA-CO) staff, particularly the incorporation of non-permanent employees into the nationally representative framework (Robins et al., 2023). The survey was conducted through Qualtrics, a web-based survey platform. It aimed to gather insights from individual workers across various disciplines and geographic locations within state and local health departments.

The PH WINS assesses five domains: public health issues, demographics, COVID-19 response, workplace environment, and training needs. While the sections focusing on training needs and demographics remained largely unchanged from previous years, notable updates were introduced to the workplace environment section in 2021. Additionally, entirely new sections addressing COVID-19 response and tackling public health issues were incorporated (Robins et al.,2023). The aims of the PH WINS survey were to inform the public health workforce regarding future development initiatives, create a key workforce development metrics baseline, and explore the public health workforce's attitudes, morale, and work climate (Leider et.al, 2019). The primary aim of the 2021 PH WINS was to gauge the potential impact of the COVID-19 pandemic on the workforce, along with the nation's increased emphasis on addressing "Racism as a Public Health Crisis" (RaPHC). This survey also examined the workforce's training requirements, engagement levels, job satisfaction, and intentions to leave (Robins et al., 2023). As Robins et al. (2023) indicated, the survey focused on the pandemic's effects, aiming to encompass the workforce's encounters with COVID-19 and its response while also encompassing other areas of interest. This approach was influenced by similar shifts in the revisions to the Federal Employee Viewpoint Survey during the same timeframe.

Population and Sampling Design

PH WINS 2021 utilized three sampling frames: state health agencies (SHAs), Big Cities Health Coalition (BCHC) members, and local health departments (LHDs). The 2021 PH WINS was conducted in forty-seven state health agencies (SHAs), twenty-nine big city health departments (members of the Big Cities Health Coalition (BCHC)), and 259 other local health departments (LHDs) (Robins et al., 2023). This sample used a census approach to achieve a nationally representative sample. A total of 137,446 respondents were invited to participate. The

response rate for PH WINS was 35%, with 44,732 out of 127,340 eligible respondents

participating (Robins et. al, 2023). This rate is lower than the previous year's rate of 48%, a

reflection of the increased demands of COVID-19 on the workforce (Yeager et al., 2023).

In the initial state sampling frame, 27,346 responses were collected from 87,739 invited

respondents, resulting in a 34% response rate (Yeager et al., 2023). In the Big Cities Health

Coalition (BCHC) sampling frame, 28% of eligible respondents (7,922 participants) responded.

The BCHC is a forum uniting leaders from the largest metropolitan health departments in the

United States, with a membership of 35 local health departments (Big Cities Health Coalition,

2023).

Within the local sampling frame, 46% of eligible respondents (3,046 staff members) from

other Local Health Departments (LHDs) and 56% (6,418 staff members) from LHDs in Regions

five and Ten, participated (Yeager et al., 2023). Of the 220 LHDs participating in PH WINS, the

overall organizational response rate was 97%, with employees from 215 LHDs in Regions five

and 10 completing the survey (Yeager et al., 2023).

It's important to highlight that the survey involved 100 departments and 968 respondents

were not typically included in the national sample. These health departments fell short of the

criteria due to their smaller workforce or service population. However, in this pilot effort,

Regions Five and Ten provided workforce estimates for the state central office and large,

medium, and small agencies (Robins et. al,2023).

An impactful change in the 2021 PH WINS was the inclusion of non-permanent

employees in the nationally representative frame for State Health Agency-Central Office (SHA-

CO) staff. This decision contrasted with the approach in PH WINS 2017, which excluded non-

permanent employees due to their limited presence and the strategic focus on permanent

workforce development. The shift was driven by the significant recruitment of non-permanent employees during the pandemic to bolster workforce capacity. This choice has implications for researchers aiming to make multiple cross-sectional comparisons across PH WINS fielding.

Survey Administration

The 2021 Public Health Workforce Interests and Needs Survey (PH WINS) was administered online by the Association of State and Territorial Health Officials (ASTHO) with support from the de Beaumont Foundation (Robins et al., 2023). The 2021 PH WINS was fielded by a determined effort from survey administration and individual agency staff, including a workforce champion and an information technology contact. Once the surveys were fielded and the responses were received, a final sample assignment was constructed. The survey fielded 137,446 public health workers and achieved a 35% response rate (Robins et al., 2023).

Inclusion and Exclusion Criteria

The study sample exclusively consisted of individuals who participated in the 2021 PHWINS and were classified as Tier 1 public health professionals or frontline workers. Particularly, individuals in supervisory or executive roles (classified as Tier 2 and 3) were excluded from the analysis, primarily due to the distinct competency assessment criteria that applied to each tier. By focusing on Tier 1, the findings of this study are generalizable only to public health professionals in non-supervisory roles (referred subsequently to as frontline staff).

Measures

Turnover/ Intent to Leave

Turnover intention was the study's main outcome, measured as a binary variable. Respondents were asked to indicate whether they were considering leaving their organization within the next year and, if so, why. All survey respondents reporting an intent to leave their

organization within the next year were classified as "yes", representing an intent to turnover. Survey respondents not intending to to turnover were classified as "no". Those who responded with an intention to retire in the next year were not included in the analyses.

Programmatic Expertise

Programmatic expertise, also referred to as programmatic competency, is the key independent variable in this study. Respondents were asked to assess the importance of programmatic expertise for public health professionals in their day-to-day work. This assessment was structured for Tier 1 for non-supervisors. For each programmatic competency, respondents were asked to rate the importance of the skill on a 5-point Likert scale, ranging from very important to not very important. Participants were separately asked to gauge their own proficiency in performing this same programmatic expertise. To convey their self-assessment, they utilized a 5-point Likert scale that spanned from "unable to perform" to "expert." Survey items for programmatic expertise included the following statements:

(1) Content knowledge specific to my programmatic area.

