PREDICTORS OF EMPLOYEE ENGAGEMENT IN INSTITUTIONS OF HIGHER

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State University's regulations and meets the accepted standards for the degree of

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ABSTRACT

This study investigated predictors of employee engagement at a large public research university. Generally speaking, the typical employee is disengaged at work (Adkins, 2015), and previous research has identified burnout as a contributor to employee disengagement (Maslach et al., 2001). Full-time staff employees volunteered to participate in a four-part survey regarding their levels of employee engagement, burnout, anxiety, and physical activity. Burnout was found to be the most significant predictor of employee engagement or disengagement, however, the results of all four surveys used in the study further exposed the complicated nature of successful employee engagement strategy.

DEDICATION

This thesis is dedicated to John O'Day IV and my family and friends who encouraged me, in the

words of Deena Kastor, "to throw the hammer and not the towel" and push forward in the face of

adversity. If not for you and your words, I would not be where I am today. To John V (J5) and

Jocelyn, I want to be an example for my children, and show them the importance of facing

challenges and persevering. J5 and Jocelyn, I love you, and being your mom is the most

important role in my life.

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CHAPTER 1: INTRODUCTION

Employee engagement in the modern workplace is a complex, multi-faceted phenomenon. As such, the research literature suggests that engagement is nested in a network of potential relationships with a variety of other factors, such as employee burnout, physical activity, and mental health challenges (e.g., anxiety). Given the diverse nature of the variables in this system, this study can be viewed through the lens of Engel's (1977, 1980) classic biopsychosocial model. As its name suggests, this framework offers a holistic view of human existence as an emergent process based upon a complex combination of biological factors (genetic, biochemical, and physiological processes), psychological factors (cognitive processes, emotions, personality, and behaviors), and sociological factors (social and cultural contexts). Although developed in the medical field (psychiatry in particular), it is relevant to many other fields particularly the social and behavioral sciences. The biopsychosocial model provides a means to present the various particular and seemingly disparate pieces of the present study in a concise, systematic form. This study seeks to better understand the phenomenon of employee engagement, particularly within the context of higher education. The influential factors to be explored include employee burnout, physical activity, and mental health (particularly pathologies like anxiety).

Research indicates that through physical activity (even walking) one may be able to alleviate feelings of stress and burnout. By positively impacting one's physical wellbeing, positive gains should be made in the domains of mental and emotional wellbeing. By improving physical, mental, and emotional wellbeing at the individual level, we can then look at the broader context of burnout and employee engagement, with the goal of identifying improvement in areas of productivity, profitability, absenteeism, and retention.

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Workplace context is another important issue to be considered here—in particular, this study seeks to explore the concept of employee engagement and its concomitant variables within the setting of higher education. Although extensive research has been conducted on employee engagement in many different professional areas and settings, very little has focused on the staff within institutions of higher education.

Definitions of Key Terms

Anxiety. An emotion characterized by feelings of tension, worried thoughts, and physical changes like increased blood pressure. People with anxiety disorders usually have recurring intrusive thoughts or concerns, may avoid certain situations due to worry, and may also have physical symptoms such as sweating, trembling, dizziness, or rapid heartbeat (American Psychological Association, 2019).

Burnout. A psychological syndrome that develops in response to chronic interpersonal stressors on the job (Maslach et al., 2001).

Emotion. A complex reaction pattern, involving experiential, behavioral, and physiological elements, by which an individual attempts to deal with a personally significant matter or event (American Psychological Association, 2020).

Engagement/disengagement. The harnessing of organization members' selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances in the workplace (Kahn, 1990). Conversely, disengagement is the inability for one to express themselves in this manner in workplace role performances.

Exercise. A subcategory of physical activity that is planned, structured, repetitive, and purposeful in the sense that the improvement or maintenance of one or more components of physical fitness is the objective (World Health Organization, 2019).

Institution of higher education. An educational institution in any state that admits as regular students only persons that have earned a certificate of graduation from a school providing secondary education, or the recognized equivalent of such a certificate. The institution is legally authorized within such state to provide a program of education beyond secondary education. The institution's educational program awards a bachelor's degree to its students, is a public or other nonprofit institution, and is accredited by a nationally recognized accrediting agency (Cornell Law School, 2019).

Mental health. Mental health includes emotional, psychological, and social wellbeing. It affects how one thinks, feels, and acts. Mental health also helps determine how one handles stress, relates to others, and makes choices (MentalHealth.gov, 2020).

Physical activity. Any bodily movement produced by skeletal muscles that requires energy expenditure (WHO, 2019).

Staff. A full-time employee, working a minimum of 40 hours per week at an institution of higher education serving in a technical/paraprofessional, professional, or administrative role, and does not serve in a full-time faculty role.

Stress. How the brain and body respond to any demand (National Institute of Mental Health, 2019). Stress symptoms can affect your body, thoughts, feelings, and behaviors (Mayo Clinic, 2019).

Research Problem

Generally speaking, the typical employee is disengaged at work (Adkins, 2015), and previous research has identified burnout as a contributor to employee disengagement (Maslach et al., 2001). Burnout has also been identified as an adverse factor on one's physical and mental/emotional wellbeing. This suggests that links may exist among employee engagement, burnout, mental/emotional wellbeing (such as anxiety), and physical wellbeing.

Furthermore, there is an apparent lack of research in the area of employee engagement within the context of staff in higher education. When the Q12 employee engagement survey was established in 1999 by the Gallup organization, 230 organizations and over 80,000 employees were surveyed (Buckingham & Coffman, 1999). However, only 3% of organizations surveyed were in education, and .5% of total respondents were working in education with no indication whether those respondents were working in K-12 or higher education (Buckingham & Coffman, 1999). Twenty years have passed since the establishment of the Q12 survey, and with little change in the level of employee engagement among employees, it is essential to continue research on the topic.

Purpose of the Research

The primary goal of this study is to explore the relationships of employee engagement with various other important factors identified in the research literature as they occur in staff employees at institutions of higher education. Thus, the present investigation aims to identify and describe any connections among employee engagement, burnout, physical activity, and anxiety. This study will also contribute to the research in the area of employee engagement within the educational setting, particularly for staff working in higher education.

Research Questions

The two research questions for this study are given below. These research questions are being asked implicitly in the context of staff employees at institutions of higher education.

Research Question 1

What are the general relationships among employee engagement, burnout, anxiety, and level of physical activity?

Research Question 2

Of burnout, anxiety, and physical activity, which are the strongest predictors for employee engagement?

Limitations

There are the typical limitations such as the potential bias that may arise from the use of a convenience sample and volunteers (self-selection). This study used an ex post facto (correlational) research design, so no definative causal claims can be made based upon the results.

Delimitations

This study is intentionally focusing specifically on staff employees at institutions of higher education.

CHAPTER 2: LITERATURE REVIEW

This study will focus on the interrelationships among the concepts of employee engagement, burnout, mental health (particularly anxiety), and physical activity. These concepts and their relationships will be further considered in the context of full-time staff employees at institutions of higher education. Various theoretical perspectives found in the research literature on each of these major concepts as well as their relationships are presented in this chapter.

Employee Engagement

The first major research on employee engagement was performed by William Kahn in the 1990s. He performed a qualitative study in two different work environments: a summer camp and an architecture firm. Kahn's (1990) main focus was to explore to what degree employees bring their physical, mental, and emotional energy to their work environments. Kahn coined the phrase *self-in-role* to help explain the degree to which one uses their strengths and is able to "be themselves" in their work role. He also identified the uncoupling of the self from the work role led to disengagement (Kahn, 1990).

Building on the work of Kahn, the Gallup organization published the book *First, Break All the Rules* in 1999. *First, Break All the Rules* detailed the development and implementation of the Q12 employee engagement questionnaire. Gallup surveyed 230 organizations; however, only 3% of organizations surveyed were in the education sector (Buckingham & Coffman, 1999). Included in the 230 organizations, more than 80,000 employees were surveyed, however, employees in the education sector made up only half a percent of total survey respondents (Buckingham & Coffman, 1999). Further, it was unclear what proportion of respondents (if any) were from higher education specifically.

In recent years, Gallup has expanded their engagement research within higher education and found that almost 20 years after publishing *First, Break All the Rules*, 66% percent of faculty and staff working in higher education are disengaged (Marken & Matson, 2019). The prevalence of employee disengagement may lead one to conclude appropriate measures are not being taken by management personnel to engage their workforce, which will negatively affect productivity, profitability, retention, and customer satisfaction (Buckingham & Coffman, 1999).

