

MASTER OF ARTS IN THE FIELD OF ORGANISATIONAL PSYCHOLOGY,
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**Sensory Processing Sensitivity as an individual factor in the Job Demands-
Resources Model: An analysis of South African employees during the
Covid-19 pandemic**

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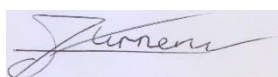
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Plagiarism Declaration

I, Rowan Michael Turner, declare that this research project (Ethics clearance number: MAORG/20/017) is my own unaided work. It has not been submitted before for this or any other degree or for examination at this or any other university.

Signed:

A handwritten signature in black ink, appearing to read 'Turner', is written over a light blue horizontal line.

Date: 30 April 2021

Abstract

The current research study included the personality trait of sensory processing sensitivity as an individual factor in the Job-Demands Resources model. The main aim of the study was to explore whether employees' levels of sensory processing sensitivity moderated the relationships between job demands and burnout (i.e., exhaustion and disengagement), and the relationship between job resources and work engagement (i.e., vigour and dedication). The job demand of overload, and the job resources of organisational support and growth opportunities were included in the JD-R model. The research design of the current study was a quantitative, non-experimental, cross-sectional design. The nature of the questions was purely exploratory and correlational, where the study was interested in exploring the relationships between sensory processing sensitivity, job demands (overload), job resources (organisational support and growth opportunities), burnout (exhaustion and disengagement), and work engagement (vigour and dedication). The sample of 125 candidates used in the current study was obtained using non-probability sampling, convenience sampling and was limited to any individual who was employed and above the age of 18 years. The sample within the current study was highly heterogenous, representing many different work sectors within the South African context. The data that was collected was analysed using descriptive statistics, correlations, and several moderated multiple regressions.

The results of the study reveal that the personality trait does not moderate the relationships between overload and burnout, and the relationships between organisational support, growth opportunities and work engagement. The interaction terms of SPS and the demand and resource variables were all found to be non-significant. Nonetheless, it was found that sensory processing sensitivity was positively associated with the exhaustion construct of burnout, and the job demand of overload. Furthermore, the findings in the current study provided further support for the dual-process of the JD-R model, where high demands are associated with higher levels of burnout, and high resources are associated with high levels of work engagement. With regards to the sensory processing sensitivity construct, the current study revealed that those employees with a higher propensity of possessing the SPS trait may show higher levels of exhaustion, and that high levels of this trait may be associated with high levels of overload.

Keywords: sensory processing sensitivity, overload, organisational support, growth opportunities, burnout, work engagement, South Africa

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Chapter One: Introduction and Literature Review

Introduction

Sensory processing sensitivity (SPS) is a temperament trait which describes the way in which an individual examines and understands their environment (Aron & Aron, 1997; Lindsay, 2017). Those individuals who are characterised by high levels of SPS are considered to be highly sensitive persons (HSPs), and they may be more sensitive to the environment than others (Aron & Aron, 1997; Lionetti et al., 2018). It is important to note that SPS is not a disorder, not to be confused with Sensory-Processing Disorder, but is rather a personality trait that is found in the minority of the population (Lindsay, 2017). This trait is based on genetics, which suggests that it is largely innate and would be heritable; it is not something that can be treated or eliminated (Aron & Aron, 1997).

The concept of SPS was originally proposed by Aron and Aron (1997) and gained a fair amount of popularity which led to further scientific research on the construct (Aron et al., 2010; Lionetti et al., 2018; Smolewska et al., 2006). However, there has not been much research that has analysed HSPs in the work environment. SPS has been identified in more than 100 species (Wolf et al., 2008) and approximately 20% of the population are said to be classified as highly sensitive (Pluess et al., 2018). Therefore, it becomes important to understand how these HSPs might react and deal with the different demands of the work environment.

The work environment consists of many physical, mental and emotional demands. These continuous demands may ultimately affect the wellbeing of many employees (Van den Broeck et al., 2017). They could especially have a major impact on those employees who react more strongly to the work environment. Those individuals who are highly sensitive may experience the workplace in ways that are different to those who do not possess the SPS trait (Cooper, 2014; Lindsay, 2017). HSPs react more strongly to both negative and positive factors in the environment (Aron & Aron, 1997). It is, therefore, important to consider how these individuals react to the different characteristics of the work environment. The investment of employers in decreasing job demands and providing the necessary job resources may be beneficial to many employees but could especially help those employees who are more sensitive to the environment (HSPs).

The current study aimed to investigate whether the personality trait of SPS is associated with the two constructs of burnout (i.e., exhaustion and disengagement). Secondly, the current study

also aimed to investigate whether SPS is associated with the job demand variable of overload. Thirdly, the current study aimed to investigate the dual psychological process that is assumed by the JD-R model. It firstly aimed to investigate the health impairment process, where it is interested in determining whether there is a relationship between the job demand of overload and the two burnout variables of exhaustion and disengagement. Secondly, it also aimed to investigate the motivational process – whether there is a relationship between the two job resources of organisational support and growth opportunities, and the two work engagement variables of vigour and dedication. Finally, with the use of the JD-R model as a theoretical framework, the current study aimed to investigate the potential moderating role of SPS on the relationship between job demands (i.e., overload) and burnout (i.e., exhaustion and disengagement), and on the relationship between job resources (i.e., organisational support and growth opportunities) and work engagement (vigour and dedication). Based on the theory of the JD-R model, this analysis involves adding the personality trait of SPS as an individual factor to the JD-R model.

This current research report will begin by providing a detailed review of previous literature with regards to SPS, burnout and work engagement, and the Job Demands-Resources Model. This initial chapter will provide a detailed discussion of the key variables within the current study, how they link with one another, and the core empirical studies that have influenced the formulation of this research report. The context of the current study will be provided, and the main aims, core research questions, and hypotheses will be provided.

The methods chapter of the current research report will focus on describing how the study was conducted to answer the main research questions. This will include an explanation of the sampling strategy employed, and a detailed description of the sample that was used in the current study. Furthermore, the main research design, methods of analysing the results, and the core ethical considerations will be justified and discussed.

The results chapter will carefully discuss the core findings that were generated from the statistical analyses. Thereafter, within the final chapter, there will be detailed discussion of these core findings, linking it with the theory and previous research that was discussed in the literature review. Finally, the limitations of the current study will be discussed, recommendations for future research will be proposed, and the final conclusions of the current research study will be provided.

Sensory Processing Sensitivity

The differences in individual personality are influenced and structured by many factors, such as the surrounding physical and social environment, and possibly the development of individual knowledge and specialised skills through different life experiences (Aron et al., 2012). However, many researchers have demonstrated that the fundamental factor influencing personality difference is the degree to which one's behaviour is guided by the stimuli within the environment (Aron et al., 2012; Beauchamp, 2001; Belsky et al., 2007; Frost et al., 2007; Groothuis & Carere, 2005; Koolhaas et al., 1999; Korte et al., 2005; Verbeek et al., 1994). In other words, how an individual responds to the many different aspects within their social and physical surroundings. Wolf et al. (2008) specifically suggest that this responsive trait is a manifestation in the human species of one of two strategies. Firstly, there are likely to be some individuals who are more responsive, and secondly, others who are less responsive to the same environmental conditions. These two strategies were identified in many different species from zebra finches, pumpkinseed sunfish, mice, goats, pigs to humans (Groothuis & Carere, 2005b; Koolhaas et al., 1999b; Schjolden & Winberg, 2007). Within these research studies, it was found that some members of each of these species tended to be bold and impetuous in novel situations (being less responsive), while others were more cautious in their approach and appeared to take a "pause-to-check" type of strategy (those who are more responsive) (Groothuis & Carere, 2005; Koolhaas et al., 1999; Schjolden & Winberg, 2007). Wolf et al. (2008) refer to these two strategies as a difference in individual responsivity.

However, Wolf et al. (2008) were not the first to identify this responsive trait. The observation that people are genetically more responsive or vulnerable to stress and negative experiences has been recognised for many years (Aron et al., 2012). This type of behavioural difference has been described in humans using many different names – such as negative emotionality, neuroticism and inhibitedness (Aron et al., 2012). It has also been identified using many different psychological frameworks (Pluess, 2015). For instance, the difference between extraverts and introverts, the behavioural activation and inhibition systems (concerned with inhibitedness), physiological stress reactivity, sensory sensitivity, developmental plasticity etc. (Aron et al., 2012; Boyce & Ellis, 2005). Although these psychological frameworks focus on vastly different human characteristics, they all, to some extent, describe how individuals vary in their response to novel situations, with some being generally more sensitive to environmental stimuli than others (Pluess, 2015). This responsivity trait has been "found to generate theories about a general trait of sensitivity or responsivity to the environment" (Aron et al., 2012, p.

263). This general trait of sensitivity is referred to as sensory processing sensitivity (Aron & Aron, 1997).

Sensory processing sensitivity (SPS) is a temperament trait which is suggested to be genetically determined, and describes the way in which an individual examines and understands their environment (Aron & Aron, 1997; Lindsay, 2017). Those individuals who are characterised by high levels of SPS are considered to be highly sensitive persons (HSPs), and they may be more sensitive to the environment than others (Aron & Aron, 1997; Lionetti et al., 2018). Aron and Aron (1997) specifically indicate that this personality trait involves a deeper or more complex cognitive processing of environmental stimuli and being more sensitive to subtleties; all of which is influenced by a higher emotional reactivity (i.e., stronger emotional reactions).

It is important to note that SPS is not a disorder and should not be confused with Sensory-Processing Disorder (Aron & Aron, 1997). The fact that this trait is based on genetics largely suggests that it is innate and would be heritable; and is therefore something that cannot be treated or eliminated (Aron & Aron, 1997). However, Aron et al. (2012, p. 272) suggest that “from birth those with the trait are noticing and changing their behaviour, not necessarily consciously, according to their experiences.” This suggests that these highly sensitive individuals are also a product of their environment, because their sensitivity is also dependent on the state of the environment around them; whether it is aversive or supportive (Aron et al., 2010). Therefore, although many gene-environmental studies suggest that SPS is genetic (Belsky et al., 2009; Belsky & Pluess, 2009; 2013), there is evidence to suggest that environmental forces also contribute to individual differences in SPS (Boyce & Ellis, 2005; Pluess & Belsky, 2011). In fact, the degree to which a genetic potential for high sensitivity is actualised depends on an individual’s experience in a particular environment (Pluess, 2015).

Within personality research, SPS has often been confused with introversion and neuroticism (Howarth, 1986). The reason for this is because both sensitive and neurotic individuals tend to behave in a cautious manner that is aimed at preventing negative consequences, and may eventually lead to avoidance (Aron & Aron, 1997; Howarth, 1986). Smolewska et al. (2006, p. 1276) suggest that since highly sensitive individuals “are more aware of their surroundings and more easily aroused, it may seem reasonable that they would be more emotional and more prone to worry.” There is evidence to suggest that introverts analyse stimuli more closely and tend to take a more tentative approach, where they prefer to pause and reflect rather than taking immediate action (Stelmack et al., 1993). However, Aron and Aron's (1997) findings show that

SPS, as measured by the Highly Sensitive Person Scale, is a construct that is partially independent from introversion and neuroticism.

Aspects of Sensory Processing Sensitivity

The concept of SPS was originally proposed by Aron and Aron (1997). Prior to 1997, there had been minimal research on a general trait of sensitivity (Aron et al., 2012). Much research, however, had analysed different human personality and temperament traits that appeared to overlap with sensitivity in some way. There are four specific personality traits that characterise an individual with SPS, namely: (a) inhibition of behaviour; (b) greater awareness of sensory stimulation, (c) deeper processing of information, and lastly, (d) stronger emotional reactions (Aron et al., 2012; Aron & Aron, 1997). These traits tend to appear as an aspect of sensitivity in individuals, or they are actualised as a result of an individual being sensitive (Aron et al., 2012).

These personality traits, theoretically, would represent different ways of responding to the environment. However, it would involve the combination of some (if not all) of these aspects when referring to a general trait of sensitivity. In other words, one would not analyse a single trait in isolation, it would be the combination of these traits that would signal general sensitivity. This list of personality traits is also incomplete, and not entirely representative of SPS. There are many other behavioural factors that are associated with sensitivity (Aron et al., 2012).

The first aspect that has been proven to correlate with a general sensitivity trait is an inhibition of behaviour. This simply suggests that HSPs will usually be slow to react, or plan an effective action, because they take their time to evaluate all the stimuli within the environment before making a decision (Aron & Aron, 1997; Vander Elst et al., 2019). As was mentioned earlier, their responsive behavioural strategy is to pause and check, rather than immediately taking action. This inhibition of behavior is especially true in novel situations – highly sensitive persons will be slow to act when the environment around them is unfamiliar, or the situation itself is an entirely new experience (Aron et al., 2012). Aron and Aron (1997) suggest that this is because an individual's level of SPS is partly determined by high activity of the behavioural inhibition system (BIS).

Gray (1981) was originally interested in the function of the inhibition of behaviour, and he initially described two neuropsychological systems that underlie an individual's behaviour - these are the Behavioural Inhibition System (BIS) and the Behavioural Activation System

(BAS). These two systems are based on models of motivational behavior. The BAS is suggested to regulate one's appetitive motives, in which there is the urge to approach and satisfy one's needs. The BIS, on the other hand, regulates one's tentative or avoidant motives, in which there is the urge to stop and consider the costs or risks of a situation or, in some cases, avoid the situation entirely (Gray, 1981). A greater relative strength of the BIS system would initiate a more thorough processing of environmental stimuli, which explains why an active and strong BIS would be a supporting factor of SPS. This inhibition of behaviour has been investigated by many different researchers, including Kagan et al. (1988).

These researchers formulated studies which involved observing inhibited children. They created standardised laboratory settings, which included a room filled with novel objects or toys or would consist of the children having to interact with strangers or speaking to adult examiners (Kagan et al., 1988). They defined inhibited children as those who were usually slower to play with the novel toys in the room or interact with other stranger individuals. It was found in several studies that inhibited children (as compared with other children) would have an initial increase in adrenaline when they entered the standard laboratory setting. This increase in adrenaline in the face of novelty may be associated with an intensive processing of information, which may lead to a sense of fearfulness when the situation is threatening or there is a lack of social support (Gunnar, 1994; Kagan et al., 1988; Nachmias et al., 1996). Although further research is required, there is some evidence that a strong BIS is an aspect of SPS due to the increased processing of subtle stimuli which is motivated by a stronger emotional reactivity (Aron et al., 2012; Aron & Aron, 1997; Smolewska et al., 2006). This idea around an intensive processing of information directly links to the second key aspect of those individuals with SPS.

Aron and Aron (1997) suggest that HSPs have a deeper processing of sensory information. In other words, they have a preference to process information more thoroughly than other individuals (Lionetti et al., 2018). Patterson and Newman (1993) conducted a study in which they investigated the issue of individual impulsive behaviour. This study involved the use of reward and punishment incentives (winning or losing money) for performance on successive go-no-go learning tasks, where feedback was provided after each attempt. They found that extraverts were more impulsive in their behaviour and, in contrast, introverts tended to take more time to reflect on the feedback they had received about their mistakes before their next attempt, which ultimately improved their performance. They suggested that this prolonged reflection "promotes semantic depth and differentiation by means of reflection" (Patterson & Newman, 1993, p. 724). As a result of their study, they reconceptualised the notion of

“introversion” as reflectivity. Which according to Aron et al. (2012) could perhaps be another term used to describe SPS. This suggests, that when faced with a novel situation, HSPs will take more time to evaluate the situation and will carefully reflect on their strategy and how this could be improved. According to Jagiellowicz et al. (2011), HSPs are specifically engaged in tasks that involve an awareness of subtleties, this is when they will use areas of the brain associated with deeper processing. This leads us to the next important aspect of SPS.

The third characteristic associated with SPS is a greater awareness of sensory stimulation. HSPs will often be more aware of the subtle stimuli within the environment around them; they notice the smaller details (Aron & Aron, 1997). This can be highly advantageous because these individuals are able to identify all the aspects within the environment, which could improve decision making and problem solving. However, the issue with having greater awareness is that one can easily become overstimulated (Aron et al., 2010). HSPs are commonly more sensitive to bright lights, strong smells, noise, visual distractions, large crowds, others moods, or new or changing situations (Aron & Aron, 1997; Lionetti et al., 2018; Pluess et al., 2018). Furthermore, this continuous awareness to subtle differences can be a costly endeavour. It takes a significant amount of time and energy to continuously analyse and sample the environment, and these resources could rather be used on more important tasks (Aron et al., 2012; Wolf et al., 2008).

Lastly, the behavioural aspect that has most often been associated with HSPs is a stronger emotional reactivity (Aron et al., 2012). They tend to feel both positive and negative emotions more deeply than other individuals (Aron & Aron, 1997). This is dependent on the environment, where they show more excitement or positive feelings in an enriching environment and show deeper negative emotions in threatening and non-supportive environments (Goldberg, 1990). Aron et al. (2012) suggest that in a supportive and enriching environment, highly sensitive children will display a great deal of curiosity and excitement about learning and will often gain deeper positive feelings for their teacher or coach. Once again it should be noted that emotional reactivity is only a single aspect of SPS and is usually expressed by those who are high in the general trait of sensitivity (Aron & Aron, 1997).

Negative-Frequency Dependence

This high-sensitive trait is found in 20% of the population (Lindsay, 2017). SPS is always identified in a minority because it would be no advantage if everyone possessed this highly sensitive (Aron & Aron, 1997). The advantages of a responsive strategy are negative-frequency

dependent, in that it is dependent on how many other individuals are using that strategy (Wolf et al., 2008). It would not be advantageous or adaptive if too many individuals were using the same responsive strategy (Wolf et al., 2008). With regards to the aspects of SPS, noticing and responding to subtle changes in the environment, as well as deeply analysing information, would most times benefit an individual. Unless there were more HSPs around, because this would then lower the value of these opportunities due to more individuals competing for them. Aron et al. (2012) use an example which explains this concept very clearly – a shortcut to avoid a traffic jam would only be beneficial if most individuals did not know about it and always used the main route; the shortcut would no longer offer an advantageous opportunity if everyone discovered it. Therefore, this negative-frequency dependence ultimately promotes a minority of sensitive individuals, with a majority who are non (or less) sensitive (Aron et al., 2012; Wolf et al., 2008).

Highly Sensitive Person Scale

The only self-report measure that has been specifically developed to measure SPS is the Highly Sensitive Person (HSP) Scale (Aron & Aron, 1997). These developers used the HSP scale to assess a unidimensional construct of sensitivity – i.e. a total score of sensory processing sensitivity (Aron & Aron, 1997). However, there have been new developments of the HSP scale that measure several subfactors of SPS (Evans & Rothbart, 2007; Meyer et al., 2005; Smolewska et al., 2006). The most popular of these developments is the three-factor analysis of SPS, which has the following subscales: (1) ease of excitation (becoming easily overwhelmed from internal and external demands); (2) aesthetic sensitivity (measures aesthetic awareness); and (3) low sensory threshold (measuring sensory sensitivity to external stimuli) (Smolewska et al., 2006). Lionetti et al. (2018) confirmed that the HSP scale consists of both a general SPS construct and a three sub-scale structure. They also discovered that there are three distinct groups of sensitivity. There are individuals in the population who are highly sensitive (labelled as ‘orchids’), while the majority of the population is considered to have a medium sensitivity (‘tulips’), and a small minority have particularly low sensitivity (‘dandelions’) (Lionetti et al., 2018). In this study, SPS will be measured as a one-dimensional construct. Furthermore, it will be treated as a continuous variable, and not as a dichotomous variable that categorises individuals as either sensitive or not sensitive. The three groups discovered by Lionetti et al. (2018) will not be used as cut off scores in the measurement procedures.

Sensory Processing Sensitivity in the Workplace

Researchers have demonstrated that those individuals who are highly sensitive may experience the workplace in ways that are different to those who do not possess the SPS trait (Cooper, 2014; Lindsay, 2017). Cooper (2014) for instance, suggests that HSPs are highly conscientious when it comes to their work, because they pause before acting and continuously reflect after a work experience. More importantly, it was discussed earlier that overstimulation is a key characteristic associated with HSPs (Evers et al., 2008). It therefore becomes important to potentially consider how work may be perceived by employees who can be overwhelmed by all kinds of stimuli. Especially in a demanding environment with a high workload and lack of support, the tasks could potentially become incomprehensible and unmanageable for these types of individuals (Aron & Aron, 1997). Which may further lead to a source of chaotic stimulation, where the employee gives up trying to manage their work and understand their work environment due to their lack of control. Evers et al. (2008) suggest that those individuals who are overwhelmed by stimuli find it significantly difficult to influence the world around them. Also, as a consequence, they become overwhelmed by these stimuli because they accept the fact that they are unable to influence or change things. When they are overwhelmed by different kinds of stimuli in the work context, it becomes difficult for HSPs to cope with their work. Instead, Kobasa (1979) suggests that they detach themselves emotionally from their work to the extent where they become completely “alienated” from their work tasks. Therefore, Evers et al. (2008, p. 190) suggest that SPS should be “introduced to the field of work stress, as they see definite practical applications for it there.” SPS may contribute to high levels of stress because HSPs are more prone to overstimulation (Evers et al., 2008).

The role of SPS in the work environment remains unclear, with only a few studies analysing SPS within the work context (Evers et al., 2008; Lindsay, 2017; Redfearn, 2019; Vander Elst et al., 2019). One of the original studies that looked at SPS in the workplace was conducted by Evers et al. (2008). These researchers aimed to investigate whether there were relationships between SPS and four facets of work: workload, emotional load, work displeasure, and need for recovery (Evers et al., 2008). They did not find a significant correlation between SPS and workload or emotional load. However, they did suggest that workload and emotional load represent the first stage of the stress process, and work displeasure and the need for recovery indicated the second stage of stress. They found significant positive correlations between SPS and work displeasure and need for recovery, which suggested that high SPS could potentially influence burnout (Evers et al., 2008).

This was supported by the findings of another study, where Lindsay (2017) found a statistically significant, positive relationship ($r = .48$) between participants' SPS scores and emotional exhaustion. These researchers specifically analysed this relationship amongst a sample of teachers and demonstrated that teachers who were more highly sensitive also tended to have a risk of experiencing emotional exhaustion (Lindsay, 2017). Furthermore, based on a logistic regression model, they found that SPS accounted for 37.3% of the variance in the risk of burnout (Lindsay, 2017).

Redfearn (2019) also found that SPS was a significant predictor of burnout amongst a sample of nurses. The researcher also found a statistically significant, positive relationship ($r = .51$) between SPS and emotional exhaustion. With the evidence of these findings, they demonstrated that HSPs were prone to burnout, with emotional exhaustion as a significant contributor to this relationship. Additionally, they found a significant relationship ($r = .27$) between SPS and workload, and a relationship with lack of support ($r = .26$) (Redfearn, 2019). With regards to workload, they suggested that HSPs were more likely to experience burnout if they perceived their volume of work to be too demanding (Redfearn, 2019).

It is evident from this empirical research that SPS has been found to significantly correlate with SPS and workload, as well as the burnout component of emotional exhaustion. It, therefore, becomes important to gain an understanding of the notion of burnout, as well as the specific components associated with it.