(2) Technical skills specific to my programmatic area.

Programmatic expertise or programmatic competency is measured using participants' self-assessment of their content knowledge and technical skills in their respective programmatic areas.

Employee Work Engagement

Employee work engagement was examined as a mediating variable in this study. Employee work engagement was assessed using four questions in the workplace engagement module of the PH WINS. Respondents were asked to rate their level of agreement with statements assessing work engagement on a 5-point Likert scale, ranging from strongly disagree

to strongly agree. Survey items included to assess workplace engagement included the following four statements:

     (1) I know how my work relates to the agency's goals and priorities.

     (2) The work I do is important.

     (3) I feel completely involved in my work.

     (4) I am determined to give my best effort at work every day.

Generational Cohorts

Generational cohort was evaluated as the moderator in this study. There is no one source that defines generational cohorts. Various authors use slightly different cut points to define each generation. The generational cohort definitions developed by the Pew Research Center will be used for this study (Pew Research, 2014). These are also consistent with the definition used in the Federal Employee Viewpoints Survey. Using this framework, the birth year cut points are:

- Generation Z:2001-2020 (20-0 years old)

- **Millennials: 1981 –2000 (40-21 years old)**

- **Generation X: 1965-1980 (56-41 years old)**

- **Baby Boomers: 1946-1964 (75-57 years old)**

- Silent Generation: 1928-1945 (93-76 years old)

In this dissertation, generational cohorts were determined by cross-referencing the years provided with the age variable from the 2021 PH WINS survey. It's essential to emphasize that the study established age groups based on specific birth year cutoffs. In the 2021 PH WINS data, age was categorized into different groups. For this study, proxy recategorization was applied as

follows based on data availability in PH WINS. This approach involved the age variable

available in the PH WINS dataset to create distinct generational groups for analytical purposes:

- Generation Z: Individuals under the age of 21.

- Millennials: Individuals aged 21 to 40 years.

- Generation X: Individuals aged 41to 55 years

- Baby Boomers: Individuals aged 56 to 75 years.

Notably, only generational categories represented at least five percent of the state and local

public health agency workforce were considered in the analysis. Consequently, this methodology

resulted in the exclusion of the Silent Generation and Generation Z from the analytical

framework.

Covariates

Control variables included variables assessing employee work characteristics and employee

demographic characteristics.

- **Employee work characteristics:** Agency of employment was assessed with the

  dichotomous variable measuring agency type, with local agency coded as "0" and

  state agency coded as "1."

- **Employee demographic characteristics:** Employee demographic characteristics

  assessed in addition to age, included race (white vs. other), education, and gender

  (female vs. other). Educational level was recoded into 2 categories: no bachelor's

  degree versus college degree (bachelor's degree or higher).

Data Analysis and Approach

The study population was described using frequencies, percentages, and means as

appropriate in addressing the research questions. This study employed an analytical framework

encompassing hierarchical regression with mediation and moderation analysis. These included a series of analyses used to assess the connection among programmatic expertise, work engagement, and turnover intention. To ensure the validity of the measurement tools for two critical constructs, work engagement, and programmatic expertise, an exploratory factor analysis (EFA) was first conducted. The EFA served as a foundational step in the development and validation of these instruments, bolstering the validity and reliability of the study.

Furthermore, the relationship among generation cohorts, programmatic expertise, work engagement, and turnover intention was rigorously examined through hierarchical regression analysis. Linear regression was utilized to analyze the association between programmatic expertise and work engagement. Binary logistic regression was instrumental in assessing the association between work engagement and turnover.

Mediation Analysis

The Baron and Kenny Mediation Analysis method outlines a simple process for investigating potential mediation effects (Baron & Kenny, 1986). The Baron and Kenny (1986) approach is a well-established strategy for testing mediation hypotheses involving a series of sequential steps. Following this method, we initially conducted three separate regression models.

The first step examined the relationship between the predictor, X (programmatic expertise), and the mediator (workplace engagement). The second step examined the relationship between the mediator (workplace engagement) and the outcome, Y (turnover intention. In the third step, the relationship between the independent variable X (programmatic expertise) and the dependent variable Y (turnover) without considering the mediator (workplace engagement). To determine mediation, according to Baron and Kenny's (1986) guidelines:

- If any of the steps (1-3) did not yield statistically significant results, it suggested that no mediation effect was present.

If all three are significant, we proceed to the fourth, where we predict the outcome variable (turnover), including both the independent variable (programmatic competency) and the moderator (workplace engagement) simultaneously in the model.

- Partial mediation was considered to exist if all three steps were statistically significant, and the mediator remained significant even after controlling for X in the fourth step.

- Complete mediation was observed when the independent variable no longer had a direct effect on the dependent variable once the mediator was controlled for, and the following conditions were met:

    (1) The independent variable significantly influenced the dependent variable in the first regression equation.

    (2) The independent variable significantly influenced the mediator in the second regression equation.

    (3) The mediator significantly influenced the dependent variable in the third equation, where both the independent and mediator variables were included as predictors (Baron & Kenny, 1986).

In addition to following the steps outlined by Baron & Kenny, the Sobel Test was employed to formally assess the indirect mediation of programmatic competency on turnover intention through work engagement, providing a statistical validation of this mediating relationship. This mediation analysis allowed the systematic evaluation of the presence and nature of mediation effects in this study, enhancing our understanding of the underlying mechanisms governing the relationships between the variables of interest.