In more recent research on employee engagement, Barros et al. (2015) and Daniels (2016) have both contributed to the field of study by examining employee engagement in both the public and private sector. Barros et al. analyzed six companies in a case vignette and identified qualities of an engaged workplace. The companies in Barros et al. research included Facebook, Google, Twitter, Boston Consulting Group, LinkedIn, and Bain & Co. Employment benefits such as fully covered medical, dental, and vision insurance, meals, laundry service, and unlimited sick leave may not be attainable at all companies and organizations, however, characteristics such as minimizing hierarchy, holding weekly meetings, face to face training, frequent feedback, and flexible scheduling are practices companies can implement in the business and education sectors to improve the engagement and productivity of their workforce with little impact on overall budget resources (Barros et al., 2015).

In contrast to the work of Barros et al. (2015) on engagement in the business sector, Daniels used a qualitative approach to assess employee engagement at two Christian institutions within higher education. By interviewing 53 individuals between the two institutions, Daniels (2016) was able to identify institutional characteristics that fostered employee engagement. Those institutional characteristics included shared themes of mission, community, empowered human resources departments, and a sense of positive momentum (Daniels, 2016). Despite the

limited research on employee engagement in the education sector, Daniels' research provides an important connection to elements of employee engagement previously found in the business sector, concluding that those same elements can also be found in the education sector and in particular, the higher education sector.

Buckingham and Coffman (1999) emphasized the importance of an employee's relationship with their direct supervisor, and a top-down approach as essential to employee engagement success. Businesses that value engagement also receive recognition as "best places to work" according to Forbes, Fortune, Wall Street Journal, and Glassdoor (Barros et al., 2015). As a parallel to business recognition, educational institutions may also receive external validation to support their employee engagement efforts, as the institutions included in Daniels' (2016) research were considered examples of excellence as measured by the Best Christian Workplace Institute. Conversely, companies who continue to ignore the lack of employee engagement in their organization risk not only diminished profits and productivity, but the physical, mental, and emotional wellbeing of those employees will start to diminish as they remain disengaged and unhappy in their current roles (Barros et al., 2015).

Employee Burnout

In working to narrow the focus of employee engagement, this section will examine employee burnout as a component of employee engagement; more correctly, it is a component of employee *dis*engagement.

The Burnout Phenomenon

The term *burnout* was first used in the 1970s to describe the difficulties that can arise when an employee's relationship to their work goes awry. Maslach et al. (2001) further expanded upon this basic definition to encompass a psychological syndrome (such as a decline of one's

physical, mental, and emotional wellbeing) that develops in response to chronic interpersonal stressors at the workplace. Work-related burnout has even been identified as an important public health concern as it is associated with severe negative consequences across numerous professions (Shi et al., 2019). Various studies (e.g., Maslach et al., 2001; Daniels, 2016; Shi et al., 2019) have established connections between employee disengagement and employee burnout as well as the impact disengagement and burnout may have on an employee's physical, mental, and emotional wellbeing. Shi et al. (2019) specifically named burnout as a symptom of employee disengagement. Daniels (2016) concluded her research quoting Dave Ulrich's (1997) text *Human Resource Champions*, thus reinforcing the connections among employee disengagement, burnout, and physical, mental, and emotional wellbeing: "Employee contribution becomes a critical business issue because in trying to produce more output with less employee input, companies have no choice but to try to engage not only the body, but the mind and soul of every employee."

Through their research, Maslach and Jackson (1981) uncovered a deeper structure of the composition of burnout. From the development of a psychometric instrument to measure burnout, three separate aspects of burnout syndrome emerged: emotional exhaustion, depersonalization, and personal accomplishment.

Emotional Exhaustion

Emotional exhaustion reflects the stress dimension of burnout; it prompts actions to distance oneself emotionally and cognitively from one's work, presumably as a way to cope with work overload (Maslach et al., 2001).

Depersonalization

Depersonalization is an attempt to put distance between oneself and those they engage with while on the job. One's work demands may feel more manageable when customers are considered impersonal objects of one's work (Maslach et al., 2001).

Personal Accomplishment

Gaining a sense of accomplishment related to one's work can be difficult when feelings of exhaustion and depersonalization are present. Lack of efficacy may also be present due to lack of relevant resources, in contrast to exhaustion and depersonalization, which occur from work overload and social conflict (Maslach et al., 2001).

The Relationship Between Burnout and Mental Health

Golonka et al. (2019) conducted a small yet in-depth research study that established strong connections between employee burnout and mental wellbeing. The study used the Polish version of the Maslach Burnout Inventory-General Survey (MBI-GS) as the measurement instrument, which is the most commonly used instrument in international research to assess burnout (Golonka et al., 2019). Golonka et al. also connected their research to earlier research by Kahn (1990) and the concept of self-in-role by describing burnout as a result of incongruity between an individual and their job. Several workplace factors may contribute to burnout such as workload, control, reward, community, and fairness. If the employee does not fit well within any or all of these factors, the likelihood of becoming burned out is high (Golonka et al., 2019). These factors are also addressed in previous work on employee engagement by Buckingham and Coffman (1999) and Barros et al. (2015).

Gonlonka et al. (2019) also identified connections between mental illness and burnout. The connection between anxiety and burnout, in particular the characteristic of emotional

exhaustion has been empirically demonstrated (Golonka et al., 2019). On the other hand, the connection between burnout and depression, although present, is somewhat more complex. Depression and burnout are related as they share several qualitative characteristics, but they are two distinct constructs. Research on burnout has also shown predictors of depressive symptoms, but depressive symptoms do not necessarily predict burnout (Golonka et al., 2019).

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Physical Activity

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It is widely known that lack of physical activity contributes to such general health issues as obesity, diabetes, cardiovascular disease, and even premature mortality. Penedo and Dahn (2005) compiled research on the mental and physical health benefits related to physical activity. First, the negative implications of reduced levels of physical activity, such as obesity, hypertension, and shortened lifespan, were examined (Penedo & Dahn, 2005). Other research findings included improvement in sedentary men's and women's physical function and reduction in perception of pain after a one-year community-based water exercise program (Penedo & Dahn, 2005).

Research by Haslam et al. (2019) aimed to improve physical, mental, and emotional wellbeing in the workplace by implementing a workplace walking program over the span of two years. One intervention group showed significant reduction in BMI, and resting heart rate improved significantly regardless of the participants' intervention group assignment (Haslam et al., 2019).

Fritz et al. (2013) did not specifically research the implementation of structured physical activity in the workplace but rather analyzed the various types of breaks one experiences related to work, including vacations, weekends, evenings, lunches, and micro-breaks. What an employee chooses to do on their breaks, such as participate in some form of physical activity, whether it be

during a weekend, evening, or lunch break may be connected to their level of anxiety, burnout, and engagement at work.

Research on physical activity and work breaks can be linked to Gallup's research on employee engagement as employees who received standard or tailored intervention material demonstrated significantly higher self-reported work ability, organizational commitment, job motivation, job satisfaction, and reduction in intention to quit the organization (Haslam et al., 2019). Similarly, research indicated micro-breaks have no negative impact on employee job performance, more importantly, evidence suggests micro-breaks improve employee job performance (Fritz et al., 2019). Further research is needed to identify the particular activities and experiences that maximize employee wellbeing and performance capacity.

The Relationship Between Physical Activity and Mental Health

The research on physical activity and mental health is wide ranging (often intermixed with general physical health). Saxena et al. (2005) identified physical activity as an effective intervention in the promotion of positive physical, mental, and emotional wellbeing. Regardless of promotion, however, it is essential to engage in physical activity to experience the benefits in relation to physical, mental, and emotional wellbeing. The relationship between physical activity and anxiety/mood disorders, and mental wellbeing has been well documented, as those who report participating in regular exercise are less likely to meet criteria for disorders identified in the DSM III-R (such as major depression, anxiety disorders, generalized anxiety disorder, and panic attacks; Saxena et al., 2005).

Multiple studies compiled by Penedo and Dahn (2005) indicated physical activity improved mood and reduced symptoms of depression and anxiety. Participants with major depression undergoing an aerobic-exercise intervention showed improvement in depression

comparable to participants receiving psychotropic (drug-based) treatment (Penedo & Dahn, 2005). A study involving healthy older adults undergoing a 24-week resistance training program found significant improvement in total mood scores at the conclusion of the training program (Penedo & Dahn, 2005). Reduced confusion, anger, and tension were also reported (Penedo & Dahn, 2005). Physical activity has been reported as a correlate of positive mood among women (Penedo & Dahn, 2005). A study evaluating predictors of mood among women who recently began a walking program, in addition to social support, physical activity was related to greater positive mood (Penedo & Dahn, 2005). Other forms of physical activity, although rarely researched, such as hatha yoga and African dance were related to reductions in perceived stress and negative affect (Penedo & Dahn, 2005). Penedo and Dahn's research supported the findings of Saxena et al. (2005) by identifying the improvement in mood and reduced symptoms of depression and anxiety in relation to participating in physical activity.