Burnout: Exhaustion and Disengagement

The concept of burnout was first coined by Freudenberg (1974), where he described a state of mental and physical exhaustion that was caused by the stressors in one's occupational environment. While observing a group of aid organisation volunteers, he began to notice that these individuals' professional lives caused a gradual emotional depletion and extinction of motivation where they began to lose their dedication to work (Bakker et al., 2014). The most influential definition of burnout, however, was offered by Maslach, where he and his colleagues interviewed health-services workers to understand how these individuals were dealing with the stressors of their work environment and the demands of their clients (Maslach et al., 1986). These workers showed strong feelings of emotional exhaustion and progressively developed negative attitudes towards their clients and their work roles (Leiter et al., 2014). Based on these interviews, burnout was characterised as a syndrome consisting of emotional exhaustion, depersonalisation, and lack of personal accomplishment (Demerouti et al., 2001).

Emotional exhaustion refers to feelings of being overextended and emotionally drained as a result of accumulated stress from one's work. Depersonalisation, on the other hand, refers to a negative attitude or detached response toward one's work and the clients they are servicing. Finally, reduced personal accomplishment refers to a decline in one's feelings of successful work achievement, where one negatively evaluates the value of one's work and expresses a lack of contentment or pleasure in regard to performing one's job (Bakker et al., 2014; Demerouti et al., 2001; Maslach & Leiter, 2008). There is a stronger correlation between emotional exhaustion and depersonalisation than with personal accomplishment (Demerouti et al., 2001) and are therefore generally considered to be the core components of burnout (Green et al., 1991). The Maslach Burnout Inventory (MBI) was specifically developed to measure these three dimensions and is one of the commonly used instruments to assess burnout (Demerouti et al., 2001).

This original definition of burnout, however, restricts the syndrome to the human services among those who do 'people work'; not considering those professionals who might work in jobs that consist of processing information for instance (Schaufeli et al., 2017). This idea that burnout occurs exclusively in the human-services sector was rejected, and researchers have continuously demonstrated that the syndrome exists in various occupations (Bakker et al., 2014). For instance, when one critically analyses Maslach's three burnout dimensions it appears that they can be reformulated into more general and familiar terms (Demerouti et al., 2001). The emotional exhaustion aspect of burnout could be associated with common stress reactions that have been identified in occupational stress research, such as job-related depression, fatigue, and psychosomatic complaints (Buunk et al., 1998; Warr, 1987). Furthermore, depersonalisation can be characterised as disengagement or cynicism with regards to the work role. Research has also adapted the common burnout instruments in order to demonstrate that burnout can occur in other occupations. For example, the original version of the MBI was adapted for use in other occupations and was later called the MBI – General Survey (MBI-GS: Taris et al., 1999). In this newly developed survey, the authors replaced the depersonalisation dimension with cynicism and the personal accomplishment dimension with reduced professional efficacy. These components provide an understanding of one's attitude to their work itself and the non-social aspects of their professional accomplishments – not solely focusing on one's attitude towards people, which is what the MBI is specifically concerned with (Bakker et al., 2014). Scholars have also developed other alternative measures of burnout

such as the Oldenburg Burnout Inventory; which was specifically constructed and validated among samples from many different types of occupations (OLBI: (Demerouti et al., 2001).

In the present study, the OLBI will be used as an alternative measure of burnout (Demerouti & Bakker, 2008). This instrument includes two important dimensions: exhaustion and disengagement (from work) (Demerouti et al., 2003). Exhaustion refers to extreme physical, cognitive and emotional strain; and “is a long-term consequence of prolonged exposure to certain job demands” (Demerouti & Bakker, 2008, p. 4). This operationalisation is similar to the conceptualisation of exhaustion in other studies (Lee & Ashforth, 1993; Shirom, 1989). The main difference between the MBIs and the OLBI’s operationalisation of exhaustion is that in addition to the common affective aspect, the OLBI also includes physical and cognitive aspects of exhaustion (Demerouti et al., 2001). This makes the burnout measure more applicable to a multitude of occupational categories (Bakker et al., 2014). The second dimension of the OLBI measure – disengagement – refers to withdrawal of oneself from one’s work tasks and work objectives due to the work being viewed as not challenging or uninteresting (Demerouti & Bakker, 2008). A disengaged employee will have a negative attitude towards their work content and their work in general (Demerouti et al., 2001). This is different to the depersonalisation aspect of the MBI, which is mainly concerned with an emotional distancing of oneself from their clients or colleagues (Demerouti et al., 2001).

Engagement: Vigour and Dedication

The wealth of research that was analysing the burnout syndrome, and psychological wellbeing in general, was later criticised as primarily focusing on the negative aspects of wellbeing, while neglecting potentially positive aspects of employee wellness (Bakker et al., 2008). Therefore, much like how positive psychology in the 1990s suggested a shift away from the traditional focus on human malfunctioning towards an analysis of optimal functioning Maslach et al., (2001), as well as Seligman and Csikszentmihalyi (2014) proposed a shift from solely analysing burnout to also considering and investigating its positive antipode – work engagement. The concept of engagement was first introduced by Kahn (1990) and, in contrast to those suffering from burnout, the engaged employee identifies with their work and thus puts a great amount of effort to complete their tasks and achieve their work objectives; finding their work as challenging rather than stressful and demanding (Bakker et al., 2014). It is conceptualised as the “harnessing of organisation members’ selves to their work roles; in

engagement, people employ and express themselves physically, cognitively, and emotionally during role performances” (Kahn, 1990, p. 694).

When considering the relation between burnout and work engagement, researchers have two different but related schools of thought of work engagement as a positive, work-related aspect of wellbeing (Bakker et al., 2014). Firstly, some researchers consider work engagement to be a direct positive opposite of burnout. They view burnout and work engagement as two opposite poles of a continuum (Schaufeli & Bakker, 2004). The three aspects of work engagement – energy, involvement, and efficacy – are considered to be the antipodes of the three burnout dimensions. When an individual is no longer engaged with their work, they slowly start burning out where their energy turns into exhaustion, their involvement with work turns into cynicism, and efficacy into ineffectiveness (Schaufeli & Bakker, 2004). Work engagement would be assessed by looking at the opposite scores of the burnout dimensions – where low scores on exhaustion and cynicism and high scores on efficacy would indicate employee work engagement (Schaufeli & Bakker, 2004). The second school of thought argues that work engagement is a distinct concept that is completely independent from burnout, where an absence of work engagement does not necessarily indicate burnout (Bakker et al., 2014). Work engagement is operationalised as an independent aspect of work-related wellbeing, where it is negatively related to burnout (Bakker et al., 2014). Thus, “work engagement is characterised by a high level of energy and strong identification with one’s work, whereas burnout is characterised by the opposite: a low level of energy and poor identification with one’s work” (Bakker et al., 2014, p. 391).

Within the present study, the OLBI instrument will be used in order to measure work engagement as an antipode of burnout. A distinctive feature of the OLBI (when compared with other burnout measures) is that it consists of two bipolar scales which include both positive and negative items which allows for the measurement of engagement in addition to burnout (Schaufeli et al., 2017). It was mentioned earlier that the OLBI measures exhaustion as an aspect of burnout. With regards to disengagement with work, this instrument assesses two constructs – vigour and dedication. Vigour is characterised by “high levels of energy and mental resilience while working” and is a measure of an employee’s willingness to put in the necessary effort into their work. Dedication refers to being strongly committed to one’s work tasks and “experiencing a sense of significance, enthusiasm, inspiration and pride (Demerouti & Bakker, 2008, p. 7). Within the current study, vigour, and dedication (engagement) will be analysed as direct antipodes of exhaustion and disengagement (burnout) respectively.

Sensory Processing Sensitivity and Differential Susceptibility

It was mentioned earlier that HSPs tend to have a stronger emotional reactivity. In fact, Jagiellowicz et al. (2011) provided biological evidence of this aspect, where the researchers viewed activity in the brain of highly sensitive participants when these participants were looking at positive and negative pictures. They found that SPS was associated with stronger emotionality in response to positive stimuli than it was to emotionality in response to negative stimuli (Jagiellowicz et al., 2011). This evidence directly links to another concept that is often associated with the trait of SPS, this is the notion of *differential susceptibility* (Belsky & Pluess, 2009). This phenomenon suggests that HSPs “may not only be more sensitive to the negative effects of adverse experiences, but also more sensitive to the beneficial effects of positive environmental exposures” (Lionetti et al., 2018, p. 2). If these theoretical patterns are applied to the workplace, this suggests that employees who are characteristically more sensitive are likely to be more reactive to both negative and positive work characteristics. They may perform well in ideal working conditions (where there is colleague and supervisor support, learning opportunities, variety in work etc.), but may struggle in poor working conditions that have insufficient resources or extremely high demands (Boyce & Ellis, 2005). This is where the Job demands-resources model is introduced as a theoretical foundation for the study, where SPS will be included in this model as an individual personality factor.

Job Demands-Resources Model

The Job Demands-Resources (JD-R) model argues that burnout can develop irrespective of an employee’s occupation. When job demands are high and when there is a lack of job resources, these negative working conditions lead to employee energy depletion and a decrease in employee motivation (Demerouti et al., 2001). The JD-R model is an occupational stress model that was originally developed by Demerouti et al. (2001) and is mainly concerned with dividing job characteristics into two broad categories, namely: job demands and job resources. According to Schaufeli and Bakker (2004, p. 296), job demands refer to “those physical, psychological, social, or organisational aspects of the job that require sustained physical and/or psychological (cognitive and emotional) effort or skills and are therefore associated with certain physiological and/or psychological costs.” For example, the amount of work an employee is expected to complete and the emotional load that is associated with work expectations (Jackson & Rothmann, 2005). Job demands are not necessarily negative, but they could become job stressors when an excessive amount of effort is required to meet those

demands; and especially when the necessary resources are not provided (S Rothmann et al., 2006). Job resources refer to “those physical, psychological, social, or organisational aspects of the job that help to either reduce job demands and the associated physiological and psychological costs, achieve work goals, or stimulate personal growth, learning, and development (Schaufeli & Bakker, 2004, p. 296).” Job resources can be provided at the organisational level (e.g. job security or career opportunities), the interpersonal level (e.g. supervisor and colleague support), the task level (e.g. autonomy or performance feedback), or with regards to the organisation of work (e.g. role clarity) (Rothmann et al., 2006).

Maslach et al. (1986) suggested that high work demands, and the absence of important resources will result in employee burnout, which eventually leads to negative outcomes such as employee turnover, absenteeism, a decrease in organisational commitment and various physical illnesses. However, Schaufeli and Bakker (2004 p. 296) suggest that their model “is purely descriptive and serves as a heuristic framework for integrating study results that were obtained with the MBI.” The JD-R model, on the other hand, is more contemporary and predicts that unfavourable job demands (e.g., work overload, time pressure etc.) are primarily and positively associated with exhaustion, whereas job resources (e.g., social support, autonomy, decision-making involvement etc.) are primarily and negatively associated with disengagement from work (Demerouti et al., 2001). Therefore, when there is the presence of high or unfavourable job demands, employees will most likely experience high levels of exhaustion (but they may not necessarily become disengaged from their work). When there is an absence of important job resources, employees will most likely become disengaged from their work (but may not experience high levels of exhaustion: Demerouti et al., 2001)). In those jobs where there is the presence of high job demands and at the same time, limited job resources, it can be predicted that employees will develop both exhaustion and disengagement from their work, which ultimately represents the burnout syndrome (Demerouti et al., 2001). However, it is important to note that the influence of job demands, and resources may vary across different occupations because each occupational environment has different job demands and varied access to resources (Schaufeli & Bakker, 2004). In the present study, the JD-R will be used by including engagement, which will be measured as a direct antipode of burnout.

Within the current study, the job demand variable that will be analysed is *overload*. Overload relates to the “pace and amount of work, mental load and emotional load” within the employees work context (Jackson & Rothmann, 2005, p. 115). The job resources variables that will be analysed are *growth opportunities* and *organisational support*. The growth opportunity

variable refers to resources such as “variety in work, opportunities to learn and independence in the job (i.e., autonomy)”. Organisational support refers to one’s relationship with their supervisors, “the flow of information, communication, role clarity, and participation” (Jackson & Rothmann, 2005, p. 115).

The Dual-Process of the JD-R Model

Theoretically speaking, the JD-R model assumes that there are two psychological processes in which job demands and job resources play a role in affecting the well-being and engagement of employees (Demerouti et al., 2001). The first process is a health impairment process in which job demands and limited job resources lead to constant overtaxing and eventually, to employee exhaustion. The second process is a motivational process in which the limited availability of job resources hinders the employees ability to effectively deal with high job demands, which further leads to withdrawal behaviour or disengagement (Demerouti et al., 2001; Schaufeli & Bakker, 2004b; Zapf et al., 1999).

Hockey’s state regulation model of compensatory control can be used to explain and emphasise the relationship between job demands and burnout (Hockey, 1997). This cognitive-emotional framework provides an understanding of how individuals maintain their performance under stressful conditions, where they mobilise and manage their mental and working effort in particular ways. Stressful conditions are those when one is confronted with high demands, and one perceives that these job demands cannot be attained by the usual working effort (Hockey, 1997). In these demanding situations, the individual either adopts a strain coping strategy (which requires a significant amount of effort) or a passive coping strategy. In the strain coping strategy, the individual increases their amount of working effort in order to accommodate the high levels of demands. The target performance level is achieved but there is an increase in compensatory costs, and the long-term effects of these compensatory strategies may drain the individual’s energy and eventually lead to exhaustion. The greater amount of effort that is put in, the greater the physiological and psychological costs for the individual (Hockey, 1997). The alternative passive coping strategy to excessive demands is an intentional reduction in overt performance. This is where the individual reduces the level of accuracy of their work or reduces the speed at which their work is performed. By maintaining their working effort at a substantial level, physiological and psychological compensatory costs are prevented, but target performance levels are not achieved (Demerouti et al., 2001). Over time the individual becomes completely disengaged from their work and the pursuit of their task goals (Hockey, 1997).

Whereas Hockey's model explains the relationship between job demand and exhaustion, the self-determination theory, and Job Characteristics Theory (JCT) explains the relationship between job resources and disengagement.

According to Schaufeli and Bakker (2004, p. 298), job resources may play "an intrinsic motivational role because they foster employees' growth, and learning and development, or they may play an extrinsic motivational role because they are instrumental in achieving work goals." This is supported by self-determination theory which suggests that work environments which support autonomy, self-efficacy and employee relatedness, enhance the engagement of employees and increase their intrinsic motivation (Ryan & Frederick, 1997). When employees receive constructive and immediate feedback on their performance, learning is fostered, and self-efficacy is increased. Further, decision latitude and organisational support satisfies the employee need of autonomy and a sense of belonging (Schaufeli & Bakker, 2004). This motivational factor of job resources is further supported by the Job Characteristics Theory (JCT), which suggests that the work context has a motivational potential when there is the presence of five fundamental job characteristics: skill variety, task variety, task significance, autonomy, and feedback (Hackman, 1980). With regards to the extrinsic motivational role of job resources, the Effort-Recovery model suggests that resource-rich work environments ultimately promote employee dedication to their work tasks and their willingness to achieve work goals and objectives (Meijman et al., 1998). For instance, when employees receive feedback and support from their co-workers and supervisors, this increases the likelihood of them successfully completing their work and achieving their work goals. The availability of job resources becomes vitally important in ensuring that work tasks are completed successfully and that work goals are attained efficiently. Ultimately, whether job resources are provided in order to satisfy basic occupational needs, or to allow for personal growth and attainment of work goals, the outcome is positive, and the employee is likely to be engaged with their work (Meijman et al., 1998).

Empirical Evidence of the JD-R Model

Since the JD-R model was developed and introduced in the wellbeing literature (Demerouti et al., 2001), it has been applied to thousands of organisations in many different contexts and has influenced and inspired many different empirical studies (Bakker et al., 2014; Crawford et al., 2010; Halbesleben, 2010; Nahrgang et al., 2011). The original study conducted by Demerouti et al. (2001) demonstrated that job demands are distinctive predictors of exhaustion, whereas

job resources are distinctive predictors of (dis)engagement. Furtherly, with this original JD-R model being supplemented with work engagement (a positive psychological construct), many other later studies have provided evidence for these dual pathways – where job demands are positively associated with burnout, and job resources are positively associated with work engagement (Ahmed et al., 2019; Alarcon, 2011; Bano et al., 2015; Botha & Mostert, 2014; Crawford et al., 2010; Demerouti et al., 2010; Didit & Nikmah, 2020; Jackson & Rothmann, 2005; Meintjes & Hofmeyr, 2018; Mekhum & Jermisittiparsen, 2019; Orgambidez-Ramos & de Almeida, 2017; Sebastiaan Rothmann & Rothmann Jr, 2010; Taipale et al., 2011; Upadaya et al., 2016; Van den Broeck et al., 2008; Vera et al., 2016; Xi et al., 2020).

Alarcon (2011) conducted a meta-analysis which specifically focused on burnout and the health impairment process of the JD-R model. This meta-analysis revealed that job demands were positively associated with burnout. Specifically, it demonstrated that role ambiguity ($r = .32$), workload ($r = .49$), and role conflict ($r = .53$) were all positively related to emotional exhaustion (Alarcon, 2011). It furtherly found that the two job resources of control ($r = -.26$) and autonomy ($r = -.24$) were both negatively related to emotional exhaustion (Alarcon, 2011). Additionally, through a moderator analysis, the results suggested that the relations between job demands, resources, and emotional exhaustion were moderated by the scales that were used to measure burnout within the samples (Alarcon, 2011). It was found that in samples that used the MBI-Human Service Survey, there were stronger relations between the job demands and resources, and emotional exhaustion. Lastly, the study included samples from both human services and non-human service occupations and indicated that the health impairment process is evident in many different types of organisations (Alarcon, 2011).

The two separate reviews conducted by Christian et al. (2011) and Halbesleben (2010) focused on work engagement and provided evidence for the motivational process of the JD-R model. Their results revealed significant correlations (r varied between .24 and .53) between job resources and work engagement (Christian et al., 2011; Halbesleben, 2010). Crawford et al. (2010) calculated a meta-analytic structural equation model in order to understand the dual pathway assumption of the JD-R model. They relied on cross-sectional studies and found significant relationships between job demands and burnout ($r = .25$) and job resources and work engagement ($r = .25$) (Crawford et al., 2010). Furthermore, a more recent study conducted a meta-analysis of 74 longitudinal studies that were conducted in various cultural contexts and occupational groups, and also consisted of varied gender ratios (Lesener et al., 2019). These researchers were able to validate the causal assumptions of the JD-R model: that excessive job

demands lead to burnout ($\beta = .10$; $p < .05$), an abundance of job resources lead to work engagement ($\beta = .18$; $p < .001$), and that poor job resources influence burnout ($\beta = -.16$; $p < .001$) (Lesener et al., 2019). Another study was conducted by Upadyaya et al. (2016) where they examined the role of efficacy beliefs, servant leadership and resilience as job resources, and workload as a job demand. Analysing a sample of 1 415 (586 males, and 829 females) employees, they found that servant leadership was positively related to work engagement and negatively associated with burnout symptoms. This resulted in better recovery from work fewer depressive symptoms (mental health diagnoses) (Upadyaya et al., 2016). Similar to previous studies, high workload was found to be positively associated with burnout.

Despite the extensive knowledge that has been accumulated about job demands, job resources, burnout, and work engagement – Van den Broeck et al. (2017, p. 370) suggest that “we have a poor understanding of the occurrence of job demands and job resources across sectors and whether they relate to burnout and work engagement in a similar way across sectors.” This becomes an issue because the JD-R model is supposed to be valid for diverse work environments and should be able to be applied to different occupational groups (Lesener et al., 2019). Consequently, a few studies have intentionally applied the JD-R model to different occupational environments. For example, Brauchli et al. (2013) analysed a heterogeneous sample from organisations in the public sector, health care, and industry. They found that job demands (e.g., overload, uncertainty, time pressure, and work interruptions) and job resources (e.g., social support, task significance, and job control) were associated with burnout and work engagement. Van den Broeck et al. (2017) found similar findings, where they revealed that the health care sector was characterised by the lowest levels of burnout and high levels of work engagement. This finding can be supported by Bakker et al. (2014), where they suggest that within health care certain emotional demands may be less cumbersome, because health care practitioners would expect these types of jobs and would view them as an intrinsic part of their job. This may be different within the industry sector, where these types of emotional job demands would be less inherent.

SPS and the JD-R Model

Most of the empirical research that has been discussed above analyses the relationship between different job demands and burnout, and different job resources and work engagement. However, other researchers have gone further to integrate individual factors into this JD-R model (Bakker et al., 2014; Macey & Schneider, 2008; Schaufeli & Taris, 2014). Individual

factors would refer to any differences between individuals. For example, certain personality traits such as self-efficacy, locus of control, emotional stability etc. (Schaufeli & Taris, 2014). Many researchers suggest that there is the possibility that these individual differences could play an important role in terms of influencing burnout and work engagement (Bakker et al., 2014). In fact, they refer to these individual differences as personal resources, because they are “positive self-evaluations that are linked to resiliency and refer to individuals’ sense of their ability to control and impact their environments successfully” (Bakker et al., 2014, p. 401). This idea ultimately suggests that the trait of SPS as a factor of individual difference could also be a potential personal resource.

There is evidence to suggest that these personal resources can be integrated into the JD-R model, where they could either act as antecedents of job demands and job resources, or more importantly, as moderators of the relationships between job demands and burnout, and job resources and engagement (Schaufeli & Taris, 2014; Van den Broeck et al., 2008). With regards to this moderating role, personal resources could firstly help employees to cope with high demands which may reduce the effect of job demands on burnout (Grover et al., 2017). For instance, those employees with high emotional stability would be better able to deal with high demands than individuals with lower emotional stability (Schaufeli & Taris, 2014). Secondly, employees with specific personality traits may be better able to mobilise and make use of their job resources than other employees with a different personality trait, which may increase the effect of job resources on work engagement (Van den Broeck et al., 2015). The personality trait, therefore, becomes a personal resource within this relationship.

The SPS trait could potentially act as a personal resource within the JD-R model, where it may influence the effect of job demands on burnout, and the effect of job resources on engagement. However, it was discussed earlier that HSPs become easily overwhelmed in those environments that are characterised by high levels of stimulation (e.g., high workload) (Aron & Aron, 1997). Therefore, in this case, SPS would not act as a personal resource because it does not help individuals in their ability to control and impact the work environment around them (Bakker et al., 2014). This personality trait rather becomes a hindering factor that makes it more difficult for individuals to control their environment. Thus, this personality trait may strengthen, rather than reduce, the effect of job demands on burnout. However, based on the theory of differential susceptibility, SPS may become a positive individual factor (a personal resource) moderating the pathway of job resources on work engagement.