Interaction Terms

Interaction terms were created to examine the potential modifying effect of generational cohorts on the relationships among work engagement, programmatic expertise, and turnover. Interaction terms were generated by multiplying the generational cohort's variable with the programmatic expertise and work engagement variables, respectively.

All data were re-coded, managed, and analyzed using the STATA.V.17 statistical package. All data were weighted to account for the complex sampling design. Statistical significance was assessed at $p<0.05$, using two-tailed tests. The resulting analytical model for this study is illustrated in Figure 4.

Figure 4: Analytical Model
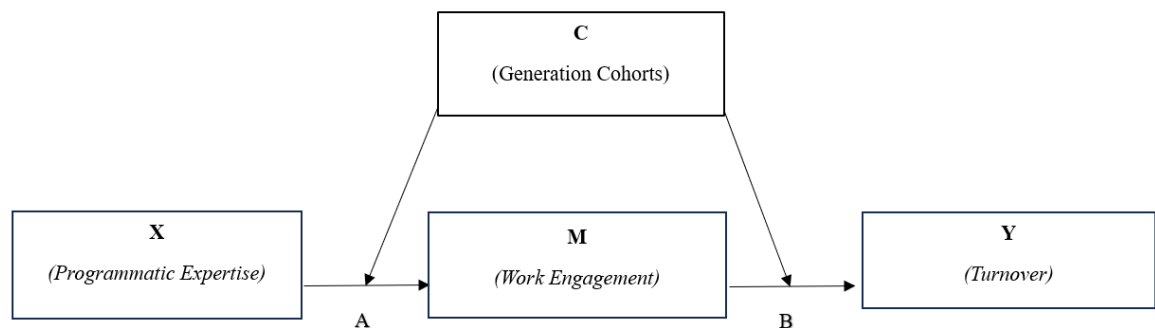
Summary of Chapter

This chapter focused on describing the methodology utilized in this study. The study sample and data collection approaches were discussed in this chapter. Also, this chapter described the study's data, measures, and analytical plan. The next chapter, Chapter 4, will present the results of the study. Chapter 5 will present a discussion of the results and the policy and practice implications of the study findings.

CHAPTER 4

RESULTS

This chapter aims to present the findings of this study and provide a basis for accepting or

rejecting the various hypotheses. The chapter will present the characteristics of the sample,

results from the exploratory factor analysis (EFA), and results from the hierarchical regression

models.

Sample Characteristics

Table 1: Sample Characteristics, 2021 Public Health Workforce Interests and Needs Survey (PH

WINS)

Variable	Unweighted Estimate (%)	Weighted Estimate (%)	Weighted Estimate 95% Confidence Interval	
Gender				
Male	20.8	20.6	20.0	21.2
Female	79.2	79.4	78.8	80.0
Race				
White	57.5	53.8	53.1	54.5
Other	42.5	45.5	45.5	46.9
Education				
Less than Bachelor's Degree	27.4	27.4	26.6	28.2
Bachelor's Degree or Higher	72.6	72.6	71.8	73.4
Agency				
State Health Department	34.5	30.2	29.6	30.8
Local Health Department	65.5	69.8	69.2	70.4

Table 1 provides a snapshot of the description of the sample included in this study. The

sample was restricted to Tier 1 public health professionals who have non-supervisory roles. In

terms of gender, 79.2% of the participants were female, while 20.8% were male. Regarding race, 57.5% of the participants identified as white, with 42.5% belonging to other racial groups. Education-wise, 27.4% of the respondents held less than a bachelor's degree, whereas 72.6% possessed a bachelor's degree or higher. When it came to the agency where participants were employed, 65.5% worked in local health departments and 34.5% in state health departments (Table 1). In summary, most of the survey participants were female, of white race, possessed a bachelor's degree or higher, and were employed in local health departments.

Exploratory Factor Analysis

Table 2: Exploratory Factor Analysis			
Factor	Items	Work Engagement	Programmatic Expertise
Work Engagement	I know how my work relates to the agency's goals and priorities.	0.65	
	The work I do is important.	0.71	
	I feel completely involved in my work.	0.75	
	I am determined to give my best effort at work every day	0.66	
Programmatic Expertise	Content knowledge specific to my programmatic area		0.95
	Technical skills specific to my programmatic area.		0.82
Percentage of variance (total=70.2%)		41.3	28.9
Cronbach's Alpha		0.78	0.88

Table 2 illustrates the results from the scale reliability and validity assessment using exploratory factor analysis, a statistical method for examining the structure of measurement scales (Watkins, 2018). The results indicate that the initial four items consistently loaded together, forming a single construct that represents work engagement. Conversely, the last two

items are loaded independently, forming a distinct construct that represents programmatic

expertise. Cronbach's alpha was utilized to assess the internal consistency of these scales. Scales

are typically considered reliable when the alpha value exceeds 0.70, which is a widely accepted

threshold for reliability (Nunnally, 1978). In this analysis, the Cronbach's Alpha values for

programmatic expertise and work engagement were 0.88 and 0.78, respectively, indicating a high

level of reliability for both constructs (Table 2). In terms of construct validity, four items loaded

well on work engagement while two items loaded on programmatic expertise. All factor loadings

were above the 0.5 threshold, indicating acceptable construct validity (Hair et al., 2019).

