WORK ENGAGEMENT AND PHYSICAL HEALTH OF EMPLOYEES IN A SOUTH AFRICAN ORGANISATION

by

Gabriella Jaclyn Jacobs

Student Number: 1250740

Master of Arts in Organisational Psychology
in the
Faculty of Humanities

at the

University of the Witwatersrand

Supervisor: Karen Milner

A research report which is submitted in partial fulfillment of the requirements for the degree of Masters of Arts by Coursework and Research Report in the field of Organisational Psychology in the Faculty of Humanities, University of the Witwatersrand, Johannesburg on the 17 February 2020.

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to certain individuals that contributed towards allowing me to complete my dissertation. Without the continuous support and encouragement of these particular individuals I would have not managed to complete my thesis.

First and foremost, I would like to express my sincere gratitude to my supervisor Mrs. Karen Milner, for her continuous support, encouragement and guidance. Karen, thank you for being my mentor over this past year. I sincerely look up to you as a professional in the field of Industrial Psychology. You have motivated me to continue on my path to become a professional Industrial Psychologist in the near future.

Dr. Colleen Bernstein, I owe a big thank you to you. Without your genuine concern and support throughout the year, I would have not been able to complete my Master's Degree. You pride yourself on professionalism and exude a passion and zest for your career and the entire field of Industrial Psychology. Thank you very much.

My deepest and most sincere gratitude and thanks is extended to my incredible support system, my parents, my sister, extended family and friends. Thank you for standing by me over the past 5 years and for constantly believing in me always, being there to pull me through in times of difficultly, being my shoulder to cry on, and for always reminding me that I am able to accomplish anything that I set my mind to. Thank you all for your continuous wise words of support, encouragement and guidance. I love you all unconditionally. I would further like to extend the deepest thanks to my special friend and colleague, Genevieve Levin. I can honestly say that I could not have made it through the last five years, and especially this last year without you by my side. You have provided me with so much perspective on life and have always been at the finish line encouraging me and cheering me on to push through and win. Thank you for believing in me even when I didn't believe in myself. I will forever treasure the friendship that we share and the times we have shared.

Finally, I would like to express my eternal thankfulness to my G-d who helped me get through the toughest times and has continued to bless and guide me on this chosen path towards becoming a professional and qualified Industrial Psychologist.

ABSTRACT

Work engagement is defined as "a positive, fulfilling, work related state of mind that is characterized by vigour, dedication, and absorption" (Schaufeli & Bakker, 2010; Schaufeli,

Salanova, González-Romá, & Bakker, 2002). It is therefore critical for organisations to pay careful attention to the effect that engagement can have on employee's health to ensure the highest level of work engagement, productivity and performance within the organisation. Previous studies have shown that very little research has been conducted in the South African context to examine if there is a relationship between work engagement and physical health. The overall purpose of this study is to determine the relationship between work engagement and physical health. The Utrecht Work Engagement Scale (UWES) , South African National Health and Nutrition Examination Survey (SANHANES-1) as well as a single self-reported health item were administered to a sample (N = 132) of South African employees in various different divisions and positions within an insurance organisation in Johannesburg. It was found that there is a relationship between work engagement between work engagement and physical health, but work engagement and its components, vigour, dedication and absorption do not predict one's diet, smoking habits or self-reported health.

Keywords: Work Engagement, Physical Health, Vigour, Dedication, Absorption, , Utrecht Work Engagement Scale (UWES), The South African National Health and Nutrition Examination Survey (SANHANES-1)

TABLE OF CONTENTS **Page**

LIST OF TABLES

Description **Page**

LIST OF FIGURES:

Description **Page**

Chapter 1: Literature Review

1.1 Introduction

The wellbeing and health of employees is becoming an increasingly key area of interest in the modern world of work. Those employees who are in good physical as well as mental health have been shown to be more engaged and motivated in their jobs. This positively contributes to the bottom line of the organisation, which is to increase performance, productivity and maximize profits. Businesses have attempted to improve the well-being of their employees in a variety of ways, from making fruit and vegetables

available for their staff to developing gyms in the office building. Another area of interest, is that of work engagement. This concept has been seen as being a vital driver of effective performance in the work environment in the 21st century. While work engagement and physical health may appear to have little to do with each other, the literature review presented below will show that employee health can be a vital element to consider in work engagement. This is because when one is engaged in his or her work, their energy is not depleted which may suggest that this energy can be carried over into other areas of his or her life.

In the following literature review I will argue that studies examining the relationship between work engagement and physical health is lacking and that more research is needed.

1.2 Literature review

The literature review, presented below, will offer a summary of literature related to work engagement and physical well-being. This will be done by identifying the working definitions for the concepts; work engagement, health behaviours, physical health, physical activity, diet, smoking. A theoretical framework, the Conservation of Resources Theory will also be discussed. This literature review will also offer an outline of both previous and current research literature regarding the topic under study.

1.3 Work engagement

Work engagement has been described by numerous different theorists. Maslach and Leiter (1997) state that work engagement is "characterized by energy, involvement and efficacy". These characteristics can thus be viewed as being the other extremes of the features of burnout, which are "exhaustion, cynicism and ineffectiveness". Because engaged employees enjoy their work, they do not deplete the energy that is expended while completing their work tasks. Thus, work engagement and its associated energy can be seen as being a vital resource.

Work Engagement was described by, Schaufeli, Salanova, González-Romá and Bakker (2002) as " a positive, fulfilling, work related state of mind that is characterized by vigour, dedication, and absorption".

- Vigour describes an individuals heightened energy levels as well as improved cognitive ability whilst completing work tasks, and one's readiness to fully

dedicate effort into achieving work goals, and persist even if presented with challenges or hardships (Schaufeli, et al, 2002).

- Dedication is one's deep commitment and interest in his or her work as it is viewed as being extremely important. These individuals also feel enthusiastic, inspired, proud, and challenged with regards to their work (Schaufeli, et al, 2002).

- Finally, when an employee is absorbed in their work, they are completely and contently immersed in work, and feel as though time goes by rapidly and finds it challenging to disconnect from one's work (Schaufeli, et al 2002).

Kahn (1990) theorized work engagement differently, by describing it as the complete connection of an employee to their work and their job-role. He therefore suggests that those engaged in their tasks at work, place a significant amount of energy into the work that they do. This is as a result of their ability to identify with and relate to their work. According to Kahn (1990) there is a link between the employee that puts their physical, cognitive, and emotional strengths into work tasks and the work which allows the individual to convey one's true self. Kahn (1992) further explained that engaged employees show increased amounts of attention, connection to and focus in their work as well as in their performance. This Engagement has positive results, both at the individual level, such as personal development for the employee themselves as well as at the organisational level, with regards to increased performance and productivity.

Further, Rothbard (2001), viewed work engagement as a construct which is motivational in nature which includes attention, one's cognitive ability as well as the extent that one spends thinking about their work, and absorption, which is how intensely one focuses on their work. There is a shared view held by all of these theorists, that work engagement consists of both an energy component and an identification component, thus characterizing it as encompassing high energy levels as well as a identifying with one's work.

For the purposes of this research, Schaufeli, et al (2002) conceptualisation of work engagement will be utilised. This is because, their definition highlights the concept of vigour,

which is the energy resource which is used to work, and which also is hypothesised to extend into other areas of the engaged employees life.

Work engagement is a key area of study (Schaufeli & Bakker, 2004; Sonnetag, 2011). This is because work engagement is a multifaceted idea which affects numerous actors within the organisation as well as the organisation itself. These positive organisational outcomes have been widely reported and include, increased performance, productivity, effectiveness, employee and customer satisfaction, as well as decreased turnover (Harter, Schmidt, Killan & Agrawal, 2009; Schaufeli., et al, 2013). As opposed to those employees that suffer from burnout, engaged employees have increased energy levels (vigour) as well as a meaningful connection with their work. They also see their work as being stimulating, rather than as taxing or demanding.

It is possible to view work engagement as a part of oneself, where individuals are able to express their authentic selves and simultaneously connect to both their work and others (Rothmann & Rothmann, 2010). Engaged employees are pro-active, committed to keeping up an excellent standard of performance and take ownership for their own work and development. They also tend to view their working conditions and environment in a positive light, are more productive, and have fewer days off owing to illness (Harter, Schmidt & Hayes, 2002).

Employees who are very engaged at work, are increasingly passionate about what they do, excited as well as optimistic (Schaufeli & Van Rhenen, 2006). Engaged workers identify and have a strong relationship with the work that they do (Bakker & Demerouti, 2008). At the organisational level, work engagement can be seen as an indicator of employees fulfillment in their job as well as within the organisation, level of performance, productivity and commitment (Bakker et al., 2008., Richmond, 2006). Outside of work, it has been found that engaged employees demonstrate better social functioning, enhanced health and are more content within their lives (Schaufeli., et al, 2008; Hakanen & Schaufeli, 2012; Shimazu, et al, 2012).

Being completely engaged in work is not like being a workaholic. Workaholics devote a large amount of time to completing their tasks at work and they are disproportionately hard workers. They aren't willing to detach from their tasks and relentlessly think about their work, even if are not on the job. Therefore, workaholics can be seen as being infatuated with their work and thus work incessantly (Schaufeli, Taris, &

Bakker, 2006; Scott, Moore, & Miceli, 1997). Engaged employees are also hard workers, immersed and committed to the work that they do, and feel cheerfully captivated in their work. Workaholics and engaged employees may therefore appear to possess similar characteristics to each other, however, engaged workers do not work compulsively. Rather, they view their work as being fun and not as an addiction. This was a conclusion drawn from a study looking at 15 engaged workers (Schaufeli, Taris, Le Blanc, Peeters, Bakker, & De Jonge, 2001). It was found that engaged employees work hard as they intrinsically like their work, rather than being driven by a intense compulsion to work that they cant avoid. The compulsion to work possessed by workaholics can be so intense that it may result in health problems, decreases in positive emotions, and a decline in their relationships with others and even problems associated with their social functioning (Bakker, Demerouti, 2008).

The enhanced performance of engaged employees is linked to their good health. Research posits that work engagement is positively associated with individuals health, meaning that they are in turn able to perform better at work. It has been shown by Schaufeli et al. (2001) that employees engaged in their work do not report as many psychosomatic complaints as those employees with low work engagement. Similarly, research conducted by Demerouti, Bakker, Nachreiner, & Schaufeli, (2001), observed a modest negative relationship between work engagement, specifically the vigour component, and complaints of poor health, such as headaches and chest pain. Schaufeli and Bakker (2004) also found that these workers who are engaged at work appear to not suffer as much from self-reported health problems, like, headaches, stomach aches or cardiovascular issues. Furthermore, Hakanen, Bakker, & Schaufeli, (2006), showed that that work engagement is strongly associated with self-reported health and workability in a study conducted with Finnish teachers.

1.4 The Conservation of Resources Theory

Bakker and Demerouti (2008) have considered both job and personal resources as being significant aspects which are related to work engagement. Thus, the majority of research on work engagement has made use of either the Job Demands and Resources model (Demerouti, Bakker, Nachreiner & Schaufeli, 2001; Hakanen *et al.,* 2008), or the Conservation of Resources theory (Hobfoll, 1989) in order to explore how both job and personal resources relate to work engagement.

There are various resources that influence work engagement. The two primary resources are job and personal resources. Previously, it has been seen that job resources, such as having social support at work, getting feedback on performance, a large skill set, being autonomous, and access to learning opportunities are strongly related to work engagement (Bakker and Demerouti, 2008; Schaufeli and Salanova, 2007). Job resources are the social, physical or organisational features of a job which have the potential to lessen one's job demands, together with both the physical and psychological costs which come hand in hand with such demands. Job resources allow one to be efficient in reaching their work goals; and are also those that promote one's knowledge and development (Bakker and Demerouti, 2008; Schaufeli and Bakker, 2004).

Job resources can either intrinsically motivate employees owing to the fact that they foster his or her development or learning, or they can be extrinsically motivating by contributing towards achieving one's work goals. As an intrinsic motivator, job resources are seen as satisfying one's basic needs, such as the need to be autonomous, understanding and competent (Deci and Ryan, 1985; Ryan and Frederick, 1997). Extrinsically, job resources exist as a capable workplace that is able to encourage one's readiness to dedicate one's efforts into completing his or her work (Meijman and Mulder, 1998). In these kinds of settings, it's assumed that one's work will be finished effectively and the employee will reach his or her goal. Either intrinsically or extrinsically, the result will be positive and the individual is likely to be engaged in his or her work (Schaufeli and Bakker, 2004; Schaufeli and Salanova, 2007).

