3-4-2024

# The Moderating Effect of Race on the Relationship Between Perceived Supervisor Support and Burnout Amongst Public Health Workers

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has been found to be complete and satisfactory in all respects,
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Walden University
2024

Abstract

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Proposal Submitted in Partial Fulfillment

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Abstract

Recent research has shown that burnout is a prevalent problem across the public health workforce. Burnout (BO) contributes to workplace challenges in turnover, employee performance, job satisfaction, and overall quality of life, and is more prevalent among racial minorities. Not only has BO been found to differ across racial demographics, employee perceptions about their level of support from supervisors (PSS) also differ. This quantitative study, informed by Meyer's minority stress theory, examined Black-White differences in PSS and BO, and whether race moderated the relationship between PSS and BO. Data collected by De Beaumont's 2017 national public health workforce interest and needs survey were used to conduct a multivariate analysis of variance analysis and a moderation analysis to answer the research questions. The findings revealed slight differences between racial groups supporting the hypothesis that Black employees differed from White employees in PSS and BO. Race was a statistically significant moderator of the relationship between PSS and BO. Surprisingly, the findings showed that White employees had slightly higher levels of self-reported BO and PSS compared to Black employees. This study highlighted how race can be used in research to further our understanding of health disparities that, if addressed, can contribute to positive social change.

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# Dedication

This dissertation is dedicated to the Lord Jesus Christ and my son, Aeasonn Sum Gaffney, who have encouraged and inspired me to strive towards growth daily, academic achievement, and glory to God. I am grateful for this opportunity to fulfill the completion of a doctorate and am thankful for my future ability to contribute towards social change in the elevated status of doctor in philosophy.

Acknowledgments

I would like to thank my dissertation chair, Dr. Silvia Bigatti, and committee member, Dr. Jesus Tanguma, who provided guidance and expertise throughout the completion of this dissertation.

I would also like to thank my grandmother, Camillia Eason-Johnson, who has provided me relentless support and motivation throughout my entire academic journey.

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# Chapter 1: Introduction to the Study

Self-reported work related burnout has reached global epidemic levels (Tipa et al., 2019) and has been disproportionate across racial groups (Lawrence et al., 2022). Workplace factors like racial bias, stigma, and discrimination contribute to differing concerns amongst employees that have been shown to relate to burnout related stress for employees of color (Whitaker, 2019). Such differences impact the way Black employees feel they are treated or supported, especially compared to White employees.

Among the public health workforce, the population of interest in the proposed study, these perceptions of unfair treatment are the result of low diversity among supervisory roles (Bogaert et al., 2019, 2023). Additionally, the public health workforce has shown pre and post pandemic increases in burnout (BO) and other areas of mental health (Bryant-Genevier, 2021). Fair treatment through support from supervisors has been effective in positively impacting burnout (Chami-Malaeb, 2021). In my study, I explored differences between Blacks and Whites in the relationship between perceived supervisor support (PSS) and BO, and whether race moderates this relationship.

In the following sections, a brief synopsis of the existing literature relevant to this study is explained, and a gap in the research that this study focuses on is presented. The problem statement is introduced with further explanation of the gap in current research literature. Next, the purpose of the study is described, and the research questions are presented. The final sections include assumptions, scope, delimitations, and limitations. Last, the significance of the study is stated and why the topic of this study is important to the larger discipline of psychology.

## Background

An organization has a responsibility to provide resources that enable employees to succeed. Amongst employee resources is supervisor support which has been found to be a valuable resource that influences the way employees perceive the organization and how they feel about themselves and their abilities to perform (Chami-Malaeb, 2021). Moreover, support from supervisors is an organizational factor that has been found to influence stress from BO (Chami-Malaeb, 2021). Contrarily, employees perception of the support from their supervisor can impact the level of influence that support has on BO through internalized mechanisms (e.g., feelings related to perceived discrimination, racism, bias, and stigma); therefore, employees with the perception of poor support from their supervisor would likely have a higher risk of BO (Heng et al., 2020; Talukder, 2019). Addressing the relationship dynamic between employees and supervisors is an essential organizational resource that warrants deeper exploration, as BO has been identified amongst the leading causes of increased employee turnover within the public health workforce (Bogaert et al., 2023).

Low diversity in supervisory roles have contributed to the underrepresentation of people of color, including Blacks who are the focus of the present study. Whites have been the leading majority across all roles within the public health workforce (Bogaert et al., 2023). Despite a 5% growth in racial diversity in state agencies from 2014 to 2021 (Bogaert et al., 2023), the public health workforce has struggled to increase diversity nationally across state, local, and regional agencies (Coronado et al., 2020). Additionally, although the percentage of supervisors increased from 17% in 2014 to 20% in 2017, the

percentage of White and Black supervisors remained the same (Bogaert et al., 2019). Underrepresentation has been found to increase minority stress which influences minority employees' perceptions of support (Snidman et al., 2022). Therefore, Black employees are less likely to have positive perceptions of supervisor support and experience disproportionate levels of stress from BO compared to White employees.

In the United States, racial minorities are projected to make up approximately 50% of the population around 2044 leading the nation towards the greatest levels of diversity in American history (Coronado et al., 2020; Wilbur et al., 2020). Race is a social construct that underscores group experiences, biological factors, and social-economic characteristics (Ross et al., 2020); indeed, race can be viewed as a labeling system that can influence individuals internalized perspectives on how they view themselves, their environment, and how they are viewed within that environment. In workplace environments, racial diversity and equity have become noticeable concerns and are topics amongst change initiatives nationally. For example, Coronado et al. (2020) highlighted benefits of a diverse public health workforce which included the ability to positively influence disproportionate health disparities (e.g., the burden of BO), improve issues concerning racial equity needs (e.g., training and support for the delivery of culturally competent and representative services), and raise awareness and confidence in issues of perceived racism. Addressing these needs are especially important considering the growing diverse populations within and served nationally by the public health workforce.

Workplace BO has risen drastically nearly doubling in self-reports in the public health workforce within the past 7 years (Bogaert et al., 2023), and reaching epidemic levels globally (Tipa et al., 2019). BO has impacted workplaces both more and less diverse by comparisons; however, BO prevalence has been more identifiable amongst professionals with high patient or client interactions, such as physicians, psychiatrists, and other mental and public health workers in America (Prasad et al., 2021). Specifically, within the public health workforce, an interests and needs survey conducted by de Beaumont found reports of BO had nearly doubled with 41% of public health workers reporting high BO in 2021 compared to 23% in 2017 (Bogaert et al., 2023). Whites are the leading majority within most roles within the public health workforce and often report high levels of BO (Leider et al., 2021; Prasad et al., 2021). However, minorities have commonly reported higher levels of BO by comparison (Prasad et al., 2021). Symptoms of BO are commonly connected to feeling physically and emotionally exhausted, overworked or high workloads, low organizational support, experiencing unfair treatment, low control, and feeling undervalued (McCormack et al., 2018; Stone et al., 2021). The drastic increases in BO are alarming and have raised ethical concerns centered around professionals work capabilities and capacities when working under such levels of BO from stress that could impair judgment and quality of services delivered (McCormack et al., 2018). This rise in employee BO has contributed to increased mental health issues within the workplace given BOs association with mental health conditions, such as depression and anxiety (Tipa et al., 2019). Additionally, BO has been identified as a leading contributor to public health workforce turnover (Bogaert et al., 2023).

Specifically, BO was the fourth leading factor of intent to leave the public health workforce and is growing (Prasad et al., 2021). Thus, there is an increasing need to further the understanding of the relationship between PSS and BO, and differences by race.

## Problem Statement

The situation or issue that prompted me to search the literature is the negative experiences from BO experienced by working people from prolonged chronic stress in the workplace. The adverse impact of BO as it relates to personal and social outcomes prompted me to conduct an extensive search in the literature to understand the spread of BO among employees in any work environment, especially public health professionals. BO is one of the key factors that prompts the intent to leave among the public health workforce (Leider et al., 2021). For instance, about 23% of public health employees consider leaving their job within one year of employment due to BO experiences (Leider et al., 2021). In addition, there is enough evidence in the literature to support the idea that BO contributes to adverse health outcomes (Ibrahim et al., 2022). BO is further influenced by experiences of discrimination in the workplace, which have many negative effects for Blacks (Whitaker, 2019). In a survey conducted by the Centers for Disease Control and Prevention (CDC) in 2021, about 23% of respondents reported experiencing work-related stigma or discrimination (Bryant-Genevier, 2021). Importantly, supervisor support can be a protective factor for BO in workplace environments (Day et al., 2017; Heng et al., 2020; Yeh et al., 2020), but it is not clear whether this support works as well for all groups. Specifically, what is unclear is the relationship between supervisor support

and BO, and whether race differences moderate the relationship. This is the gap I aimed to address in this study.

## Purpose of the Study

The purpose of this quantitative study was to investigate within the public health workforce the differences in levels of PSS and BO between Black and White employees and examine race as a moderator of the relationship between PSS and BO**.**

## Research Questions and Hypothesis

The following research questions guided this study.

Research Question 1: To what extent do Black and White employees differ in their perceptions of supervisor support and levels of BO?

$H_0$1: Black and White employees do not significantly differ in perceptions of supervisor support and BO.

$H_1$1: Black and White employees significantly differ in perceptions of supervisor support and BO.

Research Question 2: To what extent does race moderate the relationship between PSS and BO?

$H_0$2: Race does not significantly moderate the relationship between PSS and BO.

$H_1$2: Race significantly moderates the relationship between PSS and BO.

## Theoretical Framework

The theories and/or concepts that grounded this study include the minority stress theory (MST), to explain the interaction between supervisors or team leaders' support, BO, and race. In 1995, Meyer examined minority stress and mental health among gay

men. In the study, Meyer (1995) indicated that observed stress emerged from the minority status of the individuals or social conditions. The social conditions or minority status of the individuals in turn influences the psychological distress of the individuals (Meyer, 1995). Stressors that minorities experience come from how others view them and behave toward them and include, among others, stigma (related to expectations of discrimination and violence), and actual experiences of discrimination and violence (Meyer, 1995).

The logical connections between the framework presented and the nature of which the MST are used to explain the current study with the lens of race (Black and White) are important in public health workforce. Veles et al. (2013) applied MST to the workforce and found that sexual minorities experienced low work satisfaction and eventually higher rates of BO. The MST framework includes operational mechanisms that can apply to race, and MST has been frequently used in studies focused on racial minority groups (for example, Black people are stigmatized in society as sexual minorities are). MST highlights four minority stressors, of which are minority internalized experiences of discrimination and stigmatization which have been identified as an essential influencer of vocational outcomes and psychological wellbeing leading to low work satisfaction and eventually higher rates of BO, especially for Blacks (Whitaker, 2019).

## Nature of the Study

To address the research questions in this quantitative study, the specific cross-sectional research design included a moderation analysis to determine whether there was

a relationship between PSS and BO, and whether race moderated the relationship. To conduct this study, an archival data set from the 2017 Public Health Workforce Interests and Needs Survey (PH WINS) was used (Leider et al., 2021; *PH WINS*, n.d.b). In this study, I examined the differences between racial groups concerning perception of supervisor support and levels of BO, and the potential moderation (see Day et al., 2017) effects of race on the relationship between supervisor support and BO.

## Definition of Terms

*Burnout*: An involuntary psychological emotional state at which point a person feels emotionally and physically disrupted mainly characterized by levels of emotional exhaustion, depersonalization or cynicism, professional inefficacy, and disengagement (Chami-Malaeb, 2021; De Hert, 2020).

*Perceived supervisor support*: A construct that focuses on the employees' internalized experiences concerning their broad view and beliefs about the relationship dynamics between them and their supervisor, namely, the extent employees feel valued by their supervisor and the extent supervisors are concerned with their wellbeing and support towards their needs (Chami-Malaeb, 2021).

*Race*: A social construct underscoring group experiences, biological factors and social-economic characteristics (Ross et al., 2020). For the present study, I specifically focused on those employees that self-identified as being a part of either the Black or White racial group.

## Assumptions

Assumptions are parts of the study that I believe to be true for the purpose of the study but cannot be proven to be true. The present study assumed participants were truthful and forthcoming in their answers on the survey. Additionally, I assumed the validated scales and questions used in the PH WINS surveys were successful in accurately measuring the intended constructs. Finally, although the survey is expected tri-annually, I assumed participants acted voluntarily in nature and their involvement in the survey was not coerced in any way.

## Scope and Delimitations

The research sample I used is limited to a national representative sample of local, state, and government public health workers. The scope is limited to the 2017 timeframe and excluded all racial groups except Black and White employees. It is possible that other racial minorities may experience, or self-report higher levels of BO and lower perceptions of supervisor support compared to Blacks and Whites. Research has shown conflicting BO outcomes between racial demographics where in some cases Blacks had lower BO compared to Whites (Lawrence et al., 2022; Prasad et al., 2021). However, a sizable body of research has also highlighted how racial minorities or underrepresented minorities (URMs), including Blacks, are dealing with disproportionate levels of BO compared to Whites (Dent et al., 2021). This is similar when reviewing the literature on PSS.

The 2017 PH WINS and data were collected before the coronavirus disease 2019 (COVID-19) pandemic. Therefore, the conclusion of the study made from the 2017 PH

WINS data and analysis may not accurately represent the current workforce environment as COVID-19 pandemic has forever changed the working environment in public health and other organizations.