Examining the Relationship Between Programmatic Expertise and Work Engagement and the Moderating Role of Generational Cohorts

Figure 4: Analytical Model
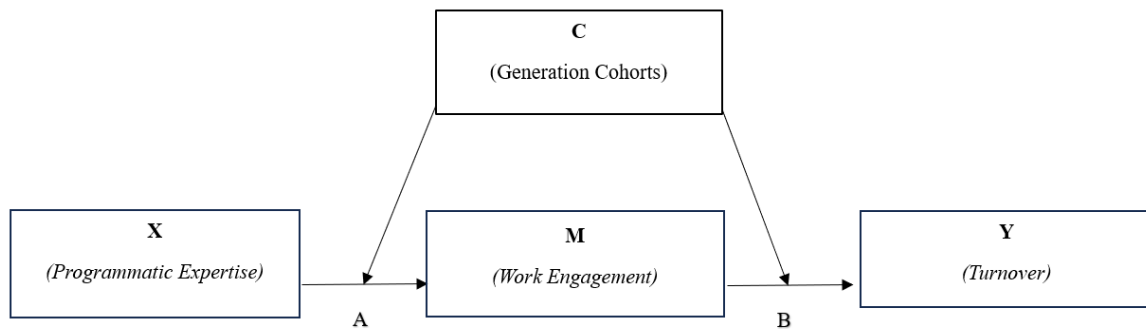
Table 3: Pathway A- Moderating Effect of Generational Cohorts on the Relationship between

Programmatic Expertise and Work Engagement

Variable	Work Engagement								
	Model 1			Model 2			Model 3		
	b	*t*	*p-value*	*b*	*t*	*p-value*	*b*	*t*	*p-value*
Constant	4.39**	298.60	<0.001	4.17**	108.97	<0.001	4.04**	73.38	<0.001

	0.08**	8.29	<0.001	0.09**	9.06	<0.001	0.09**	9.05	<0.001
Gender (Female)	0.08**	8.29	<0.001	0.09**	9.06	<0.001	0.09**	9.05	<0.001
Race (white)	-0.05**	-6.32	<0.001	-0.07**	-8.76	<0.001	-0.07**	-8.86	<0.001
State/dept.	-0.06**	-5.63	<0.001	-0.07**	-6.68	<0.001	-0.07**	-6.67	<0.001
Educ (bachelors)	-0.13**	-15.04	<0.001	-0.12**	-13.14	<0.001	-0.13**	-13.12	<0.001
Program Expertise				**0.10****	**8.90**	**<0.001**	0.14**	8.97	<0.001
Millennials				**-0.13****	**-10.84**	**<0.001**	-0.13**	-10.96	<0.001
Generation X				**-0.06****	**-4.63**	**<0.001**	-0.06**	-4.66	0.001
Program Expertise x Millennials							**-0.07****	**-2.97**	**0.005**
Program Expertise x Generation X							**-0.03**	**-1.67**	**0.104**
F	135.30**			127.44**			96.62**		
ΔF				53.49**			4.77**		

The analytical model is illustrated in Figure 4. In Pathway A (Figure 4), the primary focus was to investigate the relationship between programmatic expertise and workplace engagement while examining the moderating effect of generational cohorts on this relationship. A hierarchical model building approach was employed, which involved three distinct models to comprehensively analyze the data. The findings are presented in Table 3.

Model 1 examined the control variables in isolation, and findings revealed significant associations between control variables and work engagement. Specifically, females (b=0.08, t=8.29, p-value <0.001) exhibited higher work engagement than males, while individuals identifying as white (b= -0.05, t= -6.32, p-value <0.001) individuals showed lower work engagement in comparison to other racial groups. Additionally, those working in state health departments (b= -0.06, t= -5.63, p-value <0.001) reported lower work engagement when compared to their counterparts in local health departments. Furthermore, individuals holding a bachelor's degree or higher (b= -0.13, t= -15.04, p-value <0.001) exhibited lower work engagement than those without such qualifications (Table 4.3, Model 1).

Model 2 introduced the main effects, encompassing generational cohorts (Millennials and Generation X) and programmatic expertise. The relationships observed in Model 1 for the control variables remained largely consistent. In this model, it was discovered that programmatic expertise was positively and significantly linked to work engagement (b= 0.10, t= 8.90, p-value <0.001). Moreover, there was an association between generational cohort and work engagement, with Millennials and Generation X cohorts exhibiting lower levels of work engagement in comparison to Baby Boomers. Notably, a linear trend emerged, indicating that Millennials had the lowest levels of work engagement when compared to Generation X and Baby Boomers (Table 3, Model 2).

Model 3 introduced an interaction term, revealing a statistically significant moderating effect of generational cohorts on the positive relationship between programmatic expertise and work engagement (Table 3, Model 3). This effect is best understood and interpreted visually as depicted in Graph 1.