Mental Health and Higher Education

Emotion, stress, and the ensuing anxiety in the workplace are complex components of job satisfaction, employee engagement, and employees' physical, mental, and emotional wellbeing. Stress has been more thoroughly studied in the workplace, but both stress and emotion are a result of one's interaction with their environment (Woods, 2010).

Until recently, higher education was thought to be a low-stress field of work (Ablanedo-Rosas et al., 2011); however, Woods (2010) identified higher education as an environment of increasing stress and burnout. Currently, 66% of higher education employees surveyed stated stress existed in their work environment (Ablanedo-Rosas et al., 2011). In addition to the increase in stress in the higher education field, the Health and Safety Executive

in the United Kingdom concluded employees working in higher education, in particular, are encountering an unacceptable amount of stress in the workplace (Woods, 2010).

Stress is mentally and emotionally disruptive, implying a negative relationship between stress and the physical, mental, and emotional wellbeing of employees. Emotion, which is more nuanced than stress, has such strong ties to personal experience, making it more difficult to determine the implications one's emotions might have in their work environment (Woods, 2010). Although the research presented in this study will not relate exclusively to emotion in the workplace, the physiological dimension of emotion impacts one's physical, mental, and emotional wellbeing (Woods, 2010).

CHAPTER 3: METHODS

This chapter presents the relevant details regarding the empirical research methods used in this study. In particular, the identification of the target population, the sample, details on the instruments, and the data-collection procedures are addressed.

For convenience, the research questions are restated here. Note that these research questions are being asked implicitly in the context of staff employees at institutions of higher education:

1. What are the general relationships among employee engagement, burnout, anxiety, and level of physical activity?

2. Of burnout, anxiety, and physical activity, which are the strongest predictors for employee engagement?

Target Population

The results of this study will be generalizable to the population of staff employees at large public research university where the study was conducted. However, an argument can be made that the results are still applicable to other large public research universities in the United States in general.

Sample

This study used a convenience, purposive sample with voluntary participation. The sampling frame is the most recent listing of institutional emails (listserv) for a division of full-time, staff-level employees at a large public research university in the Midwestern United States. This listserv was supplied by an authorized administrator for the division. Demographic information regarding the sample was not collected as a way to avoid the potential biases from psychological priming and stereotype threat.

Instrumentation

Data was collected using an online questionnaire containing the following four instruments: Gallup Q12, the Maslach Burnout Inventory (MBI), the International Physical Activity Questionnaire (IPAQ), and the Generalized Anxiety Disorder 7-Item Scale (GAD-7). A copy of the questionnaire is provided in Appendix A.

Gallup Q12

Also known as the Gallup Workplace Audit (GWA), the Q12 (often stylized as Q¹²) is a measure of employee engagement based upon the work of occupational psychologist Donald Clifton. The final version of the Q12 was established in 1998 (Gallup Organization, 1993-1998), and it has since been subjected to numerous confirmatory analyses and meta-analyses (Buckingham & Coffman, 2016). Further, the Q12 has been shown to have very good internal-consistency reliability (Cronbach's α = .88; Avery et al., 2007).

The Q12 consists of 12 statements regarding perceptions of various characteristics of the workplace environment. Respondents rate each item on a five-point Likert scale. Each item response is scored on a scale from 1 to 5 as follows: 1 = strongly disagree, 2 = disagree, 3 = neither agree or disagree, 4 = agree, and 5 = strongly agree. A respondent's overall composite score for the entire instrument (the scale score) is the sum of the 12 scored responses. The scores can thus range from a minimum of 12 to a maximum of 60. The higher scores represent the higher level of engagement of the employees. The established diagnostic interpretation of Q12 composite score ranges are shown in Table 1.

Table 1

Composite Score Ranges for the Q12 Diagnostic Classifications

Range	Level of engagement
48–60	Highly engaged
36–47	Neither engaged nor disengaged
12–35	Disengaged

Maslach Burnout Inventory (MBI)

The MBI-Human Services Survey (MBI-HSS) form was used in this study (although there are various other forms of the MBI designed specifically for specific career fields and roles). Maslach, along with Jackson (1981) designed a scale to measure the main factors underlying burnout syndrome—more specifically, emotional exhaustion, depersonalization, and personal accomplishment.

By 2001, the MBI had been used internationally to assess workplace burnout (Maslach et al., 2001). Overall, the research pool includes more than 62 samples and 25,000 participants in North America, and 21 additional samples across 12 countries and 7,000 participants (Maslach et al., 2001). This scale has become the most widely used instrument to measure employee burnout (Shi et al., 2019).

Shi et al. (2019) also contributed to the validation of the MBI as an effective research tool. In 2019, Shi et al. (2019) surveyed 787 first-year medical students at a large Midwestern medical school. Rasch analysis was used to analyze the survey data, which provided further support for the structural validity and reliability of the MBI.

The MBI consists of three subscales which correspond to the three dimensions of burnout (emotional exhaustion, depersonalization, and personal accomplishment). A composite score is

produced for each dimension as the sum of the scored responses to the items within each MBI subscale. Item responses were scored on a scale of 0 to 6 (0 = never, 1 = a few times per year, 2 = once a month, 3 = a few times per month, 4 = once a week, 5 = a few times per week, 6 = everyday). With nine items, the composite subscale scores for emotional exhaustion has a possible range of 0 to 54, while depersonalization has a range of 0 to 30 (five items), and personal accomplishment has a range of 0 to 48 (eight items). Greater composite subscale score values reflect relatively greater levels of their respective dimensions.

In addition to the composite scores, the MBI provides diagnostic classifications of low, moderate, and high for each of the three dimensions of burnout. These classifications are based on the composite scores (Table 2).

Table 2

Composite Score Ranges for the MBI Diagnostic Classifications

| Level | Score ranges | | |
	Emotional exhaustion	Depersonalization	Personal accomplishment
Low	0–16	0–6	0–31
Moderate	17–26	7–12	32–38
High	27–54	13–30	39–48

Generalized Anxiety Disorder 7-Item Scale (GAD-7)

The GAD-7 is a brief self-report tool developed by Spitzer et al. (2006) to identify probable cases of generalized anxiety disorder (GAD). The internal consistency of the instrument was exceptional (Cronbach's $\alpha = .92$), and the test-retest reliability was very good (intraclass correlation = .83; Spitzer et al., 2006).

The GAD-7 consists of seven items rated on a four-point scale (0 = not at all, 1 = several days, 2 = over half the days, 3 = nearly every day). The total score ranges from 0 to 21, and a higher total score indicates greater likelihood that the respondent is experiencing anxiety (Spitzer et al., 2006). In addition to the seven items, respondents are asked how difficult their symptoms have made it to do their work, take care of things at home, or get along with other people (Spitzer et al, 2006).

There are also established diagnostic classifications for the severity of anxiety base upon composite scores. These score ranges are shown in Table 3.

Table 3

Composite Score Ranges for the GAD-7 Diagnostic Classifications

Score range	Severity of anxiety
0–4	Minimal
5–9	Mild
10–14	Moderate
15–21	Severe

International Physical Activity Questionnaire (IPAQ)

The instrument to be used in this study to collect and quantify general physical activity is the International Physical Activity Questionnaire (IPAQ), a self-administered instrument designed specifically to measure an individual's typical day-to-day physical activity based on their recollection of activity from the past seven days. The IPAQ was developed by an international working group of composed of physical activity assessment experts.

This working group, better known as the International Consensus Group for the Development of an International Physical Activity Questionnaire, was first assembled in 1998 at a meeting at the World Health Organization (WHO) in Geneva, Switzerland.

Although a standard long form (27 items) of the IPAQ was developed, the short form (7 items) will be used in the present study. This study will be using three other questionnaires for data collection, so the primary reason for using the short form is to mitigate respondent fatigue and loss of data. A large reliability and validity study was conducted for the IPAQ which showed the short form to have excellent test-retest reliability over a seven-day timespan ($r_{xx} = 0.75$; Craig et al., 2003). This high reliability has been confirmed in various subsequent studies (Lee et al., 2011). Further, the utility and interpretability of the IPAQ has been demonstrated by its high correlations with such criteria as lower mortality rates and a reduced risk of cardiovascular disease (Pitsavos et al., 2008).

The IPAQ short form measures three distinct dimensions of physical activity: (a) walking, (b) moderate-intensity activities, and (c) vigorous-intensity activities. The IPAQ collects data from a respondent in terms of time spent in the previous seven days engaged in each of these three levels of physical activity, and these quantities are converted to MET-minutes per week. A MET (or metabolic equivalent of task) is a commonly used metric of physical activity which is expressed as the ratio of energy expenditure for some given task to a baseline level of energy expenditure (sitting quietly). There is also a total physical activity score, which is simply the sum of the three component scores. The IPAQ converts activity times to MET-minutes per week as shown in Table 4.