It was mentioned earlier that based on the theory of differential susceptibility, those individuals with the SPS trait generally show more sensitivity to the negative effects of unstable and demanding environments, as well as more sensitivity to the beneficial effects of positive and supportive environments (Lionetti et al., 2018). Based on this theory, one could assume that the SPS trait could become a hindering individual factor that may strengthen the effect of job demands on burnout. These highly sensitive individuals will usually struggle in working environments with high demands and may become more susceptible to the possibility of burnout. However, those employees with the SPS trait would also react to positive environments (possibly where organisational support and other resources are provided). Therefore, due to HSPs differential susceptibility to positive environmental exposure, the trait of SPS could then also act as a personal resource (positive individual factor) that strengthens the effect of job resources on work engagement (Lionetti et al., 2018). Ultimately, those employees with higher and lower levels of SPS may develop differential susceptibility to work environments that are characterised by different levels of job demands and resources (Vander Elst et al., 2019).

There have been studies that have considered the direct relationship (main effects) between SPS and burnout. For instance, it was identified earlier that both Redfearn (2019) and Lindsay (2017) found SPS to be a significant predictor of burnout. However, there has only been one study which has considered the potential moderation or mediation effects on SPS on burnout (Vander Elst et al., 2019). These researchers aimed to investigate whether HSPs respond differently to the job demands and the availability of job resources within their work environment. Specifically, they looked at the three components of SPS (i.e., ease of excitation, aesthetic sensitivity, and low sensory threshold) and investigated whether these components strengthen the effect of job demands and emotional exhaustion, and the effect of job resources on employee helping behaviour. The job demands they included in the model were workload and emotional demands, and the job resources were task autonomy and social support. They found that the SPS components of ease of excitation and low sensory threshold had significant interactions with job demands, suggesting that these two SPS components strengthen the relationship between job demands and emotional exhaustion. Furthermore, low sensory threshold also strengthened the relationship between job resources and helping behaviour (Vander Elst et al., 2019).

Current Study

Firstly, due to HSPs greater awareness to subtle stimuli (and higher risk of overstimulation), and their deeper cognitive processing of environmental stimuli – the current study aims to investigate whether the personality trait of SPS is associated with the two constructs of burnout (i.e., exhaustion and disengagement). Secondly, also due to their deeper processing of new information, as well as their inhibition of behaviour, the current study aims to investigate whether SPS is associated with the job demand variable of overload. There has only been one study that has analysed the role of SPS within the South African work context specifically – where a sample of call centre agents were analysed. The current study goes beyond to analyse a more heterogenous sample by analysing the role of SPS across different work sectors in the South African workplace context. In line with the empirical evidence that has analysed these relationships, I thus predict:

Hypothesis 1: SPS will be significantly related to the exhaustion construct of burnout, where higher levels of SPS are associated with higher levels of exhaustion.

Hypothesis 2: SPS will be significantly related to the job demand of overload, where higher levels of SPS are associated with higher levels of overload.

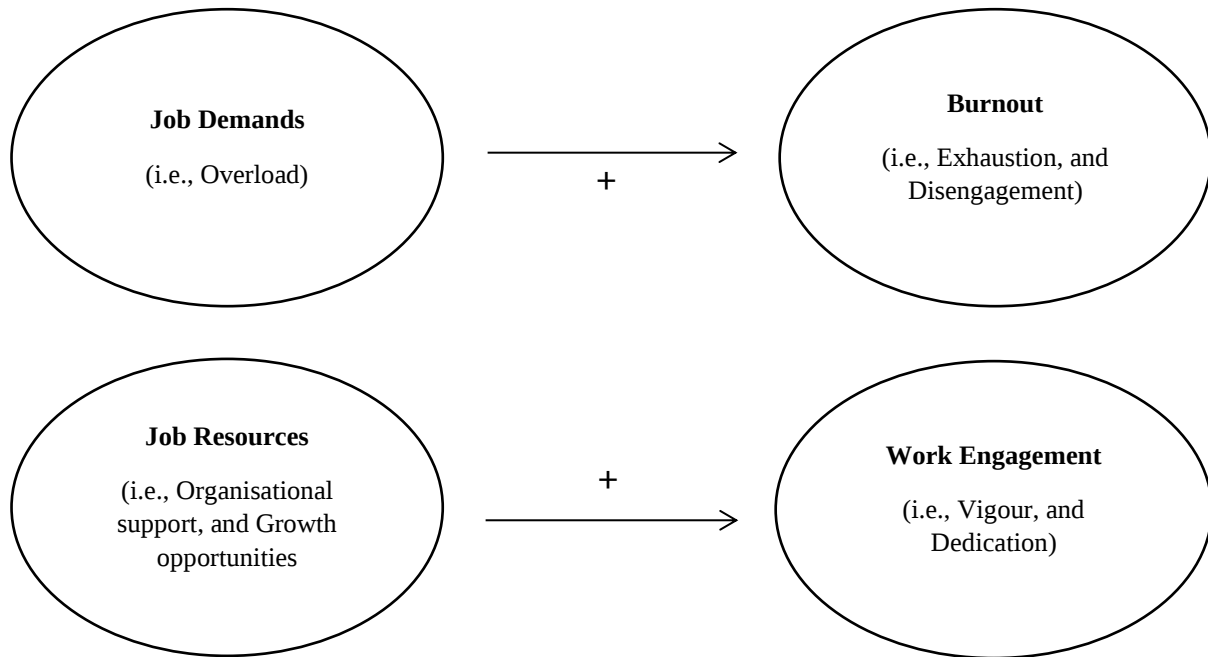
Thirdly, the current study also aims to investigate the dual psychological process that is assumed by the JD-R model. It firstly aims to investigate the health impairment process, where it is interested in determining whether there is a relationship between the job demand of overload and the two burnout variables of exhaustion and disengagement. Secondly, it also aims to investigate the motivational process – whether there is a relationship between the two job resources of organisational support and growth opportunities, and the two work engagement variables of vigour and dedication. Based on previous empirical findings of these relationships, I thus predict:

Hypothesis 3: Job demands (i.e., overload) will be positively related to burnout (exhaustion and disengagement), where higher levels of job demands will be associated with higher levels of exhaustion and disengagement.

Hypothesis 4: Job resources (i.e., organisational support, and growth opportunities) will be positively related to work engagement (vigour and dedication), where higher levels of job resources will be associated with higher levels of work engagement.

These hypotheses (3 and 4) are depicted in *Figure 1* below:

Health Impairment Process



Motivational Process

Figure 1:

The dual psychological process of the JD-R model.

Lastly, with the use of the JD-R model as a theoretical framework, the current study aims to investigate the potential moderating role of SPS on the relationship between job demands (i.e., overload) and burnout (i.e., exhaustion and disengagement), and on the relationship between job resources (i.e., organisational support and growth opportunities) and work engagement (vigour and dedication). Based on the theory of the JD-R model, this analysis involves adding the personality trait of SPS as an individual factor to the JD-R model. With the support of the theoretical foundations of SPS and the theory of differential susceptibility, I predict that:

Hypothesis 5: SPS moderates the relationship between the overload job demand and the burnout constructs of exhaustion and disengagement, where these relationships will be strengthened when there are higher levels of SPS.

Hypothesis 6: SPS moderates the relationship between job resources (i.e., organisational support and growth opportunities) and work engagement (i.e., vigour and dedication), where these relationships will be strengthened when there are higher levels of SPS. These two hypotheses (5 and 6) are thus depicted in *Figure 2* below:

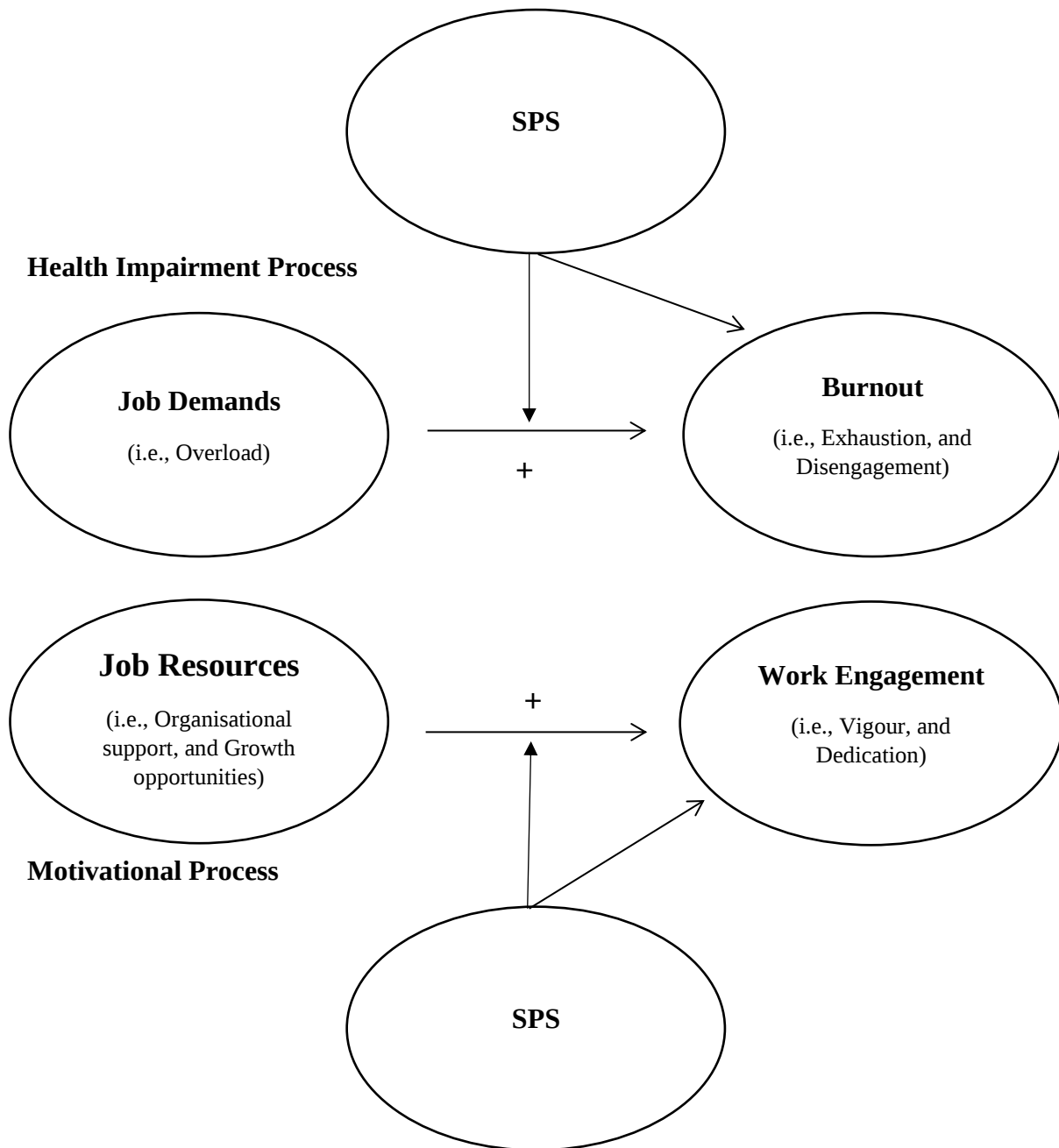


Figure 2:

SPS included in the JD-R model as an individual factor.

Vander Elst et al. (2019) offered the first evidence of the moderating role of SPS in the JD-R model. However, the current study differs to the study of Vander Elst et al. (2019) in several ways:

Firstly, within their study, Vander Elst et al. (2019) analysed SPS as a personality characteristic comprised of three components: ease of excitation (EOE), aesthetic sensitivity (AES), and low sensory threshold (LST). They separately investigated the predictions for each of these three

dimensions of SPS. With regards to their study limitations, the researchers stated that their “study showed a rather low internal consistency for both AES and LST and required that many items were omitted from the SPS subscales to improve model fit” (Vander Elst et al., 2019, p. 14). This, therefore, indicates that the psychometric properties of the three subscales of the HSP scale were questionable in terms of their reliability (Vander Elst et al., 2019). Therefore, within the current study, the HSP scale will be used to assess a unidimensional construct of sensitivity (i.e., total score of SPS), rather than a three-factor analysis of SPS.

Secondly, Vander Elst et al. (2019) analysed the job demands of workload and emotional demands, and the job resources of social support and learning opportunities. The current study includes the job demand of overload, and the job resources of organisational support and growth opportunities into the JD-R model (Jackson & Rothmann, 2005).

Thirdly, the JD-R model is considered to be a parsimonious model where it includes the four predominant components of job demands, job resources, burnout, and work engagement (Demerouti et al., 2001). Although Vander Elst et al. (2019) analysed the burnout outcome variable of exhaustion (burnout), but they did not consider the fourth component in the JD-R model; work engagement. Rather, they analysed the moderating role of SPS on the relationship between job resources and employee helping behaviour. It would be interesting to analyse the common motivating process of the JD-R model. Therefore, the current study goes beyond to analyse the outcome variable of work engagement (i.e., vigour and dedication). Lastly, the results that were found by Vander Elst et al. (2019) were based on analysing a sample of Belgian employees. It would be interesting to understand the differential susceptibility of HSPs to the work environment within a South African workplace context.

COVID-19 Pandemic

Lastly, the current study was also conducted during the COVID-19 pandemic. The workplace in South Africa (and in many other countries across the world) have obviously been impacted by the circumstances brought by the COVID-19 pandemic. South Africa was operating under a national lockdown when this study was conducted, which undoubtedly affected the business operations of many organisations. The uncertainty and the stress associated with the pandemic could potentially have an impact on individual's wellbeing. Although this is not the aim of the current study, it should be noted that there could potentially have been stressors that were affecting employees in many different ways.

Research Questions

RQ 1: Is there a relationship between sensory processing sensitivity and exhaustion?

RQ 2: Is there a relationship between sensory processing sensitivity and disengagement?

RQ 3: Is there a relationship between sensory processing sensitivity and overload?

RQ 4: Is there a relationship between overload and exhaustion?

RQ 5: Is there a relationship between overload and disengagement?

RQ 6: Is there a relationship between organisational support and vigour

RQ 7: Is there a relationship between organisational support and dedication?

RQ 8: Is there a relationship between growth opportunities and vigour?

RQ 9: Is there a relationship between growth opportunities and dedication?

RQ 10: Does sensory processing sensitivity moderate the relationship between job demands (i.e., overload) and exhaustion?

RQ 11: Does sensory processing sensitivity moderate the relationship between job demands (i.e., overload) and disengagement?

RQ12: Does sensory processing sensitivity moderate the relationship between job resources (i.e., organisational support and growth opportunities) and vigour?

RQ13: Does sensory processing sensitivity moderate the relationship between job resources (i.e., organisational support and growth opportunities) and dedication?

Chapter Two: Methods

Introduction

The next chapter will discuss the research design that was used within the current study. The sampling strategy and the procedure that was used will firstly be discussed. Secondly, the sample that was gathered will be discussed using descriptive statistics. The overall research design will then be addressed, as well as the specific instrumentation that was used in the current study. Finally, there will be a discussion around the specific statistical analyses that were used to generate the results, and the ethical considerations associated with the present study.

Sampling Strategy and Procedure

The sample for the current study was obtained using non-probability, convenience (volunteer) and snowball sampling.

According to Dusek et al. (2015, p. 281), “snowball sampling is undertaken when a qualified participant shares an invitation with other subjects similar to them who fulfil the qualifications defined for the targeted population.” Convenience and snowball sampling strategies are more effective in gathering data and are commonly used for exploratory purposes. The current study was conducted during the COVID-19 pandemic and these particular strategies proved to be the most efficient in gaining a reasonable sample size. The COVID-19 pandemic caused a great amount of uncertainty about the economic climate within South Africa and the future of many businesses. Within such a period of uncertainty where many industries were not fully functioning, a probability sampling would most likely have proved difficult in gathering an adequate response rate. Therefore, although convenience and snowball sampling may be questionable in terms of representativeness and generalisability, they were the most efficient strategies in gathering a reasonable sample size in a short space of time.

Subsequently, in order to gather a sufficient sample, the current study sourced participants from many different organisations and sectors. The sample was limited to any individual who was employed, was above the age of 18 years, and had internet access. The responses from this sample were gathered using an online survey.

The scales used in the current study (see *measures* section below) were incorporated into an overall questionnaire using the professional internet host research platform SurveyMonkey. This online-based questionnaire was used to collect the quantitative responses and was

conducted over a three-month period where it was made available to participants from October 2020 to January 2021. It should be noted that a combined questionnaire was developed in order to collect data for two separate studies. The questionnaire, therefore, not only included the scales used in the current study but also included other scales that were used in an entirely separate study.

According to Baruch and Holtom (2008), the response rates to surveys used in quantitative research have been decreasing over the years. These low response rates may impact the validity and reliability of research, where the sample may not be representative of the total population and the generalisability of any inferences and conclusions to the population may be impacted (Baruch & Holtom, 2008). Furthermore, the data collection process may take more time in order to collect a sufficient number of responses. Therefore, to ensure that this research report was completed in a timely and cost-effective manner, participants were invited to complete the study survey via social media platforms. General social media platforms such as Facebook and Instagram were used, as well as other professional networking platforms such as LinkedIn. This platform has a large network of professionals from various fields (across several industries) and allowed for data collection to be targeted to a sample of employees.

A participation invitation was sent out via email to working family, friends, and acquaintances. This invitation contained general information about the study and included a URL hyperlink to the online questionnaire; should the individuals have been interested in participating. Additional participants were also invited to participate via Facebook and Instagram. On Instagram, a post was uploaded which contained general information relating to the study, inviting individuals to participate in the study if they were interested. This same post was uploaded every two weeks. The same general information about the study was posted on Facebook with the URL attached to this post. Participants were also reminded about the study with a post every two weeks. Furtherly, the questionnaire was also sent out to current professionals via the LinkedIn platform. When the participation invite was distributed using these several platforms, participants were also kindly asked to share the invite with anyone they thought might be interested in participating. Therefore, additional participants were recruited using snowball sampling.

After the participant clicked on the URL link, the first page of the survey included the participant information sheet (see *Appendix B*). This provided all the necessary information about the study in order to allow for the participant's informed and voluntary consent. The

contact details of the researcher and supervisor were also provided on this page. Once the participant had provided their consent they were directed to the online questionnaire. The estimated time for completion of the online questionnaire was 20 minutes. Within the online questionnaire, the participants were requested to complete the Highly Sensitive Person Scale, the Job Demands-Resources Scale, and the Oldenburg Burnout Inventory (see *Appendix E, F, and G*). They were also requested to complete the demographics questionnaire that is used to describe the sample (*Appendix C*), and a few questions relating to the challenges of the COVID-19 pandemic (*Appendix D*). Following the closing of the survey, the participant data was then downloaded, cleaned, and analysed using the Statistical Package for the Social Sciences version 27.

Sample Description

The data collection procedure that was used above resulted in a total of 257 employees filling out the questionnaire. However, 122 of these responses contained missing values on at least one of the variables used in the current study; these respondents were therefore removed. Furthermore, 7 of the respondents were self-employed, which proved to be unfit for the purposes of the current study. One of the job resource variables is organisational support – which would be difficult to understand amongst those employees who are self-employed. Therefore, these respondents were also removed from the dataset. Once all these responses had been removed, 125 of the 257 responses (i.e., 48.64%) were used for analysis in the current study. This low response rate could potentially be based on the volunteer method, as well as the use of a combined questionnaire which contained several different study scales.

The demographic information of the final sample that was used in the current study is provided below:

Table 1

Descriptive statistics for age and tenure

Variable	N	Mean	Std.Dev.	Min.	Max.
Age	124	30.94	9.462	20	64
Tenure	123	3.03	3.57	.08	23

Table 2

Frequencies for gender, language, education, employment status, work sector, occupational level, and current workplace

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	42	33.6
	Female	83	66.4
Home Language	Afrikaans	6	4.8
	English	54	43.2
	IsiNdebele	11	8.8
	IsiXhosa	12	9.6
	IsiZulu	13	10.4
	Sepedi (North Sotho)	5	4
	Sesotho	3	2.4
	Setswana	3	2.4
	Siswati	3	2.4
	Tshivenda	1	0.8
	Xitsonga	3	2.4
Education	Postgraduate Degree	57	45.6
	Undergraduate Degree	41	32.8
	Diploma	10	8
	Matric	12	9.6
	High School Grade	2	1.6
	Other	3	2.4
Employment Status	Full-time	100	80
	Part-time	25	20
Work Sector	Agriculture	3	2.4
	Finance	24	19.2
	Government	13	10.4
	Trade	1	.8
	Manufacturing or Production	2	1.6
	Transport and Communication	3	2.4
	Mining	4	3.2
	Personal Services	11	8.8
	Teacher	15	12
	Sales	10	8

Variable	Category	Frequency (n)	Percentage (%)
	Information Technology	7	5.6
	Hospitality	2	1.6
	Healthcare	11	8.8
	Legal	4	3.2
	Consulting	2	1.6
	Academia	3	2.4
	Marketing	2	1.6
	Engineering	1	0.8
	Tertiary Education	2	1.6
	Petrochemical	1	0.8
	Pharmaceutical	1	0.8
	Retail	1	0.8
	Energy	1	0.8
	Insurance	1	0.8
Occupational Level	Top management	5	4
	Senior management	9	7.2
	Professionally qualified, experienced specialist and mid-management	32	25.6
	Skilled technical and academically qualified worker, junior management, supervisor, foremen, superintendent	47	37.6
	Semi-skilled and discretionary decision making	25	20
	Unskilled and defined decision making	7	5.6
Current Workplace	Working-from-home	53	42.4
	Workplace	64	51.2
	Both	8	6.4

In this final sample, the age of the respondents ranged from 20 years to 64 years of age, with the mean age being 30.94 years ($M = 30.94$). The sample was predominantly female, where eighty-three of the respondents were female (66.4%) and forty-two of the respondents were male (33.6%). This sample was also made-up of individuals from many different language groups, where fifty-four of the respondents were English (43.2%), six of the respondents were Afrikaans (4.8%), eleven were IsiNdebele (8.8%), twelve were IsiXhosa (9.6%), thirteen were

IsiZulu (10.4%), five of the respondents were Sepedi (4%), three were Sesotho (2.4%), three were Setswana (3%), three were SiSwati (2.4%), three were Xitsonga (2.4%), one respondent was Xitsonga (2.4%), and nine other respondents were from additional language groups. The majority of the respondents had obtained a postgraduate degree (45.6%), where forty-one of the respondents had obtained an undergraduate degree (32.8%), and the remainder of the participants had either obtained a diploma (8%), national senior certificate (9.6%), or completed a high school grade (1.6%).

With regards to the respondents' work context, one hundred of them were working full-time (79.2%), whereas the other twenty-five respondents' jobs involved part-time roles (20%). The average tenure of the respondents with their current organisations was 3.03 years ($SD = 3.57$). This sample of respondents were also obtained from many different work sectors. It was found that the largest number of respondents were working in the finance sector ($n = 24$, 19.2%). Furthermore, the second largest number of respondents were teachers ($n = 15$, 12%). The other work sectors that consisted of larger numbers of employees were government ($n = 13$, 10.4%), personal services ($n = 11$, 8.8%), healthcare ($n = 11$, 8.8%), sales ($n = 10$, 8%), and information technology ($n = 7$, 5.6%). There were only a few respondents within the other work sectors, and only a single participant ($n = 1$, 0.8%) as part of the trade, engineering, petrochemical, pharmaceutical, retail, energy, and insurance work sectors. The majority of these respondents were technically skilled and academically qualified employees or supervisors ($n = 47$, 37.6%), where the other majority (thirty-two respondents) were professionally qualified and experienced specialists or part of mid-management (25.6%). The smallest number of respondents were employed in top management positions ($n = 5$, 4%), or were unskilled workers ($n = 7$, 5.6%).