Graph 1: The moderating effect of generation cohorts in the relationship between programmatic expertise and work engagement.
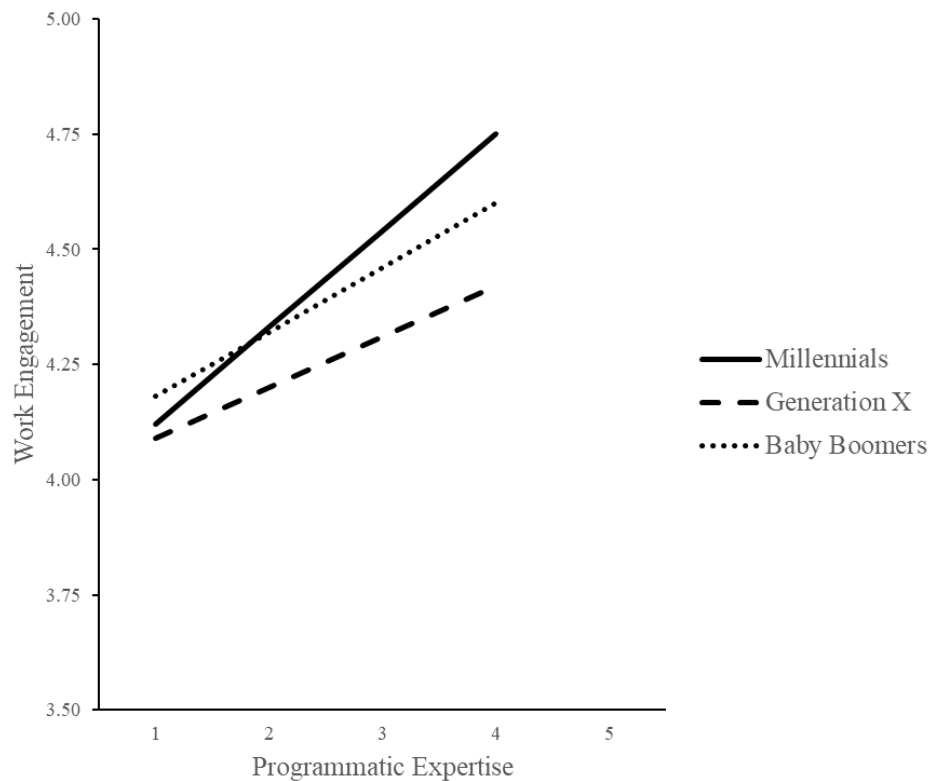
Graph 1 illustrates the relationship between programmatic expertise (x-axis) and work engagement (y-axis) separately for each of the generational cohorts. The solid line represents the relationship for Millennials, the dotted line illustrates the relationship for Baby Boomers, and the dashed line represents the relationship for Generation X. The slope of the lines varies. It is steeper for Millennials when compared to both Generation X and Baby Boomers. This observation suggests that the positive relationship between programmatic expertise and work engagement is most pronounced and strongest for the Millennial generation.

Examining the Relationship Between Work Engagement and Turnover Intention and the Moderating Role of Generational Cohorts

Table 4: Pathway B-Moderating Effect of Generational Cohorts on the Relationship between Turnover Intention and Work Engagement

Variable

	Model 1				Model 2				Model 3			
	b	exp(b)	t	p-value	b	exp(b)	t	p-value	b	exp(b)	t	p-value
Constant	-1.20**	0.30	-22.44	<0.001	3.56**	35.13	21.09	<0.001	2.65**	14.14	7.28	<0.001
Gender (Female)	-0.31**	0.73	-10.64	<0.001	-0.24**	0.79	-6.62	<0.001	-0.24**	0.78	-6.59	<0.001
Race (white)	-0.16**	0.85	-5.89	<0.001	-0.22**	0.80	-6.59	<0.001	-0.22**	0.79	-6.54	<0.001
State/dept.	0.03	1.03	0.67	0.507	-0.02	0.98	-0.62	0.542	-0.02	0.98	-0.58	0.564
Educ (bachelors)	0.66**	1.94	16.90	<0.001	0.44**	1.56	9.79	<0.001	0.44**	1.55	9.66	<0.001
Work Engagement					-1.20**	0.30	-35.28	<0.001	-0.98**	0.37	-12.84	<0.001
Millennial					0.73**	2.07	13.99	<0.001	0.68**	1.99	13.34	<0.001
Generation X					0.39**	1.47	7.86	<0.001	0.37**	1.45	7.34	<0.001
Work engagement x Millennial									-0.33**	0.72	-3.88	<0.001
Work Engagement x Generation X									-0.16*	0.85	-2.11	0.041
F	128.49**				349.53**				266.06**			

In Pathway B (Figure 4), the primary focus was to investigate the relationship between turnover intention and workplace engagement while examining the moderating effect of generational cohorts on this relationship. As before, a hierarchical model building approach was employed. In Model 1, we isolated control variables, revealing statistically significant relationships for all control variables except one. Firstly, females showed a reduced likelihood of turnover intention compared to males (Odds Ratio or exp(b) (OR) =0.73, p-value < 0.001) , individuals of white racial backgrounds reported a lower likelihood of turnover intention compared to those of other racial backgrounds (OR =0.85, p-value < 0.001), and individuals with a bachelor's degree exhibited a higher likelihood of turnover intention compared to those without (OR =1.94, p-value < 0.001). Notably, the type of agency in which individuals worked (State Department or local health department) did not appear significantly associated with turnover intention (Table 4, Model 1).

In Model 2, we introduced the main effects, including generational cohorts (Millennials and Generation X) and work engagement. The relationships observed in Model 1 for the control variables remained unchanged. Model 2 revealed a negative correlation between work engagement and turnover intention (OR =0.30, p-value < 0.001), indicating that individuals with higher levels of work engagement reported a lower likelihood of intending to leave their organization. Additionally, observed an association between generational cohort and turnover intention. Millennials (OR =2.07, p-value < 0.001) and Generation X (OR =1.47, p-value < 0.001), when compared to Baby Boomers, were more likely to report an intention to turnover, following a linear pattern where the likelihood of turnover intention increased with younger generations (Table 4, Model 2).

In Model 3, after incorporating the interaction effect, observed a statistically significant moderating effect of generational cohort on the relationship between work engagement and turnover, illustrated in Graph 2. This suggests that generational cohorts play a role in shaping the impact of work engagement on turnover intention (Table 4, Model 3).