Table 4

Formulas for Computing IPAQ Scores in MET Minutes per Week

IPAQ dimension	Formula
Walking (W)	W = 3.3 × walking minutes/day × walking days
Moderate activity (M)	M = 4.0 × moderate-intensity activity minutes/day × moderate days
Vigorous activity (V)	V = 8.0 × vigorous-intensity activity minutes/day × vigorous-intensity days
Total (T)	T = W + M + V

In addition, the IPAQ offers guidelines for classifying individuals into three ordinal levels of overall physical activity (low, moderate, and high). The classification criteria are given in Table 5.

Table 5

Criteria for IPAQ Diagnostic Classification

Activity level	Criteria
Low	No activity is reported *-OR-* Some activity is reported but not enough to be classified as moderate or high

Moderate	3 or more days of vigorous activity of at least 20 minutes per day
	   -OR-
	5 or more days of moderate-intensity activity and/or walking of at least 30 minutes per day
	   -OR-
	5 or more days of any combination of walking, moderate-intensity or vigorous intensity activities achieving a minimum of at least 600 MET-minutes/week

High	Vigorous-intensity activity on at least 3 days and accumulating at least 1500 MET-minutes/week *-OR-* 7 or more days of any combination of walking, moderate- or vigorous-intensity activities accumulating at least 3000 MET-minutes/week

Data Collection

Data were collected from participants via a self-administered online questionnaire (hosted on Qualtrics). Potential study participants were emailed a link to the online questionnaire along with a consent form. Two follow-up email reminders were sent to participants who had not completed the questionnaire (approximately one reminder per week). All responses were kept anonymous as no individual identifiable data were collected.

Analysis

Once data collection was concluded, the data were screened to ensure data integrity as well as to eliminate incomplete or apparent nonsense response sets. Data were then analyzed with an initial exploratory data analysis (descriptive statistics) followed by correlation analysis (both bivariate and partial).

CHAPTER 4: RESULTS

This chapter is a summary of the analytical results of the data collected for this study. The results are organized into three major sections. The first section gives a brief recap on data collection and the response rate, the second section contains basic descriptive statistics, and the third section provides a summary of the inferential analyses. It should be noted here that these results pertain almost exclusively to the composite variables (see Chapter 3 for details). The item-level results are included in Appendix B. The complete questionnaire used for data collection is included in Appendix A for reference.

For convenience, the research questions are restated here. Note that these research questions are being asked implicitly in the context of staff employees at institutions of higher education:

1. What are the general relationships among employee engagement, burnout, anxiety, and level of physical activity?

2. Of burnout, anxiety, and physical activity, which are the strongest predictors for employee engagement?

Data Collection and Response Rate

Data were collected over a three-week period using an online questionnaire form (hosted by Qualtrics) from a sampling frame consisting of $N_0 = 125$ unique email addresses. The questionnaire consisted of four distinct instruments: the Gallup Q12, the Maslach Burnout Inventory (MBI), the Generalized Anxiety Disorder 7-Item Scale (GAD-7), and the International Physical Activity Questionnaire (IPAQ). An initial recruitment email was sent to the staff members of a single division of a large state research university. Two reminder emails were sent at the beginning of the second and third weeks of data collection.

Seventy records were collected, but one record was eliminated as it contained no responses to any of the items on the instruments (unit nonresponse). A number of records were partially incomplete, but these were left in the dataset as they all had complete and usable response sets for at least one of the four instruments. Hence, the usable sample consisted of $n = 69$ records, giving a usable response rate well over 50% (55.2%). Of these, $n = 62$ records were complete.

Descriptive Statistics

The descriptive statistics for the composite score and classification variables are presented in this section. Complete details on the computation procedures for each of these composites and the classification benchmark values are provided in Chapter 3. The complete set of descriptive results for each separate item on the questionnaire is provided in Appendix B.

Engagement (Gallup Q12)

The engagement composite score was computed for each individual respondent as the sum of the scored responses to the 12 items from the Gallup Q12 instrument (summary in Table 6). Item responses were scored on a scale of 1 to 5 (1 = strongly disagree, 1 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree), giving the composite score a possible minimum of 12 and maximum of 60. Greater composite score values reflect relatively greater levels of engagement.

Table 6

Summary of the Engagement Scores from the Gallup Q12

Statistic	Value
n	68
M	49.25
SD	7.04
Min	32
Max	60

The Q12 manual provides a three-level diagnostic classification based on the following composite score ranges: 12 to 35, disengaged; 36 to 47, neither engaged nor disengaged; and 48 to 60, highly engaged. The distribution of these groups for this sample is given in Table 7.

Table 7

Diagnostic Classification for Engagement

Classification (criterion)	Freq.	%	Cml. %
Disengaged (12–35)	4	5.88	5.88
Neither engaged nor disengaged (36–47)	21	30.88	36.76
Highly engaged (48–60)	43	63.24	100.00

With a mean composite engagement score of *M* = 49.25 (rescaled to 4.10 to be commensurate with the item-score range of 1 to 5), this sample tended to be fairly well engaged at work. This is further supported by the observed frequencies for the diagnostic grouping which show that nearly two-thirds (63.24%) of the sample was classified as highly engaged.

Burnout (MBI)

The MBI consists of three subscales, which correspond to the three dimensions of burnout (emotional exhaustion, depersonalization, and personal accomplishment). A composite

score was computed for each dimension as the sum of the scored responses to the items within each MBI subscale. Item responses were scored on a scale of 0 to 6 (0 = never, 1 = a few times per year, 2 = once a month, 3 = a few times per month, 4 = once a week, 5 = a few times per week, 6 = everyday). With nine items, the composite subscale scores for emotional exhaustion had a possible range of 0 to 54, while depersonalization had a range of 0 to 30 (five items), and personal accomplishment had a range of 0 to 48 (eight items). Greater composite subscale score values reflect relatively greater levels of their respective dimensions. Greater composite scores for emotional exhaustion and depersonalization and lesser scores for personal accomplishment indicate greater levels of burnout. The summary statistics for the three composite variables are reported in Table 8.

Table 8

Summary of the Burnout Subscale Scores from the MBI

Dimension of burnout	*n*	*M*	*SD*	*Min*	*Max*
Emotional exhaustion	66	15.71	10.58	0	41
Depersonalization	66	3.21	4.37	0	20
Personal accomplishment	66	38.30	6.92	16	48

The MBI manual provides diagnostic classifications of low, moderate, and high for emotional exhaustion (0–16, 17–26, 27–54), depersonalization (0–6, 7–12, 13–30), and personal accomplishment (0–31, 32–38, 39–48). The distributions of these groupings for this sample is given in Table 9.

Table 9

Distributions of the Diagnostic Classifications for the Three Dimension of Burnout

Level	Emotional exhaustion			Depersonalization			Personal accomplishment		
	Freq.	%	Cml.%	Freq.	%	Cml.%	Freq.	%	Cml.%
Low	44	66.67	66.67	53	80.30	80.30	8	12.12	12.12
Moderate	10	15.15	81.82	10	15.15	95.45	20	30.30	42.42
High	12	18.18	100.00	3	4.55	100.00	38	57.58	100.00

Anxiety (GAD-7)

The composite score for anxiety was computed as the sum of the seven items in the GAD-7 instrument. Each item response was scored from 0 to 3 (0 = not at all, 1 = several days, 2 = over half the days, 3 = nearly every day), which gives the composite anxiety score a potential range of 0 to 21. Higher scores correspond to greater levels of anxiety. The summary statistics for the composite anxiety score are given below in Table 10.

The GAD-7 also has an additional follow-up item regarding perceived difficultly in a person's day-to-day life as a result of anxiety. This was a conditional item that was presented to a respondent only if any responses to the seven main items were anything other than "not at all." This item was scored from 0 to 3 (0 = Not difficult at all, 1 = Somewhat difficult, 2 = Very difficult, 3 = Extremely difficult). Table 10 also contains the summary statistics for the single follow-up item.

Table 10

Summary of the Composite Anxiety Scores and Follow-up Item from the GAD-7

Variable	*n*	*M*	*SD*	Min	Max
Composite anxiety score	65	4.26	3.66	0	15
Follow-up item: Life difficulty due to anxiety	54	0.59	0.74	0	3

The diagnostic classification for the severity of anxiety is defined by the GAD-7 manual according to the composite anxiety score as follows: minimal, 0 to 4; mild, 5 to 9; moderate, 10 to 14; and severe, 15 to 21. Table 11 shows the distribution for the anxiety classification groups.