All the data from the 2017 PH WINS are de-identified, and no identifiable information of the participants was published or described in this study or analysis. Also, I stored the 2017 PH WINS data in a password protected computer and only provided access to the data to the committee members and Walden Institutional Review Board (IRB) upon request. The data will only be kept in the computer system for 7 years after the study is completed and published. There are no limitations in terms of data collection. The de Beaumont organization communicated their approval allowing me to use their 2017 data. I submitted their requirements to Walden IRB, and Walden IRB approved me to complete the form requested by de Beaumont. I used the 2017 data from de Beaumont because I wanted to ensure pre-COVID influenced responses, thus having a more relevant study on typical public health experiences.

## Limitations

The current study is a quantitative study, it was impossible to assess employees' subjective perception of their supervisor in detail. Therefore, the conclusion of the study could only reflect quantitative information about Black and White racial groups, PSS and BO among public health employees. In addition, the research design was cross-sectional and thus has been used to infer correlation between the study variables. A cross-sectional design cannot be used to infer causation. In addition, the findings of the study were not used to infer generalization. The conclusion of the study findings was limited to the

individuals who participated in the 2017 PH WINS. The scope of the findings was not extended outside of these participants. Also, the 2017 PH WINS is a secondary data, as a result, the survey instruments and data collection approaches were not specifically designed for this current study.

## Significance

This study is significant in that the public health workforce consists of over 300,000 public health workers nationally who serve various types of diverse communities. Significant needs to further our understanding in various culture, diversity, and equity concerns within this workforce exist and are present on a national scale. This study aimed to contribute to these needs by furthering our understanding on the individual differences between Black and White employees and any relationship between supervisor support and BO. The incidence and prevalence of chronic conditions or events associated with stress-driven BO are increasing in the United States (Forrester et al., 2019). We know BO is directly related to stress, which negatively impacts a plethora of adverse health outcomes. However, we do not know if PSS is a protective factor for Black employees and if so, whether it is to the same degree as it is for White employees. Therefore, expanding our understanding of differences based on race, and the extent to which race moderates the relationship between PSS and BO can potentially lead to efforts to reduce work-related stressors, thereby contributing to health outcomes and effecting positive social change. The findings from this study may also inform policy specifically on health equity to reduce health disparity and health iniquity in the United States.

## Summary

In this chapter, I presented the background information for this study and briefly summarized the research literature as it related to the study. I then described the problem statement and purpose of the study. I presented the research questions and hypotheses next, followed by the theoretical framework for the study, nature of the study, definitions, assumptions, scope and delimitations, limitations, and significance of the study. The next chapter focuses on an overview of the current literature that relates to the study's topic of whether there is a relationship between PSS and BO in the public health workforce, and whether race moderates this relationship.

# Chapter 2: Literature Review

The public health workforce has experienced increased burnout (BO) on a national level contributing to adverse organizational outcomes, such as increased employee turnover (Leider et al., 2021; *PH WINS*, n.d.). Studies have shown how chronic stress from BO can lead to hypertension, increased substance use and abuse, and other adverse health outcomes (De Hert, 2020; Forrester et al., 2019; Vargas et al., 2021). BO affects nearly 20% of the general population (De Hert, 2020) and was found to be worsening across the public health workforce, which warrants the need to reduce this wide-spread problem (Leider et al., 2021).

BO is influenced by experiences of workplace discrimination, which have had disproportionate effects across racial groups, especially for Blacks or African Americans (Vargas et al., 2021; Whitaker, 2019). Very little research on BO has been published that explores differences in effects by race (Chami-Malaeb, 2021). Forrester et al. (2019) found that in the United States, Blacks or African Americans are more likely than any other racial group to experience workplace discrimination which has a direct effect on stress related to BO.

Supervisor support can be a protective factor for BO in workplace environments (Day et al., 2017; Heng et al., 2020; Yeh et al., 2020). Supervisor support was found to influence depersonalization and emotional exhaustion (Yeh et al., 2020), which are key aspects of BO (Chami-Malaeb, 2021; De Hert, 2020). However, it is not clear whether this support works as well for all racial groups. Therefore, the purpose of this study is to

examine the relationship between BO and PSS, and whether this differs by race (Black vs. White).

In this chapter, I present a thorough review of the literature related to the concepts of this study. I also present the search strategies and theoretical framework used in this study.

## Literature Search Strategy

The search for primary sources to support this study included EBSCO, ProQuest, SAGE, Science Direct, PubMed, PsycINFO, and Google Scholar. I set a search with limiters to sort by publication date. The search was limited to review articles and empirical studies with full text available online in peer-reviewed scholarly journals published between 2017 to 2022. However, for seminal articles identified through cross-referencing I allowed dates earlier than 2017. I discarded articles that included influences or subjects including: covid-19 or coronavirus or pandemic.

The search resulted in 1,528 records related to the search terms: *burnout, perceived supervisor support or supervisor support, public health workforce or public health workforce burnout*. Of the 1,528 records, 286 were associated with the key words *public health*. Additional search terms applied to identify peer-reviewed sources included *race or moderation or employee burnout*. I also cross referenced to ensure I exhausted the literature on the major themes of this study.

## Theoretical Foundation

The theoretical framework that guided this present study is Ilan Meyer's (1995) MST, which he developed with a focus on homosexual minority groups. Although the

theory was developed with a focus on LGBTQ or gay minority populations, its main concepts help us understand all stigmatized minority groups, including Blacks. MST served as a guide to understand disproportionate experiences by race concerning the relationship between PSS and BO among minority (Black) and majority (White) employees.

MST addresses distal and proximal factors contributing to chronic stress experienced by stigmatized minority groups (Meyer, 1995; Veles et al., 2013). Distal factors are described as external environmental influences (e.g., lack of positive feedback and support, and problems with leadership) and proximal factors are described as internal to the individual (e.g., poor self-talk or self-assessment, and internalized racism; Veles et al., 2013). Proximal factors that are internal to the individual are a result of various factors, importantly life experiences (Meyer, 1995). The racism experienced disproportionally by Blacks in and outside the workplace (Whitaker, 2019) lead to chronic stress (Holman, 2018; Meyer, 1995). Furthermore, these experiences may lead some individuals to develop internalized racism.

Internalized racism has been described as a result of the social oppression of a minority group based on their identity through character labeling, in this case Blacks, that leads to an inferior sense of self (Holman, 2018). When one compares themselves to the character norms of the majority group (e.g., social validations based on Whiteness, or dominating social norms that characterize Whites as the supreme social class) this develops an internal social ranking whereby the minority is forced to accept a position of a lower classification or inferior self-identity (Yona, 2018). Such oppression has been

found to potentially diminish one's internalized positive racial identity, thus contributing to internalized stigma, disproportionate stress, and adverse health outcomes (Forrester et al., 2019; Whitaker, 2019).

Perceived stigma has been described as a subjective experience referring specifically to an internalized process where one is dominated by a negative sense of self that leads to an unfair comparison of oneself to others, a sense of shame, and a sense of fear of rejection or social disapproval (Holman, 2018). Internalized stigma has been identified as a stress process triggering feelings of unworthiness (i.e., shame) and the need to conceal or limit the disclosure of one's self-identity (e.g., cultural, racial, gender, or sexual orientation) in order to present an identity more conforming with the social norm (Holman, 2018; Meyer, 1995; Vargas et al., 2021; Veles et al., 2013).

In sum, the social norms domineered onto marginalized minority groups by the majority, in this case Whites, creates an internalized expectation of fear of adverse consequences for disclosure of any identity characteristics or cultural attitudes differing from the social norm (Hoy-Ellis, 2023; Veles et al., 2013). It is important to recognize, such experiences have been linked to increased psychological distress (Vargas et al., 2021; Veles et al., 2013), and psychological distress has been correlated to BO (Maslach & Jackson, 1981), the outcome variable for the present study.

The present study explored how the relationship between the predictor, PSS, and BO, the outcome variable, differs by race, where race reflects the proximal factors described above. Based on scholarly findings that have conceptualized positively PSS as a pathway towards improved employee job satisfaction and engagement, which are both

mechanisms of BO (Moloney et al., 2020; Nguyen & Tuan, 2021; Rhoades et al., 2001), the present study brings into question whether such internal perceptions, explained through MST, can differ between majority-minority racial groups. Since BO has had conflicting outcome differences when compared across race (Lawrence et al., 2022; Primack et al., 2010), I hypothesized that both PSS and BO would differ significantly by race (*H1*), and that race would moderate the relationship between BO and PSS (*H2*).

## Literature Review Related to Key Variables

The focus of this study was the relationship between PSS and BO and whether race moderates this relationship.

### Moderator Variable: Race

Historically, Ross et al. (2020) explained how race has been used as a non-biological indicator or labeling of a type of individual typically based on skin color, cultural patterns, or socioeconomic factors. Race is a social construct that describes group criteria based on language, shared beliefs, and cultural traditions. Moreover, race can incorporate subcultures that characterize nuance beliefs, tradition, and language norms. The U.S. federal government defines race as characterized by the shared lived-experiences of a group of people (Ross et al., 2020; Whitaker, 2019).

It is important to understand how racism has influenced Blacks in America. Whitaker (2019) explained how Blacks are a racial group in America that have long endured racism. Racism is characterized as bias, or discriminative treatment and access to resources based on race, which contributes to an adverse social experience. Indeed, such treatment has led to a highly-stigmatized and marginalized Black minority group. This

harsh treatment has led to disproportionate levels of stress, evident through self-reports of perceived experiences (Forrester et al., 2019; Lawrence et al., 2022; Sun et al., 2021). Acts of racial discrimination, either overt or covert, have been found to lead to adverse social-environmental conditions that contribute to differences in workplace experiences across employee racial groups (Whitaker, 2019). Because of these adverse social environmental conditions and experience of disproportionate levels of stress, Blacks are more prone to function under higher levels of stress compared to other racial groups (Forrester et al., 2019). Although all racial groups can experience social pressures (e.g., experienced or anticipated stigma) that lead to internalized stress (Valentín-Cortés et al., 2020), Blacks are often found to experience stigma at higher severity and at critical and chronic levels compared to other minorities (Hoy-Ellis, 2023; Misra et al., 2021). Understanding the social experiences of Blacks is of critical importance since this racial minority group is one of the largest employable minority populations in the United States, specifically, and the second largest racial group in the public health state agency workforce (Bogaert, 2019).

Racism, and the stigmas associated with race, are proximal stress factors that have impacted Blacks disproportionately, contributing adversely to workplace inequities and relational dynamics between employees and supervisors (Misra et al., 2021; Whitaker, 2019). Indeed, such poor social treatment has been found to contribute to BO and other adverse aspects of mental health (Dent et al., 2021). Through an individual lens, stigma can describe ones internalized negative views or beliefs about themselves (i.e., feeling less than, inferior, spoiled) compared to others or other groups, or describe how one

believes they are poorly viewed and discredited by others (Misra et al., 2021). In a 2021 CDC survey, Bryant-Genevier (2021) found approximately 23% of the public health workforce experienced some form of workplace discrimination or stigma. Adverse environmental factors, particularly racial stigma and bias, have been found to influence behaviors within the workplace that contribute to protective distancing of lower-status groups from higher-status groups, which ultimately impacts positive interactions (Paustian-Underdahl et al., 2017; Williams, 2018). Furthermore, racism within the workplace (e.g., inequities) has contributed to the lack of workplace diversity and relational distancing (Dent et al., 2021). Building conducive sociocultural atmospheres within the workplace is important because more racially diverse workplaces have been found to foster more collaborative and productive workplace environments (Kleine et al., 2019). Indeed, through intentional implementation of workplace growth in cultural competence and considerations, these acts have been shown to reduce racial inequities while also improving employee-supervisor relationships, thereby, positively influencing health outcomes related to BO (Whitaker, 2019).

Within the public health workforce Blacks have been underrepresented in supervisory roles (people of color make up approximately 15% of the supervisory roles) which contributed to low diversity and underrepresentation within public health leadership (Coronado et al., 2020; Hare Bork et al., 2022). Bogaert et al. (2019) found that Blacks, one of the largest minority groups across public health, represent only 14% of the workforce while Whites represented the majority (approximately 64%). Similar findings underscored a lack in racial diversity in the public health workforce, particularly,

when compared to the diversity of populations its services targeted (Hare Bork et al., 2022). The public health workforce often focuses their work on the health of racially diverse communities (Hare Bork et al., 2022) making this underrepresentation an area in need of further exploration.

Examining racial diversity, and the effects of race, is essential considering such conditions have been found to cultivate in-or-out group racial identity threat (Paustian-Underdahl et al., 2017). Identity threat describes when an employee feels their social identity is viewed as subordinate and undervalued, and not recognized as part of the dominate social group (therefore, rejected or cast out into an 'out' group social status) within a social environment; Paustian-Underdahl et al., 2017). Employees that experience chronic stigma and out-group criticisms' or bias has often led to increase chronic stress, which correlated with interference in relationships between employees and supervisors (Paustian-Underdahl et al., 2017). Moreover, workplace conditions where racial stigma and bias persist have shown to produce an environment where Blacks feel they cannot be themselves and must attempt to assimilate to the identity of the higher status, or majority group (Slepian & Jacoby-Senghor, 2021). Such conditions have been associated with poor work outcomes and inequities amongst Blacks (Paustian-Underdahl et al., 2017).