Graph 2: Moderating effect of generation cohorts found in the relationship between work engagement and turnover intention
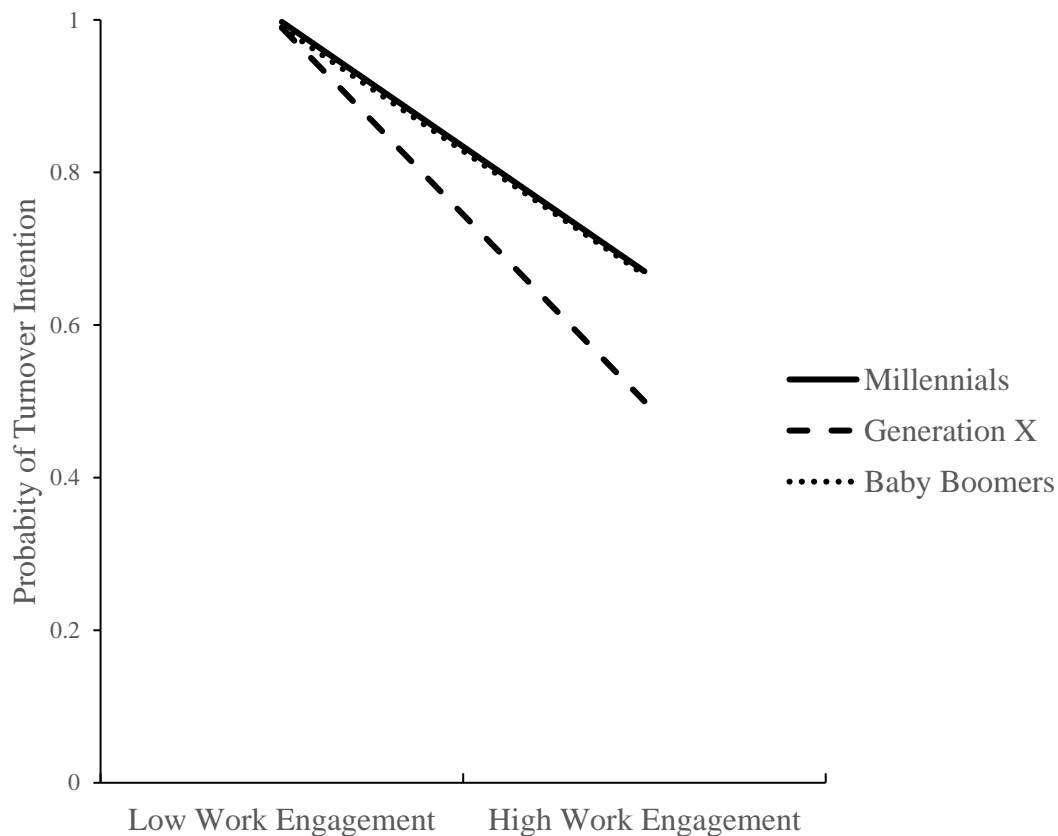
Graph 2 represents the relationship between work engagement and turnover intention graphed separately for each cohort. The y-axis represents the probability of turnover intention. The x-axis depicts worker engagement from low to high. The solid line represents the relationship for Millennials, the dotted line illustrates the relationship for Baby Boomers, and the dashed line represents the relationship for Generation X. There is a general negative correlation

between worker engagement and the probability of turnover intention. In other words,

individuals reporting high worker engagement tend to report a lower probability of turnover.

However, the slope of this relationship is steeper for Generation X, indicating that, compared to

other generational cohorts, high work engagement has a more pronounced protective effect

against turnover intention for Generation X than for other cohorts.

Examining the Mediating Role of Work Engagement in the Relationship between

Programmatic Expertise and Turnover

Table 5: Regression Results for Mediation.

	Work Engagement			Turnover Intention (0-stay; 1-leave)			
	b	t	p-value	b	Odds ratio	t	p-value
Constant	4.10	108.28	<0.001	3.32	27.73	21.09	<0.001
Gender (Female)	0.09	9.07	<0.001	-0.21	0.81	-5.89	<0.001
Race(white)	-0.06	-7.99	<0.001	-0.29	0.75	-8.37	<0.001
State/dept.	-0.06	-5.95	<0.001	-0.07	0.94	-1.71	0.09
Educ(bachelors)	-0.14	-16.07	<0.001	0.52	1.69	12.59	<0.001
Program Expertise	0.10	8.93	<0.001	0.31	1.36	10.37	<0.001
Work Engagement				-1.27	0.28	-36.90	<0.001
F	135.81			299.34			

Table 6: Sobel Test

Sobel Test	Coefficient	Bootstrap std. err.	Normal-based [95% conf. interval]
Indirect effect (PE->WE->TOI)	-0.124	0.011	[-0.147, -0.102]

Note: Unstandardized regression coefficients are reported.

Table 5 examines the mediating role of work engagement in the programmatic expertise

to turnover intention relationship. Programmatic expertise must be associated with work

engagement for mediation to be considered. The first model focuses solely on confirming the

connection between X (programmatic expertise) and the mediator M (work engagement). As

shown in Table 3 and confirmed in Table 5, programmatic expertise (X) is linked to work engagement (M). Following the steps outlined by Baron, Kenny confirmed the presence of mediation (data not shown).

Mediation can take two forms: partial mediation or full mediation. Partial mediation means that even in the presence of the mediator, X remains statistically significant. Full mediation, on the other hand, occurs when X is no longer statistically significant in the presence of the mediator. Partial mediation is indicated in Table 5 because both programmatic expertise (X) and work engagement (the mediator) remain statistically associated with turnover, as seen in the right-hand model. This suggests that work engagement partially mediates the relationship between programmatic expertise and turnover.

To formally evaluate the significance of the observed mediating relationship, the Sobel Test was employed. Table 6 results of the Sobel test provided confirmation of a statistically significant indirect effect (b=-0.124; 95% CI = -0.147, -0.102), confirming the mediating role of work engagement in the programmatic competency to turnover intention link.