Possibly due to the work circumstances caused by the COVID-19 pandemic, it was not surprising to find out that fifty-three (42.4%) of the participants were working from home. However, despite the restrictions of the national lockdown that was implemented in South Africa, by the time the data was being collected many employees had already returned to the workplace. The descriptive information of the current sample displayed that sixty-four (51.2%) of the participants had returned and were currently working in their place of work. There were eight respondents (6.4%) who were working both from home and within the office. The descriptive findings also revealed that most of the employees ($n = 20$, 10.4%) returned to work during level four of the lockdown.

The Impact of the COVID-19 Pandemic

It should be noted that the current study was conducted during the COVID-19 pandemic. It was, therefore, important to consider how the COVID-19 pandemic potentially disrupted the work of the employees that participated within this study. Additionally, some information was gathered around the particular challenges that these employees had to face due to the changes that were brought by the COVID-19 pandemic. This information was gathered using two items within the online questionnaire. The frequencies of the responses from these two items are provided below:

Table 3

Frequencies for work disrupted by COVID-19 pandemic, and the challenges faced due to the changes caused by the COVID-19 pandemic

Variable	Category	Frequency (n)	Percentage (%)
Work disrupted by the COVID-19 Pandemic	Not at All	18	14.4
	Very Little	36	28.8
	Somewhat	41	32.8
	To a Great Extent	30	24
Challenges faced due to the changes caused by the COVID-19 Pandemic	Technological or data changes	42	33.6
	Loneliness	34	27.2
	Fear of the unknown	74	59.2
	Job deadline challenges	35	28
	Financial Challenges	49	39.2
	Other	8	6.4

The first COVID-19 item (“work disrupted by the COVID-19 pandemic”) was measured as a continuous variable (Likert-type Scale). Usually, continuous variables should be analysed using descriptive statistics, however the frequencies provided more detailed information as to how many participants were impacted by the pandemic. Although this information is limited, because it is only based on responses to two items, it still provides interesting information with regards to how this sample of employees were impacted by the COVID-19 pandemic.

Based on the information in *Table 3* above, it was found that 24% of the sample of participants were impacted by the pandemic to a great extent. Where only 14.4% claimed that the pandemic

had not impacted their work at all. The main challenges that this sample of employees faced was a fear of the unknown, technological or data changes, as well as financial challenges.

General Research Design

The research design of the current study is quantitative, non-experimental, and cross-sectional, where the nature of the questions is exploratory and correlational.

Correlational designs use formal measurement to establish and describe the relationship between independent (predictor) and dependent (criterion) variables (Field, 2009). This is represented by the direction and strength of a significant association. The nature of the research questions in this study are exploratory and are focused at looking at the relationship between the different variables.

It is important to note that the non-experimental and cross-sectional nature of this design does not allow for causal inferences to be established. The four main independent variables (SPS, overload, organisational support, and growth opportunities) were not manipulated (deliberately changed) within this study. Therefore, temporal precedence cannot be established within this design (Haslam & McGarty, 2014). However, the theory and understandings associated with the JD-R model do suggest that job demands, and job resources precede burnout and engagement respectively (Rothmann et al., 2006). The variables that are analysed in this study are all continuous, and there is no analysis of the difference between groups. More importantly, the outcomes of the study are not compared between a control group and an experimental group. Therefore, within this design, it becomes significantly difficult to establish covariation (Haslam & McGarty, 2014). In the present study, there is also no use of experimental techniques to ensure random assignment or matching of the participants. Therefore, it is difficult to rule out other explanations of the outcomes and establish non-spuriousness (Haslam & McGarty, 2014).

Although the criteria for causality cannot be met, it is not the purpose of this study to test for cause-and-effect relationships between the variables. The purpose is purely correlational and aims to examine the nature of these relationships. Additionally, the design of this study is cross-sectional in nature as the variables are being measured only at one point in time (Haslam & McGarty, 2014). Finally, the study also involves a between-subjects design.

Measurement Instrumentation

Demographic Questionnaire (Appendix C)

This included demographic items of gender, language, highest level of education, occupational group, occupational level, current workplace, age, and tenure. The data gathered from these demographic questions were used to describe the sample.

Covid-19 Issues (Appendix D)

This section contained a few items to gather some information with regards to the issues that participants were facing during the current COVID-19 pandemic.

Job Demands-Resources Scale (Appendix E)

The job demands (overload and job insecurity) and job resources (organisational support and growth opportunities) variables were measured using sub-scales from the Job Demands-Resources Scale (JDRS) (Jackson & Rothmann, 2005). The JDRS consists of several subscales but within this study only the overload, organisational support, and growth opportunity sub-scales were used from the JDRS.

The overload sub-scale has 6 items. An example item is – “Do you have too much work to do?”. It should be noted that this subscale originally had 7 items, however, one item was removed due to its lack of relevance to the current study. The organisational support sub-scale has 11 items. (Jackson & Rothmann, 2005, p. 115). An example item is – “Can you count on your supervisor when you come across difficulties?” The growth opportunities sub-scale has 7 items. An example item is - “Do you have freedom in carrying out your work activities?”

All the 24 questions from the three sub-scales are rated on a four-point Likert scale ranging from 1 (*never*) to 4 (*always*). High scores on each scale indicate high levels of that particular construct. An evaluation of the JDRS was conducted by Rothmann et al. (2006), where they investigated the reliability, construct validity and construct equivalence of the JDRS in different organisations in South Africa. They found that “the JDRS is valid, reliable and equivalent for different organisations” in South Africa (S Rothmann et al., 2006, p. 83). These authors also found acceptable Cronbach alpha coefficients for the overload measure ($\alpha = .76$), organisational support measure ($\alpha = .92$), and the growth opportunities measure ($\alpha = .86$).

The internal consistency for each sub-scale was also determined in the current study. As shown in *Table 4* below, the Cronbach Alpha estimate for overload ($\alpha = .75$), organisational support ($\alpha = .91$), and growth opportunities ($\alpha = .88$) were all acceptable. Therefore, the three scales show acceptable internal consistency reliability.

Oldenburg Burnout Inventory (Appendix G)

The Oldenburg Burnout Inventory (OLBI) will be used to measure the two main burnout outcome variables of the current study – exhaustion and disengagement (with work) (Demerouti et al., 2003). Furthermore, the OLBI will be used to measure the two main work engagement variables of vigour and dedication. The OLBI consists of both negatively and positively worded items, which allows for both ends of the continuum (burnout and work engagement) to be represented (Demerouti & Bakker, 2008). The OLBI measure consists of 16 items and measures burnout using two dimensions: exhaustion and disengagement. Example items of the exhaustion sub-scale (8 items) are – “During my work, I often feel emotionally drained” and “When I work, I usually feel energised” (reversed). The disengagement sub-scale also consists of 8 items which include – “Over time, one can become disconnected from this type of work” and “I feel more and more engaged in my work” (reversed). These exhaustion and disengagement subscales include items that allow for their direct opposite work engagement variables to be measured – vigour and dedication. The negatively framed items within the measure are reversed scored in order to measure work engagement with the OLBI (Demerouti & Bakker, 2008). The positive items were reversed in order to measure the two burnout constructs. These sub-scales are rated on a four-point Likert scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). High scores on the exhaustion sub-scale indicate high levels of employee exhaustion, and high scores on the disengagement sub-scale indicate high levels of employee disengagement from their work. Similarly, high scores on the vigour sub-scale indicate high levels of employee vigour, and high scores on the dedication sub-scale indicate high levels of employee dedication.

Demerouti et al. (2003) indicated acceptable reliabilities for both sub-scales of OLBI, with the exhaustion sub-scale exhibiting a moderate reliability ($\alpha = .73$) and the disengagement sub-scale exhibiting a high reliability ($\alpha = .83$). The OLBI was originally developed in German, however, the English translation demonstrates acceptable discriminant, convergent and factorial validity (Halbesleben & Demerouti, 2005). The OLBI proves a good alternative to the Maslach Burnout Inventory – which was developed specifically for human service

professionals (Demerouti et al., 2003) – as this scale demonstrates acceptable validity for white collar workers and employees in other types of work (e.g. information processing type jobs) (Demerouti & Bakker, 2008).

Within the current study the Cronbach Alpha estimates were generated for each sub-scale, and both disengagement ($\alpha = .816$) and exhaustion ($\alpha = .831$) indicated high reliability. These coefficients are indicated in *Table 4* below.

Highly Sensitive Person Scale (Appendix F)

Sensory processing sensitivity will be assessed using the 27-item Highly Sensitive Person (HSP) scale (Aron & Aron, 1997). This is “the only self-report measure specifically developed to assess general sensitivity in adults (Lionetti et al., 2018, p. 2)”. All the items are rated on a seven-point Likert scale ranging from 1 (*Not at all*) to 7 (*Extremely*). Example items include: “Do you become unpleasantly aroused when a lot is going on around you?”; “When you must compete or be observed while performing a task, do you become so nervous or shaky that you do much worse than you would otherwise?”; “Do you seem to be aware of subtleties in your environment?”. In the current study, a mean score across all the items was computed in order to create a total sensitivity score for each participant. Higher scores on this scale indicate higher levels of sensitivity.

Table 4

Cronbach Alphas for overload, organisational support, growth opportunities, disengagement, exhaustion, and sensory processing sensitivity

	Cronbach Alpha	Number of Items
Overload	.746	6
Organisational Support	.914	11
Growth Opportunities	.875	7
Disengagement	.816	8
Exhaustion	.831	8
Sensory Processing	.861	27
Sensitivity		

In their original studies, Aron and Aron (1997) indicated acceptable Cronbach Alpha coefficients for the HSP scale with high reliabilities of .87 and .85 for two separate studies. In

another study, Lionetti et al. (2018) also indicated that the HSP scale also exhibits high reliability ($\alpha = .89$). According to Aron and Aron (1997), the HSP scale demonstrates good convergent, discriminant, and overall construct validity. As shown in *Table 4*, acceptable Cronbach Alphas were generated for the HSPS in the current study with a high internal consistency reliability of .86.

Method of Analysis

The research is concerned with analysing the relationship between job demands (overload), job resources (organisational support, and growth opportunities), sensory processing sensitivity, burnout (exhaustion, and disengagement with work), and work engagement (vigour and dedication). Initially, reliability coefficients were generated in order to determine the internal consistency of each measure used in the study. Furthermore, descriptive statistics were run and obtained in order to understand and explain the sample used. Thereafter, Pearson's product moment correlations were run to determine the relationship between the independent variables and dependent variables. Additionally, several moderated multiple regression analyses were conducted to determine whether sensory processing sensitivity moderated the relationship between these independent and dependent variables. Normality tests were run to ensure that parametric analyses could be conducted. The several analyses that were conducted in this study were all generated using the Statistical Package for the Social Sciences version 27.

Analysis for the Measures

The initial step in the analysis process involved obtaining a measure of reliability (internal consistency) for each of the scales that were used in the current study. The reliability of an instrument refers to the extent to which it consistently measures the construct it is supposed to measure across different situations (Field, 2009). In the current study, the internal consistency of each scale was measured using Cronbach alpha coefficients. These alpha coefficients were considered acceptable if they were above .70 (Field, 2009). If the scale did not obtain this requirement, it would have been removed from any further analyses.

Correlations

The Pearson's correlation analysis was used to determine whether a linear relationship existed between job demands (overload), job resources (organisational support, and growth opportunities), sensory processing sensitivity, burnout (exhaustion, and disengagement with work), and work engagement (vigour and dedication). It furtherly determined the strength and

direction of these relationships. In order for a Pearson's correlation to be conducted, there are certain statistical assumptions that need to be met. These include: (1) have two continuous and paired variables, (2) linearity, (3) no significant outliers, and (4) normality. The appropriate analyses were run in order to determine whether the assumptions were met, and a Pearson's correlation could be run. If the data was not normally distributed, the alternative non-parametric test (Spearman's correlation) was used in order to answer the appropriate research questions.

Moderated Multiple Regression

A moderated multiple regression analysis is used to examine whether the relationship between a continuous independent variable (predictor) and a continuous dependent variable (criterion) varies according to the level of a third variable (moderator). Moderation implies an interaction effect between the predictor and the moderator where the moderator influences the strength and direction of the predictor-criterion relationship. Specifically, within the current study, a moderated multiple regression was conducted to analyse whether SPS moderated the relationship between job demands (overload), exhaustion and disengagement, and the relationship between job resources (organisational support, and growth opportunities), vigour and dedication. In other words, does the relationship between these predictor and criterion variables vary according to the level of sensory processing sensitivity. There are several assumptions that need to be met in order to run this analysis, these include: (1) independence of residuals, (2) linearity, (3) homoscedasticity, (4) no significant outliers, and (5) normality.

Ethical Considerations

When conducting the research, careful steps were taken in order to protect the rights of the participants and several ethical requirements were considered as outlined in the Code of Conduct by the Health Professions Council of South Africa. Ethical clearance (protocol number: MAORG/20/017) was obtained from the School of Human and Community Development Ethics Committee – please refer to the clearance certificate in *Appendix A*.

Informed Consent

As was mentioned earlier, when the invitation to participate was sent via email and social media platforms, there was a hyperlink that directed the participant to the survey landing page. This landing page contained the information participant sheet, which included: the broad aims of the study, their participation requirements (which only included answering the questionnaire),

what the questionnaire was assessing, and the amount of time it would take to complete the questionnaire. Once the participants had been informed, they were able to tick a checkbox at the end of the page which indicated their explicit consent. Once they had selected the appropriate checkbox, they were then allowed to select the option to continue to the questionnaire.

Voluntary Participation and the Right to Withdraw

The respondents were also informed in the information participant sheet that participation was completely voluntary, and they had the right not to participate. The respondent could withdraw from the study, with no consequences, until they made their anonymous submission, at which point it could not be identified to have been withdrawn.

Deception and Debriefing

There was no deception used in the current study and was indicated to the respondents that no risk would be involved in participating in the study. It is an online questionnaire so no debriefing process would needed to have taken place, but the researcher and supervisor contact details were provided, and the participants were encouraged to make use of these contact details if they had any questions or concerns relating to the study.

Anonymity and Confidentiality

The questionnaire was administered through a secure online platform – SurveyMonkey. Confidentiality was ensured through the use of this platform, where the researcher and the supervisor were the only ones who had access to the completed questionnaires. The participants were not required to provide any personal information, such as their name, ID number, or the name of the organisation they work for. Their Internet Protocol addresses were not collected or stored either. Therefore, the participants' responses were completely anonymous. The participants were, however, required to provide their email addresses; but this was only to be used by the researcher and supervisor for contact reasons. Although participants were required to provide demographic information, their information remained anonymous, and it was not possible to be identify them according to a specific organisation or occupational position. The participants were informed that their responses would be treated as confidential.

Data Protection

The completed questionnaires were initially stored on the SurveyMonkey platform, which can only be accessed by providing the correct, private account details (password and username). Thereafter, the raw data that was collected was electronically stored on a password protected computer, which was only accessible by the researcher.

Chapter Three: Results

Introduction

The following section will provide the statistical results that were obtained through the different analyses in order to answer the research questions and demonstrate whether the hypotheses were met or not. The graphical data for each analysis will be provided and the results of the different relationships and variances between the variables will be explained. Before the results are provided, the section will firstly begin by determining whether the data for each variable is normally distributed. This will involve the use of descriptive statistical evidence.

Statistical Analysis of Variables

As was previously mentioned in the analysis sub-section, the statistical analysis techniques that were used in this study were the Pearson's product-moment correlation (Pearson's correlation) and a moderated multiple regression. The Pearson's product-moment correlation was used in order to determine the strength and direction of the linear relationship between the different continuous variables. The moderated multiple regression was used in order to determine whether the variance between the several independent and dependent variables could be explained by the addition of the SPS variable to the regression model. The results for each of these statistical analyses will be discussed in the separate sections to follow.

Pearson's Correlation

Pearson correlation coefficients were generated, denoted as r in *Table 6* to analyse and understand the relationships between the main independent and dependent variables. However, in order to run a Pearson's correlation, there are five particular assumptions that need to be considered. The first two assumptions relate to the design of the study and the scale of measure of the variables, while the other three assumptions relate to how the data fits the parametric correlation model. The assumptions of a Pearson's correlation include: (1) the variables need to be measured on a continuous scale (interval scale of measure), (2) the independent variable and dependent variable need to be paired, (3) there should be a linear relationship between the two variables, (4) there should be no significant outliers in the dataset, and finally, (5) the data should be normally distributed. The above assumptions were tested prior to running the analyses and are discussed below:

1. Interval scales of measure:

Firstly, the variables included in the Pearson's correlation should be measured on a continuous scale. As has been identified in *Chapter 3* of the current report, all the variables in the present study were measured on a continuous scale and were measured at the interval level.

2. Paired continuous variables:

Secondly, the two continuous variables included in each correlation analyses should be paired. It should be noted that each of the 125 employees ($n = 125$) have a value for each of the variables. Therefore, there are 125 paired values for each correlation.

3. Linearity:

Scatterplots (including a best of fit line) were produced using SPSS 27 in order to analyse whether there was a linear relationship between the different independent and dependent variable. Once these scatterplots had been visually analysed, there was enough evidence to suggest that a linear relationship existed between *SPS*, *Overload*, *Exhaustion*, and *Disengagement*, as well as between *Organisational Support*, *Growth Opportunities*, *Vigour* and *Dedication*. Refer to *Appendix H* to view the scatterplots that were generated.

4. Outliers:

The next assumption of a Pearson's correlation analysis is that there should be no significant outliers. The same scatterplots in *Appendix H* were used to determine if there were any outliers. When inspecting these graphs there appeared to be a few potential outliers. The box-and-whisker diagrams from the output were also analysed to determine which scores were potential outliers. The data was firstly checked to ensure there were no data entry errors, and it appeared that there were not. The participants' other scores were analysed in order to determine whether they were specifically choosing extreme scores, and this was not the case. After a thorough analysis of the data, these appeared to be genuine data points. These individuals were removed to see if the analyses produced different results, and the results remained the same. In order to avoid manipulating the data, they were included in the analyses.

5. Normality:

The final assumption that needs to be met before running a Pearson's correlation analysis is – the data has to be normally distributed. *Table 5* provides the descriptive statistics – mean, standard deviation (Std.Dev.), minimum and maximum values, and skewness and kurtosis

coefficients – for the variables that were measured in the current study. These statistics can be used to determine whether the variables are normally distributed. Normally distributed data is desirable in order to run parametric analyses; if normality does not exist this can result in a higher probability of a Type I error (Field, 2009).

Table 5

Descriptive statistics for SPS, overload, organisational support, growth opportunities, exhaustion, disengagement, vigour, and dedication

	n	Mean	Std.Dev.	Min.	Max.	Skewness	Kurtosis
SPS	125	4.32	.81	2.30	6.30	.058	-.341
Overload	125	2.79	.50	1.17	4	-.129	.688
Org Support	125	2.85	.64	1.09	4	-.385	-.232
Growth Opp	125	2.86	.65	1	4	-.168	-.354
Exhaustion	125	2.52	.50	1	4	.074	.862
Disengagement	125	2.47	.53	1.13	3.88	.230	.399
Vigour	125	2.48	.50	1	4	-.074	.862
Dedication	125	2.53	.53	1.13	3.88	-.230	.396

There were several methods that were used to determine whether the data was normally distributed:

The first of these was the central limit theorem. The principle of the central limit theorem states that any sample size greater than thirty ($n > 30$) is considered to be normally distributed. As can be seen in *Table 5* above, the sample size for all the variables is 125 ($n = 125$). Therefore, there is some evidence to suggest that a Pearson's correlation could be conducted (A. Field, 2009).

Secondly, skewness and kurtosis coefficients were also obtained for the independent variables (SPS, Overload, Organisational Support, and Growth Opportunities) and the dependent variables (Disengagement, Exhaustion, Vigour, and Dedication). The skewness coefficient is a measure of asymmetry in the distribution, where a perfectly symmetric distribution (normally distributed) would have a skewness coefficient equal to zero (Field, 2009). The skewness coefficient should fall between -1 and +1 in order for the data to be normally distributed (Field, 2009). The skewness coefficients (displayed in *Table 5*) for SPS, overload, organisational support, growth opportunities, disengagement, exhaustion, vigour, and dedication all fell

between -1 and +1, which suggests that the data was not significantly skewed. The kurtosis coefficient indicates the narrowness (peaked or flat) of the distribution curve. The graph will appear to have a steeper peak if the coefficient is positive (Field, 2009). The data is considered to be normally distributed if the kurtosis coefficient falls between -3 and 3 (Field, 2009). All the kurtosis coefficients in *Table 5* fell between -3 and 3, providing further evidence of normally distributed data for each variable.

The final step of analysing whether the data was normally distributed involved a visual inspection of the histograms for each variable. Histogram graphs were produced using SPSS 27; these are provided in *Appendix I*. Given the visual evidence of the distributions in the histograms – the independent variables (SPS, overload, organisational support, and growth opportunities) and the dependent variables (disengagement, exhaustion, vigour, and dedication) are all normally distributed.

Based on the preliminary analyses and the evidence provided above, the five assumptions for the Pearson's correlation were appropriately met. Therefore, the data could be analysed using the parametric statistical analysis technique – the Pearson product-moment correlation analysis. The correlation coefficients are and reported in *Table 6*. These correlations will be interpreted in the sections to follow.

Table 6

Pearson's correlation coefficients for SPS, overload, organisational support, growth opportunities, disengagement, exhaustion, vigour, and dedication (n = 125)

	SPS	Overload	Organisational Support	Growth Opportunities	Exhaustion	Disengagement
Sensory Processing Sensitivity (SPS)	1	.24** (p = .008)	-.02 (p = .805)	.03 (p = .750)	.35** (p = .000)	.18 (p = .051)
Overload	.24** (p = .008)	1	-.09 (p = .300)	-.05 (p = .561)	.44** (p = .000)	.19* (p = .037)
Organisational Support	-.02 (p = .805)	-.09 (p = .300)	1	.65** (p = .000)	-.51** (p = .000)	-.56** (p = .000)
Growth Opportunities	.029 (p = .750)	-.052 (p = .561)	.648** (p = .000)	1	-.447** (p = .000)	-.719** (p = .000)
Exhaustion	.345** (p = .000)	.437** (p = .000)	-.506** (p = .000)	-.447** (p = .000)	1	.586** (p = .000)
Disengagement	.175 (p = .051)	.187* (p = .037)	-.557* (p = .000)	-.719** (p = .000)	.586** (p = .000)	1
Vigour	-.345** (p = .000)	-.437** (p = .000)	.506** (p = .000)	.447** (p = .000)	-1.000** (p = .000)	-.586** (p = .000)
Dedication	-.175 (p = .051)	-.187* (p = .037)	.557** (p = .000)	.719** (p = .000)	-.586** (p = .000)	-1.000** (p = .000)
**. Correlation is significant at the 0.01 level (2-tailed)						
*. Correlation is significant at the 0.05 level (2-tailed)						

Is there a relationship between Sensory Processing Sensitivity (independent variable) and Exhaustion (dependent variable)?