Stressors linked to race have been highlighted as pathogenic to mental health outcomes (Slepian & Jacoby-Senghor, 2021; Williams, 2018). Unfortunately, the use of race as a social construct and method of categorization has largely contributed to negative psychological experiences, feeling a lack of belonging or inclusion and rejection sensitivity which has been associated with poor interpersonal relationships between

minority and majority groups and the unacceptability of being one's authentic self (Slepian & Jacoby-Senghor, 2021). This can be particularly alarming considering the public health workforce by at large functions to serve underserved and disadvantaged minority communities (Leider et al., 2021; Snidman et al., 2022). These disparities regarding race highlight the importance of the present study's focus on examining race as a moderator on the relationship between PSS and BO.

**Predictor Variable: Perceived Supervisor Support**

Supervisors influence employees' perspective of how the organization is concerned with their individual needs, the value of their work, and their overall success (Kleine et al., 2019). Supervisors can drive employee motivations which can either enrich or weaken the employee's view of the organization overall (Chami-Malaeb, 2021). If the employee feels either valued or unappreciated by the organization (Veles et al., 2013), the employee's commitment, productivity, and satisfaction can either increase or decrease accordingly (Chami-Malaeb, 2021). Based on these relational dynamics, PSS is viewed as a workplace resource that can influence employees' ability to perform while also having an impact on how they feel about themselves, and their needs, day-to-day at work (Nguyen & Tuan, 2021).

PSS is the subjective experience of employees' regarding their interactions with their supervisor, a valued organizational relationship that affects employee satisfaction, productivity, organizational commitment, and engagement (Jackson Preston, 2022; Mushtaq et al., 2017; Nguyen & Tuan, 2021; Paustian-Underdahl et al., 2017). PSS is a construct that describes how employees broadly view and believe the organization values

them and is concerned with their wellbeing (Chami-Malaeb, 2021). Through their experiences with supervisors, employees develop global beliefs about the entire organizations' concerns with their socioemotional wellbeing and performance needs which has been found to influence employee attitudes and behaviors (Chami-Malaeb, 2021). Common ways supervisors have been found to foster healthy perceptions of support are by managing employee workload, needs, and expectations (Nguyen & Tuan, 2021). In these ways, supervisor can work to improve employee wellbeing by better addressing individual needs (i.e., equity), improving communication about how the organization values individual contributions, and by incorporating culture and diversity in understanding differences in employees' global beliefs.

The importance of support from one's supervisor may differ across employees. An alarming review of a nationally representative sample of public health workers found that 25% of the workforce indicated lack of support as the reason for leaving the workforce in 2017 (Hare Bork et al., 2022; Leider et al., 2021). Since PSS is a subjective experience, it can be vital to determine whether the relationship between supervisor and employee is actually perceived as valuable by the employee (Chami-Malaeb, 2021; Gordon et al., 2019). This is particularly important, and could play a role in differences of internalized stress across employee demographics (Veles et al., 2013). Although PSS is a significant influencer of workplace stress (Chami-Malaeb, 2021), the level of interaction between employee and supervisor may differ, cultural differences could impact the way employees view the relationship, or both.

Underrepresentation among supervisors has been associated with environmental conditions that can lead to distinct differences in the way employees perceive support from their supervisor (Mitchell et al., 2022; Snidman et al., 2022). Blacks have been underrepresented in public health leadership roles (Jackson Preston, 2022). Moreover, Jackson Preston (2022) found that Blacks are amongst the diverse population of professional employees that reported feeling less satisfied with their employee roles and with support from supervisors, which highlights the view of the present study that the sociocultural context of race matters. Mitchell et al. (2022) found that the influence of supervisor support on retention was moderated by race, suggesting the need for PSS to consider racial differences when interacting with their employees. Cultural competence matters to the extent that Blacks may internalize environmental stressors differently, highlighting different supervision needs across racial groups (Veles et al., 2013). Attention by supervisors to varying needs has resulted in improved employee perceptions and cultivated positive attitudes and behaviors (Talukder, 2019).

**Outcome Variable: Burnout**

The prevalence of BO has increased to the point it has been recognized as a wide-spread, global epidemic mainly defined through a combination of an individual's inter-and-intrapersonal and organizational experiences (Tipa et al., 2019). BO is a systemic problem (Veldhuis et al., 2020), and has been widely characterized by feelings of emotional exhaustion, depersonalization or cynicism, professional inefficacy, and disengagement (Chami-Malaeb, 2021). BO has been defined as a negative, involuntary psychological emotional state at which one is mentally and physically disrupted (i.e., at a

point of exhaustion, having low self- efficacy, and lacking the desired will or capacity to perform) from normal states that are conducive to optimal performance (De Hert, 2020). In 1974, American psychologist Herbert Freudenberger introduced BO as a job related stress characterized by the experience of severely reduced physical and emotional status eventually presenting itself through the person's disengagement and adverse productivity (Lubbadeh, 2020). Maslach et al. (1981) defined BO as "a syndrome of emotional exhaustion and cynicism that occurs frequently among individuals who do 'people-work' of some kind" (p. 99). The most commonly self-reported reason for BO is stress from inter-and-intrapersonal relational interactions with others and one's workload capacity (Chami-Malaeb, 2021). Eventually, a person's chronic experience of stress can cause them to grow involuntarily detached from work quality, disengage in work activities, and lose sight of whatever motivations once drove them towards higher productivity and career achievement goals (Jackson Preston, 2022).

BO is an urgent problem within the public health workforce (Stone et al., 2021). In public health, 55% of the workforce reported experiencing BO which is a percentage higher than the national average (Leider et al., 2021). To add, 23% of public health workers in 2017 reported BO as a reason for leaving the workforce (Leider et al., 2021). One reason for this high percentage is that public health jobs typically involve interaction and involvement within communities that are highly diverse, underserved-and-represented, and of low-social economic or high risk statuses (Coronado et al., 2020; Ibrahim et al., 2022). The growing problem of BO and high workforce turnover

highlights the importance of furthering our understanding of BO within the public health workforce.

BO has been found to have disproportionate and differing effects across racial demographics (Chami-Malaeb, 2021; Primack et al., 2010). For one, URMs were found to significantly differ from Whites in a study investigating BO within a demographic of early career clinical investigators (30% of URMs versus 18% of Whites; Primack et al., 2010). BO among racial groups is likely complicated by pressure to succeed, lack of representation, and experiences with interpersonal discrimination, racism and stigma described earlier in the chapter (Jackson Preston, 2022; Lawrence et al., 2022; Primack et al., 2010). For example, Lawrence et al. (2022) found only three out of sixteen systematic reviewed studies to have statistically significant racial/ethnic differences in BO, and only one of the 16 studies found that URMs had higher levels of BO compared to White's (Lawrence et al., 2022; Primack et al., 2010). Considering the lack of scholarly information on BO differences across demographic groups, especially Blacks (Lawrence et al., 2022; Primack et al., 2010), further studies are warranted.

Identifying protective factors against BO is essential, especially for a public health workforce challenged with high turnover and growing concerns of diversity needs. Preventive acts to BO include positive organizational supports and inter-and-intrapersonal factors that lead towards positive internalizations (e.g., the way employees view their organization supports and feels about them; Chami-Malaeb, 2021; De Hert, 2020). Due to the nature of public health workers functioning in diverse settings that deal with various community interactions (e.g., health risk surveillance, screening, prevention,

and interventions) that are often high risk (Coronado et al., 2020; Ibrahim et al., 2022), organizational support has been identified as a critical protective factor, especially for addressing emotional and other psychological needs (Chin Chin Lee et al., 2019; S. Kim & Wang, 2018). Since supervisor support has been identified as an organizational support that has positively influenced employee BO, work engagement, attitudes, and productivity (Day et al., 2017; Kleine et al., 2019), the perception of supportive supervisors can help to improve employees internalized beliefs. As such, a positive perception of support from one's supervisor would reflect positive inter-and-intrapersonal factors within employees, which has been shown to positively impact employees ability to deliver quality services and reduce BO (Chami-Malaeb, 2021; Kleine et al., 2019).

Moreover, the quality of support may impact levels of BO, specifically, high-quality support from supervisors contributed positively as a protective factor against BO in a recent study (Iosim et al., 2021). Additionally, supervisor support has been found to act a buffer against BO effects (Weigl et al., 2016). Higher support from supervisors reduced adverse subjective symptoms (e.g., depression, low well-being; Weigl et al., 2016), which could further highlight the importance of PSS, also a subjective factor.

Contrary to these findings, differences in perceptions based on globally internalized beliefs that have been found to differ across race (Lawrence et al., 2022). Specifically, Leider et al. (2021) highlighted demographic differences within the public health workforce and emphasized the need to increase diversity within supervisory roles as a means to reduce underrepresentation for people of color thereby positively influencing PSS. Therefore, although there is evidence that supports the argument that

BO is influenced by PSS, the present review of the literature underscores the need to explore how this relationship differs by race.

## Summary and Conclusions

In this chapter, I presented a background of the study's theoretical frameworks, which is Ilan Meyer's, (1995) MST. I also presented the key variables of employee PSS, BO, and race (Black vs. White). I reviewed scholarly articles on these variables independently as well as together. Studies have shown significant outcomes regarding the influence of PSS on BO (Chami-Malaeb, 2021; Paustian-Underdahl et al., 2017; Primack et al., 2010). Additionally, studies have shown that BO is a significant problem within the public health workforce that presents differently across racial groups, especially when considering distal and proximal factors that coincide with MST (Forrester et al., 2019; Paustian-Underdahl et al., 2017; Primack et al., 2010; Veles et al., 2013).

In Chapter 3, I discuss the research design and rationales, methodology, and data analysis strategy used to examine whether the dependent variables (PSS and BO) differ by the independent variable groups (Black or White), for the first research question (RQ1), and, whether race moderates the relationship between the independent (PSS) and dependent (BO) variables, for the second research question (RQ2).

# Chapter 3: Research Method

The purpose of this quantitative cross-sectional survey study is to explore whether race moderated the relationship between public health workforce employees' levels of perceived supervisor support (PSS) and burnout (BO). This chapter includes an explanation of the research design and methodology, including the steps taken to recruit participants, use of instrumentation to gather data, and the statistical analyses performed on the data. This chapter also examined the study's ethical implications as well as potential threats to internal and external validity.

## Research Design and Rationale

Using archival data from the de Beaumont Foundation's 2017 PH WINS, I explored the differences in levels of PSS (outcome/dependent variable for the first research questions, and predictor/independent variable for the second) and BO (outcome/dependent variable) between Black and White employees (independent variable for the first research question, and moderator for the second), and whether race (moderator) impacts the relationship between PSS and BO. A multivariate analysis of variance (MANOVA) was used for the inferential analysis. For the first research question (RQ1), the MANOVA compared whether the dependent variables (PSS and BO) differ by the independent variable race (Black or White; Huang, 2020). For the second research question (RQ2), a moderation regression analysis, also referred to as a multiple regression equation with an interaction term (Baron & Kenny, 1986; Laerd Statistics, 2015a), was used for the inferential analysis. This test was used to determine whether race moderates the relationship between the PSS and BO. A moderation analysis is

conducted to find out whether the relationship between the predictor/independent variable and the outcome/dependent variable is significantly different depending on the effect of an independent third variable, the moderating variable (Field-Fote, 2019). For the present study, I used a moderation analysis using linear regression with an interaction term and a dichotomous moderator in SPSS (Baron & Kenny, 1986).

A quantitative design is the most appropriate choice for this study because its purpose is to establish whether group differences by race existed between Black and White public health workforce employees concerning levels of PSS and BO, and whether a significant relationship between PSS and BO is moderated by race. Moreover, similar studies done on the public health workforce, with similar topics, have commonly been qualitative. An objective of the present study was to contribute to the research through objective examination while isolating specific racial groups (Blacks and Whites) in hopes to highlight, if any, group differences (e.g., resource equity needs).

## Methodology

### Population

The target population for the current study is U.S. based local, state, and government public health workforce employees who identified as being a part of the Black or White racial group. To comprise the first national representative public health workforce sample the PH WINS, which provided the data for analyses, fielded mid or larger size local, regional, and big city health coalitions (BCHCs) and state health agencies (SHAs) representing more than a 126,000 target population size (total response, *n=47,604*), of which Blacks make up 14% (*n=6,664.56*) and Whites 64% (*n=30,466.56*;

Bogaert et al., 2019). Since archival data from the 2017 PH WINS was used, the present study did not need to construct or conduct any survey.

**Sampling and Sampling Procedures**

The PH WINS created multiple sampling frames based on jurisdiction size served, work geographic, and governance classification. At the state level, random probability sampling occurred after stratification of five regions of SHAs (Leider et al., 2015, 2019). Additional frames were created consisting of the BCHCs and local health departments (LHDs; Leider et al., 2015, 2019). The purpose of these different frames was to capture a generalizable, national representative sample of the governmental public health workforce interests and needs. SHAs data included permanently employed staff only, whereas the other samples included nonpermanent staff to ensure local and big city departments or coalitions met the sample size requirement's (Leider et al., 2019). Additionally, LHDs excluded staff with less than 25 employees and that served populations less than 25,000 (Leider et al., 2019).