Table 11

Diagnostic Classification for Anxiety

Anxiety severity	Freq.	%	Cml.%
Minimal	35	53.85	53.85
Mild	24	36.92	90.77
Moderate	5	7.69	98.46
Severe	1	1.54	100.00

Physical Activity (IPAQ)

The IPAQ measures three types of physical activity: vigorous intensity, moderate intensity, and walking. Respondents provided their estimated activity time from the previous seven days for each of the three physical activity intensity levels. These times were then converted to MET-minutes per week. The metabolic equivalent of task (MET) is a measure of physical activity, which is defined as the ratio of energy expenditure for a given task to some baseline (resting) level of energy expenditure. Hence, the three scores indicate the relative amount of physical activity at each level of intensity—vigorous, moderate, and walking. The sum of these three physical activity scores gives the total score, which reflects the relative overall level of physical activity for an individual. These four physical activity scores from the IPAQ are summarized in Table 12.

Table 12

Summary of the Physical Activity MET Scores from the IPAQ

Type of activity	*n*	*M*	*SD*	Min	Max
Vigorous	61	609.84	1174.59	0	5040.00
Moderate	56	325.71	445.47	0	2160.00
Walking	56	602.84	561.71	0	2772.00
Total	49	1549.29	1600.58	0	6772.50

Note. The total MET score is the sum of the vigorous, moderate, and walking MET scores.

The IPAQ gives a diagnostic classification for overall level of physical activity (Table 13). This classification is based on a fairly complex set of criteria (see Chapter 3 for details).

Table 13

Diagnostic Classification of Physical Activity

Level	Freq.	%	Cml.%
Low	28	43.75	43.75
Moderate	23	35.94	79.69
High	13	20.31	100.00

The IPAQ also gathered information on the typical time spent sitting per day. This information is provided only as a reference; these data were not used in the computation of the MET scores or the diagnostic classifications. The summary statistics for daily sitting time are provided in Table 14. Note the time unit is minutes, so the mean daily sitting time is just under 6 hours (5 hours, 48 minutes).

Table 14

Summary Statistics for Typical Daily Sitting Time (Minutes)

Statistic	Value
n	58
M	348.36
SD	58.87
Min	60
Max	405

Relationships Among the Variables

This section of the results presents the statistical analyses of the associations among the key variables identified in this study. Correlational analysis was used here, specifically Pearson product-moment (bivariate) correlations (relevant to research question 1) and partial correlations (relevant to research question 2).

Bivariate Correlations

All possible pairwise bivariate correlations were computed for the set of composite-score variables from the Gallup Q12 (engagement), MBI (emotional exhaustion, depersonalization, and personal accomplishment), GAD-7 (anxiety), and IPAQ (vigorous, moderate, walking, and total activity). These correlations are given in Table 15.

All three of the burnout dimensions and the walking dimension of physical activity were the only significant correlations with engagement (all others in this column were nonsignificant). The emotional exhaustion dimension of burnout showed a strong negative association, which was the strongest relationship with engagement by far ($r = -.5144$). Personal accomplishment had a moderately strong correlation with engagement ($r = .3767$), while depersonalization had a weak negative association ($r = -.2672$). Walking showed a weak positive correlation with

engagement ($r = .2838$). Anxiety along with vigorous, moderate, and total physical activity were not significantly correlated with engagement.

All three dimensions of burnout did exhibit significant correlations with anxiety: Emotional exhaustion had a moderate positive correlation ($r = .4275$), depersonalization had a weak positive correlation ($r = .2906$), and personal accomplishment had a moderate negative correlation ($r = -.3575$). The burnout dimensions showed no significant correlations with any of the physical activity dimensions. Anxiety showed no other significant correlations other than those with the three burnout dimensions.

As previously mentioned, the walking dimension of physical activity had a significant (albeit weak) positive correlation with engagement. There were no other significant correlations of the physical activity dimensions with any of the other constructs.

Table 15

Bivariate Correlations for All Composite-Score Variables

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Engagement	1.0000								
	(68)								
2. Burnout: emotional exhaustion	-.5144*	1.0000							
	(65)	(66)							
3. Burnout: depersonalization	-.2672*	.6281*	1.0000						
	(65)	(66)	(66)						
4. Burnout: personal accomplishment	.3767*	-.5372*	-.5109*	1.0000					
	(65)	(66)	(66)	(66)					
5. Anxiety	-.2460	.4275*	.2906*	-.3575*	1.0000				
	(64)	(65)	(65)	(65)	(65)				
6. Physical activity: vigorous intensity	.0838	.0061	.2025	-.1098	.0865*	1.0000			
	(61)	(61)	(61)	(61)	(60)	(61)			
7. Physical activity: moderate intensity	.0300	-.1672	-.1452	.1908	-.2095	.3299*	1.0000		
	(55)	(56)	(56)	(56)	(55)	(54)	(56)		
8. Physical activity: walking	.2838*	-.1847	.0336	.0297	.0496	.2486	.1123	1.0000	
	(55)	(56)	(56)	(56)	(56)	(53)	(51)	(56)	
9. Physical activity: total	.2457	-.1505	.0649	.0106	-.0236	.9101*	.5657*	.5005*	1.0000
	(49)	(49)	(49)	(49)	(49)	(49)	(49)	(49)	(49)

Note. The sample size for each correlation is shown in parentheses.

* $p < .0$

Partial Correlations

The following table (Table 16) shows the partial correlations of engagement with burnout (emotional exhaustion, depersonalization, and personal accomplishment), anxiety, and physical activity (vigorous, moderate, and walking). Note that the total physical activity MET score was removed from this part of the analysis. This variable is the sum of the vigorous, moderate, and walking MET scores; the analytical procedure removes such variables since they would be effectively redundant.

Table 16

Partial Correlations of Engagement with Burnout, Anxiety, and Physical Activity

Composite-score variable	Partial correlation with engagement	p
Burnout: emotional exhaustion	-.3247*	.034
Burnout: depersonalization	.1118	.475
Burnout: personal accomplishment	.2116	.173
Anxiety	.1491	.340
Physical activity: vigorous intensity	.2114	.174
Physical activity: moderate intensity	-.1437	.358
Physical activity: walking	.1564	.316

* Statistically significant ($p < .05$).

Emotional exhaustion had the largest partial correlation with engagement (partial $r = -.3247$, $p = .034$). Further, this was the only significant partial correlation of any composite-score variable with engagement. Engagement has a moderate negative unique relationship with emotional exhaustion (i.e., while controlling for or partialling out depersonalization, personal accomplishment, anxiety, vigorous activity, moderate activity, and walking). In other words, this represents the unique association between engagement and emotional exhaustion above and beyond any of the other variables in the study.

CHAPTER 5: DISCUSSION

This chapter presents a general discussion of the results by first addressing research questions followed by an elaboration of the subsequent implications. Possible directions for future research are discussed followed by general conclusions and recommendations.

Research Questions

First, it may be helpful and informative to provide brief and simple answers to the two research questions from this study.

Research Question 1

What are the general relationships among employee engagement, burnout, anxiety, and level of physical activity?

The primary evidence used to answer research question 1 is the set of bivariate correlations for each possible pair of variables (Table 15). This information is condensed as a heatmap (Figure 1) which graphically illustrates the patterns of the magnitude (strength) and direction (positive/negative) of the relationships among engagement, burnout (emotional exhaustion, depersonalization, and personal accomplishment), anxiety, and physical activity (vigorous, moderate, walking, and total).

Since some of the major constructs involved have multiple dimensions (namely, burnout and physical activity), a distinction should be made here between inter-conceptual correlations and intra-conceptual correlations. Inter-conceptual correlations refer to the relationships between variables from different constructs (e.g., engagement and emotional exhaustion), while intra-conceptual correlations are relationships between variables from the same general construct (e.g., emotional exhaustion and depersonalization). The intra-conceptual correlations are expected and

essentially trivial in the context of research question 1. However, the inter-conceptual

correlations are more pertinent to the present research question; thus, they are the focus here.