Summary

Chapter 4 presented the results of the study. The findings confirmed the analytical model, demonstrating that programmatic expertise is indeed linked to turnover. Importantly, this association is partially mediated by work engagement. Furthermore, it's important to note that these associations are also influenced by generational cohorts, indicating that the impact of programmatic expertise on turnover, as well as the mediation through work engagement, varies across different generational groups. In Chapter 5, these findings are discussed within the context of the existing literature. A discussion of policy, and future research implications of this study is also provided.

CHAPTER 5

DISCUSSION

The public health workforce is undergoing a significant transformation characterized by impending generational shifts, substantial retirements (Bogaert et al., 2021), and a noticeable increase in voluntary turnover rates (Castrucci, 2018). Considering these developments, it is crucial to shift our focus toward understanding the drivers of recruitment and retention while simultaneously prioritizing capacity-building efforts. Public health, as a field, heavily relies on the expertise and engagement of its workforce to not only ensure operational efficiency but also to preserve critical institutional knowledge and expertise (Bogaert et al., 2021). The presence of a competent and engaged workforce is indispensable for the sustained effectiveness and continuity of public health initiatives, thereby rendering it a paramount subject for examination and intervention within the public health domain. Consequently, the primary motivation of this study lies in the imperative to investigate the roles played by programmatic competency, work engagement, and turnover while also aiming to discern potential variations in these dynamics across distinct generational cohorts. To address these research gaps, this study formulated the following research objectives: (a) to explore the relationship between programmatic expertise and turnover, (b) to explore the mediation effect of work engagement in the association between programmatic expertise and turnover, and (c) to assess whether generational cohorts moderate the relationship among programmatic expertise, turnover, and work engagement.

Summary of Findings

The main findings were: (a) among public health professionals, an increase in programmatic expertise leads to an increase in work engagement, especially among Millennials; (b)programmatic expertise is inversely related to turnover, and this association is partially

mediated by work engagement, and; (c) work engagement reduces turnover, with a particularly pronounced protective effect among the Generation X cohort.

Programmatic expertise is positively associated with work engagement among state and local public health workers. This study uncovers a positive correlation between programmatic expertise and work engagement among state and local public health workers. It suggests that an increase in programmatic expertise is directly linked to higher work engagement, which, in turn, could potentially enhance job satisfaction, productivity, and employee commitment within public health departments (Wolor et al.,2023). Additionally, research by Lazzari (2022) found a positive relationship between competence development and autonomous motivation, which, in turn, was negatively associated with turnover intentions.

These findings hold broader implications for the field of public health, emphasizing the critical role of investing in training and development programs for public health professionals. By nurturing programmatic expertise, organizations can create a ripple effect that not only benefits their employees but also amplifies the overall effectiveness and outcomes of public health initiatives. Fostering programmatic expertise among public health workers emerges as a key strategy to elevate their engagement levels, ultimately resulting in a more dedicated and productive workforce, thereby enhancing the effectiveness and quality of public health services. Thus, the study's findings suggest a need for a strategic focus on enhancing programmatic expertise to bolster the capacity of public health departments to address pressing health challenges and promote a healthier society.

Programmatic expertise or competency is negatively associated with turnover intentions among state and local public health workers. The findings from this study suggest that programmatic expertise minimizes turnover. Programmatic expertise serves as the

foundation for effective service delivery and public health program management. As the

foundation of effective service delivery and public health program management, programmatic

expertise plays a pivotal role in shaping workforce stability. Employees with higher levels of

programmatic expertise are more likely to feel engaged, satisfied, and competent in their roles,

which, in turn, reduces their desire to leave their positions. In the banking sector, competence

development has been shown to have a significant and negative effect on turnover intentions

(Mustafa & Ali, 2019) as supported by the findings of this study. This finding underscores the

importance of investing in competency development and training programs to enhance

employees' skills and knowledge, which can lead to a more committed and stable workforce.

The relationship between programmatic expertise and turnover intentions is

partially mediated by work engagement. This study uncovers that the relationship between

programmatic expertise and turnover intentions is partially mediated by work engagement. This

suggests that the influence of programmatic expertise on turnover is not solely direct but is, in

part, channeled through its impact on work engagement. This understanding emphasizes the

complex relationship between these variables and provides valuable insights for designing

effective interventions and policies to mitigate turnover within public health departments,

ultimately strengthening the overall workforce and programmatic outcomes.

The mechanism of the relationship between expertise, work engagement, and turnover

has not previously been elucidated. This study goes beyond merely noting the presence of

relationships between these factors; it adds to our understanding of the mechanism of

association. Specifically, it reveals that the relationship between programmatic expertise and

turnover is not solely direct but, rather, is partially mediated by work engagement. It underscores

the idea that a healthcare worker's programmatic competency not only directly affects their

likelihood to stay or leave but also indirectly exerts its influence by shaping their level of work engagement. This revelation carries significant implications for public health administrators, policymakers, and HR professionals tasked with managing the workforce and programmatic outcomes within public health departments.

In practice, this insight provides a valuable resource for designing more effective interventions and policies aimed at mitigating turnover within state and local public health departments. However, as this study exemplifies, examining the mechanism of association of workplace factors offers great potential for reshaping how we approach workforce management in the field of public health, laying the groundwork for more targeted and effective human resource strategies in the future.

The negative relationship between programmatic expertise and work engagement, as well as that between work engagement and turnover intention is moderated by generational cohort. The findings reveal that the relationships between the assessed factors in the study are influenced by generational cohorts, leading to two noteworthy observations. Firstly, a significant finding is the pronounced positive relationship between programmatic expertise and work engagement, particularly evident among millennials. Overall public health's mission and values relating to societal improvement and social justice may resonate with Millennials, leading to more investment in their work especially when they have the necessary skillset and knowledge. Indeed, as highlighted in the Deloitte Millennial Survey of 2020, Millennials are more inclined to exhibit higher work engagement when their job aligns with their values, offers opportunities for social impact, and resonates with their aspirations for a better world. It will be intriguing to explore whether this trend remains consistent in sectors where social impact and aspirations for a better world hold less significance.