For the present study, I conducted both descriptive and inferential analyses. The descriptive analysis was used to describe the distribution pattern of the study variables (PSS, BO, general demographics, and race) and the distribution was presented in table and graph formats within Chapter 4. To gain access to the archival data set, the PH WINS requires the completion of a data use agreement (see Appendix F) signed by IRB legal and all parties that will have access to the data. In the present study, my committee members and I were the only ones with access to the data. I stored the data on my secure (password protected MacBook Pro) laptop data folder for use in SPSS. I used SPSS to

clean, recode, and run statistical analysis. As aforementioned, I detailed recoded data in table format within chapter 4.

The inferential analysis was used to assess whether to reject or fail to reject the null hypothesis stated for each research question. I set the predetermined alpha value for this study at 5% (0.05) and the confidence level at 95% (0.95). If the estimated *p*-value were less than 0.05, I determined to reject the null hypothesis. If the estimated *p*-value were greater than or equal to 0.05, I determined to fail to reject the null hypothesis. The SPSS versions used were versions 28 and then 29, after the update became available.

In addition, I ensured that the statistical power is 80% (0.80) with a beta value of 20% (0.20) to avoid a type II error. The G*Power software calculated the minimum sample size required for this study to establish an 80% statistical power for a regression analysis including 2 predictors and a multivariate analysis of variance of two groups with 2 dependent variables (Faul et al., 2009; Kang, 2021). Based on the statistical power estimation condition 721 is the minimum sample size required to conduct this study to establish an 80% statistical power (Faul et al., 2009). Approximately 70% of the sample (*n*=46,604) are employees, of which, 78% are either Black or White (Bogaert et al., 2019).

For the planned research design, I accessed archival secondary data from the 2017 PH WINS. The PH WINS is a cross- sectional survey. The 2017 PH WINS data, data codebook, and survey questions are in PH WINS website. Upon approval of my research by the Walden IRB, I was granted access to the secondary data from the PH WINS. The 2017 PH WINS contained over 40,000 participants' responses which include but are not

limited to race, PSS, BO, employees' status, and position, and public health work environment. The present study used the 2017 PH WINS, rather than the most recent 2021 PH WINS, to establish whether race moderated the relationship between PSS and BO, and whether significant differences existed between PSS and BO, under normal environmental conditions, and without the unprecedented influences of the COVID19 pandemic response.

## Recruitment, Participation and Data Collection

### *Recruitment*

The present study used secondary data accessed from the de Beaumont Foundation. de Beaumont collaborated with big city, local, and state governmental agencies through the Association of State and Territorial Health Officials (ASTHOs) to recruit governmental public health employees for the web-based (emailed) public health interest and needs survey (PH WINS; Leider et al., 2015, 2019). Participants were recruited through direct invite by ASTHOs and provided the voluntary opportunity to participate in a survey focused on employee training, environmental workplace, emerging concepts, and demographic needs (Leider et al., 2019). The 2017 PH WINS was revised based on feedback from the first PH WINS conducted in 2014. 2017 PH WINS questions were piloted and pretested through cognitive interviewing to improve the survey and increase participation from aforementioned employees of governmental public health agencies (Leider et al., 2019).

### *Participants*

For the present study, the inclusion criteria for this study included Black and White governmental health worker employee respondents who participated in the 2017 PH WINS. PH WINS included governmental public health workforce employees working in big city health coalitions, local health departments (only departments with a staff of greater than 25 and that served a population of more than 25,000), and state health agencies (non-contractor and permanently employed staff only) that were either participation was voluntary, and participants could withdrawal at any point (Leider et al., 2015, 2019).

### *Data Collection*

Data was collected, managed, and stored using Stata 15.1 by the de Beaumont Foundation and the Association of State and Territorial Health Officials for the 2017 public health interest and needs survey (PH WINS; Bogaert et al., 2019). The 2017 survey instrument, codebook and digital appendix were publicly available on the de Beaumont website (https://debeaumont.org/phwins/findings/).

## Instrumentation and Operationalization of Constructs

Derived from the 2017 PH WINS data set, I selected questions using the 2017 PH WINS survey instrument and codebook.

### *Perceived Supervisor Support (PSS)*

PH WINS developed questions to measure employee perceptions of workplace environment (Bogaert et al., 2019). Within this section, five questions specifically asked about the perception of supervisors were included in the analyses. The five questions

asked were: Supervisors/team leaders work well with employees of different backgrounds; Supervisors/team leaders in my work unit support employee development; My supervisors provide me with opportunities to demonstrate my leadership skills; My supervisor and I have a good working relationship; My supervisor treats me with respect. Responses are on a 5-point Likert-type scale that ranges from strongly disagree to strongly agree.

***Burnout (BO)***

PH WINS used the Oldenburg Burnout Inventory (OLBI) scale to measure levels of BO. Within the PH WINS codebook, publicly available on the de Beaumont website (https://debeaumont.org/phwins/findings/), 8 items measure exhaustion and 8 items measure disengagement. Items were scored on a 5-point Likert scale that ranges from strongly disagree to strongly agree. A sample item for exhaustion is: After work, I tend to need more time than in the past to relax and recover. A sample item for disengagement is: More and more often I find that I am distancing myself from my job. To create the overall BO scale, all 16 items were combined and used as the measure for BO.

## Data Analysis Plan

Once all data was obtained from the De Beaumont organization, it was uploaded into the IBM Statistical Package for Social Sciences (SPSS) software Version 27 compatible for Mac OS Ventura 13.4.1 (a). I checked the data for outliers, independence of variables, normality, linearity, homoscedasticity of residuals, and multicollinearity to ensure the data met the assumptions of a multivariate analysis of variance (MANOVA) and moderation regression analysis.

**Research Question 1 (RQ1)**

For the first research question, a MANOVA was used for this inferential analysis. A MANOVA compared whether the continuous, dependent variables (PSS and BO) differ by the independent variable (Race, Black or White). A MANOVA is appropriate when there are two or more continuous, often correlated, dependent variables measured to test multiple outcomes based on either a single or two-way factor as the independent categorical variable (Race; Black or White; Hidalgo & Goodman, 2013).

***One-way MANOVA***

To conduct this analysis nine assumptions were tested:

1. The dependent variables (for RQ1, PSS and BO) must be continuous.
2. The independent variable (Race, group 1 Blacks and group 2 Whites) must consist of at least two groups.
3. There must be independence of observations between groups, which in the present study one group is only Black participants and the second group is only White participants.
4. There should be an adequate sample size.
5. Univariate outliers in each independent variable group should not exist for any of the dependent variables, which the present study tested for using a boxplot in SPSS.
6. The Shapiro-Wilk test of normality was used in SPSS to ensure multivariate normality for each dependent variable of each independent variable group exists.

7. A linear relationship should exist between each dependent variable of each independent variable group.
8. Homogeneity of variance-covariance matrices must exist, which the present study used a Box's M test of equality of covariance, and when needed, a Levene's test of homogeneity of variance.
9. There should be no multicollinearity, which I used SPSS to test whether the dependent variables were at least moderately correlated.

**Research Question 2 (RQ2)**

For the second research question, a moderation regression analysis was used for the inferential analysis. This test was used to determine whether race moderates the relationship between the independent (PSS) and dependent (BO) variables. A moderation regression analysis is appropriate when testing whether the relationship between the predictor/independent variable and the outcome/dependent variable is significantly different depending on the influence of a third/moderator variable (Baron & Kenny, 1986; Field-Fote, 2019; Söderlund, 2023; Yuan et al., 2014).

***Moderation Regression Analysis***

To conduct this analysis eight assumptions were tested:

1. a continuous dependent variable;
2. a continuous independent variable and one moderator (dichotomous);
3. independence of observations which was checked using the Durbin-Watson static in SPSS;

4. for each group of the dichotomous moderator (Race; Black or White), a linear relationship must exist between the dependent and independent variables which was checked using a scatterplot in SPSS;
5. homoscedasticity must exist, which was checked by verifying error variances across all independent and moderator variable combinations were the same in SPSS;
6. the data must not show multicollinearity, which does not apply here since there was only one independent variable;
7. no significant outliers, high leverage points or highly influential points should exist, which was checked in SPSS;
8. finally, an approximate normal distribution of residuals (errors), which was checked using the Shapiro-Wilk test for normality in SPSS (Laerd Statistics, 2015a).

To run the analysis in SPSS, setup two equations using a linear regression setup with an interaction turn (BO, scale level dependent; PSS, scale level independent; and Race as the additional independent, which was the dummy coded dichotomous moderator). First, I setup my dependent variable (BO) then PSS and the dummy variable (this data was transferred in SPSS using linear regression statistics with interaction term as model 1). Another model was setup with the dependent (BO) and the interaction term (PSS multiplied across the moderator) as an independent variable creating model 2. This setup tested whether the addition of the interaction term with the existing model 1, improves the prediction of the dependent variable and whether the interaction

(moderator) is statistically significant (in other words, whether a statistically significant difference exists between model 1 and model 2; Laerd Statistics, n.d.). Regression coefficients were set to measure estimates based on 95% confidence intervals, and model fit, R squared change, and collinearity diagnostics were also measured in SPSS. Additionally, the following statistical options were selected when setting up this analysis: unstandardized predicted values, studentized and studentized deleted residuals, Cook's and leverage values distances, and an included covariance matrix. At this point, the analysis was run, and the results are provided with interpretations of descriptive statistics in Chapter 4.

**Table 1**

*Research Questions and Statistical Procedures*

| Research questions | Hypotheses | Variables | Statistical procedure |
|---|---|---|---|
| Quantitative:<br>To what extent do Black and White employees differ in their perceptions of supervisor support and levels of burnout? | H1: Black and White employees significantly differ in perceptions of supervisor support and burnout. | Dependent Variable: Perceived supervisor support (PSS; continuous) and burnout (BO; continuous).<br>Independent Variable: Race (group 1 Blacks and group 2 Whites).<br>Moderator: Race (Nominal; Black or White). | Multivariate analysis of variance (MANOVA) |
| Quantitative:<br>To what extent does race moderate the relationship between perceived supervisor support and burnout? | H2: Race significantly moderates the relationship between perceived supervisor support and burnout. | Independent Variable: Perceived supervisor support (PSS; continuous)<br>Dependent Variable: Burnout (BO; continuous)<br>Moderator: Race (Nominal; Black or White). | Moderation regression analysis |

## Threats to Validity

Internal validity examines how a study was designed, conducted, and analyzed concerning the participants' ability to participate without bias and in a way that enables an outcome of trustworthy participant responses (Andrade, 2018). For the present study, the de Beaumont organization sent out a survey by email to a random national sample of public health departments, agencies, and coalitions (*PH WINS*, n.d.-a). The survey questionnaire was administered in digital format. Although the survey included a definition of terms and keywords (*PH WINS*, n.d.-a), it was uncertain to establish whether all participants fully understood particular meanings of questions asked. To aid in any uncertainty across workplace locations, a workforce champion was identified at each participating agency to assist in survey delivery needs. However, PH WINS could not measure the influence of the workforce champion's on participants.

### *External Validity*

Threats to external validity examines the utility and generalizability of a study's results when extended beyond the demographic group surveyed or similar groups across different contexts or time periods (Andrade, 2018). Reducing such threats include using an adequate sample size and insuring adequate demographic diversity considerations (Creswell & Creswell, 2017). In the present study, PH WINS used a large, randomly selected sample. Using a large, randomly selected sample are ways to increase generalizability and decrease bias ultimately reducing threats to external validity.

***Construct Validity***

Threats to construct validity examine the effectiveness of the research instruments used concerning their ability to measure the intended variable in question (Creswell & Creswell, 2017). A researcher could present a threat to construct validity if inadequate variable definitions are provided (Creswell & Creswell, 2017). For the present study, we examined the measure of BO and PSS.

A wide range of subscales have been used to assess and measure BO (Lubbadeh, 2020). Amongst them were the Maslach burnout inventory (MBI) scale which is composed of subscales that measure emotional exhaustion, depersonalization, and personal accomplishment and defines BO as a syndrome developed through interaction among people while having increased feelings of reduced personal accomplishment, and experiencing emotional exhaustion and depersonalization (Chami-Malaeb, 2021; Day et al., 2017; Heng et al., 2020; Lubbadeh, 2020; Maslach & Jackson, 1981). Despite the wide utilization of the MBI, the PH WINS used an MBI alternative the Oldenburg burnout inventory (OLBI) scale to measure BO (Bogaert et al., 2019; Lubbadeh, 2020). Although across the literature the OLBI and MBI-GS are comparable in addressing the subscale of exhaustion, the OLBI aimed to address additional psychometric factors (e.g., cognitive and physical aspects of human interaction) within two subscales (exhaustion and disengagement; Lubbadeh, 2020; Tipa et al., 2019). Further, unlike the MBI the OLBI uses both positive and negative questions and quadruplet responses which is said to be more culturally inclusive (Lubbadeh, 2020). Leider et al. (2021) explained the PH

WINS used the OLBI as a validated and relative measure to examine BO across local, big city, and state agencies representing a national sample of demographic groups.

Across the literature similar items were validated and used to measure PSS. Based on the review of prior empirical studies found within the literature that examined PSS, the items used by PH WINS to measure PSS are validated and include constructs that highlight potential differences by race (e.g., perceived discrimination, racial bias, or unfair treatment) which is important to the present studies research questions. The PH WINS measured aspects of workplace environment, inclusive of measures for PSS using five items.