Figure 1

Heatmap for the Magnitudes and Directions of the Relationships Among Engagement, Burnout, Anxiety, and Physical Activity
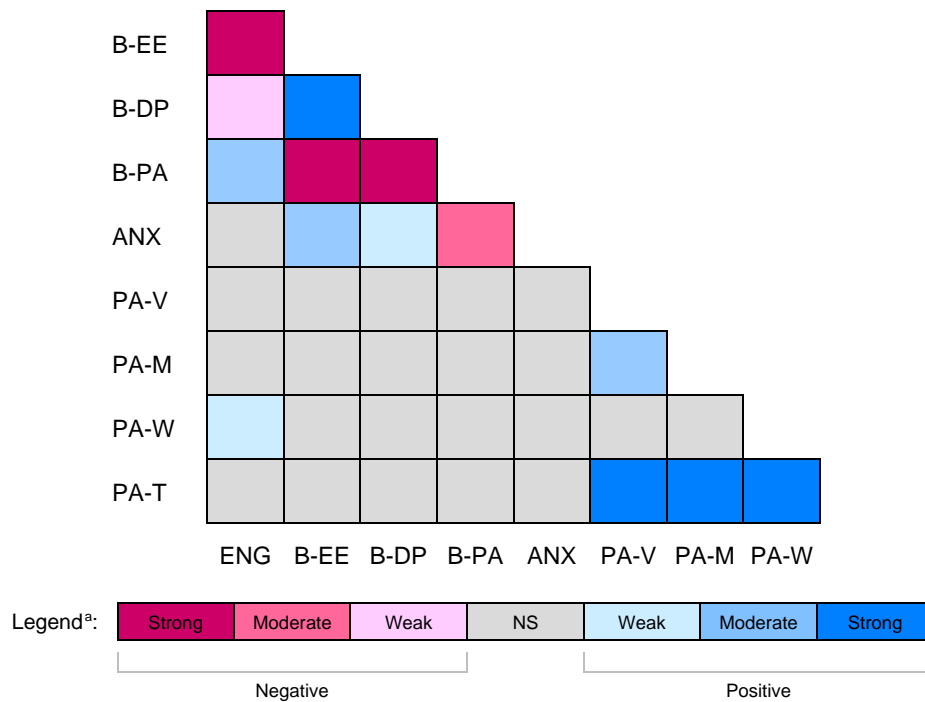
Note. ENG = Engagement, B-EE = Burnout: emotional exhaustion, B-DP = Burnout: depersonalization, B-PA = Burnout: professional achievement, ANX = Anxiety, PA-V = Physical activity: vigorous, PA-M = Physical activity: moderate, PA-W = Physical activity: walking, PA-T = Physical activity: total.

[a] Reference values for weak, moderate, and strong are .1, .3, and .5 (respectively) in absolute magnitude.

The three characteristic dimensions of burnout (emotional exhaustion, depersonalization, and personal accomplishment) all showed statistically significant, weak to moderate correlations with anxiety. Engagement also had a significant weak correlation with walking physical activity. This is consistent with established theory and research in that the more emotionally exhausted an employee may be, the more likely they are to be disengaged.

Thus, the research established correlations between engagement and burnout, and burnout and anxiety, but a relationship between anxiety and employee engagement was not specifically

identified through the research. Based on the research design, it is unclear as to why a connection between engagement and anxiety did not emerge. Additionally, the literature did not specifically point to a connection between engagement and anxiety, but based on the literature establishing connections between engagement and burnout, and burnout and anxiety, the researchers were given reason to believe a connection between engagement and anxiety may exist. Also of interest is the virtual lack of any inter-conceptual correlations involving physical activity. There is only one exception to this, which is the association of walking with engagement.

Research Question 2

Of burnout, anxiety, and physical activity, which are the strongest predictors for employee engagement?

The partial correlations with engagement are the main evidence for research question 2 (Table 16). Burnout—specifically, emotional exhaustion—is clearly the strongest predictor for employee engagement (i.e., it has the strongest unique relationship with engagement) as it has the largest and only significant partial correlation. A partial correlation reflects the unique relationship between two variables with all the other variables being held constant (these other variables are also said to be controlled or "partialled out"). So, the partial correlation between engagement and emotional exhaustion (with depersonalization, personal achievement, anxiety, vigorous activity, moderate activity, and walking partialled out) is -.3247. In other words, engagement has a moderate negative unique relationship with emotional exhaustion (above and beyond the other variables). Recall that the total physical activity MET score was omitted from this part of the analysis as it would be completely collinear (redundant) with the vigorous, moderate, and walking MET scores.

Note that it is common to describe results such as this using more statistical jargon like "prediction." Hence, it could be stated that emotional exhaustion is the best unique predictor of engagement.

Implications

Emotional exhaustion was found to be the strongest predictor of employee engagement, which can be connected back to the research of Kahn and his concept of self-in-role, as the uncoupling of the self from the work role may lead to disengagement (Kahn, 1990). The most challenging aspect of emotional exhaustion is that emotion is a very personal experience, thus actions a supervisor may take to improve one employee's level of engagement may not work for another employee, which further complicates the concept of employee engagement, as improving the level of engagement may be time intensive for those in leadership and managerial roles. However, it is important to note an employee's relationship with their direct supervisor plays an important role in employee engagement (Gallup, 1999). If an employee is disengaged, according to the research, they may feel their emotions aren't being validated, which again, is a very complex construct, but in this case is something supervisors need to keep a pulse on in order to maximize the potential of their employees.

Although this research focuses on employee engagement in education, in particular higher education, more research needs to be completed in this area, as it is still a very sparingly researched topic. Recently, Gallup has expanded their engagement research in the education sector and found that 66% percent of faculty and staff working in higher education are disengaged (Marken & Matson, 2019). Results from the research in this study indicated 37% of employees are disengaged. Research by Lopus (2007) indicated engagement levels at Christian nonprofits are higher than their secular counterparts. The research conducted in this report

contradicts the findings of Lopus' (2007) research which indicated 54% of employees at faith-based non-profit organizations are engaged, and the engagement percentage for this research was 63%.

The research completed by Haslam et al. (2019) and Fritz et al. (2013) pointed toward a potential connection between physical activity and employee engagement. Haslam et. al. conducted a walking break study over the period of two years and participants reported higher work-ability, job satisfaction, and reduction in intention to quit (characteristics of employee engagement). Although the research in this study only identified a weak correlation between physical activity (walking) and employee engagement, further investigation and more specific physical activity measures may aid in the discovery of a stronger relationship between the two constructs. Furthermore, walking may be the strongest measurement for physical activity as the walking MET scores for study participants were almost equal to the vigorous activity MET scores, meaning participants did just as much, if not more walking than any other type of physical activity.

Fritz's et al. (2013) research focused on the different types of breaks an employee can take. Although physical activity wasn't part of the study in particular, if an employee engages in activities during breaks, whether at home, or during the work day that align with the concept of "self-in-role," that could contribute to a decrease in their level of emotional exhaustion, thus potentially improving their level of employee engagement.

It is important to note Fritz et al. (2013) determined breaks did not negatively impact job performance, which provides managers and leaders with a budget-friendly strategy for improving employee engagement. Even more importantly, micro-breaks were found to improve job performance (Fritz et al., 2013).

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Given that the burnout characteristic of emotional exhaustion was most strongly connected with one's level of employee engagement, if leaders and managers want to improve employee engagement within their work setting, emotional exhaustion is a characteristic they must focus on. According to Wood's (2010) research, emotion is tied strongly to personal experience, thus leaders and managers must ask themselves to what extent are they going to invest in their employee's emotional wellbeing, and if they choose not to invest in their employee's emotional wellbeing, to what extent are they willing to accept the consequences of reduced productivity, profitability, retention, and customer satisfaction. Although the research found 63% of the sample to be highly engaged, that means 37% of the sample is neither engaged nor disengaged, or they are disengaged. In an office of 10 people for example, there would be three or four employees who would be costing the institution time and money as they are likely less productive, have lower job satisfaction, and will be more difficult to retain. On top of employee engagement, one can also ask, what if an employee in a managerial or leadership role is not highly engaged? What might the institution suffer in lost productivity with a disengaged leader, and a potentially more disengaged workforce.

Future Research

Continued research on employee engagement in education conducted both qualitatively and quantitatively would provide more insight into the level of employee engagement in the field of education, in particular higher education, and strategies for improvement. However, quantitative research may be favored for continued research as the results may be more generalizable than findings discovered through qualitative research.

More research also needs to be done on physical activity in the workplace. On average, research participants spent almost six hours per day sitting, and research suggests physical

activity aids in improving overall physical, mental, and emotional wellbeing. Further research on walk breaks during the workday, and more specific levels and types of physical activity may also point to signs of how to moderate anxiety and emotional exhaustion. Although this research did not discover a strong connection between physical activity and employee engagement, conducting a more controlled and focused research study using a specific type of physical activity (i.e. walking) may aid in discovering further connections. By measuring change in the level of burnout among a group of employees, evidence may emerge connecting physical activity to employee engagement, especially if a change is found in the emotional exhaustion of research participants.

In addition, "mood" is a term used in the research on physical activity and emotional exhaustion. Further defining the term "mood" and what elements of mental and emotional wellbeing it is connected to would help guide further research.

Emotional exhaustion has a strong relationship with employee engagement and personal accomplishment has a strong relationship with emotional exhaustion, researching the mental and emotional connections one makes between their personal accomplishments and their level of emotional exhaustion may also provide information on how to improve employee engagement.