Personal resources are associated with one's ability to be resilient and one's positive power and influence over their environment (Hobfoll., Halbesleben, Neveu., & Westman, 2018). The more personal resources one has, the more positive one's self-esteem is likely to be and the more likely ones goals and self-regard will be matched (goal self-accordance) (Judge et al., 2005). Such individuals are intrinsically motivated to accomplish their tasks and as a result experience increased performance and are more satisfied in their work (Luthans and Youssef, 2007). Engaged workers possess personal resources, such as, positivity, pride and are resilient which aids them in remaining engaged in their work (Luthans et al., 2008).

COR (Hobfoll, 2018) is a appropriate theory for comprehending the impact that job and personal resources have on employees. COR can be seen as an effective theory to underpin this study. The theory is based on the principle that "individuals strive to obtain, retain, foster and protect those things they centrally value" (Hobfoll., et al, 2018). It is based

on four core principles. The first is “the primacy of loss principle”. According to this, losing resources is much more significant than gaining resources (Hobfoll., et al, 2018). such loss, is not only greater in magnitude but it also affects individuals at a greater speed compared to when they gain resources (Hobfoll., et al, 2018). “The resource investment principle” is the second principle, that explains that individuals need to capitalize on their resources to keep from losing resources, recuperate from resource loss, and gain additional resources (Hobfoll., et al, 2018). Thirdly, “the gain paradox principle” suggests that when potential experiences of resource losses increases, gains in resources become even more significant (Hobfoll., et al, 2018). The fourth principle is “the desperation principle” (Hobfoll., et al, 2018). When one’s resources are exhausted, he or she enters into a “defensive mode” so as to not experience further losses (Hobfoll., et al, 2018).

The theory also puts forward three corollaries (Hobfoll., et al, 2018). The first , claims that those that possess a greater number of resources are not as likely to lose resources and are more skilled in gaining additional resources (Hobfoll., et al, 2018). Conversely, those lacking in resources are increasingly at risk to losing resources and are less able to gain resources (Hobfoll., et al, 2018). The second corollary describes resource loss cycles (Hobfoll., et al, 2018). Losing one’s resources is more prominent than gaining resources and thus when one experiences a loss of resources, he or she has less resources to counteract the loss and thus one loss results in an increase of further losses (Hobfoll., et al, 2018). Thirdly, resource gain spirals occur when an initial gain in resources begets future gain (Hobfoll., et al, 2018).

Work engagement and more specifically, vigour, can be seen as an extremely valuable resource. The energy that is exhibited by engaged employees may result in an increase of vigour and consequently increases the likelihood that this energy will extend into other areas of the engaged employee’s life (Hobfoll., et al, 2018). One of the areas of the engaged employees life in which this energy can spill over, is into their experience with healthy behaviours. This is because unlike burnt out employees, engaged employees do not feel physically fatigued from their work or feel as though they have used up all of their energy whilst working (Maslach & Leiter, 1997). The gain in this resource may cause a gain spiral (Hobfoll., et al, 2018). This is because gaining resources expands one’s resource pool, making it more probable that further resources will be obtained.

Research has found that individuals who feel engaged owing to resources present in the workplace are likely to express this same engagement in other areas outside of the workplace (Hobfoll., et al, 2018). Thus, previous research has found that resource spirals are able to result in positive outcomes for individuals, including, improved health, well-being and life satisfaction (Hakanen & Schaufeli, 2012; ; Shzimazu & Schaufeli, 2009).

1.5 Previous Research on Work Engagement

Previous research addressing work engagement has examined the concept in relation to many other factors. Work engagement has been associated with meaning and commitment to the organisation (Geldenhuys, Laba & Venter, 2014). Geldenhuys, Laba and Venter (2014) found that there is "a positive relationship between psychological meaningfulness, work engagement and organisational commitment. Further, psychological meaningfulness predicts work engagement, whilst psychological meaningfulness and work engagement predict organisational commitment." It was found in this study that seeing as though individuals devote the majority of their lives to working (Meyers, 2007; Van Zyl, Deacon & Rothmann, 2010), their workplace is where they perform work which is goal orientated, and attempt to find and add meaning to their life (Cameron, Dutton & Quinn, 2003). There is evidence that the monetary aspect associated with work is becoming less vital as a sole driver of performance, as money can be seen as adding little to one's perceived well-being (Seligman, 2002). Individuals define themselves as well as be defined socially by the work that they do (Casey, 1995). Thus, understanding the meaning which people attach to their work has become a focus for organisations which value human success and wish to add to the greater good (Wrzesniewski, 2003).

Positive work results, such as work engagement and organisational commitment, have been found to have long-term advantages for organisations as a whole, that try to implement interventions that promote meaningfulness at work. Employee's degree of engagement is influenced by various factors, including, having large skill sets, identifying with their tasks and significance, being able to be autonomous and get feedback relating to their performance (Saks, 2006). One's work tasks appear to be directly linked to meaning (Kahn, 1990). When individuals find meaning in the work that they do, there will consequently be an increase in the overall performance and productivity of the organisation (Neck & Milliman, 1994), top talent will be retained, effective change management, as well

as employees that are committed to and engaged in their work (Holbeche & Springett, 2004; Milliman, Czaplewski & Ferguson, 2003).

This research study highlights the importance of work engagement as a driver of organisational success and explores its relationship with emotional constructs such as commitment and meaning. However, this study does not discuss or explore the physical health aspects associated with work engagement.

Other work engagement research has related to the antecedents and consequences of engagement. Saks (2006) found that there are two different kinds of work engagement, namely, job and organisational engagement. These can be seen as being linked but distinct. Saks, (2006) stated that the connections between both kinds of engagement, as well as their antecedents and consequences were different in numerous ways. This research adds a new understanding into work engagement, as it highlights a distinction between job and organisational engagement and puts forward ways of measuring various antecedents and consequences of these two different types of work engagement. Research in the past, has been found to predominantly look at work engagement on the individual level. The current research study will explore the relationship between individual job engagement and physical health.

There seems to be a general agreement that the effects of work engagement are very positive (Saks 2006). It can be seen that a relationship exists between work engagement and organisational results. This was the conclusion drawn by a Harter *et al* (2002), who found that, employee's happiness and level of work engagement are linked to significant business effects which are vital to the organisation. However, work engagement is also seen as being an individual-level concept and thus, if it doesn't result in organisational outcomes, it must be relooked at in order to influence individual employee outcomes first. Thus, work engagement is connected to employee's attitudes, objectives, and actions. Kahn (1990) put forward that increased work engagement will result in both positive outcomes for workers, with regards to the effectiveness of their work , together with employee's positive feelings when their work is completed, and positive outcomes for the organisation, including , the development productivity and performance of the organisation.

Data gathered from interviews conducted with Dutch employees that occupied different jobs and who obtained high scores on the Utrecht Work Engagement Scale (Schaufeli et al., 2002), indicated that workers who are engaged in their work have higher

energy levels as well as self-efficacy. This enables them to have control over situations which may have impact upon their lives. For instance, engaged employees are able to produce their own feedback which is positive, with regards to acknowledgement, and achievement. Another finding from this study was that, engaged employees are more excited about things and their energy is seen as being able to reach beyond just their work, and can be seen in their sports, hobbies, and other parts of their lives. While engaged employees are often worn out after a day of hard work, their experience of feeling tired is a pleasant one, as it is related to positive achievements as a result of their work engagement.

Work engagement has been studied at numerous job levels and in various kinds of jobs. However, the research has principally been aligned with the benefits of work engagement for the organisation as a whole, rather than looking at the benefits work engagement has on the individual. For instance, it has been widely reported that those employee's working in organisations where the majority of workers experience increased work engagement, have lower levels of stress related to their job (Harter., et al, 2002). Another study concluded that there is a positive link between organisational work engagement and reduced turnover rates within the organisation as well as increased profitability (Harter., et al, 2002).

Burton, Chen, Li and Schultz (2012), tested the relationship between work engagement, health risks and productivity. Employees working in a financial services organisation took part in a health risk appraisal that measured work engagement, employee's health risks and levels of presenteeism. In this appraisal, employees were asked three questions related to work engagement. This level of engagement was then compared to levels of presenteeism within the organisation, self-reported illness days and health risk factors iso that the relationships between these variables could be established. The employees who were the most engaged at work had the least amount of health risk factors as well as presenteeism compared to employees who had mid and worst levels of work engagement. This is because those employees working in organisations with high engagement levels report that they experience less job-related stress and consequently are in healthier, and are thus able to be present at work and more productive.

The results of this research thus showed that there is a connection between work engagement, health risks and presenteeism. Therefore work engagement is advantageous for not only the organisation, but for the employee as well. While this study does show that engaged employees appear to be in better health, it does not examine the relationship between

work engagement and health behaviours, such as diet, exercise and smoking as will be done in this study.

In keeping with the aims of this study, in 2014, research was conducted with a sample consisting of 726 female in Finland (Veromaa., Kautiainen., & Korhonen, 2014). Work engagement was assessed using the 9-item Utrecht Work Engagement Scale (Veromaa., Kautiainen., & Korhonen, 2014). The study utilized the American Heart Association's model for optimum cardiovascular health (CVH) in order to measure physical health. The construct of physical health was made up of whether one smokes, his or her BMI, level of physical activity, consumption of a healthy diet, total cholesterol and glucose blood levels and blood pressure. Psychosocial risk factors, including seclusion, stress levels, and signs of depression, anxiety, aggression and personality types, were built-in in the appraisal as part of the core questions asked (Veromaa., Kautiainen., & Korhonen, 2014).

Of the sample in the study, 25.2% were found to have had a favourable 5–7 CVH measure. This means that these individuals were found to have acceptable levels of cardiovascular health. Both physical as well as mental health factors were found to positively relate to work engagement. Yet, the existence of just one psychosocial risk factor was found to negatively relate to work engagement levels, despite one's cardiovascular risk factor level (Veromaa., Kautiainen., & Korhonen, 2014).

The study further suggests that owing to advancements in technology, the nature of work in countries which are more developed, has become less physically demanding but more mentally as well as emotionally demanding, as the speed at which work is done and work stress levels have increased (Veromaa., Kautiainen., & Korhonen, 2014). The changes in work may result in poor health, including poor mental health and weight gain (Veromaa., Kautiainen., & Korhonen, 2014). While it can be seen work engagement is linked to increased physical health, it is unclear which lifestyle-related efforts are responsible for increasing employees work engagement (Veromaa., Kautiainen., & Korhonen, 2014). It was seen in this study, that increasing exercise and one's fruit consumption did not increase work engagement in a workplace health intervention (Veromaa., Kautiainen., & Korhonen, 2014). It was also seen that because of the association found between sleep quality and work engagement, that there is a strong health component to work engagement (Veromaa., Kautiainen., & Korhonen, 2014).

While the study does establish a connection between physical health and work engagement, it does not do so in isolation from a psychological aspect. The current research intends to look at the connection between work engagement and physical health alone. This study was also conducted in Finland which is a developed country and only looks at Finnish women.

There have been numerous studies surrounding the topic of work engagement but none have determined the possible relationship between work engagement and physical health alone, nor in a developing country such as South Africa. These studies have highlighted the significance of work engagement at both the individual level as well as at the organisational level and shown that there is a link between work engagement and physical health, but further research can still needs to be done.

Having established that work engagement is a vital concept to consider, the concept of health behaviours (IV) will now be discussed.

1.6 Health behaviours

One's health behaviours refer to ones beliefs and actions regarding one's health (Glanz., Lewis., & Rimer, 1997). For instance, in order to maintain a healthy lifestyle, individuals may refrain from making use of harmful substances such as smoking, drinking excessively or taking drugs. Good health behaviour also includes exercising regularly and eating a healthy, balanced diet (Kasl., & Cobb, 1996). Many health behaviours can be seen as being lifestyle choices which aid in enhancing ones quality of life as well as in preventing chronic and other diseases (Kasl., & Cobb, 1996). One's health behaviours can be something that is only done once, such as getting an immunisation, or it can be something that is done over a long time, such as making good health choices (Glanz., Lewis., & Rimer, 1997). However, most individuals do not practice health behaviours with complete consistency all the time. For example, one may exercise regularly but smoke heavily. Ideally, one should practice a variety of health behaviours in order to maintain good health (Glanz., Lewis., & Rimer, 1997).