As can be seen in *Table 6* above, there was a statistically significant relationship between SPS and exhaustion ($r = .35$; $p < .01$). This relationship between SPS and exhaustion was positive and moderate. This indicates that higher levels of SPS are associated with higher levels of the exhaustion construct of burnout. This is consistent with *Hypothesis 1* and provides an answer to the *Research Question 1* as to whether or not there is a relationship between SPS and exhaustion.

Is there a relationship between Sensory Processing Sensitivity (independent variable) and Disengagement (dependent variable)?

The relationship between SPS and the disengagement construct of burnout was non-significant ($p > .05$) – which is indicated in *Table 6* above. This result was in the expected direction because there is no empirical evidence that reveals a relationship between high levels of SPS and disengagement from work, and the literature of SPS does not provide support for this type of relationship. This result support for *Research Question 2* as to whether or not there is a relationship between SPS and disengagement from work.

Is there a relationship between Sensory Processing Sensitivity (independent variable) and Overload (dependent variable)?

The results indicated that SPS was significantly associated with the job demand of overload ($r = .24$; $p < .01$), where higher levels of SPS are related to higher levels of overload. This positive relationship between the two variables was also in the expected direction and provides support for the statement in *hypothesis 2*.

Is there a relationship between Overload (independent variable), Exhaustion (dependent variable), and Disengagement (dependent variable)?

It is evident from the results in *Table 6* that overload showed a statistically significant relationship with exhaustion. Specifically, the relationship between overload and exhaustion was positive and had a moderate correlation ($r = .44$; $p < .01$). This correlation was in the expected direction and suggests that higher levels of overload are associated with higher levels of employee exhaustion. Furthermore, the results of the Pearson's correlation suggest that there is also a statistically significant relationship between overload and the disengagement

dimension of burnout ($r = .19$; $p < .05$). The results indicated that there was a positive relationship between these two variables, which reveals that higher levels of overload are related to higher levels of disengagement from work. However, the relationship between these two variables was quite weak.

Nonetheless, the significant positive relationships between overload and the two constructs of burnout (exhaustion and disengagement) explicitly answers *Research Question 4* and *5* and is consistent with *hypothesis 3* which states that higher levels of the job demand (overload) will be associated with higher levels of burnout.

Is there a relationship between Organisational Support (independent variable), Vigour (dependent variable), and Dedication (dependent variable)?

Based on the correlation coefficients displayed in *Table 6* above, there is evidence to suggest that a statistically significant, positive relationship exists between organisational support (job resource) and the vigour construct of work engagement ($r = .51$; $p < .01$). This relationship was moderately strong and indicates that higher levels of organisational support are associated with higher levels of vigour (energy). Furthermore, it was also found that organisational support was significantly and positively related to dedication ($r = .56$; $p < .01$). This association was also relatively strong and provides evidence that the job resource of organisational support was significantly related to both constructs of work engagement. This provides evidence to explicitly answer *Research Question 6* and *7*.

Is there a relationship between Growth Opportunities (independent variable), Vigour (dependent variable), and Dedication (dependent variable)?

The correlation results also indicate that the second job resource of growth opportunities had a significant, medium, and positive correlation with vigour ($r = .45$; $p < .01$). Further, growth opportunities showed a significant, positive, and strong relationship with the dedication construct ($r = .72 < .01$). This was evidently the strongest significant correlation within the correlation matrix (refer to *Table 6* above). These results provide evidence for *Research Question 8* and *9*, indicating that growth opportunities are positively related to work engagement, where higher levels of growth opportunities is associated with higher employee engagement with their work.

The positive relationships between organisational support, growth opportunities and the two work engagement constructs of vigour and dedication specifically provide evidence to support

the predictions that were made in *hypothesis 4* – which stated that job resources would be positively associated to work engagement, where high levels of job resources would be related to higher levels of work engagement.

Moderated Multiple Regression

Once the Pearson correlations had been established, two moderated multiple regression analyses were conducted in order to understand the potential effect that SPS had on both the health impairment process and the motivational process of the JD-R model. Specifically, the first regression analysis was run in order to determine whether SPS moderated the relationship between job demands (overload) and the two burnout constructs of exhaustion and disengagement. Furthermore, the second regression analysis was run in order to determine whether SPS also moderated the relationship between job resources (organisational support and growth opportunities) and the two work engagement constructs of vigour and dedication. The first step within both of these analyses was testing the main effect models. With regards to the first regression analysis, the two predictor variables of overload and SPS were inserted in the first model to understand their main effects on the dependent burnout variables (exhaustion and disengagement). The second regression analysis involved inserting the predictor variables of organisational support, growth opportunities, and SPS into the first model in order to determine their main effects on the two work engagement variables (vigour and dedication).

The second step involved inserting interaction terms (i.e., overload*SPS, organisational support*SPS, growth opportunities*SPS) into the second model for each regression analyses. This made it simple to understand the amount of variance in the dependent variable that was explained by the addition of the interaction variable; while controlling for the main effects of the predictor variables (i.e., the change in variance from model 1 to model 2). These interaction terms were created in order to determine whether the SPS variable moderated the relationships between job demand and burnout, and job resources and work engagement.

However, similar to the Pearson's correlation, there were certain parametric assumptions that needed to be considered before conducting the moderated multiple regression analyses. The assumptions will be discussed below:

1. Continuous dependent variable

Firstly, there should be one continuous dependent variable which is measured at an interval level scale of measure. The two burnout variables (exhaustion and disengagement) and the two

direct opposite work engagement variables (vigour and dedication) were measured using the Oldenburg Burnout Inventory which consisted of a Likert-Type scale. These dependent variables were treated as at least interval (i.e., continuous). It should be again noted that one dependent variable was used for each regression analysis.

2. Continuous independent variable

The second assumption is that there should be a predictor variable that is continuous (interval scale) and a moderator variable that is either measured at the continuous (i.e., an interval or ratio variable) or categorical level (i.e., an ordinal or nominal variable). All the independent variables (overload, organisational support, and growth opportunities) in this study have been measured at a continuous level and will all be treated as at least interval. The moderating variable that is being included in each regression model is sensory processing sensitivity (SPS). It was mentioned earlier that this variable is being measured on a continuous scale and will not be separated into three separate sensitivity groups (tulips, orchids, and dandelions) (Lionetti et al., 2018).

3. Independence of observations

In order to run a moderated multiple regression, there should also be an independence of observations (i.e., independence of residuals). This assumption is designed to test for potential 1st-order autocorrelation – which suggests that adjacent observations (specifically, their errors) in the study design are correlated. It is highly unlikely that the observations for each moderated multiple regression will be related. However, in order to detect possible autocorrelation and ensure this assumption was met, a Durbin-Watson test was used. The Durbin-Watson statistic can range from 0 to 4, but if the statistic is close to a value of 2, it can be accepted that there is an independence of errors (residuals). As can be seen in *Tables 9, 11, 13, and 15*, all the Durbin-Watson Statistics for each moderated multiple regression were close to a value of 2.

4. Linearity

There needs to be a linear relationship between the outcome (dependent) variable and each independent variable, and the independent variables collectively also need to be linearly related to the dependent variable. In order to understand whether a relationship existed between each of the independent variables and the dependent variable, partial regression plots were generated and visually inspected. The partial regression plots all showed an approximately linear

relationship between the several independent variables and the two dependent variables (refer to *Appendix J*).

5. Homogeneity of variance

There needs to be homoscedasticity of residuals (equal error variances). Homoscedasticity suggests that the variance needs to be equal for all values of the predicted dependent variable. This assumption was considered through a visual inspection of the same partial regression plots of studentised residuals versus unstandardised predicted values (refer to *Appendix K*) The points on each plot exhibit no pattern and are approximately constantly spread. Thus, there was homoscedasticity and the assumption of homogeneity of variance was met.

6. No Multicollinearity

The data must not show multicollinearity, which occurs when two or more of the independent variables are highly correlated with each other. When there is multicollinearity, it becomes difficult to understand which independent variable explains the variance in the dependent variable. It is suggested that the independent variables should not have a correlation coefficient greater than 0.7 (> 0.7). Therefore, the first stage of identifying multicollinearity is inspecting the correlation coefficients. The second stage entails an inspection and interpretation of the Tolerance and VIF collinearity statistics. The Tolerance values should be greater than 0.1 (> 0.1) and VIF values should be less than 10 (< 10) in order to not have multicollinearity.

With regards to inspecting the correlations and meeting the first stage of multicollinearity, *Table 6* above indicates that none of the correlations between the independent variables (SPS, overload, organisational support, and growth opportunities) are greater than .7. Therefore, the first requirement of not having multicollinearity has been met. However, product terms needed to be created in order to represent the interaction effect between SPS and each of the job demands and job resources variables. When these interaction terms were included into the correlation analysis, they generated high correlations between the interaction variables and the relative predictor variables (refer to *Table 7* below). This created a problem in terms of meeting the requirements of the multicollinearity assumption. Thus, in order to counteract this multicollinearity issue, centred variables were created for each of the predictor variables as well as the single moderating variable.

Table 7*Existence of multicollinearity*

	SPS	Overload	Job Insecurity	Organisational Support	Growth Opportunities
SPS	1	.235**	.065	-.022	.029
Overload	.235**	1	.128	-.094	-.052
Job Insecurity	.065	.128	1	-.162	-.175
Organisational Support	-.022	-.094	-.162	1	.648**
Growth Opportunities	.029	-.052	-.175	.648**	1
Overload* SPS	.783**	.776*	.126	-.063	-.018
Job Insecurity* SPS	.515**	.229*	.872**	-.160	-.139
Organisational Support* SPS	.635**	.088	-.088	.743**	.507**
Growth Opportunities* SPS	.644**	.099	-.089	.469**	.769**

The centre variables were created using SPSS 27, whereby aggregated variables (variable means) were created for each of the predictor and moderator variables. Thereafter, the means of each of the independent variables (aggregated) were subtracted from the original independent variable terms, thus, creating a centred variable. The residuals were then multiplied together in order to create a centred product term. Once each independent variable was centred and each of the centred interaction terms had been created, correlation coefficients were then generated once again. As can be seen in *Table 8*, there were low correlations between the interaction terms and the relative predictor variables. Therefore, the first requirement of multicollinearity was met.

Table 8*Elimination of multicollinearity*

	SPS	Overload	Job Insecurity	Organisational Support	Growth Opportunities
SPS	1	.235**	.065	-.022	.029
Overload	.235**	1	.128	-.094	-.052
Job Insecurity	.065	.128	1	-.162	-.175
Organisational Support	-.022	-.094	-.162	1	.648**
Growth Opportunities	.029	-.052	-.175	.648**	1
Overload* SPS	.059	.170	.055	.056	-.037
Job Insecurity* SPS	.038	.060	-.204*	-.044	.011
Organisational Support* SPS	.094	.059	-.043	.005	-.009
Growth Opportunities* SPS	.054	-.040	.011	-.010	.026

With regards to the Tolerance and VIF collinearity statistics, it can be seen in the coefficient tables (*Appendix L*) that all of the Tolerance values are greater than 0.1 (> 0.1), and all of the VIF values are less than 10 (< 10). Therefore, both the correlation and collinearity statistic requirements have been met, and the assumption of multicollinearity has not been violated.

7. Outliers

Another assumption is that there should be no significant outliers within the dataset. One of the ways in which outliers can be identified is by looking at the standardised residuals. When looking at the Residuals Statistics tables in *Appendix M*, the standardised residuals (“Std. Residual”) need to be within -3 (“Minimum”) and 3 (“Maximum”). All these Residuals

Statistics tables indicate that the standardised residuals are within that range. Another method of understanding whether there are any influential points is by looking at the Cook's Distance value. If any of the maximum values ("Cook's Distance") are above 1, then they can be considered as influential points and should be investigated. It is evident that none of the Cook's Distance maximum values are above 1 for each of the analyses (refer to the Residuals Statistics tables in *Appendix M*). Therefore, there is evidently no significant outliers or influential within the dataset.

8. Normality

The final assumption of a moderated multiple regression is that the residuals (errors) should be approximately normally distributed. It is evident from the histograms and the P-P plots in *Appendix N* that the standardised residuals for each of the analyses appear to be approximately normally distributed.

Therefore, after having carefully tested all the assumptions, there was enough evidence to assume that a moderated multiple regression could be conducted. Using SPSS version 27, moderated multiple regression analyses were run in order to determine whether: (1) the effect that overload had on exhaustion was moderated by SPS, (2) the effect that job insecurity had on exhaustion was moderated by SPS, (3) the effect that organisational support had on disengagement was moderated by SPS, and finally (4) the effect that growth opportunities had on disengagement was moderated by SPS. The results from these analyses are discussed below.

The first two moderated multiple regressions were conducted in order to determine whether employees' levels of SPS moderated the relationship between the single job demand (overload) and the two burnout variables. As was discussed earlier, the main effects (overload and SPS) were entered into the regression equation first. This initial regression equation is represented by model 1 in the model summary tables presented below. After this, the interaction terms were entered into the regression equation in order to determine whether the interaction effect was significant, while controlling for the effects of the main effects (predictor variables).

Does Sensory Processing Sensitivity moderate the relationship between Overload (predictor variable) and Exhaustion (outcome variable)?

When exhaustion was regressed onto the interaction between overload and SPS, the interactions and the regression model were found to be non-significant.

The first regression model (*Model 1*), however, was found to be statistically significant $F_{(2, 122)} = 20.660$ ($p = .000 < 0.05$). This suggests that 25.3% of the variance in exhaustion is explained by the predictor variables of overload and SPS. When looking at the coefficients table (*Table 10*) below, it is evident that the first main effect of overload on exhaustion was found to be statistically significant with $\beta = .38$ ($p = .000 < .05$). Further, the second main effect of SPS (moderating variable) on exhaustion was also found to be statistically significant, where $\beta = .16$ ($p = .002 < .05$). This suggests that both higher levels of overload and SPS are significantly associated with higher levels of exhaustion. However, when the interaction term was inserted into the regression equation, the overall model was found to be non-significant $F_{(2, 122)} = 3.111$ ($p = .080 > 0.05$). The variance in the dependent variable has changed by 1.9% (R^2 change = .019), however this interaction was not significant. A model summary and the coefficients that were obtained from the analysis have been provided below in *Table 9 and 10*, respectively.

Table 9

Model Summary (Overload, SPS, and Exhaustion)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F	df1	df2	Sig. F Change	Durbin-Watson
1	.503	.253	.241	.43766	.253	20.660	2	122	.000	
2	.521	.272	.254	.43392	.019	3.111	1	121	.080	1.621

Table 10*Coefficients (Overload, SPS, and Exhaustion)*

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.519	.039		64.350	.000
	Overload	.377	.081	.376	4.674	.000
	SPS	.159	.050	.257	3.191	.002
2	(Constant)	2.505	.040		63.187	.000
	Overload	.354	.081	.353	4.368	.000
	SPS	.157	.049	.254	3.183	.002
	Overload*SPS	.150	.085	.139	1.764	.080

Dependent Variable: *Exhaustion****Does Sensory Processing Sensitivity moderate the relationship between Overload (predictor variable) and Disengagement (outcome variable)?***

Furthermore, when the disengagement construct of burnout was regressed onto the product term (Overload*SPS), a non-significant interaction was also observed $F_{(1, 121)} = .207$ ($p = .650 > 0.05$). This finding is based on the model summary (*Table 11*) provided below. Furthermore, the main effects of overload ($\beta = .163$; $p = .090 > .05$) and SPS ($\beta = .091$; $p = .128 > .05$) were not statistically significant predictors of disengagement.

Table 11*Model Summary (Overload, SPS, and Disengagement)*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics				
						F	df1	df2	Sig. F	Durbin-Watson
1	.231	.053	.038	.51938	.053	3.431	2	122	.035	
2	.234	.055	.031	.52107	.002	.207	1	121	.650	1.719

Table 12*Coefficients (Overload, SPS, and Disengagement)*

Model		Unstandardised Coefficients		Standardised Coefficients		Sig.
		B	Std. Error	Beta	t	
1	(Constant)	2.474	.046		53.250	.000
	Overload	.163	.096	.155	1.706	.090
	SPS	.091	.059	.139	1.531	.128
2	(Constant)	2.469	.048		51.873	.000
	Overload	.156	.097	.148	1.605	.111
	SPS	.090	.059	.138	1.516	.132
	Overload*SPS	.046	.102	.041	.455	.650

Dependent Variable: Disengagement

Therefore, the results of the two regression analyses above have revealed that the interaction effects were non-significant for both the outcome variables of burnout and disengagement. Specifically, with regards to *Research Questions 10* and *11*, this suggests that SPS did not moderate the relationship between overload (job demand) and the two burnout constructs of exhaustion and disengagement. This is also not consistent with the prediction made in *hypothesis 5*, where SPS did not increase this relationship between job demands and burnout.

The next two moderated multiple regressions were conducted in order to determine whether employees' levels of SPS moderated the relationship between job resources (organisational

support and growth opportunities) and the two work engagement variables of vigour and dedication. Similar to the regression analyses above, the main effects of organisational support, growth opportunities, and SPS were all initially entered into the regression equation. The second model of the regression represents the inclusion of the two interaction terms (Org Support*SPS, and Growth Opp*SPS) into the equation.

Does Sensory Processing Sensitivity moderate the relationship between Growth Opportunities, Organisational Support (predictor variables) and Vigour (outcome variable)?

The entire regression model, with the interaction term added (*Model 2*), showed a statistically non-significant result, where $F_{(2, 119)} = .142$ ($p = .868 > 0.05$). The coefficients table, however, showed that all the three main effects of organisational support ($\beta = .276$; $p = .000 < .05$), growth opportunities ($\beta = .177$; $p = .014 < .05$), and SPS ($\beta = -.213$; $p = .000 < .05$) were significant predictors of vigour. The two job resources variables were positively associated with vigour, where higher levels of job resources predicted higher levels of vigour. SPS and vigour, on the other hand, were negatively associated, where higher SPS levels predict lower levels of vigour. This initial model (*Model 1*) with only the main effects included in the equation, accounted for 39.9% of the variance in vigour (outcome variable). Once again, the model summary and the specific coefficients that were obtained for this analysis have been provided in *Table 13* and *Table 14*.

Table 13

Model Summary (Organisational Support, Growth Opportunities, SPS, and Vigour

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F	df1	df2	Sig. F Change	Durbin-Watson
1	.631	.399	.384	.39435	.399	26.722	3	121	.000	
2	.632	.400	.375	.39717	.001	.142	2	119	.868	2.245

Table 14*Coefficients (Organisational Support, Growth Opportunities, SPS, and Vigour)*

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.481	.035		70.340	.000
	Org Support	.276	.073	.349	3.767	.000
	Growth Opp.	.177	.071	.230	2.484	.014
	SPS	-.213	.044	-.344	-4.873	.000
2	(Constant)	2.480	.036		69.670	.000
	Org Support	.277	.074	.351	3.750	.000
	Growth Opp.	.176	.072	.228	2.435	.016
	SPS	-.211	.044	-.340	-4.761	.000
	Org	-.042	.095	-.047	-.446	.656
	Support*SPS					
	Growth	.013	.094	.014	.134	.894
	Opp.*SPS					

Dependent Variable: Vigour

Does Sensory Processing Sensitivity moderate the relationship between Growth Opportunities, Organisational Support (predictor variables), and Dedication (outcome variable)?

The second work engagement outcome variable of dedication was then regressed onto the interactions of SPS and organisational support, and the interaction of SPS and growth opportunities. Based on the analysis that was conducted, it was found that both growth opportunities ($\beta = .513$; $p = .000 < .05$) and SPS ($\beta = -.124$; $p = .002 < .05$) were significantly associated with dedication, with higher levels of SPS being associated with lower levels of dedication, and higher levels of growth opportunities being associated with higher levels of dedication. The main effect of organisational support, however, was a non-significant predictor of dedication ($\beta = .119$; $p = .072 < .05$). This initial model ($F_{(3, 121)} = 52.888$ ($p = .000 < .05$)) was statistically significant and accounted for 56.7% of the variance in dedication. However, once the two interaction terms (Org Support*SPS, and Growth Opp*SPS) were inserted in the

model, there was a non-significant result with $F_{(2, 119)} = .425$ ($p = .655 > 0,05$). Furthermore, both the interaction terms themselves were non-significant. The model summary and coefficients of the results are shown below in *Table 15* and *Table 16*, respectively.

Table 15

Model Summary (Organisational Support, Growth Opportunities, SPS, and Dedication)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.753	.567	.557	.35263	.567	52.888	3	121	.000	
2	.755	.570	.552	.35432	.003	.425	2	119	.655	2.082

Table 16

Coefficients (Organisational Support, Growth Opportunities, SPS, and Dedication)

Model		Unstandardised Coefficients		Standardised Coefficients		t	Sig.
		B	Std. Error	Beta			
1	(Constant)	2.526	.032			80.092	.000
	Org Support	.119	.065	.143		1.816	.072
	Growth Opp.	.513	.064	.632		8.038	.000
	SPS	-.124	.039	-.190		-3.177	.002
2	(Constant)	2.527	.032			79.557	.000
	Org Support	.118	.066	.141		1.785	.077
	Growth Opp.	.514	.064	.634		7.990	.000
	SPS	-.128	.039	-.196		-3.234	.002
	Org	.052	.085	.055		.618	.538
	Support*SPS						
	Growth Opp.*SPS	.000	.084	.000		.005	.996

Dependent Variable: Dedication

This ultimately suggests that employees' levels of SPS did not moderate the relationship between job resources (organisational support and growth opportunities) and the two work engagement dimensions of vigour and dedication. This is not consistent with *hypothesis 6*, which states that levels of SPS will strengthen the positive relationship between job resources and work engagement. The motivational process of the JD-R model is therefore not moderated by the levels of the SPS trait amongst this sample of employees.

Chapter Four: Discussion

Introduction

The aim of the current study was to firstly determine whether or not there was a relationship between SPS and the two constructs of burnout (i.e., exhaustion and disengagement). The second aim of the study was to determine if there was a relationship between the job demand of overload and the two burnout outcome variables. Thirdly, the study also aimed to investigate whether or not there was a relationship between the two job resources (i.e., organisational support and growth opportunities) and the two work engagement aspects of vigour and dedication. The study aimed to understand whether the dual process of the JD-R could be supported by looking at these two relationships. Furthermore, the personality trait of SPS was included in the model as an individual factor. The final aim of the study was, therefore, to understand whether or not the relationship between job demands and burnout, and relationship between job resources work engagement, were altered, or changed by the presence of the SPS variable. In other words, whether employees' levels of SPS moderated these two relationships. The results that were obtained from the several analyses conducted and described in the previous chapter (Chapter 3) will be discussed in the chapter to follow.

The results indicated that SPS was positively associated with the exhaustion construct of burnout but was not significantly related to disengagement. Furthermore, SPS was also significantly associated with the job demand of overload. The results also indicated that overload was significantly, positively related with both exhaustion and disengagement. Furthermore, the job resources of organisational support, and growth opportunities were both positively associated with vigour and dedication. The relationship between growth opportunities and dedication revealed the strongest correlation. Based on the moderated multiple regressions, it was found that none of the interaction terms were statistically significant. Therefore, SPS did not moderate the relationship between job demands and burnout, and the relationship between job resources and work engagement. Nonetheless, these regression models did reveal that overload and SPS were significant main effects on exhaustion. Both the job resource variables and SPS were also significantly associated with vigour, where SPS and growth opportunities were additionally associated with dedication.