## Ethical Procedures

Since I used archival data, there are no human subjects concerns regarding the present study. The PH WINS requires Walden IRB approval, at which time PH WINS shared the data.

## Summary

The purpose of this chapter was to describe the research methods in this quantitative cross-sectional design using an archival dataset from the 2017 PH WINS to examine the relationship between PSS and BO, and whether this relationship was moderated by race (Blacks and Whites, only). The chapter detailed research design and rationale, sample population, instrumentation, operationalization of variables, data analysis, threats to validity, and ethical considerations. In chapter 4, I present information on data collected and the study results.

# Chapter 4: Results

The purpose of this study was to investigate within the public health workforce the differences in levels of perceived supervisor support (PSS) and burnout (BO) between Black and White employees and examine race as a moderator of the relationship between PSS and BO. I conducted a quantitative cross-sectional survey study using secondary data from the PH WINS. The following research questions (RQ) and hypothesis (*H*) guided this study:

RQ 1: To what extent do Black and White employees differ in their perceptions of supervisor support and levels of burnout?

$H_0$1: Black and White employees do not significantly differ in perceptions of supervisor support and burnout.

$H_1$1: Black and White employees significantly differ in perceptions of supervisor support and burnout.

RQ 2: To what extent does race moderate the relationship between perceived supervisor support and burnout?

$H_0$2: Race does not significantly moderate the relationship between perceived supervisor support and burnout.

$H_1$2: Race significantly moderates the relationship between perceived supervisor support and burnout.

In this chapter, I discuss the data collection and data cleaning process, any discrepancies in the data cleaning process from what was stated in chapter 3, and an

analysis of the results of the multivariate analysis of variance (MANOVA; RQ1) and moderation regression analysis (RQ2).

## Data Collection

### Data Collection

My study proposal was approved by Walden University on August 3, 2023, and I obtained IRB approval on September 5, 2023 (Approval no. 08-24-23-0444922). After IRB approval, I downloaded the data from the PH WINS provided by the de Beaumont research office on September 7, 2023. PH WINS was developed by the de Beaumont Foundation and the Association of State and Territorial Health Officials to understand the interests and needs of the state and local governmental public health workforce in the United States, and was fielded in 2014, 2017, and 2021. For more information, visit phwins.org. Once data downloaded, I followed the data collection plan described in Chapter 3. The PH WINS data set included de-identified information from individuals who participated in the 2017 PH WINS; I chose this year to avoid reaching conclusions about BO that may have been affected by the COVID-19 pandemic, a threat to validity of findings, specifically history.

### Data Cleaning

For both research questions one and two, the following steps were taken. Once I uploaded the Stata data file into IBM SPSS Statistics version 28, I cleaned and analyzed the data. I completed the following steps:

1. Removed all variable inputs that did not pertain to the present study.
2. Checked the data for any duplicates and removed them if found.

3. Selected case inputs from employees only (this reduced sample size from 43,701 to 31,750, removing 11,951 cases).
4. Selected case inputs from non-Hispanic/ Latino Black and White employees only (this reduced the sample to 21,887, removing 9,863 cases).
5. Checked for missing responses and notated cases with missing value responses (see Table 2).

**Descriptive Statistics of the Study Sample**

Participants were those amongst the US governmental public health workforce surveyed by the PH WINS conducted in 2017. For the present study, I selected participants who identified with an employee status of non-supervisor and those who identified within a racial group of either non-Hispanic/Latino Black or non-Hispanic/Latino White. Most of the sample were White employees ($N$ = 16,968, 78%). The average age was 46 years old (see Table 2 for detailed demographics).

**Table 2**

*Sample Demographics*

| Characteristics | N | % |
|---|---|---|
| Age range (*M* = 46; *N* = 21,533*)* | | |
| 20 or below | 33 | .2 |
| 21-25 | 708 | 3.2 |
| 26-30 | 1,970 | 9.0 |
| 31-35 | 2,148 | 9.8 |
| 36-40 | 2,272 | 10.4 |
| 41-45 | 2,149 | 9.8 |
| 46-50 | 2,648 | 12.1 |
| 51-55 | 3,006 | 13.7 |
| 56-60 | 3,400 | 15.5 |
| 61-65 | 2,292 | 10.5 |
| 66-70 | 680 | 3.1 |
| 71-75 | 170 | .8 |
| 76 or above | 57 | .3 |
| Gender (*N* = 21,812*)* | | |
| Male | 4,278 | 19.5 |
| Female | 17,472 | 79.8 |
| Non-binary/other | 62 | .3 |
| Race (*N* = 21,887*)* | | |
| Non-H/L Black or African American | 4,919 | 22.5 |
| Non-H/L White | 16,968 | 77.5 |
| Education status (*N* = 21,690*)* | | |
| No college degree | 4,518 | 20.6 |
| Associates | 3,607 | 16.5 |
| Bachelors | 7,998 | 36.5 |
| Masters | 4,842 | 22.1 |
| Doctoral | 725 | 3.3 |
| Work setting (*N* = 21,887) | | |
| SHA-CO | 8,926 | 40.8 |
| BCHC LHD | 2,650 | 12.1 |
| Other LHD/RHD | 10,311 | 47.1 |

Note. Sample sizes differ due to missing cases.

**Descriptive Information for the Predictor Variable: Perceived Supervisor Support (PSS)**

Five questions specifically asked about the perception of supervisors within the PH WINS (Bogaert et al., 2019). The five questions asked were: Supervisors/team leaders work well with employees of different backgrounds; Supervisors/team leaders in my work unit support employee development; My supervisors provide me with opportunities to demonstrate my leadership skills; My supervisor and I have a good working relationship; My supervisor treats me with respect. Responses are on a 5-point Likert-type scale that ranges from 1 to 5 (1 = strongly disagree; 2 = disagree; 3 = neither agree nor disagree; 4=agree; 5=strongly agree). The maximum possible score was 25. The mean raw score value within the present study sample was $M$ = 19.78, $SD$ = 4.452 (see Table 3).

**Descriptive Information for the Outcome Variable: Burnout (BO)**

PH WINS used the Oldenburg Burnout Inventory (OLBI) scale to measure levels of BO. Within the PH WINS codebook, publicly available on the de Beaumont website (https://debeaumont.org/phwins/findings/), 8 items measure exhaustion and 8 items measure disengagement. Items were scored on a 5-point Likert scale that ranges from 1 to 4 (1 = strongly disagree; 2 = disagree; 2.5 = neither agree nor disagree; 3 = agree; 4=strongly agree). A sample item for exhaustion is: After work, I tend to need more time than in the past to relax and recover. A sample item for disengagement is: More and more often I find that I am distancing myself from my job. To create the overall BO scale, all

16 items were combined and used as the measure for BO. A combined mean score was calculated to create an overall BO scale measure (See Table 3).

**Table 3**

*Descriptive Statistics for Study Variables*

| | *N* | *M* | *SD* | Min | Max |
|---|---|---|---|---|---|
| PSS_Total | 18,365 | 19.78 (1 = 19.472; 2 = 19.872) | 4.452 | 5 | 25 |
| BO | 18,365 | 2.30 (1 = 2.257; 2 = 2.316) | .390 | 1.06 | 3.94 |

*Note*. Refer to Table 2 and 4 for Race. Recoding: 1 = Blacks, 2 = Whites.

**Evaluation of Statistical Assumptions for Research Question 1**

For the first research question I used a one-way MANOVA to examine differences in levels of PSS and BO between Black and White racial groups (Laerd Statistics, 2015b). The first three assumptions concerning the data were met (two or more continuous dependent variables; at least two independent groups; independence of observation). I used SPSS to test for the remaining seven assumptions (outliers, normality, multicollinearity, linear relationship, adequate sample size, homogeneity of variance-covariance matrices, and homogeneity of variances).

Univariate outliers can be detected through analysis of descriptive or visual graph outputs. For each dependent variable there were no responses that were not within the allowable response option and no unusual cases (see Appendix A). Furthermore, after checking for data entry and measurement errors, I determined these values as genuinely unusual (Laerd Statistics, 2015b). To deal with this problem, I retested without the

outliers and found no differences. Therefore, I determined it best to keep the values rather than removing them (Aguinis et al., 2013; Laerd Statistics, 2015b).

In chapter three I proposed the Shapiro-Wilk test of normality in SPSS to ensure multivariate normality for each dependent variable. However, since the sample size used was considered large (> 50 respondents), I used normal Q-Q Plots to test normality in SPSS instead (Laerd Statistics, 2015b; Warner, 2013). I found the assumption of multivariate normality for PSS and BO scores was satisfied for all group combinations of race (Black and White) as assessed by visual inspection of Normal Q-Q Plots (see Appendix B).

Multicollinearity is when the linear relationship between the dependent variables is too high *(*score > 0.9; Laerd Statistics, 2015). To test this, I used the Pearson correlation test in SPSS. I found there was no multicollinearity, as assessed by Pearson's correlation ($r$ = -0.485, $p$ < 0.001*;* see Table 4).

**Table 4**

*Pearson Correlation*

| | | OLBI burnout overall | PSS_Total (Higher is better) |
|---|---|---|---|
| OLBI burnout overall | Pearson correlation | 1 | -0.485** |
| | sig. (2-tailed) | | 0.001 |
| | N | 18,705 | 18,439 |
| PSS_Total (Higher is better) | Pearson correlation | -0.485** | 1 |
| | sig. (2-tailed) | 0.001 | |
| | N | 18,439 | 21,528 |

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

To test for linearity, I used a scatterplot matrix to visually examine each pair of dependent variables (BO and PSS) for each group of the independent variable (Race;

Black or White). There was a linear relationship between PSS and BO scores in each racial group, as assessed by the scatterplot (see Appendix C).

The assumption of adequate sample size for a one-way MANOVA is based on the requirement of a minimum quantity of case respondents or participants equal to or greater than the number of independent variable groups (Laerd Statistics, 2015b). The present study exceeds this requirement and thus meets the assumption of adequate sample size (see Table 5). There are no concerns with unequal sample size due to the consistency with natural population sizes across racial groups that align with the sample size of this present study (*U.S. Census Bureau QuickFacts*, 2020). Additionally, to counter this potential influence of a type I and type II error, I used Pillai's trace in addition to Wilks' lambda test statistics because Pillai's trace has been found more robust when interpreting results of analysis with unbalanced sizes (Ateş et al., 2019).

**Table 5**

*Between-Subjects Factors*

| | | N |
|---|---|---|
| RACE<br>Black = 1, White = 2 | 1 | 3,974 |
| | 2 | 14,465 |

*N* = 21,887; Black Employees (18%), Whites Employees (66%)

The assumption of homogeneity of variance-covariance matrices must exist, which means that similar variances and covariances exist for the dependent variables across the independent variable (Laerd Statistics, 2015b). First, I used the Box's Test of Equality of Covariance Matrices. Homogeneity of variance-covariance exists when the Box's Test of Equality of Covariance Matrices *p*-value is not statistically significant ($p >$

.05; Box, 1949). The assumption of homogeneity of variance-covariances was violated, as assessed by Box's test of equality of covariance matrices ($p < .05$). To further investigate whether homogeneity of variance exists I used the Levene's Test of Equality of Error Variances to examine the significant mean values. According to this test, if the $p$-value is significant ($p < .05$), then the homogeneity assumption has been violated. There was homogeneity of variances for BO but not for PSS, as assessed by Levene's Test of Homogeneity of Variance (BO, $p = .123$; PSS, $p < .001$). In other words, for BO the variances between groups may be assumed to be equal, while for PSS the variances between groups may not. To counter this violation, it is possible to continue the analysis whilst accepting a lower level of statistical significance of results and notating caution concerning the presence of a potential type II error (Laerd Statistics, 2015b; Lakens & Caldwell, 2021), as I explained within the sampling and sampling procedures section of Chapter 3.

**Findings for Research Question 1**

RQ1: To what extent do Black and White employees differ in their perceptions of supervisor support and levels of burnout? The one-way MANOVA was used to test the null hypothesis that Black and White employees do not significantly differ in perceptions of supervisor support and BO. Findings were that Blacks scored slightly lower in BO and PSS ($M = 2.25$, $SD = .39$; $M = 19.47$, $SD = 4.67$, respectively; see Table 6) than Whites ($M = 2.31$, $SD = .38$; $M = 19.87$, $SD = 4.39$, respectively; see Table 6). Although the means are close for both BO and PSS, the MANOVA was statistically significant, $F(2,18,362) = 98.959$, $p < .001$; *Wilks' Λ* = .989 ; *partial* $\eta^2 = .011$ (see Table. 7).

However, as an additional follow up it is recommended to consider the Pillai's trace values which have been considered more robust especially considering unequal sample sizes and homogenous variance (Ateş et al., 2019). As such, the multivariate result was significate for race, Pillai's trace = .011, $F = 98.959$, $df = (18,362)$, $p < .001$ (see Table. 7), indicating a significant difference in PSS and levels of BO between Black and White racial groups. Therefore, based on caution respectively, the null hypothesis for RQ1 was rejected.