Several studies indicate that unhealthy behaviours affect sustainable employability. In research, sustainable employability is often operationalized by measuring health status, work ability (Nishi., Suzuki., Nishida., Mishima., & Yamanouchi, 2017). These studies

revealed that obese employees, those who do not partake in physical activity, and smokers are at increased risk of ill health, poor or moderate work ability, and sickness absence (Nishi., Suzuki., Nishida., Mishima., & Yamanouchi, 2017).

As mentioned above, the health behaviours which will be discussed in this study are, physical activity, diet and nutrition, smoking. This is because typically, when an individual is physically active, eats and maintains a healthy diet, and refrains from smoking, they report having good physical health.

1.6.1 Physical activity

Physical activity as defined by the World Health Organisation (2018) is any form of bodily movement involving the skeletal muscles of the body and that requires one to use energy. Exercise is regarded as being a subgroup of physical activity. This exercise is planned, organized and repetitive and is also linked to one's physical fitness (WHO, 2018). Both moderate and high intensity forms of exercise have been found to have health benefits and improve one's health (WHO, 2018). Moderate-intensity activities are strenuous enough to allow one to burn off approximately 3 to 6 times the amount of energy per minute that one would burn when sitting (WHO, 2018). Vigorous physical activities include those activities which allow one to burn off more than 6 times as much energy compared to the amount burned when one is resting (WHO, 2018).

It has been found that engaging in regular exercise at the right levels can a) enhance muscular and cardio fitness, b) improve bone function and health, c) lower ones risk of hypertension, cardiovascular problems, diabetes, depression and various types of cancer, d) decrease the danger of falls or fractures and e) aid in balancing ones energy and weight control. Physical inactivity has been found to be one of the primary risk factors for death all over the world. Those who do not do any physical activity appear to have between a 20% - 30% increased risk of dying in comparison to those who do some form of physical activity (WHO, 2018).

It is recommended that adults between the ages of eighteen to sixty-four should be doing at least 150 minutes of moderately intense physical activity, or approximately 75 minutes of high intensity physical activity, or a combination of the two throughout the week (WHO, 2018). It can be seen that because physical activity results in energy being expended, individuals that are active require an adequate amount of energy in order to undertake physical activity.

1.6.2 Diet

Consuming and maintaining a balanced diet is a successful way of preventing malnutrition, noncommunicable diseases and other health issues, including obesity and diabetes (WHO, 2018). In today's modern world, there is an increase in processed foods and owing to time and financial constraints, dietary patterns have evolved and this has resulted in individuals consuming greater amounts of foods which are high in energy, fats, sugars and salt (WHO, 2018).

While there is no exact model of what a balanced and healthy diet should be, as this will vary according to each individuals specific characteristics, such as, age, gender, lifestyle, physical activity, allergies, culture and dietary restrictions, available foods, and any health conditions, there is a basic outline of what constitutes a healthy diet (WHO, 2018). According to WHO (2018), one should consume at least 400 grams of fruit and vegetables a day, less than 50 grams of sugar (this includes sugars added by manufacturers or oneself to enhance flavours, as well as those sugars present in honey, syrup and fruit juice), less than 5 grams of iodized salt per day, and less than 30% of fat (unsaturated fats should be consumed rather than saturated fats and trans-fats) (WHO, 2018).

Previous research has found that consuming excess amounts of fats, salt and sugars may result in unhealthy weight gain and obesity and cardiac problems including, high blood pressure, high cholesterol, atherosclerosis (Mozaffarian., Fahimi., Singh., Micha., Khatibzadeh., & Engell, 2014; Te Morenga., Howatson., Jones., & Mann, 2014).

1.6.3 Smoking

Smoking is the act or habit of inhaling and exhaling tobacco and other harmful substances into one's lungs (US Department of Health and Human Services, 2014). These other chemicals include, tar, carbon monoxide, metals and many other dangerous substances (US Department of Health and Human Services, 2014). Smoking has the potential to cause harm to almost every organ in the body, and can result in disease as well as reduce the health of individuals in general (US Department of Health and Human Services, 2014).

Individuals who smoke long term have an increased danger of developing various forms of cancer, lung, heart and digestive diseases, stroke, poor blood circulation, type 2 diabetes and even rheumatoid arthritis (US Department of Health and Human Services, 2014). Smoking can also cause infertility, inflammation and compromise one's immune system (US Department of Health and Human Services, 2014).

1.6.4 Research on Health Behaviours

Previous research on healthy behaviours in the workplace have looked at the relationship between ones health and his or her productivity. Boles, Pelletier and Lynch (2004) explored the association between health risks and one's subjectively reported productivity, including both absence and presenteeism owing to one's health. The researchers gathered self-reported measures of time missed owing to health-related absence from work as well as from presenteeism at work through a health risk assessment. Data was collected from 2264 employees that were members of fitness centres in several areas across America.

The respondents in the study were asked to answer a 20 item health risk assessment in order to collect the self-reported health risk data. The health risk assessment tool asks participants about any chronic conditions they may have, their current health status, demographics, information concerning their biometrics as well as lifestyle choices such as diet, physical activity and smoking.

The study found that employee's who were absent from work and reported that they were not physically active, had high stress and suffered from diabetes experienced a significantly greater amount of lost time being productive compared to those employees without these risks. What is even more noticeable, is the influence that health risks have on presenteeism. Those employees that consumed a poor diet, had a BMI result regarded as unhealthy, do no exercise, experience greater stress and a lack of emotional fulfilment, experienced greater impairment at work. Generally, the amount of lost time owing to presenteeism was higher than the lost time owing to absenteeism for each health risk.

While this study does highlight the fact that having poor health is linked to employees being less productive and does look at the impact of health behaviours such as

smoking, diet and physical activity on productivity, it does not examine the relationship between these behaviours and being engaged at work.

A research study conducted in the Netherlands by Brummelhuis and Bakker (2012), sought to explore the outcomes of off -the-job activities on work engagement the next morning. The researchers found that psychologically dethatching from work plays a key role in replenishing employees next morning vigour at work. During a five day period, seventy-four employees recorded how long they spent engaged in different off-the-job activities, how psychologically detached they felt as well as how relaxed they were before going to bed. They also reported how vigorous they felt the next day and next day work engagement levels were reported on at the end of the work day. Off-the-job activities were categorized into leisure activities like, reading, doing some form of physical activity, and socializing, and into high-duty activities, like, doing chores around the house, child care and work related tasks. It was hypothesized that off-job leisure activities would result in recovery as they allow for the individual to unwind and disconnect from their work, while those high-duty off-the-job activities would not result in recovery as they would not allow the individual to unwind or detach.

The results of the study show that tasks which are work related, were significantly negatively linked to next day vigour whereas leisure activities, including physical activity were positively linked to vigour the next day. The vigour experienced by employees in the morning was found to be positively associated with the work engagement experienced by employees throughout the day. While different kinds of physical activity, such as, partaking in high intensity sports, do not allow one to relax physically, they do allow one to detach from their work and thus contributes to employees recovery. Individuals who partook in leisure activities also reported that they felt increasingly vigorous, happy and absorbed in their work the next day owing to the fact that they have replenished their energy. Moreover, these results support the COR theory, in that personal resources generate a gain spiral that results in one acquiring additional personal resources.

While this study does show a relationship between exercise, which is a health behaviour, and work engagement utilizing the COR theory, it does not explore if there is a relationship between other health behaviours such as smoking and diet.

It can therefore be seen that while there is some research, as shown above, relating to health behaviours and their importance in the workplace, such as physical activity, they do not look at exactly what I am interested in and thus further research is required.

1.7 Self-Reported Health

Physical health, diet and smoking have been found to influence both one's actual measured health as well as their perceived health (Idler & Benyamini,1997). Ones self-reported health is an marker of their overall health according to their own ideas and opinions about themselves (Idler & Benyamini,1997). The term health does not only refer to one not having a disease or injury, but also includes one's general holistic health, including their mental, physical and social well-being (Idler & Benyamini,1997).

In addition to one's actual physical health and their health behaviours, there are other aspects of the individuals life that may impact the disparities that are present between different individuals perceived health (Idler & Benyamini,1997). Such aspects include, one's sex, age, education levels, socio-economic status and social characteristics.

Previous research concerning self-reported health has demonstrated that women, when compared with men, appear to consider a many more factors when rating their health (Idler & Benyamini,1997). It has been seen that women are more likely to consider the presence of illnesses which are not life-threatening and they also consider their psychological problems in their evaluation of their health (Idler & Benyamini,1997).

It is thought that when people self-rate their health, they think of their current situation, as well as future health problems and improvements (Idler & Benyamini,1997)..

1.8 Conclusion

From the literature review above, there is a relationship between work engagement and health behaviours. The energy provided to the individual through work engagement may enable him or her to go to the gym after work or prepare a healthy dinner, rather than picking up unhealthy take-aways. Additionally, because work engagement is the contrary to burnout, engaged workers will not usually experience stress and thus may refrain from smoking or other poor health behaviours which will negatively affect their health.

Given that previous research has established connections between health and other work behaviours, this research study will examine the relationship between engagement, specifically vigour and health behaviours.

1.9 Rationale

The literature review above has shown that work engagement has become a vital predictor of not only individual employee outcomes but also overall organizational success (Bakker & Demerouti, 2008). Most adults spend the significant part of their lives working and subsequently, the workplace can be seen as being a significant and pervasive part of an employee's life (Harter., et al, 2002). Thus, work engagement is able to influence the health and well-being of an employee (Harter, et al, 2002). Work engagement is therefore be an important concept to be studied owing to the effects it may have on employees. It has also shown that there is some evidence of a relationship not just to work related and organisational related outcomes, but also to employee health. However, the links are still tenuous. The research that has been conducted previously has not focused on the relationship between work engagement and physical health alone, nor in a developing country such as South Africa. This research has also been largely atheoretical. Therefore, additional research is still needed to be conducted in South Africa from a theoretical perspective. This research study will make use of The Conservation of Resources Theory as a theoretical framework to depict whether there is a relationship between work engagement and physical health.

The Conservation of Resources Theory is based on the idea that people try to acquire, preserve, promote and protect the things which they value (Hobfoll., et al, 2018). These resources can be either material, social, personal, or energetic (Bakker & Demerouti, 2008). COR posits that individuals experience tension if their resources are vulnerable to loss, when resources are in fact lost or if there is a failure to acquire resources after there has been a loss (Hobfoll., et al, 2018). It is a motivational theory of stress which explains human behaviour as an evolutionary need to gain and maintain resources which are necessary for one's survival (Hobfoll., et al, 2018). Previous research utilizing this theoretical framework have looked at the theory in connection with the concepts of work engagement as well as stress, burnout, resilience and work-family conflict. For example, in a study undertaken by Grandey and Cropanzano (1999), The model proposed that the role conflict associated with work-life balance results in an individual experiencing stress as resources get lost whilst trying to balance both work and family roles. This failure to find balance will result in

workplace depletion and action will be needed to restore or protect the resource (Grandey and Cropanzano, 1999). Work engagement, and particularly the aspect of vigour can be seen as a resource.

Work engagement is considered to be a "positive, fulfilling, work related state of mind that is characterized by vigour, dedication and absorption" (Schaufeli., et al, 2002). Previous studies relating to work engagement has found that individuals pursue specific careers in order to further define themselves and search for greater meaning in their lives (Harter, Schmidt & Hayes, 2002). Employees that are engaged in their work are thus able to and want to fully immerse themselves in the work that they do. Most research on this engagement has centered on the benefits that work engagement has for the organization as a whole but has rarely focused on the benefits that this engagement has for the individual (Burton, Chen, Li, & Schultz, 2017). Because work engagement encompasses increased vigour or energy, engaged employees do not typically experience energy depletion and this energy is capable of spilling over into their life outside of work.

Broadly, health behaviour are the actions of a person, which are taken to enhance personal well-being. Employees who exhibit positive health behaviours appear to have a small amount of health risks, reduced suffering of chronic disease and absenteeism, as well as greater work performance (Gardner., & Wardle, 2011). Examples of health behaviours which will be discussed in this research study and which have been identified by The Centre for Disease Control and Prevention (2009) include, physical activity, diet and nutrition, smoking and sleep.