Sensory Processing Sensitivity and Exhaustion

With regards to SPS and exhaustion, the findings of the Pearson's product moment correlation coefficient indicated that there was a positive relationship between SPS and the exhaustion

construct of burnout. This association was in the expected direction and supported *hypothesis 1* which stated that those employees with higher levels of SPS will experience higher levels of exhaustion. Furtherly, it answers the research question regarding whether or not there is a relationship between SPS and exhaustion. The findings from the moderated multiple regression also indicated that SPS had a main effect on exhaustion. This reveals that there is sufficient evidence to suggest that those employees who have a higher propensity of possessing the SPS trait, may have a potentially greater likelihood of burning out due to exhaustion. This result is consistent with literature that suggests the personality trait of SPS may contribute to higher levels of stress and anxiety (Bakker & Moulding, 2012; Brindle et al., 2015). However, only a moderate association was identified between these two variables.

Nonetheless, this result is in line with previous research, where Lindsay's (2017) analysis of quantitative data also revealed a significantly moderate, positive correlation between SPS and the emotional exhaustion aspect of burnout. The researcher also found that SPS accounted for 37% of the variance in burnout (Lindsay, 2017). This result was based on a sample of 114 teachers from high needs schools in Los Angeles. It is important to note that within these quantitative analyses, SPS was measured as a one-dimensional construct using the HSP scale and was treated as a continuous variable (Lindsay, 2017). This is similar to how the SPS construct was measured and analysed within the current study. Lindsay (2017) stated that all 27-items within the HSP scale were used within the analyses.

The positive association between SPS and burnout is further supported by Redfearn's (2019) findings, where SPS was found to be a significant predictor for stress and burnout amongst a sample of 461 nurses. Furthermore, a relatively strong positive relationship was found between SPS and emotional exhaustion, where SPS was a significant predictor of emotional exhaustion amongst nurses (Redfearn, 2019). Within this study, the new development of the HSP scale was used in order to analyse the three subfactors of SPS: ease of excitation (EOE), aesthetic sensitivity (AES), and low sensory threshold (LST) (Redfearn, 2019; Smolewska et al., 2006). It was found that the EOE ($r = .49$) and LST ($r = .47$) factors of SPS were positively, moderately associated with emotional exhaustion, whereas the AES ($r = .23$) factor had a weak relationship with emotional exhaustion. The three factor analysis of SPS was also used in a study conducted by Vander Elst et al. (2019), where they found weak relationships between the EOE ($r = .29$) and LST ($r = .23$) constructs and emotional exhaustion, and a very weak relationship between the AES ($r = .09$) construct and emotional exhaustion.

Therefore, the results found in current study and those found in Lindsay's (2017) provide evidence to support the findings of Lionetti et al. (2018), that the HSP scale consists of both a general SPS construct and a three sub-scale structure. With regards to the measures used in the different studies, it is also important to note that Lindsay's (2017) and Redfearn's (2019) measures of burnout were assessed using the Maslach Burnout Inventory, where the three common dimensions of burnout, namely: emotional exhaustion, depersonalisation, and lack of personal accomplishment were analysed. The current study, however, was only interested in the exhaustion and disengagement constructs of burnout. Exhaustion refers to extreme emotional, as well as physical and cognitive strain that is caused from prolonged exposure to specific job demands (Demerouti et al., 2001). This construct provides an understanding of the physical and cognitive aspects of employees' exhaustion, in addition to their emotional exhaustion (Demerouti et al., 2001).

The current study provides further evidence of a relationship between SPS and employee exhaustion, even amongst a heterogenous sample from multiple different work sectors. This positive association between SPS and exhaustion can be explained by the SPS aspects of greater awareness to subtle stimuli, and a deeper cognitive processing of environmental stimuli.

It has been discussed earlier that HSPs are generally more sensitive to the environment than others (Aron & Aron, 1997). This may also be true in the work environment where employees who have a higher propensity of possessing the trait may experience the workplace in ways that are generally different to those employees who have lower levels of sensitivity (Cooper, 2014). It was identified in the literature that one of the four characteristics associated with the SPS trait is a greater awareness of the subtle stimuli in the environment. These highly sensitive individuals are sensitive to various types of stimuli, where especially novel, unpredictable and highly intense stimuli are perceived as aversive, where they can easily become overstimulated (Aron & Aron, 1997; Jagiellowicz et al., 2011). Due to this increased sensitivity in processing information and becoming overwhelmed by demanding environments, these individuals are generally at a higher risk for mental and physical health issues (Benham, 2006; Siegel, 2007; Jawer, 2005; Bakker & Moulding, 2012). The recent research analysing SPS in the workplace has now provided evidence that this overstimulation can also place these groups of employees at greater risk of burnout (Lindsay, 2017; Redfearn, 2019). The findings from the current study provide evidence that exhaustion contributes to this higher risk of burnout.

The exhaustion construct that is analysed within this study – which was originally conceptualised by Demerouti et al. (2001) – refers to a state of extreme physical, cognitive and emotional strain. This state of exhaustion is usually due to an overtaxing of work and extended exposure to particular job demands (Demerouti et al., 2001). There are multiple types of job demands that could exist within different work environments, but generally when the job demands are high (and there is a lack of support, control etc.), exhaustion is highly likely to occur (Lesener et al., 2019). For highly sensitive employees, these demanding environments could be experienced as aversive and overwhelming, where they potentially become overstimulated; which could eventually lead to a state of exhaustion (Aron & Aron, 1997).

This is especially true in stressful environments where there is a lack of support (Aron & Aron, 1997). This leads to one of the many possible reasons as to why there is only a moderate relationship between SPS and exhaustion. The level of employee exhaustion could also be influenced by the presence of job resources (e.g., support) within their work environment. Both the job resources of growth opportunities ($r = -.45$) and organisational support ($r = -.51$) were negatively related to exhaustion. Furthermore, since the job demand of overload was also positively related with exhaustion, this could also be influencing employees' level of physical, cognitive, and emotional strain. However, within the moderated multiple regression, even when overload was controlled, employees' levels of SPS still significantly predicted exhaustion. This provides further empirical insight into the possible positive relationship between SPS and employee burnout.

Sensory Processing Sensitivity and Disengagement

There was a non-significant relationship between SPS and disengagement. This directly provides an answer to *research question 2* as to whether or not SPS and disengagement were significantly related. This finding was expected because there is not much previous research which has provided evidence for this relationship. There could be the argument that due to HSPs become easily overwhelmed in work environments that are highly demanding, they may struggle to maintain these demands and could eventually become disengaged. Kobasa (1979) did suggest that HSPs become emotionally detached from their work in aversive work environments, where they become “alienated” from their work tasks. However, the findings within the current study are not consistent with this and provides no evidence to support a relationship between SPS and disengagement.

Sensory Processing Sensitivity and Overload

The results from Pearson's correlation analyses also indicated that there was a significant, positive relationship between SPS and overload. These results contradict the findings that were indicated in one of the original studies analysing SPS within the workplace (Evers et al., 2008).

This study analysed the relationship between SPS and two facets of work (workload and emotional load) (Evers et al., 2008). The construct of overload that was analysed in the current study is operationalised in terms of the pace and amount of work that an employee is faced with, as well as some level of emotional load (Jackson & Rothmann, 2005). This overload variable is, therefore, quite similar to the work facets that were analysed in the study conducted by Evers et al. (2008). Within their study, they found a non-significant correlation employees' levels of SPS and their levels of workload or emotional load (Evers et al., 2008).

However, the significant relationship between SPS and overload identified in the current study is in line with the findings that were demonstrated by Redfearn (2019). Their study also found a significant, positive relationship between SPS and workload, where it was suggested that highly sensitive employees were at greater risk of burnout in work environments characterised by high workload (Redfearn, 2019). Despite the fact that the relationship between SPS and overload in the current study, and the relationship between SPS and workload in Redfearn's (2019) study, generated small correlations – this result still provides interesting findings.

It was discussed earlier in the literature that HSPs naturally have a deeper processing of new information, where they have a preference to process information more thoroughly in order to make the correct decision and avoid making mistakes (Lionetti et al., 2018; Patterson & Newman, 1993). This could suggest that, naturally, these highly sensitive employees would take more time in completing their work tasks. This would most likely be beneficial within an organisational context, because based on the findings of Patterson and Newman (1993), highly sensitive individuals would take more time to reflect on their feedback, pay careful attention to their work tasks, and correct their mistakes before their next attempt. This is also supported by Aron and Aron (1997, p. 349), who suggest that HSPs have an ability for “retrospective and prospective reflection about consequences.” This would most likely improve their overall work performance (Patterson & Newman, 1993). However, this type of inhibited thinking becomes an issue when the work environment is highly demanding.

The common personality trait associated with SPS is an inhibition of behaviour (Aron & Aron, 1997; Vander Elst et al., 2019), where research has suggested that this more responsive

population of individuals tend to take a more cautious (less impetuous) approach to novel situations, where their behavioural response is to pause and check (Groothuis & Carere, 2005; Koolhaas et al., 1999; Schjolden & Winberg, 2007). Furthermore, the more aroused they become to a novel and demanding situation, the slower their response time would become (Aron & Aron, 1997). Thus, if the amount of workload or emotional load is increased by too much within an organisational environment, highly sensitive employees may become overwhelmed by all the information they are faced with. Due to their inhibition in taking note of new work information, and their delayed response caused by a deep processing of information, they may not be able to keep up with the demands within the work environment. In relation to the positive correlation that was found between SPS and overload, highly sensitive individuals are more likely to have higher levels of workload and emotional load due to their inhibited responsivity and deeper processing of information. This is especially true when the workload is increased by too much within a short amount of time (Redfearn, 2019).

The current study also aimed to explore the health impairment process and the motivational process associated with the JD-R model. The results indicated that both these processes were supported by the current study.

Overload, Exhaustion and Disengagement

Based on the results of the Pearson's correlation, it was found that the job demand of overload had a significant, positive, and moderate relationship with the exhaustion construct of burnout ($r = .44$, $p < .01$). This finding explicitly addresses *research question 4*, providing evidence that higher levels of overload are associated with higher levels of exhaustion. The moderated multiple regression also indicated a positive association between overload and exhaustion ($\beta = .38$, $p < .05$), suggesting that overload could statistically significantly predict employee exhaustion. Furthermore, the results also indicated that overload had a significant, positive, and weak correlation with the disengagement construct of burnout, suggesting that higher levels of overload are associated with higher levels of disengagement ($r = .19$, $p < .05$). This addresses *research question 5* and supports the expectation that was made in *hypothesis 3*. However, when running the moderated multiple regression, it was found that the main effect of overload on disengagement was non-significant ($\beta = .16$, $p > .05$).

Nonetheless, these findings are consistent with previous research which has demonstrated that job demands are positively related to burnout. For instance, within their original study, Demerouti et al. (2001) provided evidence that job demands are primarily and positively related

to exhaustion; where their self-report data provided strong evidence for the validity of the JD-R model. However, they suggest that job resources are primarily and negatively associated with disengagement from work. Their results did not provide significant correlation paths running from job demands to disengagement (Demerouti et al., 2001). The current study's finding is inconsistent with this, where a significant relationship was found between job demands and disengagement. However, as was mentioned above, this association was considerably weak. The findings offered by Jackson and Rothmann (2005) in their original study (where the Job-Demands Resources Scale was used) are also consistent and supportive of the finding in this study. This study was conducted on a South African sample of 266 participants and found a moderate, positive relationship between overload and the exhaustion dimension of burnout (Jackson & Rothmann, 2005).

Upadaya et al. (2016) provide more recent supportive evidence of this pathway from job demands to burnout, where they found higher employee workload to be significantly and positively associated with higher overall burnout levels ($r = .20$). This health impairment process was also found to be evident amongst heterogeneous samples from different work sectors, where it was found that job demands (i.e., overload and time pressure) were both significantly related to burnout. Van den Broeck et al. (2017) provide further evidence amongst a sample of health workers, where these health practitioners experience lower burnout than other sectors. The health impairment process of the JD-R model has also been identified through meta-analyses, where Alarcon (2011) found a moderate positive correlation between workload and emotional exhaustion, and Crawford et al. (2010) also found significant relationships between job demands and burnout. These studies both provide evidence that the health impairment process exists amongst many different types of organisations (Alarcon, 2011; Crawford et al., 2010).

Demerouti et al. (2001) proposes that the first psychological process associated with the JD-R model is the health impairment process which drives the manifestation of negative well-being among employees who overtax themselves in order to meet high demands within the work environment. When there is prolonged exposure to particular job demands, employees slowly become cognitively, emotionally and physically drained in an attempt to sustain an expected performance level, which may eventually lead to a state of exhaustion (Demerouti et al., 2001). The findings in the current study provide further empirical support for this health impairment process of the JD-R model. Furthermore, with this being conducted on a heterogeneous sample of employees from different work sectors, the findings provide some evidence to support

Demerouti et al.'s (2001) proposition that burnout can develop irrespective of an employees' occupation.

Organisational Support, Vigour and Dedication

A statistically significant positive correlation was found between organisational support and both the work engagement variables of vigour ($r = .51$) and dedication ($r = .56$). This provides evidence to support *research questions 6 and 7*, as to whether or not there is a relationship between organisational support, vigour, and dedication. These associations were relatively strong, and this finding reveals that high levels of organisational support are associated with higher levels of work engagement amongst employees. The analyses also indicated that organisational support had a significant main effect on the vigour construct of work engagement ($\beta = .28$, $p < .05$), however, it was not a significant predictor of employee dedication.

This positive association between organisational support and work engagement (vigour and dedication) is consistent with a wealth of empirical research (Ahmed et al., 2019; Bano et al., 2015, 2015; Botha & Mostert, 2014; Didit & Nikmah, 2020; Meintjes & Hofmeyr, 2018; Mekhum & Jermisittiparsen, 2019; Orgambidez-Ramos & de Almeida, 2017; Xi et al., 2020). For instance, Rothmann and Rothmann Jr (2010) conducted a study which analysed two samples from various occupational groups within a South African context. Their findings revealed that organisational support was moderately and positively associated with high levels of vigour ($r = .41$) and dedication (.44) (Rothmann & Rothmann Jr, 2010).

Additional studies have specifically focused on the relationship between a perceived organisational support variable and work engagement (Bano et al., 2015; Botha & Mostert, 2014; Meintjes & Hofmeyr, 2018). The operationalisation of perceived organisational support within these studies is concerned with employees' general beliefs as to whether the organisation provides support in terms of valuing their contributions and caring about their well-being (Bano et al., 2015; Botha & Mostert, 2014). This conceptualisation is quite similar to a few of the items that are used to formulate the organisational support variable used in the current study. Botha and Mostert (2014) conducted a study on a sample of employees ($n = 401$) from various work sectors also within the South African context. They found a positive relationship between perceived organisational support and work engagement (Botha & Mostert, 2014). These findings were replicated in the two other studies conducted by Bano et al. (2015), and Meintjes and Hofmeyr (2018).

Furthermore, much empirical evidence has focused on social support and co-worker support as separate constructs; analysing their relationship with work engagement (Ahmed et al., 2019; Didit & Nikmah, 2020; Mekhum & Jermstittiparsen, 2019; Orgambídez-Ramos & de Almeida, 2017; Xi et al., 2020). As was discussed in the literature, the construct of organisational support used in the current study is mainly based around employees' relationships with their supervisors – in terms of whether there is effective communication, whether sufficient information is provided, that certain ambiguities regarding work are dealt with, and also has a few items relating to the valuing of employee contributions (Jackson & Rothmann, 2005). These previous studies all found a positive relationship between supervisor support and work engagement (Ahmed et al., 2019; Didit & Nikmah, 2020; Mekhum & Jermstittiparsen, 2019; Orgambídez-Ramos & de Almeida, 2017; Xi et al., 2020). For instance, Orgambídez-Ramos and de Almeida (2017) found a moderate relationship ($r = .45$) between these variables amongst a sample of nurses. Additionally, Xi et al. (2020) found a weak positive relationship between supervisor support and work engagement amongst a sample of employees from 19 different companies distributed across many different sectors, including: production, sales, service, finance, personnel, office, logistics etc.

The findings of the current study also revealed that the second job resource variable of growth opportunities was also positively associated with employee work engagement.

Growth Opportunities, Vigour and Dedication

The Pearson correlations revealed that growth opportunities and vigour were moderately and positively correlated ($r = .45$; $p < .01$). Furthermore, the strongest correlation that was found in the current study was between growth opportunities and dedication. The correlation coefficients indicated that growth opportunities had a strong positive relationship with the dedication construct of work engagement ($r = .72$; $p < .01$). These two findings explicitly address *research questions 8* and *9*, as to whether or not a relationship exists between these growth opportunities and the two dimensions of work engagement. Furthermore, the moderated multiple regression analyses also revealed that growth opportunities had a significant main effect on both the work engagement variables of vigour ($\beta = .18$, $p < .05$) and dedication ($\beta = .51$, $p < .05$).

These findings are in the expected direction and reveal that higher levels of growth opportunities are associated with higher levels of employee dedication and vigour. Based on the sample in the current study, the findings suggest that those employees who had an

independence in their work, and a variety of work, were generally more committed to their work tasks (dedication) and display higher levels of a willingness to put in the necessary effort into those work tasks (vigour). The findings of the Pearson correlations and the main effects of the moderated multiple regression are in agreement with previous research (Demerouti et al., 2010; Rothmann & Rothmann Jr, 2010; Taipale et al., 2011; Vera et al., 2016).

For instance, Rothmann and Rothmann Jr (2010) revealed that growth opportunities was positively and moderately related to vigour ($r = .50$), and had a relatively strong relationship with the dedication dimension of work engagement as well ($r = .58$). Furthermore, previous research has also revealed positive relationships between autonomy and work engagement. According to Vera et al. (2016), job autonomy refers to the degree to which employees are provided with substantial levels of independence and discretion in performing their work. The job resource of growth opportunities that was analysed in the current study contains items pertaining to one's independence in work (Jackson & Rothmann, 2005). It could, therefore, be argued that the growth opportunities variable has some level of similarity to that of job autonomy. These previous studies found that individual job autonomy was significantly and positively related to work engagement (Taipale et al., 2011; Vera et al., 2016). Demerouti et al. (2010) also found that job autonomy had a particularly strong positive relationship with work engagement, where those employees who had a good level of freedom and independence in their work also displayed high levels of work engagement.

Based on the statistical results in the current study, it has been identified that both the job resources of organisational support and growth opportunities were positively related to the work engagement dimensions of vigour and dedication. These findings ultimately support the JD-R model in its prediction that job resources are primarily and positively associated with work engagement (Bakker et al., 2014; Demerouti et al., 2001). This is consistent with the many other studies that have provided evidence for this positive pathway between job resources and work engagement. For instance, in their meta-analysis of longitudinal studies, Lesener et al., (2019) validated the assumption of the JD-R model that job resources lead to work engagement ($\beta = .18$; $p < .001$). These findings were identified amongst a sample of employees from various occupational groups, and from studies that consisted of varying gender ratios (Lesener et al., 2019). Brauchli et al. (2013) also analysed a heterogeneous sample from several occupational groups and found that the job resources of social support and task significance were positively associated with work engagement. Lastly, in the study conducted in a South African context, Rothmann and Rothmann Jr (2010) revealed that the job resources of

organisational support and growth opportunities were the best predictors of work engagement (which consisted of the vigour and dedication dimensions). Therefore, the findings of the current study (and with the support of similar findings in other empirical research) provide support and potentially validate the important motivational process of the JD-R model.

Sensory Processing Sensitivity in the JD-R Model

The present study firstly aimed to examine the relationship between the job demand variable and burnout (which consisted of exhaustion and disengagement), and the relationship between job resources and work engagement (which consisted of the two dimensions of vigour and dedication). As has been identified within the discussions above, the findings of the current study were able to provide support of the dual process of the JD-R model. There was a positive relationship between job demands and burnout, which represents the health impairment process of the JD-R. Furthermore, the findings of the current study provided support for the motivational process of the JD-R model by revealing a positive relationship between job resources and work engagement.

In order to understand whether SPS moderated these relationships, there was an investigation of the interaction effects between SPS and each of the job demands and job resources on burnout and work engagement. Several moderated multiple regressions were conducted in order to determine whether or not SPS moderated the relationship between overload and burnout (exhaustion and disengagement), and the relationship between organisational support, growth opportunities, and work engagement (vigour and dedication).

The justification for these analyses, and the reason for even considering whether a moderation effect of SPS exists, is based on the emotionality response associated with the personality trait of SPS, as well as the theory of differential susceptibility, which has often also been associated with the theory of environmental sensitivity and SPS in particular (Belsky & Pluess, 2013). It has been discussed earlier that the personality trait of SPS involves a deeper cognitive processing of external and internal environmental stimuli (Aron & Aron, 1997). This deeper processing leads to higher emotional reactivity to positive and negative stimuli across a variety of situations (Aron & Aron, 1997; Jagiellowicz et al., 2011), which is ultimately a differential susceptibility to different environmental conditions (Pluess, 2015).

There are differences in the theory of SPS and differential susceptibility, but the reason SPS is usually associated with differential susceptibility is because both of these theories focus on environmental sensitivity (Aron & Aron, 1997; Belsky & Pluess, 2009). More importantly,

these theories suggest that sensitive individuals' are emotionally reactive to both negative contextual situations characterised by adversity, and to positive contextual situations that include environmental support and enriching stimuli, where there is the absence of adversity (Aron & Aron, 1997; Belsky & Pluess, 2009). The main premise of the differential hypothesis is that vulnerable, sensitive individuals are susceptible to both negative and positive environmental conditions (Belsky & Pluess, 2009). These differential responses are also related to different consequential effects. Those negative and aversive contextual conditions are usually related to negative wellbeing effects, whereas, supportive and positive contextual conditions are associated with positive wellbeing effects (Belsky & Pluess, 2009; Pluess, 2015; Pluess & Boniwell, 2015; Zuckerman, 1999).

When applied to the JD-R model, it may be argued that sensitive individuals will respond well to positive aspects of work such as organisational support and growth opportunities. The outcome of this may be engagement with their work. Furthermore, due to their differential susceptibility, sensitive individuals may also be reactive to negative aspects of work such as overload, which may lead to negative effects such as exhaustion. Due to their higher sensitivity, they may be more responsive to job resources (positive work aspects) and may experience higher levels of work engagement. Therefore, levels of SPS may potentially strengthen the relationship between job resources and work engagement (the motivational process). Furthermore, because HSPs are considered to be more emotionally reactive, they are more likely to become overwhelmed by their work environments (Aron & Aron, 1997). Thus, HSPs may be more responsive to job demands (negative work aspects) which may result in increased negative effects such as burnout. Therefore, one's levels of SPS could also potentially strengthen the relationship between job demands and burnout (the health impairment process). Based on this premise, the moderated multiple regressions were run in order to determine whether these relationships were strengthened by higher levels of the SPS personality trait.