**Table 6**

*Descriptive Statistics (One-Way MANOVA)*

| | | | | | | 95% confidence interval | |
|---|---|---|---|---|---|---|---|
| | Race | Mean | Std. deviation | N | Std. error | Lower bound | Upper bound |
| OLBI burnout overall | 1 | 2.2506 | .38728 | 3951 | .006 | 2.239 | 2.263 |
| | 2 | 2.3119 | .38207 | 14414 | .003 | 2.306 | 2.318 |
| | Total | 2.2987 | .38401 | 18365 | | | |
| PSS_Total | 1 | 19.4715 | 4.67058 | 3951 | .071 | 19.333 | 19.610 |
| | 2 | 19.8716 | 4.39119 | 14414 | .037 | 19.799 | 19.944 |
| | Total | 19.7855 | 4.45568 | 18365 | | | |

Note: 1=Blacks Employees, 2=White Employees

**Table 7**

*Multivariate Tests*

| Effect | | Value | F | Hypothesis df | Error df | Sig. | Partial Eta Squared |
|---|---|---|---|---|---|---|---|
| Intercept | Pillai's Trace | .986 | 668969.621 | 2.000 | 18362.000 | .000 | .986 |
| | Wilks' Lambda | .014 | 668969.621 | 2.000 | 18362.000 | .000 | .986 |
| | Hotelling's Trace | 72.865 | 668969.621 | 2.000 | 18362.000 | .000 | .986 |
| | Roy's Largest Root | 72.865 | 668969.621 | 2.000 | 18362.000 | .000 | .986 |
| RACE | Pillai's Trace | .011 | 98.959 | 2.000 | 18362.000 | <.001 | .011 |
| | Wilks' Lambda | .989 | 98.959 | 2.000 | 18362.000 | <.001 | .011 |
| | Hotelling's Trace | .011 | 98.959 | 2.000 | 18362.000 | <.001 | .011 |
| | Roy's Largest Root | .011 | 98.959 | 2.000 | 18362.000 | <.001 | .011 |

a. Design: Intercept + RACE
b. Exact Statistic

**Evaluation of Statistical Assumptions for Research Question 2**

For the second research question I used a moderator analysis (with race as a dichotomous moderator) to examine whether race moderated the relationship between PSS and BO. The first four assumptions concerning the data were met (there must be a continuous dependent variable; there must be a continuous independent variable; the moderator is dichotomous; and there must be independence of observation). I used SPSS to test the remaining five assumptions (linearity; multicollinearity; testing for outliers, leverage points, and influential cases; homoscedasticity; and normality).

Linearity tests whether a linear relationship exists collectively for the independent variables relating to the dependent variables (Laerd Statistics, 2015a). Linearity was established by visual inspection of scatterplots (see Appendix D).

Multicollinearity exists when the independent and moderator variables highly influence each other in such ways that interfere with technical regression calculations and variable variance (Laerd Statistics, 2015a). Essentially, when multicollinearity exists this may interfere with the ability to effectively identify the effects of the predictor variables on the outcome variable. The scores exceeded tolerance and VIF levels indicating multicollinearity existed. One way to deal with this is by mean centering the independent variable by subtracting the mean ($M$ = 19.6104) from all PSS data points creating a new PSS variable and interaction term (PSS_MCentred). However, since zero is not a meaningful value for this variable (all values are based on a 5-point Likert scale score that ranged between 1 and 5), I followed recommendations by O'brien (2007), who highlighted in some cases it best to not manipulate the data through mean centering,

ignore the potential analysis threat, and focus on other sources of standard error, in this case the following assumptions tests. Additionally, other factors that could increase standard error are analysis with small sample sizes (not the case for the present study) and little explanation of the dependent or moderator variable. In this case, the dependent variable is also based on a 5-point Likert scale and the moderator is not continuous, rather it is a dichotomous variable (Kim, 2019; O'brien, 2007).

Outliers are dependent variable values (a y-axis concern) that greatly differ from their predicted value (Laerd Statistics, 2015a). Outliers were identified using the studentized values (SDR_1) that exceed a value of 3 (Cohen et al., 2003). Leverage points are an x-axis concern with unusually high combinations of the independent variable values and can be calculated using the leverage value (LEV-1) in linear regression set up in SPSS. A high leverage value was one that exceeded the value of 0.003 (cut-off threshold calculated using 2p/n). Lastly, influential cases value observations that influence the regression line. Cook's distance values greater than one were considered influential. However, there were none of these within this sample as explained within the outlier assumptions section of the first research question.

Homoscedasticity is the assumption that the variance of the errors is the same for all value groups of the independent and moderator variables (Berry, 1993). There was homoscedasticity, as assessed by visual inspection of the studentized residuals plotted against the predicted values for Black and White individuals (see Appendix E).

Normality was tested using a Normal Q-Q Plot rather than the Shapiro-Wilk's test because it is recommended for sample sizes greater than 50 (Laerd Statistics, 2015a). PSS

and BO scores were normally distributed for both Blacks and Whites, as assessed by visual inspection of Normal Q-Q Plots (see Appendix B).

**Findings for Research Question 2**

RQ 2: To what extent does race moderate the relationship between PSS and BO? A hierarchical multiple regression was run to test the null hypothesis that race does not significantly moderate the relationship between PSS and BO. To measure the dichotomous moderator's effect PSS was first correlated with BO separately for each race and then any difference between interaction term variance was measured to determine any moderation effect (Baron & Kenny, 1986). Race moderated the effect of PSS on levels of BO, as evidenced by a statistically significant increase in total variation explained of 0.01%, $F$ (1, 18435) = 33.386, $p < .001$. Additionally, the coefficient of the interaction term ($b$ = .225, $SE$ = .027; see Table 8) was statistically significant ($p < .001$) indicating that race moderated the relationship between PSS and levels of BO.

Simple slopes analysis revealed that there was a statistically significant negative linear relationship ($b$ = -0.037, $SE$ = 0.001) between PSS and BO levels in White employees, $p < .001$ (see Figure 1). In other words, a one unit increase in PSS is associated with a 0.037 unit decrease in BO levels for White employees.

Simple slopes analysis revealed that there was a statistically significant negative linear relationship ($b$ = -0.045, $SE$ = 0.001) between PSS and BO levels in Black employees, $p < .001$ (see Figure 1). In other words, a one unit increase in PSS is associated with a 0.045 unit decrease in BO levels for Black employees.

Although the graph does not display slopes that intersect (see Figure 1), we can assume by visual inspection that the slopes would cross but do not in this figure due to the restriction in numerical range (i.e., the x-axis does not extent far enough). However, a negative slope is apparent and it is clear that the lines will interest at some point down the negative sloping continuum.

**Table 8**

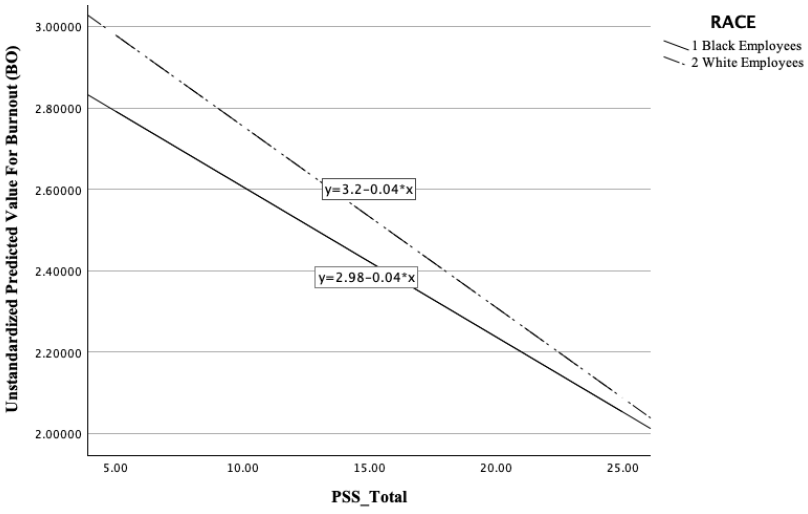
*Moderation Analysis: Multiple Regression Equation With an Interaction Term*

| Model | | Unstandardized coefficients | | Standardized coefficients | | | 95.0% confidence interval for B | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. error | Beta | t | Sig. | Lower bound | Upper bound |
| 1 | (Constant) | 3.090 | .012 | | 253.130 | .000 | 3.066 | 3.114 |
| | PSS_Total | -.043 | .001 | -.488 | -76.048 | .000 | -.044 | -.042 |
| | RACE | .076 | .006 | .080 | 12.479 | <.001 | .064 | .088 |
| 2 | (Constant) | 2.977 | .023 | | 128.703 | .000 | 2.931 | 3.022 |
| | PSS_Total | -.037 | .001 | -.422 | -31.985 | <.001 | -.039 | -.035 |
| | RACE | .225 | .027 | .238 | 8.485 | <.001 | .173 | .278 |
| | PSS_Total_x_RACE | | | | | | | |

Note. Dependent Variable: OLBI Burnout overall.

**Figure 1**

*Moderation Analysis*



## Summary

This chapter described the findings of the study assessing whether Black and White employees significantly differ in perceptions of supervisor support and BO (RQ1) and whether race significantly moderates the relationship between PSS and BO (RQ2). The results were statistically significant allowing for the rejection of the null hypothesis for RQ1 and RQ2. Chapter 5 summarizes the findings, limitations to the study, implications for social change and recommendations for future research.

# Chapter 5: Discussion, Recommendations, and Conclusions

The purpose of this quantitative study of archival data was to address the meaningful gap in the literature by examining the relationship between burnout (BO) and perceived supervisor support (PSS), and whether this differs by race (Black vs. White). The present study examined Black and White governmental public health workforce employees only, resulting in a total of 21,887 response cases (Blacks 22.5%, Whites 77.5%). Most respondents were White females between the age range of 56 to 60 with the average highest-level degree obtained being a bachelor's degree.

The findings from the study showed that Black and White employees significantly differ in perceptions of PSS and BO, and that race significantly moderated the relationship between PSS and BO. Therefore, I was able to reject the null hypothesis for both research questions. The results from this study provide useful information that could help further investigate race related differences within the public health workforce that potentially contribute to adverse health outcomes (e.g., chronic and critical stress related BO, anxiety, and depression). The latest PH WINS (Public Health Interest and Needs Survey) data revealed that high levels of stress and BO continue to be problematic contributions towards employee work environments and workforce turnover (Leider et al., 2023). This chapter includes an analysis and interpretation of the study findings, limitations, implications for social change, recommendations for future research and practice, and conclusions of the research findings.

## Interpretation of Findings

### First Research Question

The first research question asked to what extent do Black and White employees differ in their perceptions of supervisor support and levels of BO. The dataset revealed a statistically significant mean difference between Black and White employees with Blacks scoring slightly lower in BO and PSS than Whites. My assumption was that an inverse relationship would have existed between PSS and BO (i.e., lower PSS would result in higher BO). This was supported for the whole sample through correlation analysis. Throughout the literature there is evidence to support the concept that higher employee organizational commitment (an organizational factor found to have a bi-directional relationship with PSS; Chami-Malaeb, 2021) would reduce employees' feelings of disengagement, a subscale of BO. Similarly, research evidence supports the concept that increased job satisfaction reduces employees' feelings of emotional exhaustion, another subscale of BO. For example, Talukder (2019) found that organizations with high levels of perceived positive supervisor support resulted in increased organizational commitment, work-life balance, and job satisfaction. Nguyen and Tuan (2021) found that supervisor support had a statistically significant positive influence on job satisfaction illustrating how supervisor support can improve environmental factors that promote conducive work conditions that reduce stress from BO. Each articles findings support the idea that PSS has a positive relationship in reducing BO.

**Second Research Question**

My second research question asked to what extent does race moderate the relationship between PSS and BO? The findings revealed race was a statistically significant moderator of the relationship between PSS and BO. While both racial groups had a negatively sloped relationship between PSS and BO (i.e., a per unit increase of PSS resulted in a per unit decrease of BO), the relationship for Blacks was slightly lower than for Whites, a difference that became smaller as PSS increased. These findings support the idea that the protection that supervisor support provides against BO may differ by race (Lawrence et al., 2022; Primack et al., 2010), and extend knowledge into the need for differing approaches to influence levels of BO across racial groups.

Combined with the findings that suggested Black employees have slightly lower levels of BO while also having lower levels of PSS compared to White employees, this moderation finding requires more study and suggests a number of interpretations. It is possible that Black employees are more resilient to lower supervisor support, i.e. they do not need it as much as White employees as a protective factor against BO. For example, a narrative review by Ng et al. (2019) suggested that influences of concepts such as minority stress and resilience have an impact on the correlation between racial minority status and health disparities. Essentially, racial minorities may internalize stress differently while also utilizing differing adaptive coping strategies, other than PSS, to deal with stress related BO. Also possible, the idea of potential resource inequities. Resource inequities have been described as environmental conditions where populations (e.g., minority, gender, or racial groups) perceive their workplace environment as one

that unfairly favors another group or groups (Paustian-Underdahl et al., 2017). As such, it is also possible that Black employees value resources, i.e. PSS differently than White employees. For example, a systematic review of cultural aspects of stigma and mental illness (e.g., post-traumatic stress disorder, PTSD) found that Blacks experienced high anticipation of negative treatment from White service providers (Misra et al., 2021). Essentially, Blacks internalized that support from White resource providers would contain negative bias (e.g., better treatment for Whites compared to Blacks), due to lack of care and understanding towards the lived experiences of Blacks, thereby functioning as a barrier towards seeking and valuing support. This is particularly concerning because most often employees of color within the public health workforce who serve to support similar social and systemic issues were found to experience secondary traumatic stress due to their exposure to trauma in the clients they serve (Jackson Preston, 2022). Such conditions have been identified as a recipe for BO. These findings do not suggest that supervisors should not worry about supporting their Black employees, but rather, these ideas suggest that further understanding of these ideas and concept are needed to contribute to better health outcomes, especially for racial minorities.