A healthy diet can be seen as being essential for good health. Eating a healthy and balanced diet can protect one from numerous chronic non-communicable diseases (WHO, 2018). Smoking is the highly addictive act of inhaling and exhaling fumes of tobacco, nicotine and other substances (CDC, 2018). It is negatively associated with one's health and has the potential to harm almost every part of the body and cause a myriad of diseases (CDC, 2018). Smoking has been found to lower the overall health of individuals (CDC, 2018). Previous research surrounding these health behaviours have been conducted in relation to health benefits, obesity, interventions as well as health conditions and diseases (Warburton., Nicol., & Bredin, 2006; Michaud., Giovannucci., Willett., Colditz., Stampfer., Fuchs, 2001; Goodchild, Nargis, Tursan d'Espaignet, 2017).These health behaviours influence individuals self-reported health.

One's self-reported health refers to the personal perceptions one has of his or her own health status (Snead, 2007). It is a subjective evaluation of one's health (Snead, 2007).

It can be seen that together; work engagement, health behaviours and self-reported health have not been studied together. The theory suggests that where individuals have resources such as work engagement (vigour, dedication and absorption), they feel more energized. Consequently, these individuals preserve and protect this increased energy and this energy will extend into other areas of one's life, rather than being depleted. This energy may spill over into partaking in positive health behaviours such as physical activity and maintaining a healthy diet. In turn, these individuals will most likely report that they are in good health. Further, because this energy is not being depleted, it will spill back into one's work engagement. This suggests that there is a cyclic relationship between work engagement and health behaviours as well as engagement and one's perceived health.

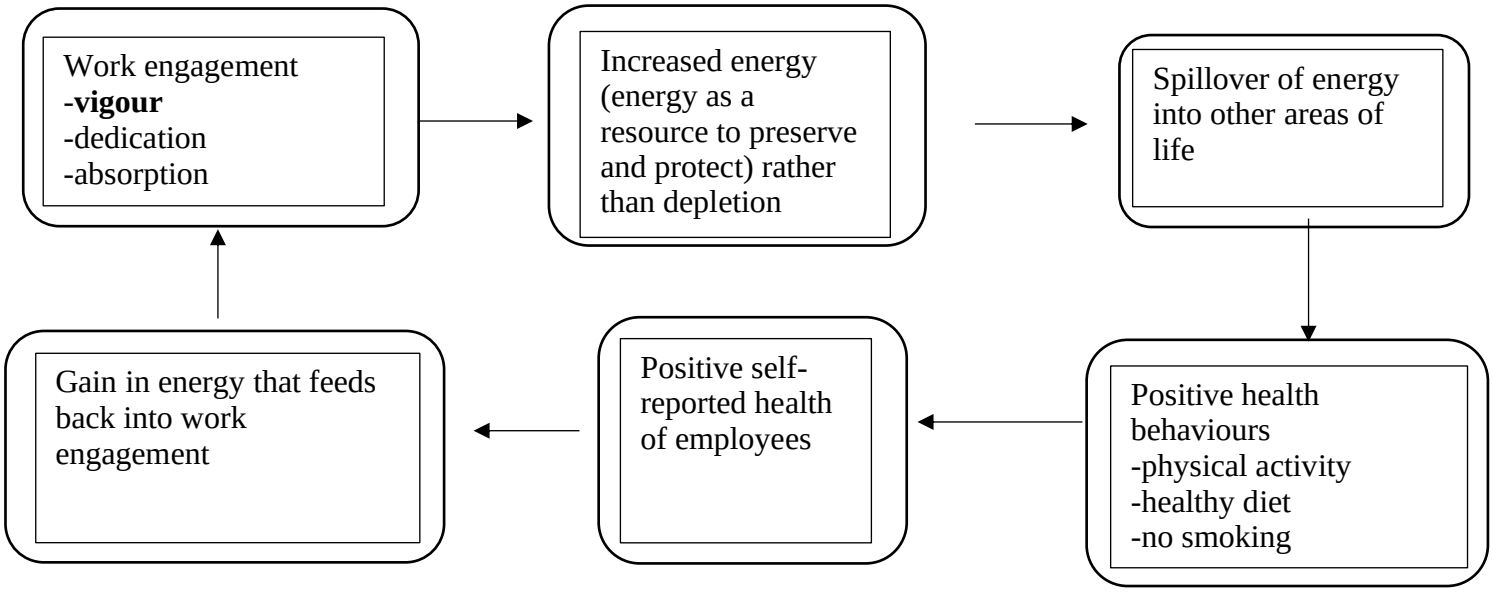


Figure 1: Cyclic model of energy spillover

1.10 Research Questions/ Hypothesis:

1. is there a relationship between work engagement and self-reported health?

2. is there a relationship between work engagement and vigorous physical activity?

3. is there a relationship between work engagement and moderate physical activity?

4. is there a relationship between work engagement and a healthy diet?

5. is there a relationship between work engagement and smoking?

Chapter 2: Method

2.1 Introduction

This chapter focuses on the research design and method that of the study. Particular importance is placed on the procedure with which participants were approached in order and collect the data. The research instrument used to collect the data is examined in detail as well as the statistical tests which were utilized in order to examine the data. The ethical concerns related to this study will also be explored.

2.1 Research Design:

A quantitative, correlational, cross-sectional, questionnaire research design was utilized. This questionnaire was used to establish if there was a relationship between work engagement (the IV), and health behaviours and Self-Reported Health (the DV's).

2.2.1 Sample

The research model allowed participants to participate voluntarily in this study. Therefore, the respondents were selected based on whether they were available and willing to partake in this research study. The final sample was made up of 132 employees from various different divisions within an insurance organisation located in Johannesburg, South Africa (N = 132). A South African insurance organisation was approached so that permission could be granted to access employees working in the organisation who were willing to participate and respond to the questionnaire. Participants from all different hierarchical levels in these organisations were included, as well as employees from varying job positions within specific divisions.

Employees were selected to participate through non-probability convenience sampling. This method is used to select participants that are convenient to access at the time (Zikmund, 2003; Fink, 2009). An advantage of this kind of sampling technique is that the questionnaire can be given out to a large amount of people at once, which saves both time and associated costs (Leary 2004; Zikmund, 2003; Fink, 2009). Demographics, including, gender, age and years of employment also was collected. Table 2.1 gives an outline of the demographic information of sample.

The data shows that 32.6% of the sample was male, while 67.4% of the sample was female. Furthermore, 28.3% of the sample ranged between 19 and 29 years old, 39.2% were 30- 39 years old, the age group 40-49 represented 20.1%, the category 50-59 made up 8.6% and 4% of the sample consisted of people 60- 71 years old.

When looking at racial groups, it can be seen that the largest racial category of the sample was Black, representing 58.6% of the sample, followed by White at 27.1% of the sample, Indian at 7.5%, Coloured at 6% and Other at 0.8%. The greater part of the sample had been working in the organisation for 1-5 years (48.1%), followed by those who had been working within the business for over 10 years (16.3%), 5-8 years (14.7%), less than 1 year (11.6%), and 8-10 years (9.3%).

Table 2.1

Demographics of Participants (N = 132)

Item	Category	Frequency	Percentage (%)
Gender	Men	43	32.6
	Women	89	67.4
	Missing Values	.	.
Age	19-29	37	28.3
	30-39	51	39.2
	40-49	26	20.1
	50-59	11	8.8
	60-71	5	4
	Missing Values	2	.

Racial Group	Black	78	58.6
	Indian	10	27.1
	Coloured	8	7.5
	White	36	6
	Other	1	0.8
	Missing Values	.	.
Length of Employment	Less than 1 year	15	11.6
	1-5 year s	62	48.1
	5-8 years	19	14.7
	8-10 years	12	9.3
	More than 10 years	21	16.3
	Missing Values	3	.

Through the sampling described above, employees working in a South African organisation were sent an email, by the researcher along with the organisation, asking them to take part in this research study. In this email, participants were given general information about the study along with a link which connected respondents to an online questionnaire. The questionnaire was created on a host website, Survey Monkey, which was used to collect the responses to the questionnaire.

The questionnaire began by presenting respondents with a cover letter on which they were to tick whether they consent to participating in the study. Next, a participant information sheet followed and included the stated aims and objectives of this research study, together with the ethical considerations which were undertaken in this study. Respondents were notified that it was possible to remove themselves from the study at any time before their questionnaires were submitted, as after this point it would be impossible to know which questionnaire to remove as no identifying information was collected.

Participants were informed that completion of the assignment should take around 10-15 minutes but were reassured to work at their own pace.

Respondents were also given the contact numbers and email addresses of both the researcher and the supervisor, should they have had any questions relating to the questionnaire or the research itself. The questionnaire had a deadline to be completed in, and was be set up so that it can only be completed once by each respondent. Once the participants had completed the questionnaire, the web URL was closed, and the gathered data was recorded into an spreadsheet on Microsoft Excel, which was then cleaned and then analysed using IBM SPSS Statistics (SPSS) version 25.

2.4 Instruments/Measures:

The questionnaire utilized in this study was comprised of three parts:

2.4.1 Demographics Questionnaire

The first research instrument was a questionnaire which asked questions related to the demographics of the those partaking in the study. Respondents were asked to provide information relating to their demographics, including, their age, gender, race, their current position within the organisation and how long they have been employed in this organisation.

2.4.2 Work Engagement

The Utrecht Work Engagement scale (UWES-9), which was created by Schaufeli, Salanova, Gonzalez-Roma and Bakker in 2002, was used to assess work engagement in this study. This instrument is both valid and reliable, and it has been utilised validly in studies conducted in many countries, including in South Africa, and is thus appropriate to use in this study (Storm & Rothmann, 2003).

The UWES-9 makes use of a Likert-type scale, which ranges from 0 (never) to 7 (always). Work engagement is comprised of three different aspects (Schaufeli., et al, 2002). These are vigour, dedication and absorption (Schaufeli., et al, 2002). This scale consists of items such as: Vigour – “At my work, I feel that I am bursting with energy”, Dedication – “I am enthusiastic about my job” and Absorption – “I am immersed in my work.” The following alpha co-efficients were obtained by Storm & Rothmann (2003) for the scale in South Africa: vigour: (.78), dedication: (.89) and absorption: (.78). For this study, the items related to each dimension (vigour, dedication and absorption) were combined to make 3 individual subscales.

Additionally the engagement scale as a whole was also combined to be one subscale in order to analyse total work engagement.

2.4.3 Health Behaviours

Questions taken from the South African National Health and Nutrition Examination Survey will be used to collect data relating to the health and nutrition of employees at an individual level. The survey was created by Shisana, et al. (2011), and was created in order to examine the health and nutritional status of both South African adults and children.

The main aim of the SANHANES-1 were to examine the health and nutrition of South Africans with regards to Non-Communicable Diseases (heart disease, diabetes and high blood pressure etc.) as well as their risk factors, including, physical inactivity, diet and smoking.

Items in this survey include: “have you ever smoked tobacco?” (1 = yes daily to 5 = don’t know), “Do you do any vigorous intensity sport/fitness/recreational activities in your leisure/spare time, that cause large increases in breathing/heart rate, for at least 10 minutes at a time?” (yes or no), “How many portions of vegetables, excluding potatoes, do you usually eat per day?” (1= 4 or more per day to 5= none).

Vigorous physical activity was defined as spending more than 10 minutes of intense physical activity that saw an increase in one heart rate. Moderate physical activity was defined as spending more than 10 minutes doing light intensity exercise that saw a rise in heart rate.

Only portions of fruit and vegetables was measured as these two were continuous variables. This was also the case for the smoking variables presented below.

2.4.4 Self-Reported Health

Self-reported health was measured by using a single item scale. This item asked “In general, how would you rate your health today?”. Self-reported health was scored using a Likert-type scale ranging from 1, very good to 5, very bad (Idler & Benyamini,1997).

2.5 Data Analysis:

The gathered data was tested with the Statistical Package for the Social Sciences

(SPSS, version 25, IBM, 2018). The raw data was first put into a spreadsheet using Microsoft Excel, and was then checked and cleaned to avoid including errors or missing data in the analysis.

The data analyses which were utilized included, Descriptive Statistics (including, means, standard deviations and alpha coefficients), Pearson Correlations, Reliability Tests using Cronbach Alpha and a Regression analysis were conducted to answer the research questions proposed above.