However, the findings of these analyses found that the interactions between SSP and the job demand and job resources were all non-significant in terms of explaining the variance in the outcome variables. The specific results of each moderated multiple regression analysis will be discussed below:

SPS and the Health Impairment Process of the JD-R Model

The results did not provide support for a moderating effect of SPS on the relationship between job demands and the two constructs of burnout. It was hypothesised that employees' levels of

SPS would strengthen this relationship, based on the premise that highly sensitive individuals would be more emotionally reactive to the negative aspects of work, and therefore experience higher levels of burnout. However, the findings were not consistent with this hypothesis. Within this sample, employees' levels of SPS did not affect the relationship between the job demand of overload and the outcome variables of exhaustion and disengagement.

This finding is also inconsistent with previous research that has analysed the moderating effect of SPS on the relationship between job demands and burnout (Vander Elst et al., 2019). These researchers analysed SPS as consisting of three different factors, rather than analysing a unidimensional construct of the personality trait. They found that the EOE and the LST constructs of SPS strengthened the relationship between job demands and emotional exhaustion (Vander Elst et al., 2019). This finding suggested that those employees who had higher levels of EOE and LST, tended to experience higher levels of emotional exhaustion than those employees who had lower levels of the two SPS constructs (Vander Elst et al., 2019). However, the AES construct was not found to be a significant moderator of the job demands and emotional exhaustion relationship.

SPS and the Motivational Process of the JD-R Model

Although it was hypothesised that employees' levels of SPS may also strengthen the relationship between job resources and work engagement, the results of the current study do not provide evidence to support this moderating effect of the SPS variable. The findings indicated that both the interaction terms of SPS and organisational support, and SPS and growth opportunities, were not statistically significant. This suggests that the variance in the work engagement variables (vigour and dedication) could not significantly be explained by the interactions between SPS and the job resource variables. Therefore, employees' levels of SPS did not moderate the relationship between job resources and work engagement, and ultimately did not have an effect on the motivational process of the JD-R model. These findings are relatively consistent with the those in a previous study.

Although these previous researchers were not analysing the outcome variable of work engagement, Vander Elst et al. (2019) did find a moderating effect of the LST aspect of SPS on the relationship between job resources and employees' helping behaviour. Their results indicated that employees with higher levels of LST tend to demonstrate more helping behaviour than those employees who scored lower on the LST aspect of SPS (Vander Elst et al., 2019). However, only one of the three SPS aspects was found to strengthen the motivational process

of the JD-R model; the other two aspects (AES and EOE) did not significantly moderate this relationship between job resources and positive outcome variables.

General Practical Implications

The findings of the current study have indicated that higher levels of SPS are associated with higher levels of exhaustion. Furthermore, that SPS was found to be a significant main effect of exhaustion. It has been identified and discussed that this could potentially be due to HSPs deeper cognitive processing of environmental stimuli and their higher risk of overstimulation. With regards to the practical implications of these findings, it could be suggested that those employees who score high on SPS should ensure that excessive stimulation is minimised within their work environment. This could be achieved through good management of their work tasks and ensuring that their workload is maintained at an appropriate level. These highly sensitive employees should also carefully consider the type of work environment they find themselves in. There are particular types of work, and certain work sectors, that are commonly associated with high stimulation. For instance, the healthcare sector is often associated with high levels of demands that may potentially cause overstimulation for these sensitive employees (Redfearn, 2019).

However, within every single organisation, despite the work sector, there is bound to be high levels of stimulation at particular given times. Therefore, it is the responsibility of organisational management to understand the potential effects of highly demanding environments on the wellbeing of these highly sensitive employees. Furthermore, they need to ensure that these work environments are controlled for, and that the level of demands are maintained at the appropriate levels. According to Aron and Aron (1997), once HSPs become highly overwhelmed or exhausted, it takes a significant amount of time and effort to return their emotions back to a state of normality.

The findings also indicated that high levels of SPS are associated with higher levels of overload. These highly sensitive employees have a deeper processing of new information and an inhibition of behaviour (Aron and Aron, 1997), which may slow down their processing of new information; particularly when levels of demands are extremely high. Therefore, it is also important for organisations to ensure that these levels of overload are maintained. HSPs may not be able to process all the new information at the same pace as their non-sensitive counterparts, which may ultimately lead to higher levels of overload because of their lack of control over the work environment.

It has been discussed above that the current study did not find significant interactions between SPS and the job demand and job resources variables. Thus, there are no specific practical implications that could be provided with regards to the availability of job resources, and reduction of job demands, and their impact on highly sensitive employees' levels of work engagement and burnout. However, there could be possible reasons as to why non-significant interactions were found in the current study. It has been discussed in the literature that highly demanding environments tend to be aversive for highly sensitive employees (Aron & Aron, 1997; Lindsay, 2017). Although, it should be noted that not every highly sensitive employee would be responsive to the same demands within their work environment, and that these sensitive employees would vary in their general responsiveness to the stimuli in their environment (Aron et al., 2010). High levels of overload could be overwhelming for some HSPs, whereas this may not be the case for other individuals. This remains true for the positive aspects within their work environment. There may be some highly sensitive employees who are emotionally reactive to organisational support or growth opportunities, whereas others may be more reactive to other job resources. It should be noted that SPS is a personality trait and is associated with many other different personality aspects. Therefore, at times, it may come down to individual preference (Aron & Aron, 1997). This then leads to directions for future research, where future studies may analyse several jobs demands and job resources at different levels (this will be discussed in the sections to follow). The non-significant interactions between SPS and the JD-R model variables may also be due to the heterogenous sample used in this study. Therefore, at this point, the particular limitations of this study need to be considered.

Limitations of the Current Study

As in any other research, the current study yields several limitations that need to be addressed. The limitations that were identified will be discussed below.

There are several limitations that should be considered when generalising the results of this study to the South African organisational context. The sample used in the current study was not randomly selected from the entire South African populations of the universe of jobs and occupational groups. Furtherly, the participants in the current study came from many different occupational groups and were employed at several different occupational levels. One could argue that this heterogeneity of the samples could be an advantage, because not much research on SPS, and research on the JD-R model, has considered highly heterogenous samples (Van

den Broeck et al., 2015). However, the response rates from each occupational group were relatively low with a few occupational groups only being represented by one candidate. The current sample was also slightly female-dominated and substantially outweighed the male participants.

These limitations call into question the generalisability of the current findings to the different occupational groups and diversity of organisations throughout South Africa. The reason for the heterogeneous population is due to the manner in which the sample of participants were obtained. The use of convenience and snowball sampling resulted in gathering participants from multiple different organisations, different work sectors, and employees working at different occupational levels. The findings of the current study will not be able to determine generalisability because the responses that are gathered are based on the employees' individual responses with regards to their own personal work context. In addition to this, the overall response rate was very small ($n = 125$), and as such the findings of the current study cannot be representative of all the employees in the South African organisational context.

This heterogeneous sample could have influenced the results and specifically the interactions between SPS and the job demand and job resources variables. The reason for this is because each work sector is characterised by many different types of job demands and job resources. Furthermore, within each sector, some resources may be more important than others. Additionally, job demands like overload may be an inherent aspect of the job in certain work sectors, and the employees may have potentially adapted to this and seen overload as an inherent part of their role. Specifically within the healthcare sector, high levels of overload are often expected (Julie Stefan Lindsay, 2017). The results could have potentially provided significant results if a specific work sector were analysed, and the particular job demands, and resources associated with this sector were analysed. This would have possibly provided a better understanding of the moderating role of SPS.

Secondly, in the current study, a cross-sectional design was applied in order to determine the relationship between SPS, overload, organisational support, growth opportunities and the outcome variables of burnout (exhaustion and disengagement) and work engagement (vigour and dedication). These relationships were analysed among a sample of 125 employees within the South African context. As was previously mentioned, a cross-sectional design entails collecting data from a sample of participants at a single point time, where the measurement of the variables does not expand over a long period. This design allows the relationships between

job demands, job resources, SPS and the outcome variables to be examined. However, the main limitation associated with a cross-sectional design is that it does not allow for these relationships to be interpreted causally. The relationships between job demands, resources, burnout and work engagement may change over time and are dependent on the work context that the employee is currently working in. Furthermore, it poses challenges in trying to understand the moderating effect of SPS on these relationships at a single point in time. It would have been preferable to apply a longitudinal design in order to understand and validate the causal relationships between the variables. However, due to the time constraints in completing the current study, a longitudinal design was not possible.

Another limitation associated with the current study was the use of self-report measures in gathering participants' responses. The current study used self-report measures that were obtained through an online questionnaire in order to assess the variables of interest. The use of this type of measure may have had an influence on the results in the current study. The current job demands that are present, and the job resources that are available, in the employees' work environment cannot be accurately obtained using single instance self-report measurements. It becomes difficult to fully understand the employees current work context. The use of a single self-report measure (and no additional data collection methods) poses a problem in attempting to understand the statistical significance of the effects regarding the variables under investigation. It would have been useful to include both quantitative as well as qualitative job demands and job resources. This would have provided a more comprehensive understanding of the employees work context, and an understanding of any other influential variables

The use of a self-report questionnaire method may lead to spurious data and potentially fewer significant results because an understanding of additional influential variables cannot be gained. Furthermore, due to the measure being self-administered, the possible influence of extraneous variables moderating the relationships may be overlooked. There could potentially be extraneous variables which may be moderating the relationship between the main effects of overload, organisational support, growth opportunities and the outcome variables.

The use of objective measures in analysing the effects of the variables would also provide interesting findings. However, the ability to measure SPS in an objective and concrete manner is not currently available. The most cost-effective measure is through self-reporting using the HSP scale and comparing where individuals' lie on the sensitivity spectrum in terms of their overall sensitivity scores (Aron et al., 2010).

Furthermore, the variables of gender, age, and tenure were firstly included as control variables in the regression analyses due to their potential relevance to the outcome variables of burnout and work engagement. However, it was found that gender and tenure were not significantly associated with the outcome variables. Nonetheless, a limitation could be excluding the demographic variable of age and also language. The current sample included different multiple language groups. Seeing as the questionnaire was entirely English, there could have potentially been issues with understanding the questions within the survey. It would be helpful to create a dummy variable of English and Non-English-speaking participants, to understand whether there was a difference in responses and whether this dichotomous variable influenced the results in anyway.

Another limitation of the current study is the use of a single instrument (the OLBI) in measuring the burnout constructs as well as the work engagement constructs. It was mentioned earlier that, within the current study, work engagement was treated as a direct antipode of burnout. There may be other researchers who would argue against this, and suggest that work engagement is in fact an independent construct from burnout (Schaufeli & Bakker, 2004). It may be questionable to suggest that work engagement is a direct opposite of burnout on a continuum, this would imply that both aspects are each other's complements (Schaufeli & Bakker, 2004). It might not be viable to suggest that an employee who is emotionally drained from their work cannot at some point in the week also experience a burst of energy. Logically speaking, an individual could experience some level of burnout due to a high workload or demanding deadlines, but at the same time could still view their work as interesting and challenging, putting a great amount of effort to achieve their work objectives. Therefore, it would have been interesting to use a separate instrument to measure employee work engagement and analyse work engagement as a separate construct to burnout. However, the data used in the current study was gathered using a combined questionnaire. There were concerns around the number of items in the overall questionnaire, and the potentially low response rate that might be associated with this. Therefore, the OLBI measurement was used to measure both burnout and work engagement because it allowed for a reasonable number of items in the final online questionnaire.

The final limitation that is associated with the current study is the limited amount of job demands and job resources that were analysed. It would have been interesting to analyse additional job demands and resources. Furtherly, it would have been interesting to analyse job resources at different levels. It was mentioned earlier that job resources can be provided at the

organisational level and task level in addition to the individual level. It would have been beneficial to have a variety of resources at several different levels.

Recommendations for Future Research

Based on the limitations of the current study, there may be important recommendations for future research. The specific recommendations for future studies will be discussed below.

The first recommendation would be the use of a longitudinal research design. The exploration of the SPS trait is extremely limited with the use of a cross-sectional study design. The longitudinal examination of SPS in the JD-R model would provide interesting and useful information with regards to the patterns and duration of burnout and work engagement amongst this sample of highly sensitive individuals. This design would also allow for understanding of the ideal working conditions for highly sensitive employees and would provide insight into the onset of burnout for HSPs and the type of environment that would cause this.

Secondly, an independent groups analysis of the different sensitivity groups proposed by Lionetti et al., (2018) may provide some interesting findings. It would provide insight into how these different groups of individuals may experience their work environment in terms of the level of job demands and the availability of job resources. Additionally, analysing SPS as a dichotomous variable (non-sensitive individuals compared to sensitive individuals) and its moderating effects on the health impairment and motivational processes of the JD-R model could provide some interesting findings.

It is also recommended that future research studies analyse the potential moderating effect of SPS amongst a more homogenous sample of participants. It would be easier to identify the types of demands and resources that highly sensitive employees may be more susceptible to within these specific work environments. However, the analysis of SPS within several occupations and in different working conditions should not be entirely rejected. An analysis of the differences between occupational groups may help to identify those occupations and work sectors that are at high risk for HSPs in terms of their wellbeing.

Lastly, future studies should incorporate the use of both quantitative and qualitative data. The additional data gained from qualitative measures may provide further insight into the employees' work context. This rich qualitative information may provide insights into the personal experiences of HSPs, as well as the particular demands and resources that certain HSPs may be more susceptible to. The use of more objective indicators (as opposed to self-

report measures) would also provide a better understanding of the specific job resources and job demands associated with specific work environments.

COVID-19 Pandemic and Final Conclusions

The current study provided evidence of the dual-process of the JD-R model, even during a pandemic which is associated with great uncertainty and many different occupational challenges. It was identified that the current sample were facing challenges associated with the COVID-19 pandemic, and most of the participants' work was disrupted by the COVID-19 pandemic. When analysing the findings of the current study, it should be noted that there may be many other potential factors that could be influencing employees' wellbeing. Although there is not empirical support for this statement, one would assume that challenges such as loneliness and fear of the unknown could emotionally impact individuals. Nonetheless, the current study still provided support for the dual-process of the JD-R model. However, it did not provide support in terms of including the SPS personality trait as an individual factor into the JD-R model. Further research may be required in order to understand whether there is in fact an interacting effect between SPS and employees' job demands and resources.

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Appendices

Appendix A: Ethics Certificate



SCHOOL OF HUMAN AND COMMUNITY DEVELOPMENT ETHICS COMMITTEE
CONSTITUTED UNDER THE UNIVERSITY HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)

CLEARANCE CERTIFICATE:

PROTOCOL NUMBER: MAORG/200/17

PROJECT TITLE:

Sensory Processing Sensitivity as an Individual factor in the Job Demands-Resources Model: an analysis of South African employees during the Covid-19 pandemic.

INVESTIGATOR

Turner Rowan (1209536)

SCHOOL/DEPARTMENT OF INVESTIGATOR

SHCD/Psychology

DATE CONSIDERED

04 August 2020

DECISION OF THE COMMITTEE

Approved unconditionally

RISK LEVEL

Minimal Risk

EXPIRY DATE

31 December 2022

ISSUE DATE OF CERTIFICATE

25 August 2020

CHAIRPERSON



(Dr Colleen Bernstein)

cc: Dr Michael Pitman (Supervisor)

DECLARATION OF INVESTIGATOR

To be completed in duplicate and ONE COPY returned to the Chairperson of the School/Department ethics committee.

I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.



Signature

Date

23 / 05 / 2020

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

Appendix B: Participant Information Sheet

Dear Madam/Sir

As a professional, you have been invited to participate in this study at the **University of the Witwatersrand, Johannesburg**. If you are currently employed and above the age of 18 years, your participation would be highly appreciated.

Our names are Rowan Turner and Valerie Ndlovu, we are conducting individual research studies as part of our Masters degrees in Organisational Psychology. Both of these studies, broadly speaking, are examining the role of sensory processing sensitivity in the workplace. The first study examines whether an individual's wellbeing is influenced by the conflict or balance between their work and family lives and their processing of sensory information. The second study examines whether an individual's wellbeing and engagement with work are influenced by the demands of their job, the resources made available in their job and their processing of sensory information.

If you agree to participate, you will be asked to complete the online questionnaire starting on the next page. The questionnaire will be used to gather data for both the studies mentioned above. This questionnaire will firstly include demographic questions about your age, sex, home language, occupational level, marital status, and dependents (number of children/elderly people); as well as a few questions regarding the current Covid-19 pandemic and your work environment. Thereafter, it will include statements and questions regarding your processing of sensory information and your experiences of various aspects of your work life.

Participation in this study is entirely voluntary and will require 20 – 25 minutes of your time. You have the right to leave the study (by closing the survey) at any point up until the final submission of the survey. There is a checkbox at the end of this information sheet, if you check this box, you are indicating your informed consent to participate in this study. Additionally, submitting your online responses will be taken as further confirmation of your consent.

We will not ask for your name and any responses you provide will be treated confidentially and will not be seen by anyone other than the researchers. Your responses will be secured in a password protected database. Your individual responses will not be used alone by the researchers but will be analysed in relation to all other responses to describe group trends.

Thank you for considering this invitation. Your participation would be greatly appreciated and will help to contribute to a better understanding of human sensory processing in the workplace.

If you have any questions about these research studies, please feel free to contact us on the details listed below.

Yours sincerely,

Rowan Turner

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Supervisor: Michael Pitman

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0117174505

Do you agree to the above information? By clicking Yes, you consent that you are willing to answer the questions in the survey and, therefore, participate, in both the research studies.

☐ Yes ☐ No

Appendix C: Demographic Questionnaire

1. How would you describe your current employment status?

- ☐ Unemployed
- ☐ Employed full time
- ☐ Employed part time
- ☐ Self-employed

Other (please specify):

2. What is your age?

3. What is your gender?

- ☐ Male
- ☐ Female

4. What is your home language?

(please choose one)

- ☐ Afrikaans
- ☐ English
- ☐ IsiNdebele
- ☐ IsiXhosa
- ☐ IsiZulu
- ☐ Sepedi (North Sotho)
- ☐ Sesotho
- ☐ Setswana
- ☐ SiSwati

☐ Tshivenda

☐ Xitsonga

Other (please specify):

5. Highest level of education?

☐ Primary school

☐ High school grade

☐ Matric

☐ Undergraduate Degree

☐ Postgraduate Degree

☐ Diploma

Other (please specify):

6. Which of the following categories best describes the sector you primarily work in (regardless of your actual position)?

☐ Agriculture

☐ Finance

☐ Government

☐ Trade

☐ Manufacturing or production

☐ Transport and communication

☐ Mining

☐ Personal services

☐ Teacher

☐ Sales

Other (please specify):

7. Which of the following categories best describes your current occupational level?

- ☐ Top management
- ☐ Senior management
- ☐ Professionally qualified, experienced specialist and mid-management
- ☐ Skilled technical and academically qualified worker, junior management, supervisor, foremen, superintendent
- ☐ Semi-skilled and discretionary decision making
- ☐ Unskilled and defined decision making

8. How long have you been working for your current organisation?

Appendix D: COVID-19 Related Issues

1. Are you currently working-from-home or in your workplace?

- ☐ Working-from-home
- ☐ Workplace

Other (please specify):

2. At which alert level of lockdown did you return to your workplace?

- ☐ Level 5
- ☐ Level 4
- ☐ Level 3
- ☐ Level 2
- ☐ Level 1
- ☐ I have not returned to my workplace

3. To what extent has your work been disrupted due to the Covid-19 pandemic?

- | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | Very Little | Somewhat | To a Great Extent |
| ☐ | ☐ | ☐ | ☐ |

4. What challenges have you faced due to the changes caused by the Covid-19 pandemic?
(Please select one or more)

- ☐ Technological and/or data challenges
- ☐ Loneliness
- ☐ Fear of the unknown
- ☐ Job deadline challenges
- ☐ Lack of childcare
- ☐ Financial challenges

Other (please specify):

Appendix E: Job Demands-Resources (JD-R) Scale (Rothmann et al., 2006).

The following items refer to the demands of your current job and the availability of specific resources. For each statement, please select the most applicable response.

Overload Subscale Items:

		Never	Rarely	Very Often	Always
1	Do you work under time pressure?	1	2	3	4
2	Do you have to be attentive to many things at the same time?	1	2	3	4
3	Do you have too much work to do?	1	2	3	4
4	Do you have to remember many things in your work?	1	2	3	4
5	Are you confronted on your work with things that affect you personally?	1	2	3	4
6	Does your work put you in emotionally upsetting situations?	1	2	3	4

Organisational Support Subscale Items:

		Never	Rarely	Very Often	Always
1	Do you receive sufficient information on the results of your work?	1	2	3	4
2	Do you receive sufficient information on the purpose of your work?	1	2	3	4
3	Does your direct supervisor inform you about how well you are doing?	1	2	3	4
4	Do you know exactly what your supervisor thinks of your performance?	1	2	3	4
5	Are you kept adequately up to date about the issues in the department?	1	2	3	4

6	In your work, do you feel appreciated by your supervisor?	1	2	3	4
7	Do you know exactly what other people expect of you in your work?	1	2	3	4
8	Can you discuss work problems with your direct supervisor?	1	2	3	4
9	Can you count on your supervisor when you come across difficulties?	1	2	3	4
10	Do you know exactly for what you are responsible and what not?	1	2	3	4
11	Can you participate in decisions about the nature of your work?	1	2	3	4

Growth Opportunities Subscale Items:

		Never	Rarely	Very Often	Always
1	Does your job offer you the possibility of independent thought?	1	2	3	4
2	Do you have freedom in carrying out your work activities?	1	2	3	4
3	Does your work give you the feeling that you can achieve something?	1	2	3	4
4	Do you have any influence in the planning your work activities?	1	2	3	4
5	Does your work make sufficient demands on all your skills?	1	2	3	4
6	Does your job offer you opportunities for personal growth?	1	2	3	4
7	Do you have enough variety in your work?	1	2	3	4

Appendix F: Highly Sensitive Person Scale (Aron & Aron, 1997; May et al., 2020)

The following items refer to your processing of sensory information. Answer each question according to the way you personally feel.