**Theoretical Framework**

Meyer's (1995) MST guided the present study, specifically the theoretical framework detailing proximal stress factors. This study's findings supported proximal factor differences of minorities compared to the majority racial group. Meyer detailed that stress factors differed between minority and majority groups across both proximal and distal influences. In the present study, internal, proximal influences (i.e., internal

perceptions about the employees' subjective view of the level of support received by their supervisor and their level of BO experienced at work) were the primary focus. The findings revealed that the majority group experienced higher levels of potential BO while also viewing their support from their supervisors higher compared to Black employees. Although this could suggest that the White employee majority could have been more adversely impacted by BO whilst having a higher perceived level of support from one's supervisor, Meyer explained that the minority group levels, despite being lower, could be more detrimental to the minority group due to the added pressures of simply being in the minority within an environment that differs culturally. For example, racism experienced disproportionally by Blacks in and outside the workplace (Whitaker, 2019) has been found to lead towards disproportionate chronic stress levels in this minority population (Holman, 2018; Meyer, 1995). Moreover, stress responses have been found to differ between groups with higher and lower cortisol baseline levels which indicated internalized differences in selective attention (van Honk et al., 1998). Although, in the present study, the results indicated Black employees having lower adverse BO affects and lower perceptions of their support from their supervisors, compared to White employees, MST suggests that the effects from the stressors, regardless of higher or lower by comparison, could still be more detrimental to the minority group due to differences in internalization of the experiences (Ng et al., 2019). Black employees might have to be more on guard (e.g., function with differing influences of anxiety in the workplace) and subject to environmental bias on a constant bases which could contribute to normalizing influences or selective attention on BO and PSS survey responses. In sum, the findings of

the present study resulted in a statistically significant difference between BO and PSS and the relationship between these variables was moderated by race supporting the concept that proximal factors can differ as posited by the MST.

## Limitations of Study

There were several limitations to the present study. Although the sample size was large, the concept of generalizability was approached with caution. The results were representative in that the sample size was unequal (mostly White employees; 70%), similar to the natural make-up of the public health workforce overall. Additionally, the results could be viewed as practical in application in the public health workforce in that the way employees perceived their supervisory support and level of BO is of essential functioning to the workforce as a whole and thus a continuum that requires ongoing organizational review. Conversely, the analysis relied on secondary data that was fielded online through an emailed survey. Therefore, the trustworthiness of the data is only as accurate as the responses conveyed through self-reported data inputs. Lastly, a quantitative research method is dependent on numerical data inputs and therefore does not allow for further explanations from respondents nor does it allow for the option of further follow-up to clarify any perceived ambiguities from respondents.

Additional limitations were based on the potential problematic violations of assumptions across both analyses conducted and the timing of the data relating to the disruptive period of the COVID-19 pandemic. The potential problematic violations of outliers and homogeneity of variance and covariances could impact statistical power and effect size and impact researcher interpretations of findings, thus, reducing validity and

reliability (Creswell & Creswell, 2017; Kamper, 2020). Additionally, the timing of the data was not inclusive of the recent influences from the COVID-19 pandemic, thus contributing to the potential for results that are not representative to the present public health workforce. All these factors contribute to the generalizability of research, or the lack thereof. Therefore, as aforementioned, I caution the reader to approach this study findings with caution considering the limitations explained.

## Recommendations

### Recommendations for Future Research

Results from this study may have highlighted areas of vulnerability where deeper exploration is warranted concerning the outliers and unusual cases identified within the analysis. Often, outliers and unusual cases are treated as negative data points due to them nonconforming to most of the data points. Interestingly, the focus of the present study was on racial minority-majority differences, a sensitive topic that speaks to cultural nuances that do just that, fall outside most norms. Commonly, researchers deal with outliers or unusual cases by removing or modifying the data through statistical methods (data transformation). In this similar manner, within environments, such as the workplace, when behaviors deviate outside the cultural norms those unusual behaving individuals are transformed (e.g., behavioral coaching) or even removed (e.g., fired), rather than attempting to understand and embrace elements of change. This study's findings suggest that the outliers and unusual cases be explored further, treated as interesting outliers (Aguinis et al., 2013), that could present positive insight into possible organization growth (e.g., diversity, equity, and inclusion). Exploring such cases where

responses are outside the norm could highlight areas of change that could positively unpack larger issues that have remained unresolved for far too long.

Additionally, due to the inability within the data to compare employee-supervisor dyads across race pairs (e.g., White employee-White supervisor; White employee-Black supervisor; Black employee-White supervisor; Black employee-Black supervisor) it was not possible for the present study to compare whether perceptions of supervisor support and even levels of BO differed between race paired dyads. Further explorations across race paired dyads have highlighted nuances in cultural norms that have shown detrimental outcomes across minority groups (e.g., biases or unfair treatment based on race; Coronado et al., 2020; Dent et al., 2021; Paustian-Underdahl et al., 2017). Furthermore, the public health workforce has shown struggle in its efforts to increase supervisory role diversity (Bogaert et al., 2023; Wilbur et al., 2020), as discussed within the literature review. Therefore, exploring race pairs and whether they have a significant influence on PSS and BO, and the relationship between them, could provide insight into critical areas of organizational needs (e.g., increased diversity within leadership).

Lastly, there is an apparent need for further exploration into the chronic challenges of BO (De Hert, 2020), and additional preventative methods, within the public health workforce. Although the mean scores across both racial groups was more near neutral than negative levels of BO within the present study, BO has been identified as a widespread epidemic-like problem across the public health workforce (Bogaert et al., 2023; Lawrence et al., 2022; Tipa et al., 2019a) that warrants deeper investigation.

### Recommendation for Practice

Amongst the leading challenges of the public health workforce is workforce diversity. Specifically, each public health workplace environment (i.e., local and big city, state, and federal level organizations) should increase their understanding of shared experiences between employees and supervisors regarding perceived supervisory support, to adopt appropriate policies that adequately prioritize resources according to the disproportionate needs of racial minorities within employee and supervisory roles (Valentín-Cortés et al., 2020). Although this study did not explore perceptions from supervisors, the literature conveys that differences exist amongst supervisory roles within the public health workforce. As for employee roles, the present study results highlighted differences between racial groups. As the United States continues to increase in diversity, workplace environments should aim to operate in ways that are more considerate regarding resource needs and inclusiveness regarding health disparities across a growing racial minority population. Lastly, a primary function of the public health workforce is to serve vulnerable populations that are typically highly diverse. Therefore, not only is minority group representation important across organizational hierarchy levels of the public health workforce, but it is also important across the differing environments served by the public health workforce nationally.

## Implications

### Positive Social Change

This study presents a potential impact at the organizational, policy, and societal levels due to the nature of services provided by the public health workforce. The public

health workforce has experienced turbulence in retention to the point that many studies have been funded, such as the PH WINS, to identify reasons why employees intend to leave the workforce. Amongst the leading causes is BO which has also been highlighted as an adverse health outcome that could impact employees at work, at home, and across societal settings (Caperon et al., 2022). A strong workforce is one that can retain experienced employees that can utilize their experiences towards providing better quality of services to those they serve (Hare Bork et al., 2022). Therefore, efforts to identify organizational challenges (BO and employee perceptions) can help to promote policy changes geared towards reducing BO and improving perceptions of supervisory support. Such efforts are implications for positive social change.

Lastly, as a nation, the emphasis on racial equity and equality has been a point of emphasis especially as we enter a presidential election year. Further explorations of race as a moderator could help expand our understanding into social-cultural differences relating to race within the public health workforce and the diverse populations served (Ross et al., 2020). Minority professionals have reported noticeable dissatisfaction with their supervisory leadership (Jackson Preston, 2022). Such chronic dissatisfaction can increased stress and lead towards negative impacts on work engagement that affect minority groups more severely (Misra et al., 2021). Minority groups deserve equal opportunities and an inclusive environment within the public health workforce. This study showed potential underrepresentation within supervisory roles which could contribute towards efforts to improve diversity within the workforce. Such improvements

could help towards efforts in equal and fair opportunities for all employees, therefore contributing to positive social change.

## Conclusion

For this study, I used secondary data collected by the PH WINS authorized by the de Beaumont organization. The study was grounded in Meyer's (1995) MST where I specifically focused on internalized stressors as proximal stress factors experienced disproportionately by minority racial groups compared to the majority. To examine potential disproportionate stress, I examined whether PSS and BO differed between racial groups (Black or White), and whether race moderated the relationship between PSS and BO. Although slight differences were evidenced, my findings supported my hypothesis that PSS and BO differ between racial groups, and race is a statistically significant moderator on the relationship between PSS and BO. Surprisingly, the findings showed that White employees had slightly higher levels of self-reported BO and PSS compared to Black employees. There is limited research that explores PSS and BO by race, but the present research seems to align with Chami-Malaeb's (2021) findings which support higher PSS influences lower BO. Additionally, the present study supported most scholarly research that found Whites reported higher levels of BO compared to URMs (Primack et al., 2010). The present study was different in that, to the best of my knowledge, no study explored BO and PSS within the governmental public health workforce which employees nearly 300,000 Americans nationally. My study utilized a nationally representative sample allowing for results that could be generalizable. This is important as BO has reached near epidemic levels amongst health care and medical

professionals effecting an excess of 50% of this population (Prasad et al., 2021; Tipa et al., 2019a). As such, it was important to explore BO amongst public health workers which consist of professionals that serve the health needs of vulnerable and diverse populations.

We know that high stress can influence work performance and the quality of service provided (De Hert, 2020), therefore, in exploring BO, and potential influences of this variable (PSS), I hope to encourage future research to explore differences across more racial groups and how differing levels, regardless of higher or lower, could impact minority groups differently than the majority population. This is important because most often resources are allocated based on the majority population needs. Thus, URM groups are often overlooked and left without the specialized support they need. The present study aimed to inform organizational leadership that social-cultural contexts matter, and there's not a one size fits all across differing BO needs. Employees can experience and suffer from BO differently, and although self-report data may reveal higher or lower measurement results, this may highlight differences in internalized perceptions. In sum, I suggest additional qualitative research to further our understanding on BO and PSS within the public health workforce.