2.5.1 Descriptive Statistics

Descriptive statistics were established by analyzing the means, standard deviations, skewness and kurtosis of the scales used in the study. Descriptive statisitcsare used to produce outputs that describe the scales (Pelham and Blanton, 2007). Moreover, descriptive statistics allows for contrasts to be seen amongst different groups in the study. To identify whether the data was normally distributed, both skewness and kurtosis were analysed. Skewness represents extreme scores on the data, whereby there can either be clusters of scores around the mean or the data can be flat, meaning that the scores are spread out (Coolican, 2009). The cut-off scores for these analyses lie are <2 (skewness) and <4 (kurtosis) (Finch & West, 1997).

2.5.2 Pearson Correlation Coefficient

The Pearson Correlation Coefficient was used to determine and analyse the extent to which continuous variables are related to each other (Roberts, 2005). The relationship between the variables is determined by the direction, strength and effect size that exists between the linear relationship between work engagement and health behaviours and self-reported health. Statistical significance was set at $p<0.05$, whilst the effect sizes used to determine the practical significance of the findings were set at .10 (small effect), .30 (medium effect) and .50 (large effect) (Cohen, 1988).

2,5.3 Independent Samples T-test.

A T-test analysis was used to compare the means between two groups. This test was utilized to assess whether there was a relationship between total work engagement, vigour, dedication, absorption and partaking in either moderate or vigorous physical activity.

2.5.4 Reliability (Cronbach alpha (α) coefficient)

Reliability refers to how consistently a measure assesses an particular concept (Field, 2005).

Reliability analysis (Cronbach Alpha) was conducted on the UWES- 9 scale as well as on the engagement subscales and the SANHANES-1.

2.3.5 Multiple Linear Regression

Regression seeks to look at the relationship among the dependent and independent variables (Reynaldo., & Santos, 1999). A regression analysis was run in order to determine the relationship between the health behaviours and work engagement. Parametric assumptions just as homoscedasticity and multicollinearity were checked before conducting the analysis (Tabachnick & Fidell, 2007).

2.6 Ethical Considerations:

Several ethical concerns were regarded before this research was conducted. Firstly, ethical clearance was obtained from the Ethics Committee at the University of the Witwatersrand.

Secondly, on the front cover of the questionnaire, respondents were required to tick the box that states that they consented to participating in this study. This indicated that they had been informed of and accepted all aspects of this study.

Thirdly, the main aims of the research were described to the participating employees in the form of a participation information sheet. This explained that the primary aims of the research was to gather data on the relationship between work engagement and physical health. It also made clear to all respondents in the study that participation was entirely voluntary and no participant was to be coerced or forced into taking part in this study. It was also emphasized that no benefits were to be provided for those who did take part. Respondents were informed that they could remove themselves from this study at any time, for any reason, without penalties, up until they have submitted their responses. This is because the questionnaires were anonymous and no identifying factors were gathered, so it would not be possible to remove their responses after this. Additionally, the contact information of both the researcher and supervisor were attached to the participant information

sheet, if any participants had any queries relating to the study in general or to a specific part of the questionnaire.

Moreover, the confidentiality and anonymity of the respondents was ensured, as no factors that could identify the respondents were asked for or collected (no names, id numbers, IP addresses etc). Also, this research only analysed group data in the data analysis rather than individual data, therefore, no employee was able to be identified. The link to the questionnaire was closed after completion of the questionnaire and once all responses were gathered, they were stored in a folder protected by a password, only accessible to the researcher and supervisor. The organisation in which the data is being collected will not have access to the data.

There was no form of deception in any part of the study, and the rights of participants were upheld at all times, thus ensuring that no participant felt as though they were being misled in any part of the study.

After the completion of this study, participants will be able to get feedback on the outcomes of the study should they wish to. In the future, should this article be published in a journal, the organisation and all of its employees will be notified.

2.7 Conclusion

This chapter explained the research design and research method of the study. The statistical analysis techniques utilized within this study were also described. The following chapter will present a detailed analysis of the results that were obtained in the study.

Chapter 3: Results

3.1 Introduction

This chapter covers the results of the statistical analysis. To recap, these analyses were done to answer the following research questions:

1. Is there is a relationship between work engagement and self-reported health?

2. is there a relationship between work engagement and vigorous physical activity?

3. is there a relationship between work engagement and moderate physical activity?

4. Is there a relationship between work engagement and a healthy diet?

5. Is there a relationship between work engagement and smoking?

Before the research questions can be answered, a number of analyses were run. These analyses were Descriptive statistics, Reliability tests, Correlations, T-tests and Regression Analysis. The correlations, t-tests and regression analyses were run in order provide answers to the research questions.

3.2 Research Results

3.2.1 Descriptive Statistics

Descriptive Statistics and Reliabilities of the Work Engagement (UWES) scale and the SANHANES-1 scale are presented in Table 3.1.

Table 3.1 shows the means scores of the work engagement scale, and the three sub scales of work engagement. The standard deviation, Cronbach Alpha co-efficients, skewness values as well as the kurtosis values were provided for the above constructs as well.

Table 3.1

Descriptive Statistics of the Engagement sub-scales and Portions of fruit sub scale

Scale	Mean	SD	α	Skewness	Kurtosis
Total Engagement	50.8031	8.82281	.889	-1.181	1.774
Vigour	15.9695	3.51029	.776	-.740	.738
Dedication	18.1154	3.42276	.746	-1.555	2.464
Absorption	16.6000	3.02342	.881	-.664	.294
Total portions of fruit and vegetables	5.8333	2.11562	.698	.340	-.561

The means and standard deviations for the engagement subscales scales, ranged from 15.97 and 18.12, with standard deviations ranging from 3.02 and 3.51. The Total Engagement subscale had a mean of 50.8031 and a standard deviation of 8.82. The subscale combining portions of fruit and vegetables had a mean of 5.83 and a SD of 2.The alpha coefficients of the three subscales were considered to be acceptable when compared to the guideline of $\alpha > .70$ (Nunnally & Bernstein, 1994). The subscales all had high reliabilities of 0.78 for vigour, 0.75 for dedication and 0.88 for absorption. No items in the engagement scales appeared to not have any problems with regards to skewness and kurtosis (all skewness values were < 2 and kurtosis values were < 4). This posits that the data gathered in the study is normally distributed (Finch & West, 1997).

3.2.2. Correlations

Correlations were run to examine the relationship between the individual variables. The correlation results between Total Work Engagement, The Engagement sub-scales and vigorous and moderate activity, fruit and vegetable portions and smoking are presented below.

Table 3.2

Correlation between Physical Activity, Total Work Engagement, Vigour, Dedication and Absorption

		Vigorous Exercise in a Week (hours)	Moderate Activity in a Week (hours)	Vigour	Dedication	Absorption	Total Engagement
Vigorous Activity in a Week (hours)	Pearson Correlation	1	.639**	.300**	.253**	.212*	.284**
	Sig. (2-tailed)	.	**.000**	**.001**	**.005**	**.019**	**.002**
Moderate Activity in a Week (hours)	Pearson Correlation	.639**	1	.208*	.188*	.165	.209*
	Sig. (2-tailed)	**.000**	.	**.028**	**.048**	.083	**.030**
Vigour	Pearson Correlation	.300**	.208*	1	.786**	.608**	.907**
	Sig. (2-tailed)	**.001**	**.028**	.	**.000**	**.000**	**.000**
Dedication	Pearson Correlation	.253**	.188*	.786**	1	.640**	.920**
	Sig. (2-tailed)	**.005**	**.048**	**.000**	.	**.000**	**.000**
Absorption	Pearson Correlation	.212*	.165	.608**	.640**	1	.828**
	Sig. (2-tailed)	**.019**	.083	**.000**	**.000**	.	**.000**
Total Engagement	Pearson Correlation	.284**	.209*	.907**	.920**	.828**	1
	Sig. (2-tailed)	**.002**	**.030**	**.000**	**.000**	**.000**	.

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

*Correlation is signification at the 0.05 level (2-tailed)

Based on Cohen's (1988) findings, the cut-off points for the correlations were set at three different levels, .10 was considered to be a small effect size, .30 a medium effect size

and .50 a large effect size. These cut-off scores determined the practical significance of the correlations.

Table 3.2 indicates that Vigorous Activity has both a statistically and practically significant positive relationship with Vigour (r = .30; p<0.05; medium effect), Dedication (r =.25; p<0.05; small effect), Absorption (r = .21; p<0.05; small effect), and Total Engagement (r = .28; p<0.05; small effect).

Moderate activity was also found to have a significant positive relationship with Vigour (r = .21; p<0.0; small effect), Dedication (r = .19; p<0.05; small effect) and Total Engagement (r = .21; p<0.05; small effect).

Table 3.3

Correlation Between Diet, Total Engagement, Vigour, Dedication and Absorption

		Vigour	**Dedication**	**Absorption**	**Total Engagement**
	Sig. (2-tailed)	**.000**	**.000**	**.000**	.
Portions of Fruit Per Day	Pearson Correlation	-.053	-.067	-.190*	-.103
	Sig. (2-tailed)	.550	.446	**.030**	.248
Portions of Vegetables Per Day	Pearson Correlation	.034	-.062	-.173	-.073
	Sig. (2-tailed)	.703	.483	**.050**	.419

**Correlation is significant at the 0.01 level (2-tailed)
*Correlation is significant at the 0.05 level (2-tailed)

It can be seen from table 3.3 that the Portions of Fruit per day had a statistically practically significant negative relationship with Absorption (r = -.190; p<0.05; no effect) as did Portions of Vegetables per day (r = -.173; p<0.05; no effect).

Table 4.4

Correlation Between Smoking, Total Engagement, Vigour, Dedication and Absorption

		Vigour	Dedication	Absorption
Ever Smoked	Pearson's R	.072	.003	.063
	Sig.	.418	.971	.480
Currently Smoke	Pearson's R	.032	-.005	.052
	Sig.	.718	.958	.554
Time Smoking	Pearson's R	-.084	.020	.008
	Sig.	.367	.834	.930
Number of Cigarettes	Pearson's R	-.100	-.025	-.132
	Sig.	.286	.795	.163

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

The findings presented in table 4.4 confirm that there was no relationship between the Smoking variables and Vigour, Dedication, Absorption or Total Engagement.

Table 3.5

Correlations between Self-Reported Health and Vigour, Dedication, Absorption and Total Engagement

		Vigour	Dedication	Absorption	Total Engagement
Self-Reported Health	Pearson Correlation	-.160	-.045	-.021	-.087
	Sig. (2-tailed)	.068	.616	.814	.332

There was no correlation found in table 4.5 between the Engagement sub-scales and Self-Reported Health

3.2.3 T-tests

The t-test results examining the relationship between whether or not employees participate in vigorous physical activity, moderate physical activity, and the engagement subscales are presented below.

Table 3.6

Comparison of means of employees who partake in vigorous and moderate physical activity

		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Total Engagement and Vigorous Activity	Equal Variances Assumed	1.579	123	.117	2.49560	1.58065
	Equal Variances Not Assumed	1.547	106.149	.125	2.49560	1.61286
Total Engagement and	Equal Variances Assumed	1.749	124	.083	2.76686	.

Moderate Activity						
	Equal Variances Not Assumed	1.662	89.527	.100	2.76686	1.58241
Vigor and Vigorous Activity	Equal Variances Assumed	1.448	127	. 150	.90142	.62244
	Equal Variances Not Assumed	1.420	108.469	.159	.90142	.63491
Vigor and Moderate Activity	Equal Variances Assumed	1.623	128	.107	1.01121	.62303
	Equal Variances Not Assumed	1.567	99.024	.120	1.01121	.64513
Dedication and Vigorous Activity	Equal Variances Assumed	2.025	126	**.045**	1.22817	.60654
	Equal Variances Not Assumed	1.954	98.817	.054	1.22817	.62850
Dedication and Moderate Activity	Equal Variances Assumed	2.023	127	**.045**	1.22790	.60690
	Equal Variances Not Assumed	1.919	89.961	.058	1.22790	.64002
Absorption and Vigorous Activity	Equal Variances Assumed	.185	126	.854	.09921	.53738
	Equal Variances Not Assumed	.185	120.119	.853	.09921	.53516
Absorption and Moderate Activity	Equal Variances Assumed	1.123	127	.264	.60444	.53847

Equal Variances Not Assumed	1.076	95.103	.285	.60444	.56198

It can be seen from the t-test results presented above, that there was only a statistically significant difference in dedication between those employees who partake in both vigorous activity ($t=2.025$; $df=126$; $p<0.05$) and moderate activity ($t=2.023$; $df=127$; $p<0.05$). The mean difference was 1.23 higher for those who partake in vigorous activity than those who do not, as well as for those who do moderate physical activity.