Employee engagement is also tied to an organization's productivity, profitability, level of absenteeism, and retention. Measuring change in those categories against employee engagement and burnout among employees, may provide more information as to how detrimental a disengaged or burned out work force may or may not be to the quality of output generated by the organization.

Finally, it may be of some use to summarize the apparent causal model that is implied by the research literature and the empirical results of this study (Figure 2). Such causal models have

been suggested in the literature regarding employees in general and employees in various specific fields (e.g., business), but not for staff employees in institutions of higher education (or for that matter, for education in general). So, such empirical results from this particular context may be useful for confirmatory studies or model invariance studies.

Figure 2

Hypothetical Causal Model Implied by the Research Literature and the Empirical Evidence in the Study

<div align="center">
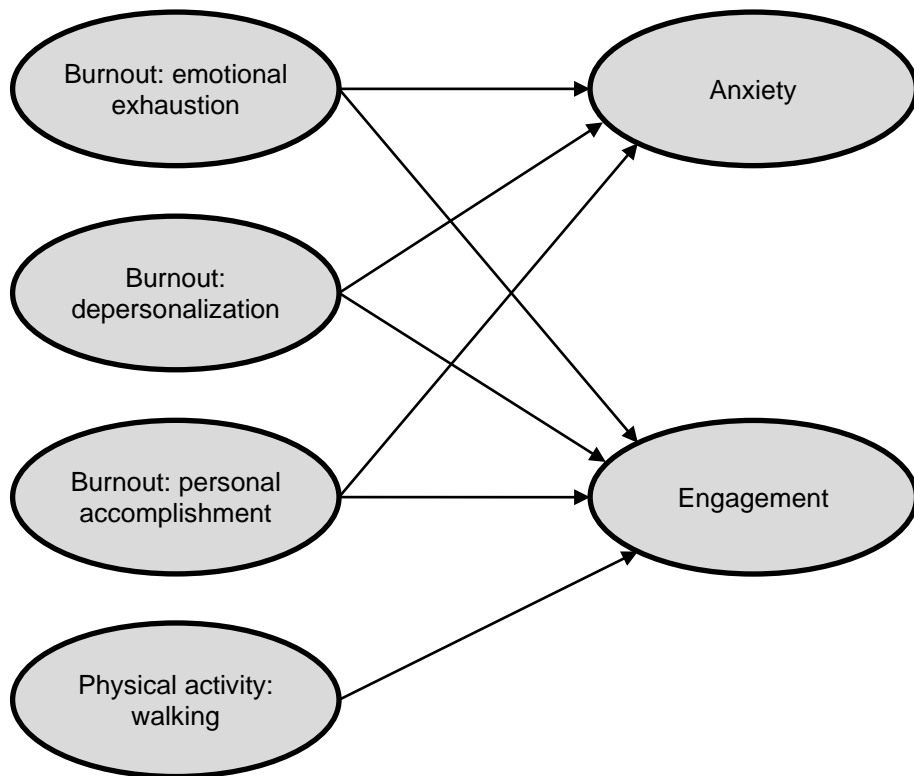
Conclusions

</div>

By reviewing related literature, various connections were made among the concepts of employee engagement, burnout, anxiety, and physical activity. The research conducted in this study, however, proves that connecting all four concepts to one another is rather difficult and complex. Prior to completing research on predictors of employee engagement, there may have

been a lack of understanding regarding complexity. The instruments used to evaluate employee engagement, burnout, anxiety, and physical activity were reliable and valid, and distributing the survey to the sample population seemed straightforward. In highlighting the strongest predictor of employee engagement, which is emotional exhaustion, the research in this study sheds light on how complex the concept of employee engagement is. Experiencing emotion is something we all experience on an extremely personal level. At times, a certain emotion can be experienced by a group of people or among family members, but at the root of the emotion is how the individual processes it - do they laugh, cry, seek support, or socially withdraw? The answer to that question is different for everyone. Physical, mental, and emotional wellbeing is going to be achieved in different ways by different people, and in connecting wellbeing to the workplace through employee engagement, it is important to acknowledge the individual needs of employees in the workplace to maximize performance and employee value.

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APPENDIX A: INSTRUMENT

Gallup Q12 Employee Engagement

Thank you for participating in this research study! In this first section, there are 12 questions that pertain to your work environment. Please read each question carefully, then respond to each question by indicating the extent to which you agree or disagree with the idea being described.

Questions	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1. Do you know what is expected of you at work?	○	○	○	○	○
2. Do you have the materials and equipment to do your work right?	○	○	○	○	○
3. At work, do you have the opportunity to do what you do best every day?	○	○	○	○	○
4. In the last seven days, have you received recognition or praise for doing good work?	○	○	○	○	○
5. Does your supervisor, or someone at work, seem to care about you as a person?	○	○	○	○	○
6. Is there someone at work who encourages your development?	○	○	○	○	○
7. At work, do your opinions seem to count?	○	○	○	○	○
8. Does the mission/purpose of your company make you feel your job is important?	○	○	○	○	○
9. Are your associates (fellow employees) committed to doing quality work?	○	○	○	○	○
10. Do you have a best friend at work?	○	○	○	○	○
11. In the last six months, has someone at work talked to you about your progress?	○	○	○	○	○
12. In the last year, have you had opportunities to learn and grow?	○	○	○	○	○

Maslach Burnout Inventory (MBI)

In the next section, there are 22 statements regarding your emotional experience in the work environment. Please read each statement carefully, then respond to each by indicating roughly how frequently you experienced the idea or situation being described.

Statement	Never	A few times per year	Once a month	A few times per month	Once a week	A few times per week	Every day
1. I feel emotionally drained by my work.	◯	◯	◯	◯	◯	◯	◯
2. Working with people all day long requires a great deal of effort.	◯	◯	◯	◯	◯	◯	◯
3. I feel like my work is breaking me down.	◯	◯	◯	◯	◯	◯	◯
4. I feel frustrated by my work.	◯	◯	◯	◯	◯	◯	◯
5. I feel I work too hard at my job.	◯	◯	◯	◯	◯	◯	◯
6. It stresses me too much to work in direct contact with people.	◯	◯	◯	◯	◯	◯	◯
7. I feel like I'm at the end of my rope.	◯	◯	◯	◯	◯	◯	◯
8. I feel I look after certain co-workers impersonally, as if they are objects.	◯	◯	◯	◯	◯	◯	◯
9. I feel tired when I get up in the morning and have to face another day at work.	◯	◯	◯	◯	◯	◯	◯
10. I have the impression that my co-workers make me responsible for some of their problems.	◯	◯	◯	◯	◯	◯	◯
11. I am at the end of my patience at the end of my workday.	◯	◯	◯	◯	◯	◯	◯
12. I really don't care about what happens to some of my co-workers.	◯	◯	◯	◯	◯	◯	◯
13. I have become more insensitive to people since I've been working.	◯	◯	◯	◯	◯	◯	◯
14. I'm afraid that this job is making me uncaring.	◯	◯	◯	◯	◯	◯	◯
15. I accomplish many worthwhile things in this job.	◯	◯	◯	◯	◯	◯	◯
16. I feel full of energy.	◯	◯	◯	◯	◯	◯	◯
17. I am easily able to understand what my co-workers feel.	◯	◯	◯	◯	◯	◯	◯
18. I look after my co-workers' problems very effectively.	◯	◯	◯	◯	◯	◯	◯
19. In my work, I handle emotional problems very calmly.	◯	◯	◯	◯	◯	◯	◯
20. Through my work, I feel that I have a positive influence on people.	◯	◯	◯	◯	◯	◯	◯
21. I am easily able to create a relaxed atmosphere with my co-workers.	◯	◯	◯	◯	◯	◯	◯
22. I feel refreshed when I have been close to my co-workers at work.	◯	◯	◯	◯	◯	◯	◯

General Anxiety Disorder-7 Scale (GAD-7)

This section contains 7 general emotional experiences. Indicate how frequently you experience each of these.

Statement	Not at all	Several days	Over half the days	Nearly every day
1. Feeling nervous, anxious, or on edge	○	○	○	○
2. Not being able to stop or control worrying	○	○	○	○
3. Worrying too much about different things	○	○	○	○
4. Trouble relaxing	○	○	○	○
5. Being so restless that it's hard to sit still	○	○	○	○
6. Becoming easily annoyed or irritable	○	○	○	○
7. Feeling afraid as if something awful might happen	○	○	○	○

If you checked off any problems, how difficult have these made it for you to do your work, take care of things at home, or get along with other people?

○ Not difficult at all

○ Somewhat difficult

○ Very difficult

○ Extremely difficult

International Physical Activity Questionnaire (IPAQ)

This is the final portion of the questionnaire. Here, you will be asked a few short questions about your typical amount of physical activity from the past 7 days.