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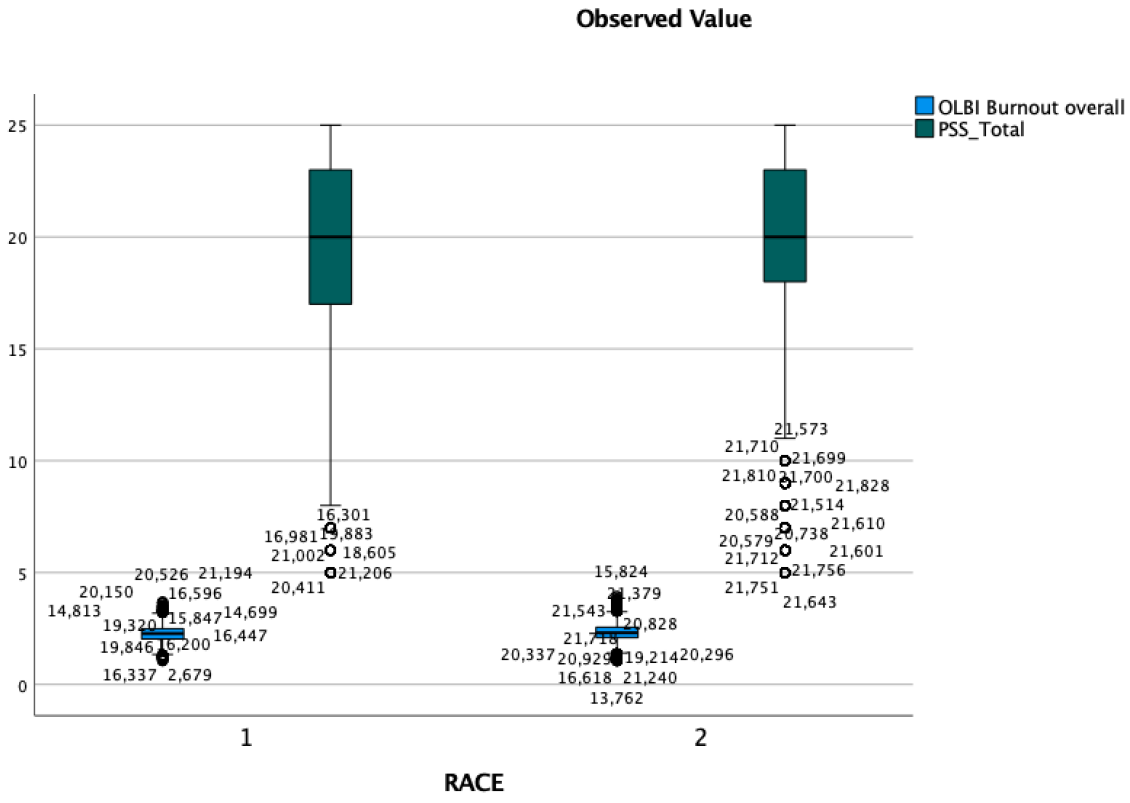
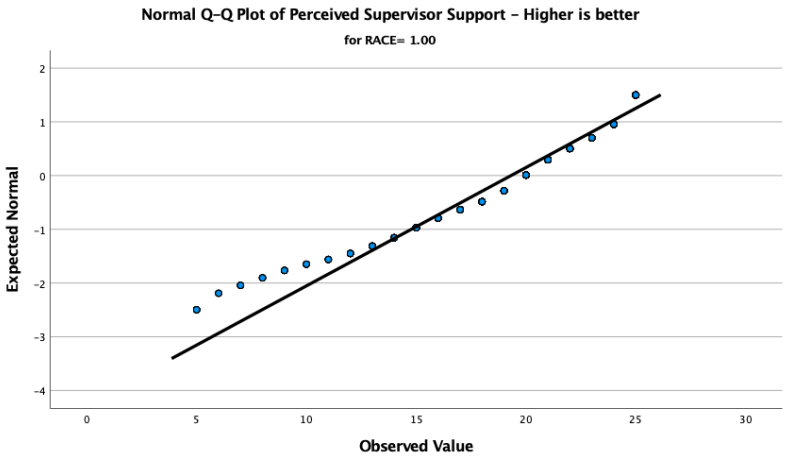
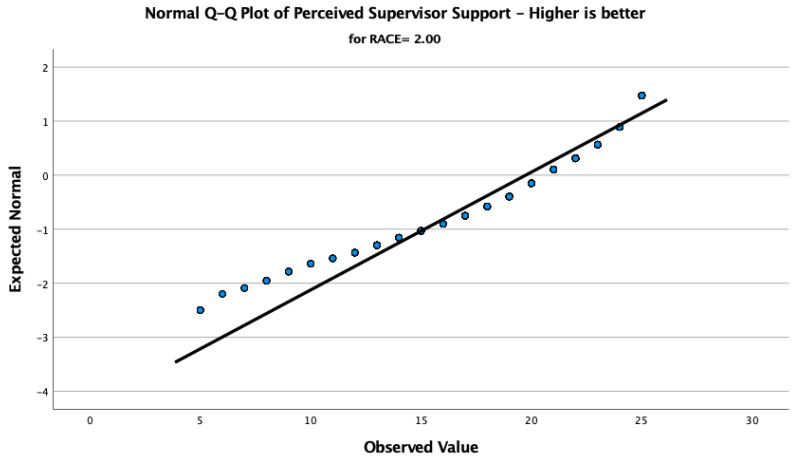
Appendix A: Boxplots for Outliers

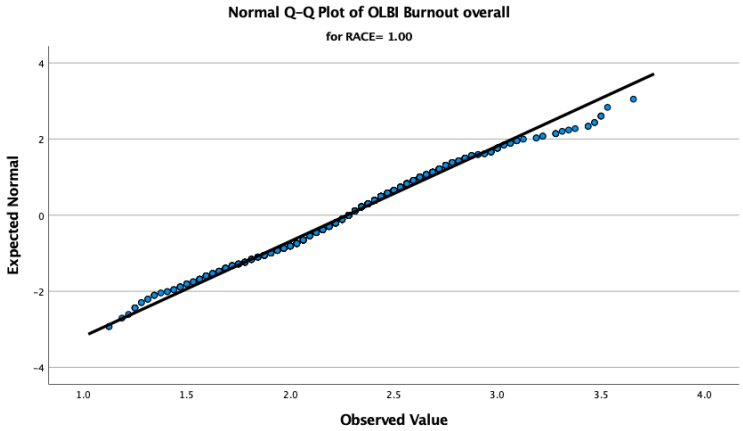


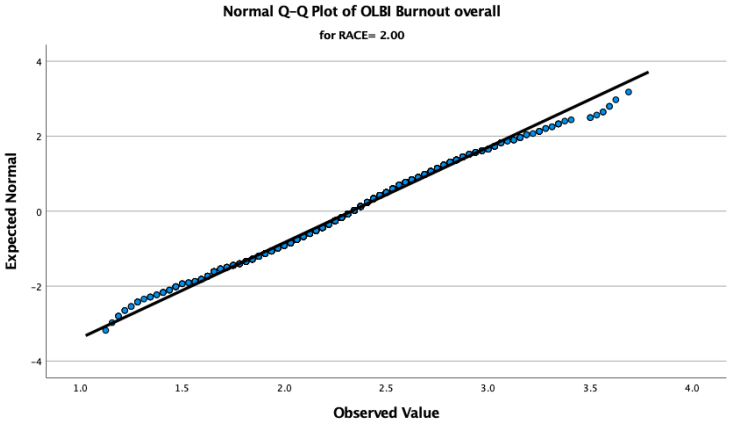
# Appendix B: Multivariate Normality



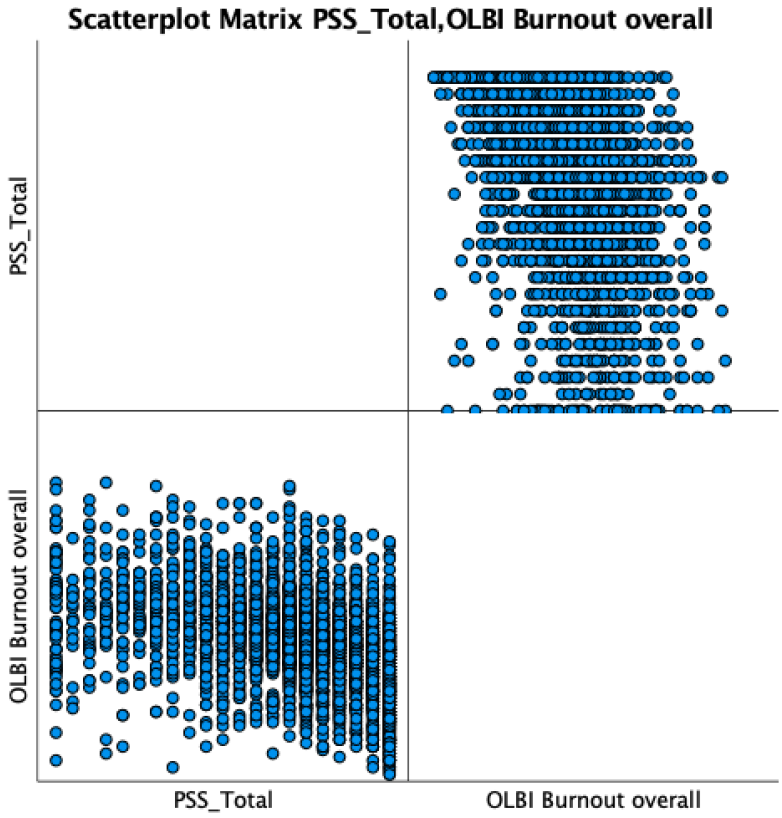

Note: 1.00=Blacks, 2.00=Whites



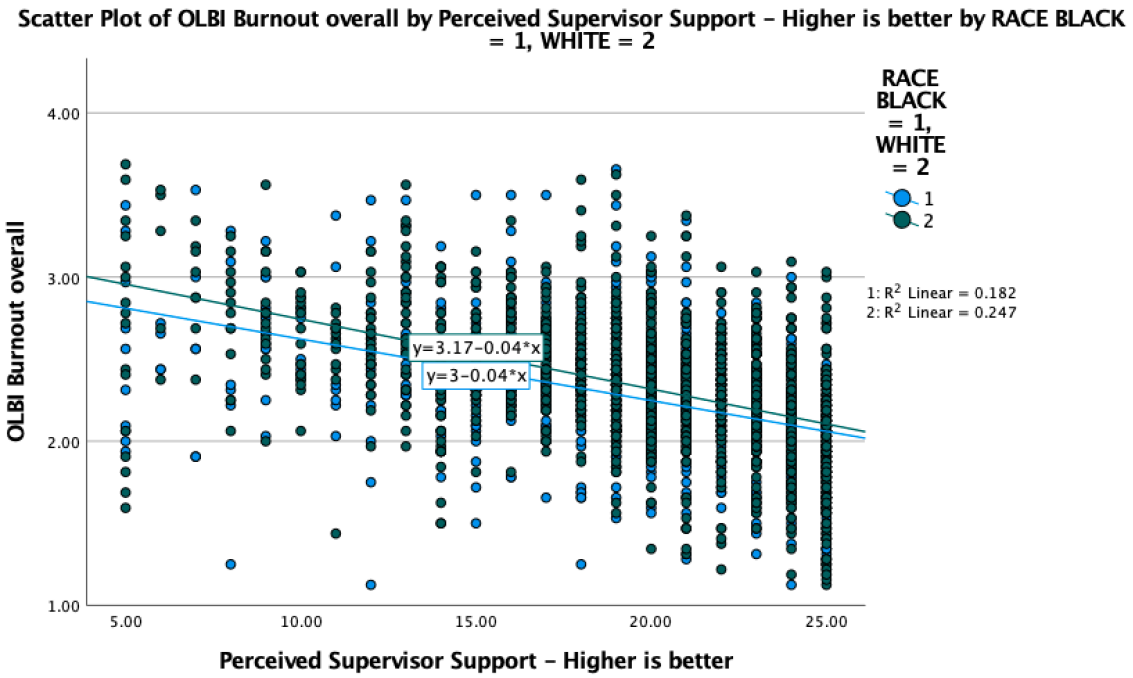




Normal Q–Q Plot of OLBI Burnout overall
for RACE= 2.00
Expected Normal
4
2
0
−2
−4
1.0
1.5
2.0
2.5
3.0
3.5
4.0
Observed Value

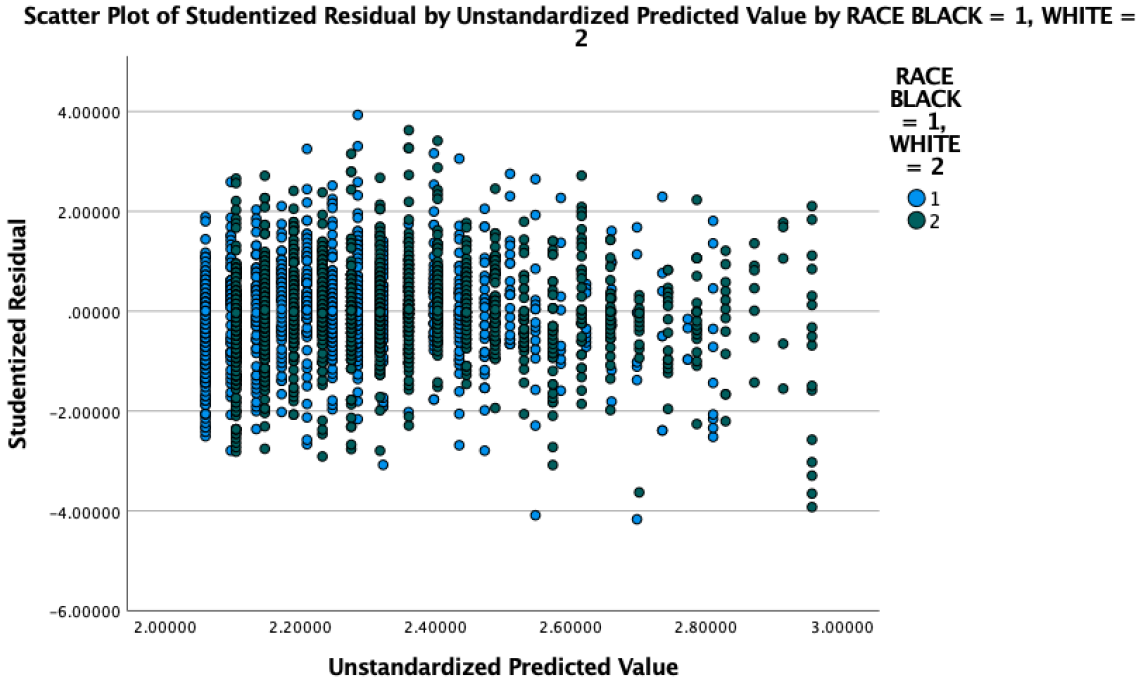
Appendix C: Scatterplot Matrix to Test Linearity



# Appendix D: Scatterplot Test for Linearity



Appendix E: Homoscedasticity



# Appendix F: Data Use Agreement (Signature Page 5 of 6)

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

**DE BEAUMONT FOUNDATION**

By: Rachel Hare Bork

Name: RACHEL HARE BORK

Title: Director of Research and Impact

**PRINCIPAL INVESTIGATOR**

By: January 4, 2022

Name: Douglas D. Gaffney Jr

Title: Doctoral Student (Walden University) douglas.gaffney@waldenu.edu

**INSTITUTION**

*The below signer represents and warrants that he or she is duly authorized and has legal capacity to execute and deliver this Agreement on behalf of the Institution. He/she represents and warrants that the execution and delivery of the Agreement and the performance of such party's obligations hereunder have been duly authorized and that the Agreement is a valid and legal agreement binding on such party and enforceable in accordance with its terms.*

By: Laura Knight Lynn

Name: Dr. Laura Lynn

Title: Dean of Research