3.2.4 Regression

A regression analysis was run to analyse the combined effects of the variables in a single model. The regression analyses looked at whether vigour, dedication and absorption are able to predict one's self-reported health, portions of fruit and vegetables, whether they currently smoke, their time spent smoking and the number of cigarettes one smokes.

The tables presented below will show these results.

Table 3.7

Linear regression of vigour, dedication and absorption on Self-Reported Health, Vigorous activity, moderate activity, total fruit and vegetable, currently smoking, time smoking and number of cigarettes

Model	ΔR2	df	F	p	β	t	p
1 (Self-Reported Health)	.027	3;122	2.156	0.097			
Constant					2.597	5.573	.000
Vigour					-.091	-2.469	**.015**
Dedication					.045	1.158	.249
Absorption					.027	.773	.441

2 (Vigorous Activity)	.071	3;116	4.024	**.009**			
Constant					-2.537	-1.403	.163
Vigour					.293	2.011	**.047**
Dedication					-.014	-.092	.927
Absorption					.040	.298	.766
3 (Moderate Activity)	.019	3;104	1.707	.170			
Constant					-2.477	-1.040	.301
Vigour					.197	1.131	.261
Dedication					.023	.115	.909
Absorption					.066	.376	.707
4 (Total Fruit and Vegetable)	.036	3;122	2.555	.059			
Constant					7.743	6.910	.000
Vigour					.108	1.222	.224
Dedication					-.008	-.086	.932
Absorption					-.211	-2.576	**.011**
5 (Currently Smoking)	-.012	3;123	.509	.677			
Constant					2.398	5.160	.000
Vigour					.031	.843	.401
Dedication					-.040	-1.037	.302
Absorption					.024	.707	.481
6 (Time Smoking)	.015	3;108	1.554	.205			
Constant					42.047	.873	.385
Vigour					-8.207	-2.140	**.035**

Dedication					6.661	1.618	.109
Absorption					.686	.190	.849
7 (Number of Cigarettes)	.023	3;107	1.852	.142			
Constant					24.784	1.978	.051
Vigour					-1.557	-1.561	.121
Dedication					1.902	1.772	.079
Absorption					-1.393	-1.485	.140

The findings in Table 3.7 show that the model looking at whether engagement predicts vigorous physical activity was found to be significant as the p-value was less than 0.05 (p= 0.009). Vigour (F = 4.024; β = -2.537; p < 0.05) was also found to be a significant predictor of the health behaviour, vigorous activity, and explained 7.1% of the variance in vigorous activity. The model was also found to be significant as the p-value was less than 0.05 (p= 0.009).

While vigour also was found to be a significant predictor of one's self-reported health (F= 2.156; β= -.091; p < 0.05), the overall model was not found to be significant as the p-value of the model was found to be greater than 0.05 (p =0.079). This was also the case when looking at whether absorption predicts total fruit and vegetable portions. While absorption was found to be a significant predictor of total fruit and vegetable portions (F= 2.555; β= -.211; p< 0.05), the model was not found to be significant (p>0.05= 0.059).

3.3 Conclusion

This chapter discussed the findings obtained through the use of SPSS statistical analyses software programme (SPSS Inc., 2018). The main statistics used within this chapter were the descriptive results, reliabilities, correlations and linear multiple regression. What follows in the next chapter is a more detailed discussion of the results that were obtained. It was found that there is a relationship between work engagement between work enagement and physical health, but work engagement and its components, vigour, dedication and absorption do not predict one's diet, smoking habits or self-reported health.

Chapter 4: Discussion

4.1 Introduction

The following chapter will discuss the findings of this study in relation to previous literature and will also identify any limitations and propose some suggestions for future research on this topic.

Firstly, the chapter will address the aims of the research study to determine if the findings obtained in the previous chapter confirm the general purpose of the research project. Furthermore, this chapter describes and examines the findings of the study so as to determine whether these findings in fact were aligned with previous research conducted. This chapter also presents the conclusions of the study.

A focus of this chapter is also placed on the limitations of this research, as well as recommendations for future studies on this same or similar topic. Furthermore, this chapter aims to provide insight into the practical implications of this study and how this study can convey importance in an organisational context.

4.2 Discussion

The purpose of this research was to establish whether there was a relationship between work engagement and physical health. Work engagement has become a crucial predictor of employee outcomes and overall organisational success (Bakker & Demerouti, 2008). Because employees spend a large portion of their lives engaged in their work, work engagement has the ability to impact the health and well-being of an employee (Harter, et al, 2002). Owing to the fact that employees who are engaged in their work, do not get burnt out and rather gain energy from their work rather than depleting this energy, as per The Conservation of Resources Theory, they are thought to be able to engage in healthy behaviours such as being physically active, eating a healthy diet and refraining from smoking. It is thought that this gain in energy will ultimately result in a spill over back into work engagement.

This study intended to determine; whether there was a relationship between work engagement and self-reported health; if there was a relationship between work engagement and vigorous physical activity and moderate activity; whether there was a relationship between work engagement and a healthy diet and finally if there was a relationship between work engagement and smoking.

The data collected in this study was drawn by 132 participants from an insurance company located in Johannesburg, South Africa. The sample was made up of more female employees than male employees. Employees in this sample were found to have mostly been working in the organisation for 1-5 years. The primary racial group of the employees was found to be black, followed by white, Indian and coloured. Finally, while the ages of the employees ranged from 19-71, the majority of employees fell between the 30-39 age bracket.

Below, a discussion around the findings within this study will be explored:

4.3 Correlations

The first aim of the study was to ascertain whether there was a relationship between each individual continuous variable. Namely, to test whether there was a relationship was between work engagement and the health behaviours as well as self-reported health. This was conducted by correlating the sub-scales of work engagement and the health behaviours and self-reported health and then further correlating total work engagement as a whole and the health variables.

When analysing the results, the discussion was centred on the effect sizes and whether the correlations were significant at the $p < .05$ level. It can be seen from the results section, that vigorous activity was found to have both a significant statistical and practical positive relationship with all three engagement subscales as well as with total engagement. It was seen that only small and medium effect sizes were found to range from .21-.30 as based on Cohen's (1988) cut-off points. Moderate activity was also found to have a significant statistical and practical relationship with vigour, dedication and total engagement. Although the effect sizes of these correlations were small and ranged from .19-.21. Therefore the practical significance of these relationships are limited as the correlation can be viewed as being weak. The results did however confirm that there was a relationship between both moderate and vigorous physical activity and work engagement even though it was not very strong.

Another significant relationship was found to exist between portions of fruit and vegetables per day and the work engagement sub-scale, absorption. This is not line with previous research which found that increasing one's fruit intake did not improve their work engagement (Veromaa., Kautiainen., & Korhonen, 2014). There was however no effect size found, which suggests that this relationship had no practical significance. There were also no correlations found between the smoking variables and work engagement or between self-reported health and work engagement.

4.4 T-tests

To determine whether there was a difference in the engagement of those employees who did either vigorous or moderate activity (yes) and those who did not (no), an independent t-test was run.

The results of the analysis indicated that there was a significant difference in the means of dedication for those employees that did do some form of either vigorous or

moderate activity as opposed to those who did not exercise. This may be because as seen in the research presented by Brummelhuis and Bakker (2012), the energy or vigour from being engaged in work will spill over and allow the individual to partake in physical activity. Brummelhuis and Bakker (2012) found that while different kinds of physical activity, such as, partaking in high intensity sports, may not allow one to physically relax and rest, it does allow one to detach from their work and thus contributes to their recovery. Individuals who partook in such activities were also found to be increasingly vigorous, happy and absorbed in their work the next day owing to the fact that they had replenished, rather than depleted their energy (Brummelhuis., & Bakker, 2012).

4.5 Multiple Linear Regression

In order to determine which health behaviours are able to be predicted by the three components of work engagement, vigour, dedication and absorption, a linear regression model was analysed.

In order to answer the research questions, a linear regression was conducted in order to determine which subscale of work engagement had the most influence/ biggest impact on health behaviours and perceived health of employee's. Through the analysis it was found that the sub-scale of vigour was a significant predictor (7.1%) of vigorous activity ($p<0.05$). the model of this regression was also found to be significant and thus it can be seen that the vigour associated with work engagement has an impact and influence on one's involvement in vigorous physical activity. This is line with the research conducted by Brummelhuis and Bakker (2012), which found that leisure activities, such physical activity were found to be positively related to vigour. This may be because this activity allows one to detach from their work and replenish their energy.

Continuously, vigour was also seen as being a significant predictor of self-reported health in the sample, however, the model as a whole was not found to be significant and only explained 2.7% of the variance. This was also seen in the regression of work engagement on total portions of fruit and vegetables. While absorption was seen as being a significant predictor, the overall model was not significant.

4.6 Limitations

Although this study contributed towards understanding the impact of work engagement on in physical health within Gauteng, South Africa, it can be seen that there were

some limitations. The sample size was not very big (N=132) and consisted predominantly of females and was thus unbalanced. The findings of this study therefore cannot be generalised to entire South African population. The sample was only drawn from one insurance organisation located in Johannesburg and thus the sample is unable to accurately represent and be generalized to other employees from other organisations within South Africa as well as from different parts of the country. Furthermore, this research study utilized a cross-sectional research design and is consequently not able to determine the relationship between work engagement and physical health over time. By rather utilizing a longitudinal research design, deeper insight could have been gained into the relationship between work engagement and the different health behaviours. The measure used to assess physical health was self-report and thus there may have been room for respondents to not be entirely truthful about their health behaviours in an attempt to provide socially desirable answers.

4.7 Suggestions for Possible Future Research

Based on the findings and limitations of the research, a number of recommendations can be made for future research on this subject. Firstly, future research should utilize a larger sample size that is drawn from more than one organisation within different provinces. By doing this, the results of the study may be more generalisable to individuals across the different demographic categories and cultures within the wider South African context. Future studies should also consider making use of a longitudinal research. This will allow researchers to have better insight into the impact of work engagement on physical health over a certain time period. Future research could also look at other measures of physical health, such as blood tests, blood pressure and other markers, rather than relying on self-report measures. This will allow for a more accurate and unbiased view of one's physical health.

4.8 Practical Implications

It is essential that organisations place emphasis on understanding and encouraging work engagement in the workplace in order to allow for the organisation to successfully drive their employees to meet the demands of the organisation. While the study was conducted in South Africa and thus makes particular reference to the South African context, it can benefit organisations on both a national and global scale. The study may also contribute to industrial psychology field by allowing industrial psychologists within the South African context to better comprehend work engagement and how it affects employees physical health. Additionally, the study will allow organisations to obtain deeper insight into the influence

that work engagement has on one's health behaviours and subsequently on their perceived health.

From the findings of the study, South African organisations may understand how to better improve the physical health and well-being of their employee's, through their work engagement in a way that meets both the needs of employees as well as those of the organisation.

4.9 Conclusion

Chapter four discussed the findings of the study and established whether they were in line with the proposed research questions. Furthermore, the findings of the research were compared to that of previous studies, to gain an understanding and determine whether this study could accept or reject previous research findings. Additionally, this chapter explained the relationship between total rewards, the total reward sub-scales and work engagement, in terms of correlations, reliabilities, multiple regression and moderated multiple regression.

The chapter also focused on the conclusions, limitations, recommendations for future research and practical implications that this study may have on the world of work. The main objective of this study was to examine whether there was a relationship between work engagement and physical health, as well as determined whether the subscales of work engagement, vigour, dedication and absorption are able to predict one's health behaviours and perceived health. The study contributes towards understanding how being engaged at work may allow workers to be physically healthier, by maintaining the energy needed to partake in specific health behaviours such as physical activity, eating healthily and smoking.

References:

Appelbaum, E., Bailey, T., Berg, P., & Kalleberg, A., 2000. Manufacturing competitive advantage: The effects of high performance work systems on plant performance and company outcomes. Ithaca, NY: Cornell University Press.

Bakker & Demerouti, (2008). Towards a model of work engagement. *Career Development International, 13,* 209–223.