Think about all the vigorous activities that you did in the last 7 days. Vigorous physical activities refer to activities that take hard physical effort and make you breathe much harder than normal. Think only about those physical activities that you did for at least 10 minutes at a time.

1. During the last 7 days, on how many days did you do vigorous physical activities like heavy lifting, digging, aerobics, or fast bicycling?

    _____ days per week

    [ ] No vigorous physical activities   → *If selected, skip to question 3*

2. How much time did you usually spend doing vigorous physical activities on one of those days?

    _____ hours per day

    _____ minutes per day

    [ ] Don't know/Not sure

Think about all the moderate activities that you did in the last 7 days. Moderate activities refer to activities that take moderate physical effort and make you breathe somewhat harder than normal. Think only about those physical activities that you did for at least 10 minutes at a time.

3. During the last 7 days, on how many days did you do moderate physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? Do not include walking.

    _____ days per week

    [ ] No moderate physical activities   → *If selected, skip to question 5*

50

4. How much time did you usually spend doing moderate physical activities on one of those days?

_____ hours per day

_____ minutes per day

[ ] Don't know/Not sure

Think about the time you spent walking in the last 7 days. This includes at work and at home, walking to travel from place to place, and any other walking that you have done solely for recreation, sport, exercise, or leisure.

5. During the last 7 days, on how many days did you walk for at least 10 minutes at a time?

_____ days per week

[ ] No walking   *→ If selected, skip to question 7*

6. How much time did you usually spend walking on one of those days?

_____ hours per day

_____ minutes per day

[ ] Don't know/Not sure

The last question is about the time you spent sitting on weekdays during the last 7 days. Include time spent at work, at home, while doing course work and during leisure time. This may include time spent sitting at a desk, visiting friends, reading, or sitting or lying down to watch television.

7. During the last 7 days, how much time did you spend sitting on a weekday?

_____ hours per day

_____ minutes per day

[ ] Don't know/Not sure

APPENDIX B: DETAILED RESULTS

Table B1

Item-Level Results for the Gallup Q12

Item	*n*	*M*	*Mdn.*	*SD*	*Min*	*Max*	Response frequencies						Total
							1	2	3	4	5	NR	
#1	68	4.47	5.00	0.74	1	5	1	1	1	27	38	1	69
#2	68	4.35	4.00	0.77	1	5	1	1	3	31	32	1	69
#3	68	4.09	4.00	0.89	2	5	0	6	6	32	24	1	69
#4	68	3.79	4.00	1.19	1	5	3	10	8	24	23	1	69
#5	68	4.59	5.00	0.63	3	5	0	0	5	18	45	1	69
#6	68	4.04	4.00	0.85	2	5	0	5	8	34	21	1	69
#7	68	4.00	4.00	0.88	1	5	2	3	5	41	17	1	69
#8	68	4.24	4.00	0.74	2	5	0	2	6	34	26	1	69
#9	68	4.35	4.00	0.66	3	5	0	0	7	30	31	1	69
#10	68	3.25	3.00	1.03	1	5	1	14	32	9	12	1	69
#11	68	4.01	4.00	0.97	1	5	1	6	7	31	23	1	69
#12	68	4.06	4.00	0.88	1	5	1	4	6	36	21	1	69

Table B2

Item-Level Results for the MBI

Dim.	Item	*n*	*M*	*Mdn.*	*SD*	*Min*	*Max*	Response frequencies								Total
								0	1	2	3	4	5	6	NR	
EE	#1	66	2.82	3.00	1.70	0	6	5	14	9	16	6	14	2	3	69
	#2	66	2.65	3.00	1.84	0	6	8	16	8	12	6	13	3	3	69
	#3	66	1.58	1.00	1.68	0	6	21	21	7	7	4	4	2	3	69
	#4	66	2.03	1.00	1.57	0	6	6	28	12	8	3	8	1	3	69
	#5	66	1.89	1.00	1.65	0	6	14	20	12	6	9	3	2	3	69
	#6	66	0.77	0.00	1.08	0	4	37	16	5	7	1	0	0	3	69
	#7	66	0.80	0.00	1.17	0	5	36	18	5	4	2	1	0	3	69
	#8	66	1.91	1.00	1.64	0	5	52	7	1	3	3	0	0	3	69
	#9	66	1.26	1.00	1.26	0	5	12	23	12	7	2	10	0	3	69
DP	#1	66	0.45	0.00	1.06	0	4	34	17	4	7	2	2	0	3	69
	#2	66	0.97	0.00	1.34	0	5	20	27	7	7	4	1	0	3	69
	#3	66	0.32	0.00	0.83	0	5	53	9	2	1	0	1	0	3	69
	#4	66	0.85	0.00	1.36	0	6	37	18	3	4	1	2	1	3	69
	#5	66	0.62	0.00	1.13	0	5	44	14	0	6	1	1	0	3	69
PA	#1	66	5.09	5.00	1.20	1	6	0	1	3	3	7	20	32	3	69
	#2	66	4.39	5.00	1.26	0	6	1	0	5	11	6	35	8	3	69
	#3	66	4.91	5.00	1.08	1	6	0	1	2	4	7	33	19	3	69
	#4	65	4.18	5.00	1.57	0	6	2	5	2	7	14	24	11	4	69
	#5	66	5.03	5.00	1.35	0	6	1	2	1	3	8	19	32	3	69
	#6	66	5.18	5.00	1.09	1	6	0	2	0	3	5	25	31	3	69
	#7	66	5.09	5.00	1.22	1	6	0	1	3	5	3	22	32	3	69
	#8	66	4.48	5.00	1.46	0	6	1	3	3	7	11	24	17	3	69

Note. EE = emotional exhaustion, DP = depersonalization, PA = personal accomplishment.

Table B3

Item-Level Results for the GAD-7

Item	*n*	*M*	*Mdn.*	*SD*	*Min*	*Max*	0	1	2	3	NR	Total
							Response frequencies	
#1	65	0.80	1.00	0.77	0	3	25	30	8	2	4	69
#2	65	0.54	0.00	0.66	0	2	36	23	6	0	4	69
#3	65	0.66	1.00	0.62	0	2	27	33	5	0	4	69
#4	65	0.80	1.00	0.77	0	3	25	30	8	2	4	69
#5	65	0.46	0.00	0.69	0	3	41	19	4	1	4	69
#6	65	0.65	1.00	0.72	0	3	30	30	3	2	4	69
#7	65	0.35	0.00	0.60	0	3	45	18	1	1	4	69
#8	54	0.59	0.00	0.74	0	3	28	22	2	2	15	69

Table B4

Detailed Results from the IPAQ: Types of Physical Activity in the Past Seven Days

Activity type	Yes		No	
	Freq.	%	Freq.	%
Vigorous	25	39.06%	39	60.94%
Moderate	38	59.38%	26	40.63%
Walking	56	87.50%	8	12.50%

Note. Five item nonresponses.

APPENDIX C: IRB APPROVAL

NDSU NORTH DAKOTA
STATE UNIVERSITY

March 16, 2020

Dr. Brent Hill
School of Education

Re: IRB Determination of Exempt Human Subjects Research:
Protocol #HE20180, "Predictors of Employee Engagement in Institutions of Higher Education"

Co-investigator(s) and research team: Jessica O'Day
Date of Exempt Determination: 3/16/2020   Expiration Date: 3/15/2023
Study site(s): NDSU   Sponsor: n/a

The above referenced human subjects research project has been determined exempt (category #2(i) in accordance with federal regulations (Code of Federal Regulations, Title 45, Part 46, *Protection of Human Subjects*). This determination is based on the revised protocol submission (received 2/26/2020).

Please also note the following:
- If you wish to continue the research after the expiration, submit a request for recertification several weeks prior to the expiration.
- The study must be conducted as described in the approved protocol. Changes to this protocol must be approved prior to initiating, unless the changes are necessary to eliminate an immediate hazard to subjects.
- Notify the IRB promptly of any adverse events, complaints, or unanticipated problems involving risks to subjects or others related to this project.
- Report any significant new findings that may affect the risks and benefits to the participants and the IRB.

Research records may be subject to a random or directed audit at any time to verify compliance with IRB standard operating procedures.

Thank you for your cooperation with NDSU IRB procedures. Best wishes for a successful study.
Sincerely,

Kristy Shirley

Kristy Shirley, CIP, Research Compliance Administrator

For more information regarding IRB Office submissions and guidelines, please consult https://www.ndsu.edu/research/for_researchers/research_integrity_and_compliance/institutional_review_board_irb/. This Institution has an approved FederalWide Assurance with the Department of Health and Human Services: FWA00002439.