Consistently, the research of Schaufeli and Bakker (2003) highlights the pivotal role of work engagement in the realm of turnover dynamics. Their findings illuminate the fact that employees who harbor a sense of engagement and connection with their work exhibit a decreased desire to depart from their respective organizations. These collective insights form a compelling narrative, emphasizing the centrality of work engagement as an effective solution to turnover and a requirement for fostering enduring commitment among employees, especially among the Millennial cohort.

Interestingly, the link between programmatic expertise and work engagement is most pronounced among Millennials, the findings demonstrate a protective effect of work engagement on turnover intention that is more pronounced for Generation X than other generational cohorts. A study conducted by Park and Gursoy (2012) in the hospitality sector, found that the impact of work engagement on turnover intention was notably moderated by generational differences. Notably, their research revealed that Millennials exhibited distinct characteristics compared to Generation X and Baby Boomers concerning their level of work engagement and the interaction between work engagement and turnover intention (Park & Gursoy,2012). While these associations have not previously been explored in public health, the findings of this study underscore the idea that each generation interacts with the workplace in distinct ways, highlighting the importance of tailored strategies for workforce management and retention, particularly when considering different generations' unique characteristics and preferences. This is supported by the Generational Cohort Theory. Consequently, further research is warranted to delve into these distinctions and gain a deeper understanding of the conditions that give rise to these differences and varied experiences.

Implications

As a primary implication, this study highlights the importance of assessing the differences in how each generational cohort perceives and adapts to the workplace environment. Another implication is the need for a tailored approach to human resource management in public health. For example, to effectively tailor the approach to workforce development, policies should consider variations in learning styles and technology preferences among different generations. Additionally, nurturing work engagement within the workforce is of paramount importance. This can be achieved through policies that promote flexible work arrangements, recognition programs, and mentorship opportunities. The findings also suggest that addressing turnover intentions requires a comprehensive understanding of the specific drivers for each generational cohort. In doing so, organizations in the public health sector can develop strategies that are responsive to the distinct needs and motivations of their workforce, contributing to a more engaged, satisfied, and committed team.

Limitations and strengths of the study

The main strength of this study was that it used a quantitative study design that utilized reliable, nationally representative data of the public health workforce from the PH WINS (Robins, T. G et al.,2023). The PH WINS is the only nationally representative survey of the public health workforce, at both the state and local levels. Modifications were made to account for subsampling of staff, nonresponse, and post-stratification adjustments by applying state and local sample weights. Further, this study explored relationships that have not been previously examined in the existing literature, and thus the findings can inform holistic and inclusive human resource management practices.

As a limitation, this study cannot assess cause-and-effect relationships because of its cross-sectional design. Additionally, there may have been potential bias due to self-reported data and omitted variable bias due to the use of existing secondary data elements. Notably, PH WINS

2021 has a lower overall response rate but also has a high incomplete rate. In 2017, the response rate was 48% and the e-mail open rate was 57% and the survey completion rate once opened was 85% (Robins, T.G., et al.,2023). In 2021, the response rate was 35% and the e-mail open rate was 40% and the survey completion rate once opened was 87% (Robins, T. G., et al.,2023). Finally, because their study was limited to Tier 1 (frontline, non-supervisory) employees, the findings may not be generalizable to public health professionals in supervisory roles.

Recommendations for Future Research

Future studies could help expand on several aspects of the research, including exploring the mechanisms behind the pronounced protective effect of work engagement against turnover intention in Generation X. In general, further research is warranted to explore generational distinctions in how the workplace is navigated to gain a better understanding of the conditions under which these differences and varied experiences emerge. Mixed-methods studies may prove useful in such explorations.

This study focused on frontline public health professionals. Thus, another crucial next step for research involves focusing on supervisors and leadership roles (Tier 2 and 3) to explore if the observed relationships between public health programmatic competencies, work engagement, and turnover intentions among state and local public health workers still hold for this population. This research may shed light on how leadership roles within the public health sector impact these key factors and may offer additional valuable insights for enhancing workforce effectiveness and retention.

 Conclusion

In conclusion, this study's key findings illuminate critical dynamics within the public health workforce, shedding light on the multifaceted relationship between programmatic

expertise, work engagement, and turnover. The first noteworthy discovery underscores the

pivotal role of programmatic competency in driving work engagement, emphasizing the

significance of cultivating and enhancing these competencies within public health practice.

Secondly, the inverted relationship between engagement and turnover signals a powerful avenue

for workforce retention strategies—by fostering work engagement, public health agencies can

potentially mitigate turnover rates. Moreover, collectively, the findings that programmatic

expertise enhances work engagement more among Millennials and that engagement may exert a

more pronounced impact on reducing turnover among Generation X, highlight the importance of

tailoring workforce management approaches to different generational cohorts. Recognizing the

unique needs and ambitions of these cohorts can yield substantial dividends in terms of retention

and workforce satisfaction.

In sum, this study's contributions to public health workforce practice are multifaceted. It

not only reaffirms the significance of programmatic expertise but also highlights the potential of

engagement as a requirement for retention efforts. Furthermore, its insights into the moderating

role of generational differences and the mediating role of engagement provide actionable

strategies for public health agencies to foster a more engaged, satisfied, and committed

workforce, ultimately advancing the goals of public health practice and the well-being of

communities at large.

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