Bakker, A. B., Xanthopoulou, D., Dollard, M. F., Demerouti, E., Schaufeli, W. B., Taris, T. W., & Schreurs, P. J. G. (2007). When do job demands particularly predict burnout? The moderating role of job resources. Journal of Managerial Psychology, 22 (8), 766 – 786. doi: 10.1108/02683940710837714

Boles, M., Pelletier, B., & Lynch, W. (2004). The Relationship Between Health Risks and Work Productivity. Journal of occupational and environmental medicine / American College of Occupational and Environmental Medicine. 46. 737-45. 10.1097/01.jom.0000131830.45744.97.

Brummelhuis, L,. & Bakker, A. (2012). A Resource Perspective on the Work-Home Interface The Work-Home Resources Model. The American psychologist. 67. 545-56. 10.1037/a0027974.

Burton, Chen, Li, & Schultz, (2017). The association of employee engagement at work with health risks and presenteeism. *American College of Occupational and Environmental Medicine. Vol. 59, No. 10.*

Cameron, S., Dutton, J., & Quinn, R. (2003). *Positive organizational scholarship: Foundations of a new discipline*. San Francisco: Berrett-Koehler Publishers.

Casey, C. (1995). *Work, self and society: After industrialism*. London: Routledge.

Centre for Disease Control and Prevention. (2009). Chronic diseases: the power to prevent, the call to control at a Glance., Available from: http://www.cdc.gov/chronicdisease/resources/publications/aag/pdf/chron ic.pdf.

Cohen, J. (1988). Statistical power analysis for the behavioural sciences (Rev. ed.). Orlando: Academic Press.

Coolican, H. (2009). Research methods and statistics in psychology. London: Hodder Education.

Deci, E.L., & Ryan, R.M. (1985). *Intrinsic motivation and self-determination in human behaviour*. New York: Plenum Press. http://dx.doi. org/10.1177/0146167201278002

Demerouti, E., Bakker, A. B., Nachreiner, f., & Schaufeli, W. B. (2001). The job demands-resources model of burn- out. *Journal of Applied Psychology*, 86: 499-512.

Finch, J.F. & West, S.G. (1997). The investigation of personality structure: Statistical models. Journal of Research and Personality, 31, 439-485. doi: 10.1006/jrpe.1997.2194

Fink, A. (2009). How to conduct surveys. A step-by-step guide. California: Sage Publications.

Gardner, B & Wardle. (2011) 'The Role of Health Behaviour' in A Steptoe (ed) Health Psychology Lee, I-Min, et al (2012) 'Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy', The Lancet, 380, 9838, pp 219-229

Geldenhuys, M., Łaba, K., & Venter, C.M. (2014). Meaningful work, work engagement and organisational commitment. *SA Journal of Industrial Psychology/SA Tydskrif vir Bedryfsielkunde, 40*(1), Art. #1098, 10 pages. http:// dx.doi.org/10.4102/sajip. v40i1.1098

Goodchild, Nargis, Tursan d'Espaignet, (2017). Global economic cost of smoking-attributable diseases. *Tobacco Control* 2018; **27:**58-64.

Glanz, K.; Lewis, F. M.; and Rimer, B. K. (1997). Health Behaviour and Health Education: Theory, Research and Practice, 2nd edition. San Francisco: Jossey-Bass.

Grandey, A. A., & Cropanzano, R. (1999). The conservation of resources model applied to work-family conflict and strain. Journal of Vocational Behaviour, **54,** 350-370.

Hakanen, J. J., Bakker, A. B., & Schaufeli, W. B. (2006). Burnout and work engagement among teachers. *Journal of School Psychology, 2006, Vol.43(6), Pp.495-513, 43*(6), 495-513.

Hakanen & Schaufeli, W. B. (2012). Do burnout and work engagement predict depressive symptoms and life satisfaction? A three-wave seven-year prospective study.

Hall, R. J., Snell, A. F. ve Foust, M. S. (1999) "Item Parcelling Strategies in SEM: Investigating The Subtle Effects Of Unmodeled Secondary Constructs" *Organizational Research Methods*, 2: 233-256.

Harter, J.K., Schmidt, F.L., & Hayes, T.L. (2002). Business-unit- level relationship between employee satisfaction, employee engagement and business outcomes: A meta-analysis. *Journal of Applied Psychology, 87,* 268–279.

Harter, Schmidt, Killan & Agrawal, (2009). Q12 meta-analysis: The relationship between engagement at work and organizational outcomes. White Paper Gallup Organization.

Hobfoll., Halbesleben, Neveu., & Westman, (2018). Conservation of Resources in The Organisational Context: The Reality of Resources and Their Consequences. *Annual Review of Organisational Psychology and Organisational Behaviour,* Vol. 5, pp 103-128

Holbeche, L., & Springett, N. (2004). In search of meaning at work. Roffey Park Institute, Horsham.

Idler and Y. Benyamini, "Self-Rated Health and Mortality: A Review of Twenty-Seven Community Studies," *Journal of Health and Social Behavior*, 38, 1 (March 1997), 21–37.

Judge, T.A., Bono, J.E., Erez, A. and Locke, E.A. (2005), "Core self-evaluations and job and life satisfaction: the role of self-concordance and goal attainment", Journal of Applied Psychology, Vol. 90, pp. 257-68.

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

Kasl, S. V., and Cobb, S. (1996). "Health Behaviour, Illness Behaviour, and Sick-Role Behavior." *Archives of Environmental Health* 12:246–266; 531–541

Laher, S. & Botha, A. (2012). Methods of sampling. In C. Wagner, B. Kawulich & M. Garner. *Doing social research: A global context* (Pp.86-100). London: McGraw- Hill.

Leary, M.R. (2004). Introduction to behavioural research methods. USA: Pearson Education, Inc.

Luthans, F. (2002), "Positive organizational behavior: developing and managing psychological strengths", Academy of Management Executive, Vol. 16, pp. 57-72.

Luthans, F. and Youssef, C.M. (2007), "Emerging positive organizational behavior", Journal of Management, Vol. 33, pp. 321-49.

Maslach and Leiter (1997). The truth about burnout. San Francisco: Jossey-Bass.

Meijman, T.F. and Mulder, G. (1998), "Psychological aspects of workload", in Drenth, P.J.D. and Thierry, H. (Eds), Handbook of Work and Organizational Psychology, Vol. 2, Psychology Press, Hove, pp. 5-33.

Michaud., Giovannucci., Willett., Colditz., Stampfer., Fuchs, (2001). Physical activity, obesity, height, and the risk of pancreatic cancer. JAMA 286: 921–929

Milliman, J., Czaplewski, A.J., & Ferguson, J. (2003). Workplace spirituality and employee work attitudes: An exploratory empirical assessment. *Journal of Organizational Change Management, 16,* 426–447. http://dx.doi. org/10.1108/09534810310484172.

Meyers, C. (2007). *Industrial psychology.* New York: Garnsey Press.

Mozaffarian, D., Fahimi, S., Singh, G. M., Micha, R., Khatibzadeh, S., Engell. R. E. (2014). Global sodium consumption and death from cardiovascular causes. N Engl J Med; 371(7):624–34.

Neck, C.P., & Milliman, J.F. (1994). Thought self-leadership: Finding spiritual fulfilment in organizational life. *Journal of Managerial Psychology*, *9,* 9–16. http://dx.doi. org/10.1108/02683949410070151

Nunnally, J.C., & Bernstein, I.H. (1994). *Psychometric theory* (3rd edn.). New York: McGraw-Hill.

Patel, M., Doku, V., & Tennakoon, L. (2003). "Challenges in recruitment of research participants" *Advances in Psychiatric Treatment*. 9.

Pelham, B., & Blanton, H. (2007). Conducting research in psychology: Measuring the weight of smoke. CA, USA: Thomson Higher Education.

Reynaldo, J., & Santos, A. (1999). Cronbach's Alpha: A Tool for Assessing the Reliability of Scales. Journal of Extension, 37, 2-10. Retrieved from http://www.joe.org/joe/1999april/tt3.php

Richmond, A. (2006). Everyone wants an engaged workforce: How can you create it? *Workspan, 49,* 36–39.

Rothbard, N.P. (2001), "Enriching or depleting? The dynamics of engagement in work and family roles", Administrative Science Quarterly, Vol. 46, pp. 655-84.

Rothmann, S., & Rothmann, S. (2010). Factors associated with employee engagement in South Africa. *SA Journal of Industrial Psychology 36*(2).

Ryan, R.M. and Frederick, C.M. (1997), "On energy, personality, and health: subjective vitality as a dynamic reflection of well-being", Journal of Personality, Vol. 65, pp. 529-65.

Saks, A.M. (2006). Antecedents and consequences of employee engagement. *Journal of Managerial Psychology, 21*, 600-619.

Scott, K., Moore, K., & Miceli, M. (1997). An Exploration of the Meaning and Consequences of Workaholism. Human Relations. 50. 10.1023/A:1016986307298.

Seligman, M.E.P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55*, 5-14.

Schaufeli, (2013). What is engagement? In C. Truss, K. Alfes, R. Delbridge, A. Shantz, & E. Soane (Eds.), Employee Engagement in Theory and Practice. London: Routledge.

Schaufeli, W.B., Taris, T.W., Le Blanc, P., Peeters, M., Bakker, A.B. and De Jonge, J. (2001), "Maakt arbeid gezond? Op zoek naar de bevlogen werknemer" ("Does work make happy? In search of the engaged worker"), De Psycholoog, Vol. 36, pp. 422-8.

Schaufeli, W.B., Salanova, M., González-Romá, V., & Bakker, A.B. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness Studies, 3*, 71–92.

Schaufeli, W.B., & Bakker, A.B. (2004). Job demands, job resources and their relationship with burnout and engagement: A multi sample study. Journal of Organisational Behaviour, 25, 293-315. doi: 10.1002/job.248

Schaufeli, W. B., Salanova, M., Gonzalez-Roma, V., & Bakker, A. (2002). The measurement of engagement and burnout: A confirmative analytic approach. Journal of Happiness Studies, 3, 71-92. Retrieved from http://www.wilmarschaufeli.nl/publications/Schaufeli/178.pdf

Schaufeli, W.B., & Van Rhenen, W. (2006). About the role of positive and negative emotions in manager's well-being: A study using job-related affective well-being scale. *Gedrag & Organisatie, 18*, 244–323.

Schaufeli, W.B., Taris, T.W. and Van Rhenen, W. (2008), "Workaholism, burnout, and engagement: three of a kind or three different kinds of employee well-being?", Applied Psychology: An International Review, Vol. 57, pp. 173-203.

Schaufeli, W.B., Taris, T.W. & Bakker, A.B. (2006). Dr. Jekyll and Mr. Hyde: On the differences between work engagement and workaholism. In R.J. Burke (Ed.), Research companion to working time and work addiction (pp. 193□217). Northampton: Edward Elgar.

Shimazu, A., & Schaufeli, W. B. (2009). Is workaholism good or bad for employee well-being? The distinctiveness of workaholism and work engagement amongst Japanese employees. *Industrial Health, 47*, 495–502. http://dx.doi.org/10.2486/ indhealth.47.495

Shimazu A, Schaufeli WB, Kubota K, Kawakami N. (2012). Do workaholism and work engagement predict employee well-being and performance in opposite directions? Ind Health. 50:316–21.

Shisana, et al. (2011), Shisana O, Labadarios D, Rehle T, Simbayi L, Zuma K, Dhansay A, Reddy P, Parker W, Hoosain E, Naidoo P, Hongoro C, Mchiza Z, Steyn NP, Dwane N, Makoae M, Maluleke T, Ramlagan S, Zungu N, Evans MG, Jacobs L, Faber M, & SANHANES-1 Team (2013) *South African National Health and Nutrition Examination Survey (SANHANES-1)*. Cape Town: HSRC Press.

Sonnetag, S. (2003). Recovery, work engagement, and proactive behavior: A new look at the interface between non-work and work. *Journal of Applied Psychology, 88*, 518-528.

Snead, C. M. (2007). Self-rated Health. Blackwell Encyclopaedia of Sociology, pp. 31–33.

Storm, K., & Rothmann, S. (2003). The validation of the Utrecht Work Engagement Scale in the South African Police Services. South African Journal of Industrial Psychology, 29(4), 62–70. Retrieved from http://www.ianrothmann.com/pub/psyc_v29_n4_a7.pdf

SPSS Inc. (2018). *SPSS 25.0 for Mac*. Chicago, IL: SPSS Inc.

Tabachnick, B.G. & Fidell, L,S. (2007). Using multivariate statistics (6th ed.). Boston: Pearson/Allyn & Bacon.

Te Morenga, L. A., Howatson, A., Jones, R. M., & Mann, J. (2014). Dietary sugars and cardiometabolic risk: systematic review and meta-analyses of randomized controlled trials of the effects on blood pressure and lipids. AJCN 100(1): 65–79.

Towers and Perrin Health Care Cost Survey. (2009). The health dividend: capturing the value of employee health. Available at: http://www.changehealthcare.com/downloads/industry/Towers%20Perrin%202009%20Health%20Survey.pdf.

U.S. Department of Health and Human Services. (2014). The Health Consequences of Smoking—50 Years of Progress: A Report of the Surgeon General. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.

U.S. Department of Health and Human Services. (2010). How Tobacco Smoke Causes Disease: What It Means to You. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.

Van Beek, I., Hu, Q., Schaufeli, W.B., Taris, T.W. and Schreurs, B.H.J. (2012), "For fun, love, or money: what drives workaholic, engaged, and burned-out employees at work?", Applied Psychology: An International Review, Vol. 61, pp. 30-55.

Van Zyl, L.E., Deacon, E., & Rothmann, S. (2010).Towards happiness: Experiences of work-role fit, meaningfulness and work engagement of industrial/organisational psychologists in South Africa. SA Journal of Industrial Psychology/SA Tydskrif vir Bedryfsielkunde, 36(1). doi: 10.4102/sajip.v36i1.890

Veromaa V, Kautiainen H, Korhonen PE. Physical and mental health factors associated with work engagement among Finnish female municipal employees: a cross-sectional study. BMJ Open 2017;**7**:e017303. doi:10.1136/ bmjopen-2017-017303

Warburton, D. E., Nicol, C. W., & Bredin, S. S. (2006). Health benefits of physical activity: the evidence. *CMAJ : Canadian Medical Association journal = journal de l'Association medicale Canadienne*, *174*(6), 801–809. doi:10.1503/cmaj.051351

World Health Organisation. (2018). Physical Activity Fact Sheet. Available at: https://www.who.int/news-room/fact-sheets/detail/physical-activity. Accessed on 3 April 2019.

World Health Organisation . (2018). Global Strategy on Diet, Physical Activity and Health. Available at: https://www.who.int/dietphysicalactivity/physical_activity_intensity/en/. Accessed on: 11 June 2020.

World Health Organisation. (2018). Healthy Diet Fact Sheet. Available at: https://www.who.int/en/news-room/fact-sheets/detail/healthy-diet. Accessed on 3 April 2019.

Wrzesniewski, A., McCauley, C., Rozin, P., & Schwartz, B. (1997). Jobs, careers and callings: People's relations to their work. Journal of Research in Personality, 31, 21–33. Retrieved from http://www.enhancingpeople.com/paginas/master/Bibliografia_MCP/Biblio02/JOBS-CAREERS-CALLINGS.pdf

Zikmund, W.G. (2003). Business research methods. Mason, Ohio: Thomson/South-Western.

APPENDICIES

Appendices:
Appendix 1: Questionnaire Cover Page

Psychology
School of Human & Community Development
University of the Witwatersrand
Private Bag 3, Wits, 2050
Tel: 011 717 4503 Fax: 011 717 4559

Is there a relationship between work engagement and physical health among employees in a South African organisation?

By
Gabriella Jacobs

Research Proposal in Organizational Psychology in the Faculty of Humanities at the University of the Witwatersrand

Supervisor: Karen Milner

Appendix 2: Access Letter

Psychology
School of Human & Community Development
University of the Witwatersrand
Private Bag 3, Wits, 2050
Tel: 011 717 4503 Fax: 011 717 4559

To Whom It May Concern:

My name is Gabriella Jacobs and I am a master's student, studying organisational psychology at the University of the Witwatersrand in Johannesburg. As part of my degree, I am required to conduct a research project. My research project will be investigating the relationship between work engagement, health behaviours and self-reported health at this organisation. The aim of this research project is to determine whether work engagement improves or reduces employee's self-reported physical health through positive health behaviours.

It would be greatly appreciated if you would allow me to collect data from your employees. To do this, I would ask that an email be sent out from myself as well as behalf of your organisation to all employees in your organisation, asking them to participate in this study. Participants will be asked to complete a questionnaire, relating to demographical information, work engagement levels, health behaviours and self-reported health. The email will contain a web URL, connecting them to a host website where they can complete the questionnaire in their own time over a two-week period. Once the questionnaires have been answered, the link will be closed and the collected data will be stored in a password protected folder. Thus, ensuring confidentiality.

Non participation in this study will not be met with any penalties and likewise, no benefits or incentives will be given to those employees who wish to participate in the study. Anonymity of the participants will also be upheld as no identifying factors will be collected from the participants and the data will be analysed as group data.

The data collected from this study will also benefit you organisation, as it will provide insight into your employee's health. This will be valuable as employees are an organisations most

valuable asset and healthy employee is more productive and boosts the overall performance of the organisation. This study will therefore provide insight into the engagement levels of employees and what can be done to improve their physical health.

Should you agree to grant access to your employees to participate in this study, please will you provide us with written consent.

Yours sincerely,

Gabriella Jacobs, (researcher)
E-mail: 1250740@students.wits.ac.za.
Cell: +27 (76) 6834116

Karen Milner, (supervisor)
E-mail: Karen.Milner@wits.ac.za
Tel: +27 (11) 717

Appendix 3: Participant Information Sheet:

University of the Witwatersrand
Private Bag 3, Wits, 2050
Tel: 011 717 4503 Fax: 011 717 4559

Good day,

My name is Gabriella Jacobs and I am a master's student, studying organisational psychology at the University of the Witwatersrand in Johannesburg. As part of my degree, I am required to conduct a research project. My research project will be investigating the relationship between work engagement, health behaviours and self-reported health at this organisation. The aim of this research project is to determine whether work engagement improves or reduces employee's self-reported physical health through positive health behaviours.

I would like to kindly request your participation in this study by answering a questionnaire. This will involve answering a series of questions online and will take approximately 30- 60 minutes to complete. The data which is collected from you, will only be seen by myself as the researcher and my supervisor, and will be stored in a password protected folder once all responses have been collected.

It must be emphasized that participation in this study will not yield any direct benefits and there will not be any disadvantages or penalties should you choose not to participate. You may withdraw at any time up until your responses have been submitted. You may also leave out a question if you do not wish to answer it, however, it would be preferable to answer all questions. The questionnaire will be completely confidential and anonymous as it will not ask for your name or any other identifying information. The data collected will also be analysed as group data and thus the responses from you will not be identifiable.

If you should have any questions during or after completion of the questionnaire regarding the questions or about this research project in general, please feel free to contact me on the contact details listed below. Additionally, summarized feedback about the study as well as the responses in general will be available after the completion of the study. This study will be written up as a research report which will be handed into my supervisor on this project. It may be published thereafter as a journal article, in which case, you will be notified. Should you have any concerns or complaints regarding the ethical procedures of this study, please

contact the University Human Research Ethics Committee (Non-Medical), on +27(0) 11 717 1408, or email hrec-medical.researchoffice@wits.ac.za

Yours sincerely,

Gabriella Jacobs, (researcher)
E-mail: 1250740@students.wits.ac.za.
Cell: +27 (76) 6834116

Karen Milner, (supervisor)
E-mail: Karen.Milner@wits.ac.za
Tel: +27 (11) 717

I (the participant) consent to participating in this research project. I have read the participation information sheet and understand what participation in this study entails. (please tick the relevant box)

☐ YES ☐ NO

Appendix 3: Demographic Questionnaire

1. What is your gender?

☐ Female

☐ Male

2. What is your current age? (in years)

☐

20-30

☐ 31-40

☐ 41-50

☐ 51 and older

3. What is your race? *(Please note that race is only used to determine the number of people from different race groups within the sample)*

☐ Black

☐ Indian

☐ Coloured

☐ White

4. What is your current job role?

5. How long have you worked at this organisation? (in years)

☐ Less than 1 year

☐ 1 year or more, but less than 5 years (1-5 years)

☐ 5 years or more, but less than 8 years (1-8 years)

☐ 8 years or more, but less than 10 years

☐ 10 years or more

Appendix 4: The Utrecht Work Engagement Scale (UWES-9)

Below are some statements about engagement at work. Please select the choice that best describes your experience of work

Never	Almost never	Rarely	Sometimes	Often	Very Often	Always

At my work, I feel bursting with energy.	◯	◯	◯	◯	◯	◯	◯
When I get up in the morning, I feel like. going to work	◯	◯	◯	◯	◯	◯	◯
At my job, I feel strong and vigorous	◯	◯	◯	◯	◯	◯	◯
I am enthusiastic about my job	◯	◯	◯	◯	◯	◯	◯
My job inspires me	◯	◯	◯	◯	◯	◯	◯
I am proud of the work that I do	◯	◯	◯	◯	◯	◯	◯
I feel happy when I am working intensely	◯	◯	◯	◯	◯	◯	◯
I am immersed in my work	◯	◯	◯	◯	◯	◯	◯
I get carried away when I am working	◯	◯	◯	◯	◯	◯	◯

Appendix 5: Health Behaviour Questionnaire

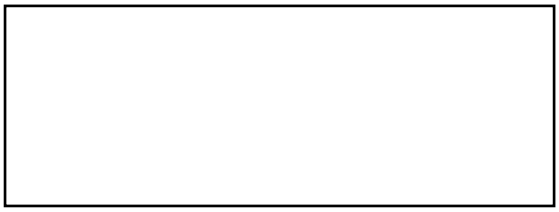
1. Do you do any vigorous intensity sport/fitness/recreational activities in your leisure/spare time, that cause large increases in breathing/heart rate, for at least 10 minutes at a time?

   ☐ Yes

   ☐ No

2. In a usual week, how many days do you do vigorous activities as part of your leisure or spare time?

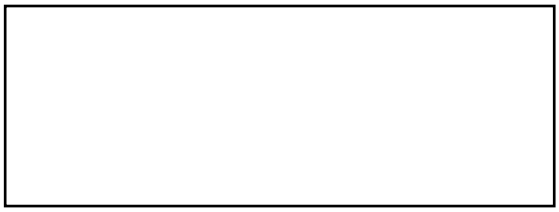
3. How much time do you spend doing this on a usual day? HOURS OR MINUTES



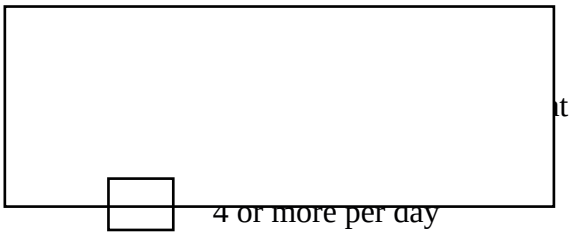
4. Do you do any moderate-intensity sport/fitness/recreational activities in your leisure/spare time that cause small increases in breathing and heart rate, for at least 10 minutes at a time?

- ☐ Yes
- ☐ No

5. In a usual week, how many days do you do moderate-intensity activities as part of your leisure or spare time?



6. How much time do you spend doing this on a usual day? HOURS OR MINUTES



t per day?

- ☐ 4 or more per day
- ☐ 1-3 per day
- ☐ Not every day, but 4 or more per week
- ☐ Not every day, but less than 4 per week
- ☐

None

☐ Don’t know

8. How many portions of vegetables, excluding potatoes, do you usually eat per day?

☐ 4 or more per day

☐ 1-3 per day

☐ Not every day, but 4 or more per week

☐ Not every day, but less than 4 per week

☐ None

☐ Don’t know

9. Have you ever smoked tobacco?

☐ Yes daily

☐ Yes, less than daily

☐ Yes, but not now

☐ No, not at all

☐ Don’t know

10. Do you currently smoke tobacco?

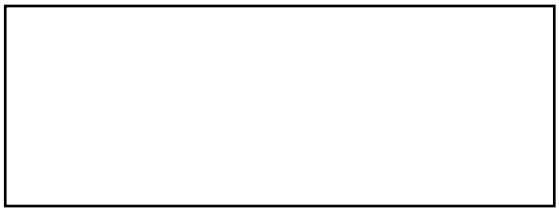
☐ Yes, daily

☐ Yes, less than daily

☐ No, not at all

☐ Don’t know

11. For how long have you been smoking tobacco regularly? (please specify in months or years)



12. On average how many manufactured cigarettes do you smoke each day? DAYS

13. On average how many cigarettes do you smoke each WEEK?