		1 (Not at all)	2	3	4 (Moderately)	5	6	7 (Extremely)
1	Are you easily overwhelmed by strong sensory input?	1	2	3	4	5	6	7
2	Do you seem to be aware of subtleties in your environment? [By subtleties, we mean very small details (e.g., a soft sound; a slight change in temperature; a brief movement; a light touch to your skin and so on), that most people would find hard to see or detect]	1	2	3	4	5	6	7
3	Do other people's moods affect you?	1	2	3	4	5	6	7
4	Do you tend to be more sensitive to pain?	1	2	3	4	5	6	7

5	Do you find yourself needing to withdraw during busy days, into bed or into a darkened room or any place where you can have some privacy and relief from stimulation?	1	2	3	4	5	6	7
6	Are you particularly sensitive to the effects of caffeine?	1	2	3	4	5	6	7
7	Are you easily overwhelmed by things like bright lights, strong smells, coarse fabrics, or sirens close by?	1	2	3	4	5	6	7
8	Do you have a rich, complex inner life?	1	2	3	4	5	6	7
9	Are you made uncomfortable by loud noises?	1	2	3	4	5	6	7
10	Are you deeply moved by the arts or music?	1	2	3	4	5	6	7
11	Does your nervous system sometimes feel so frazzled that you just have to go off by yourself? (By “frazzled”, we mean tired out and completely exhausted).	1	2	3	4	5	6	7

12	Are you conscientious? (By “conscientious”, we mean doing your work very carefully and thoroughly; paying lots of attention to detail).	1	2	3	4	5	6	7
13	Do you startle easily?	1	2	3	4	5	6	7
14	Do you get rattled when you have a lot to do in a short amount of time?	1	2	3	4	5	6	7
15	When people are uncomfortable in a physical environment do you tend to know what needs to be done to make it more comfortable (like changing the lighting or the seating)?	1	2	3	4	5	6	7
16	Are you annoyed when people try to get you to do too many things at once?	1	2	3	4	5	6	7
17	Do you try hard to avoid making mistakes or forgetting things?	1	2	3	4	5	6	7
18	Do you make a point to avoid violent movies and TV shows?	1	2	3	4	5	6	7

19	Do you become unpleasantly aroused (evoking an emotion or response etc.) when a lot is going on around you?	1	2	3	4	5	6	7
20	Does being very hungry create a strong reaction in you, disrupting your concentration or mood?	1	2	3	4	5	6	7
21	Do changes in your life shake you up?	1	2	3	4	5	6	7
22	Do you notice and enjoy delicate or fine scents, tastes, sounds, works of art?	1	2	3	4	5	6	7
23	Do you find it unpleasant to have a lot going on at once?	1	2	3	4	5	6	7
24	Do you make it a high priority to arrange your life to avoid upsetting or overwhelming situations?	1	2	3	4	5	6	7
25	Are you bothered by intense stimuli, like loud noises or chaotic scenes?	1	2	3	4	5	6	7
26	When you must compete or be observed while performing a task, do you become so nervous or shaky that you do much worse than you would otherwise?	1	2	3	4	5	6	7

27	When you were a child, did parents or teachers seem to see you as sensitive or shy?	1	2	3	4	5	6	7
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Appendix G: Oldenburg Burnout Inventory

Below you find a series of statements with which you may agree or disagree. Please indicate the degree of your agreement by selecting the option that corresponds with each statement.

Exhaustion Subscale Items:

		Strongly Disagree	Disagree	Agree	Strongly Agree
1	There are days when I feel tired before I arrive at work.	1	2	3	4
2	After work, I tend to need more time than in the past in order to relax and feel better.	1	2	3	4
3	I can tolerate the pressure of my work very well.	1	2	3	4
4	During my work, I often feel emotionally drained.	1	2	3	4
5	After working, I have enough energy for my leisure activities.	1	2	3	4
6	After my work, I usually feel worn out and weary.	1	2	3	4
7	Usually, I can manage the amount of my work well.	1	2	3	4
8	When I work, I usually feel energised.	1	2	3	4

Note Exhaustion items are: 1, 2, 3(R), 4, 5(R), 6, 7(R), 8(R).

Vigour items are: 1(R), 2(R), 3, 4(R), 5, 6(R), 7, 8.

(R) means reversed item when the scores should be such that higher scores indicate higher levels of the construct.

Disengagement Subscale Items:

		Strongly Disagree	Disagree	Agree	Strongly Agree
1	I always find new and interesting aspects in my work.	1	2	3	4
2	It happens more and more often that I talk about my work in a negative way.	1	2	3	4
3	Lately, I tend to think less at work and do my job almost mechanically.	1	2	3	4
4	I find my work to be a positive challenge.	1	2	3	4
5	Over time, one can become disconnected from this type of work.	1	2	3	4
6	Sometimes I feel sickened by my work tasks.	1	2	3	4
7	This is the only type of work that I can imagine myself doing.	1	2	3	4
8	I feel more and more engaged in my work.	1	2	3	4

Note Disengagement items are: 1(R), 2, 3, 4(R), 5, 6, 7(R), 8(R).

Dedication items are: 1, 2(R), 3(R), 4, 5(R), 6(R), 7, 8.

(R) means reversed item when the scores should be such that higher scores indicate higher levels of the construct.

Appendix H: Scatterplots Used to Establish Linearity Between the Main Variables

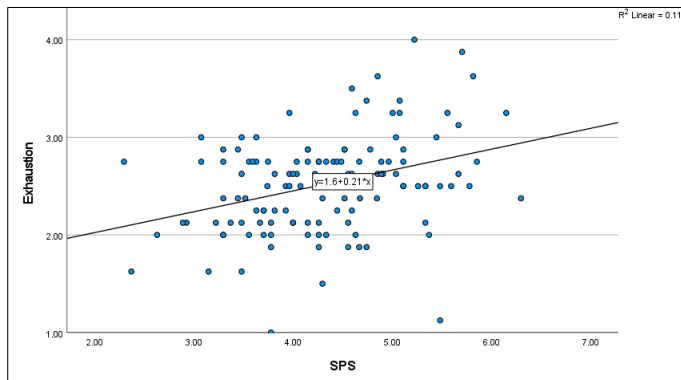


Figure 3: Scatterplot for SPS (independent variable) and Exhaustion (dependent variable)

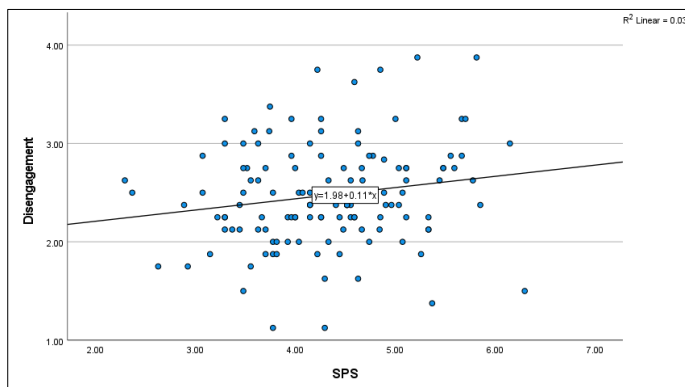


Figure 4: Scatterplot for SPS (independent variable) and Disengagement (dependent variable)

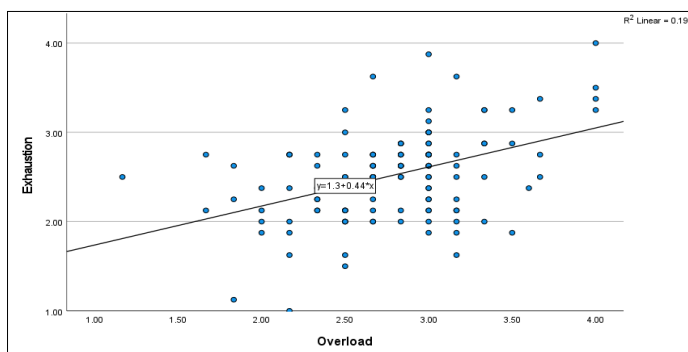


Figure 5: Scatterplot for Overload (independent variable) and Exhaustion (dependent variable)

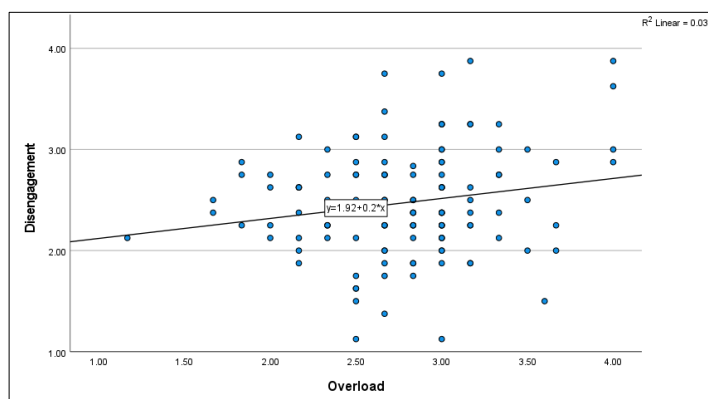


Figure 6: Scatterplot for Overload (independent variable) and Disengagement (dependent variable)

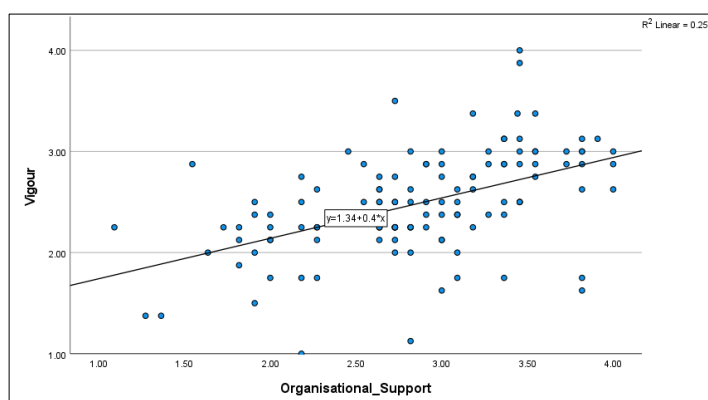


Figure 7: Scatterplot for Organisational Support (independent variable) and Vigour (dependent variable)

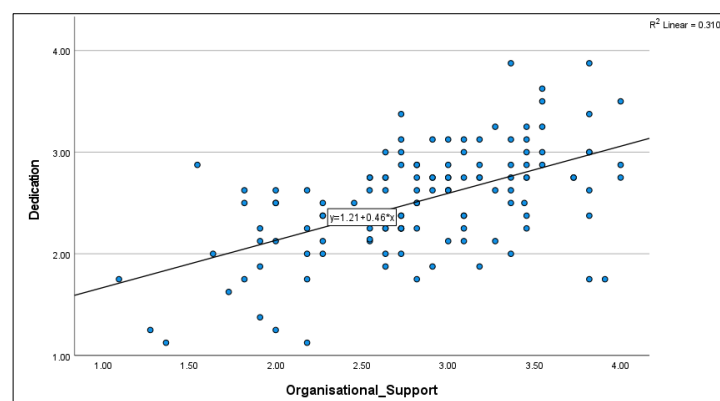


Figure 8: Scatterplot for Organisational Support (independent variable) and Dedication (dependent variable)

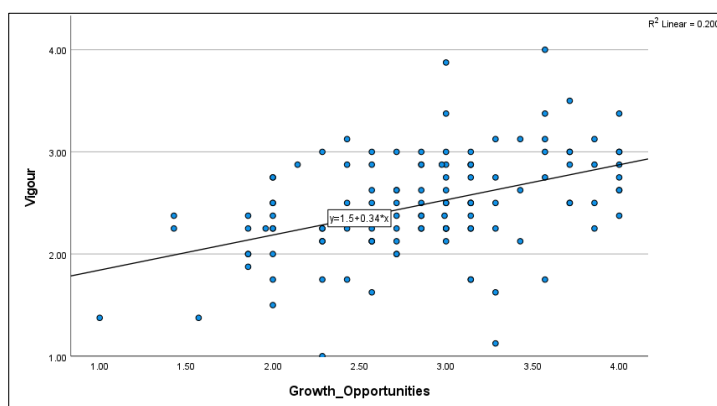


Figure 9: Scatterplot for Growth Opportunities (independent variable) and Vigour (dependent variable)

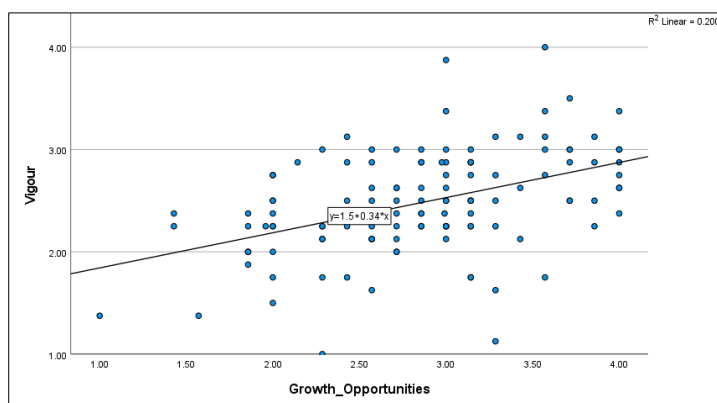


Figure 10: Scatterplot for Growth Opportunities (independent variable) and Dedication (dependent variable)

Appendix I: Histograms for the Main Variables

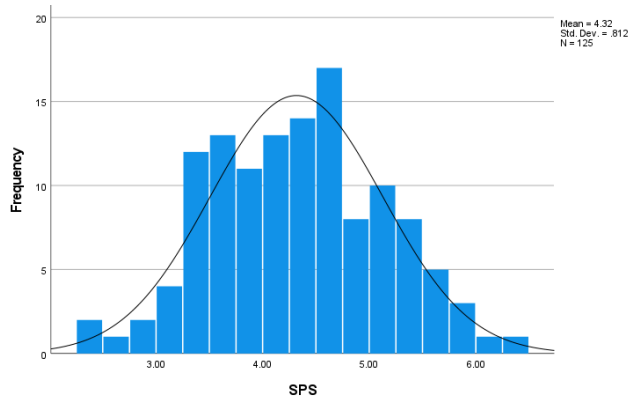


Figure 11: *Histogram for SPS*

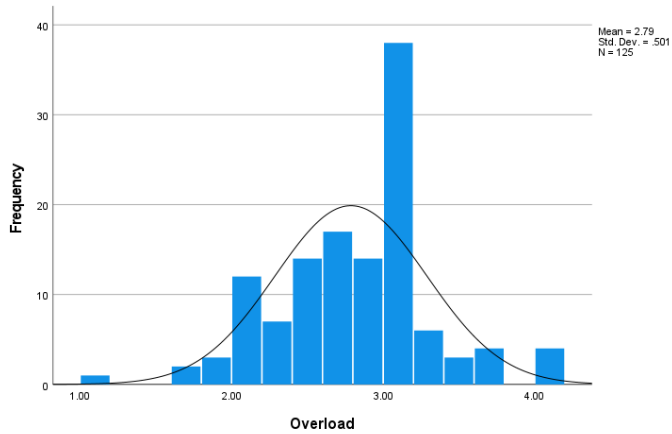


Figure 12: *Histogram for Overload*

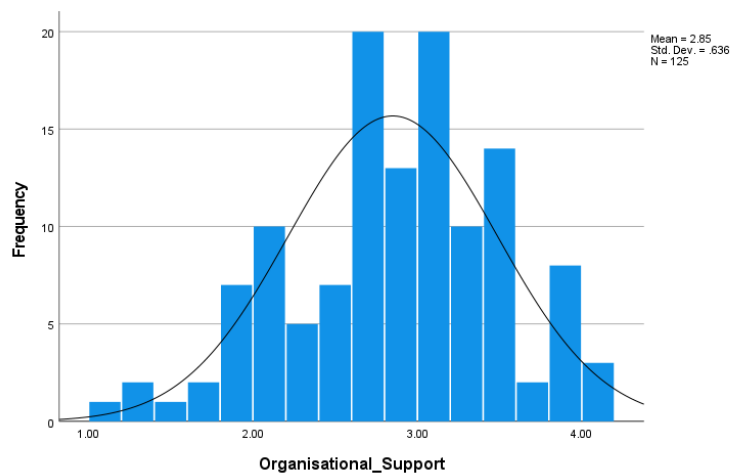


Figure 13: *Histogram for Organisational Support*

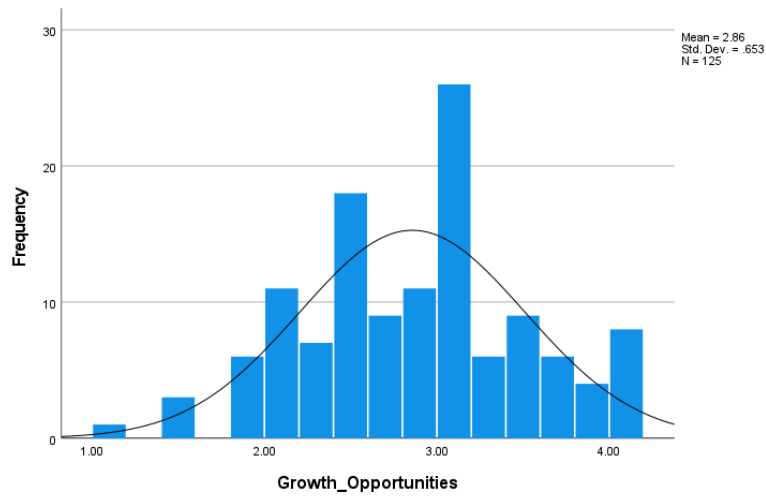


Figure 14: *Histogram for Growth Opportunities*

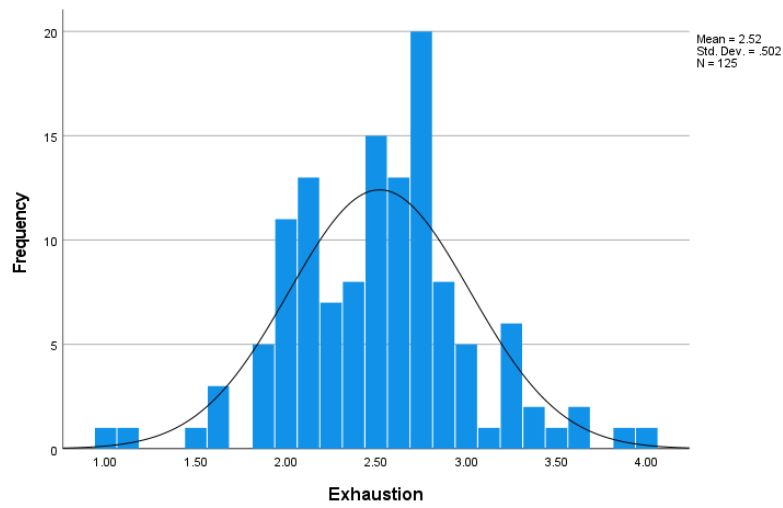


Figure 15: *Histogram for Exhaustion*

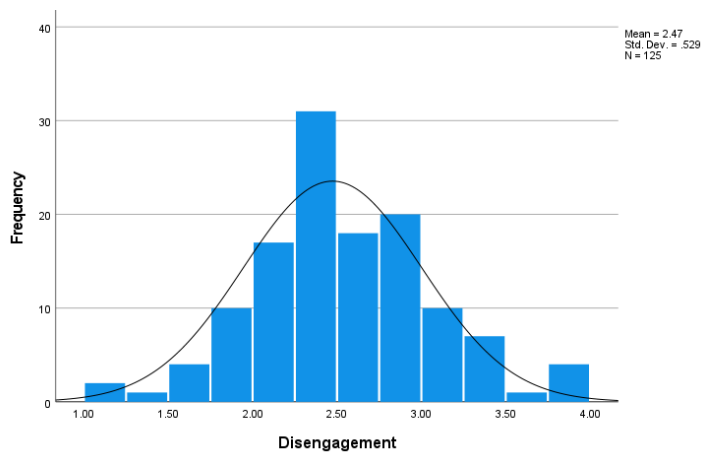


Figure 16: *Histogram for Disengagement*

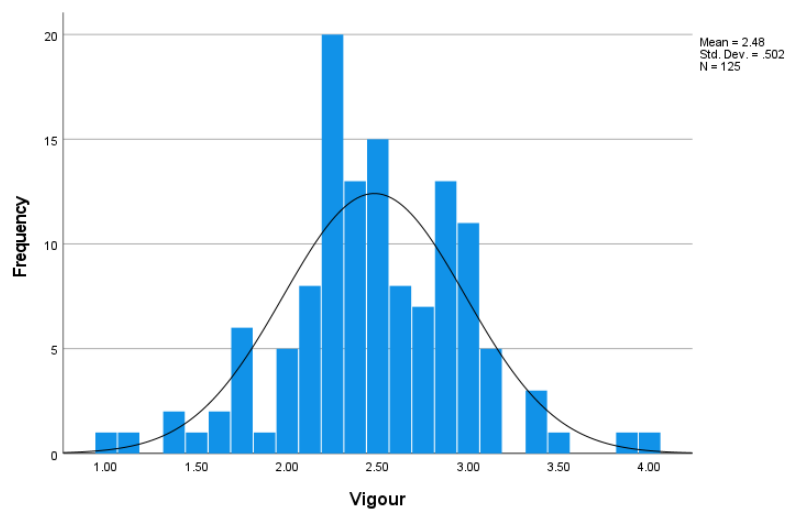


Figure 17: *Histogram for Vigour*

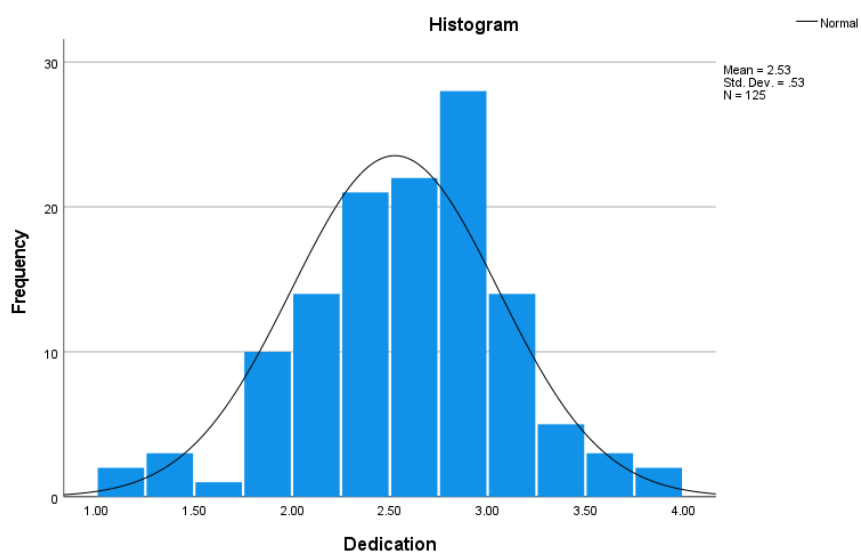


Figure 18: *Histogram for Dedication*

Appendix J: Partial Regression Plots used to establish linearity between the Main Variables

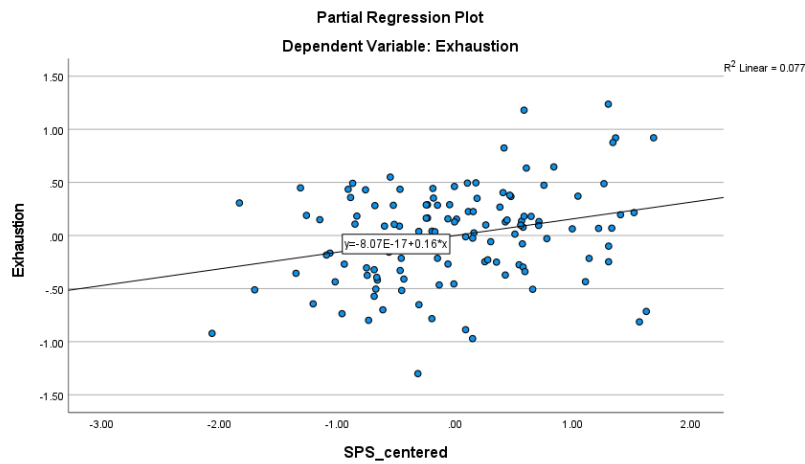


Figure 19: *Partial Regression Plot for SPS and Exhaustion*

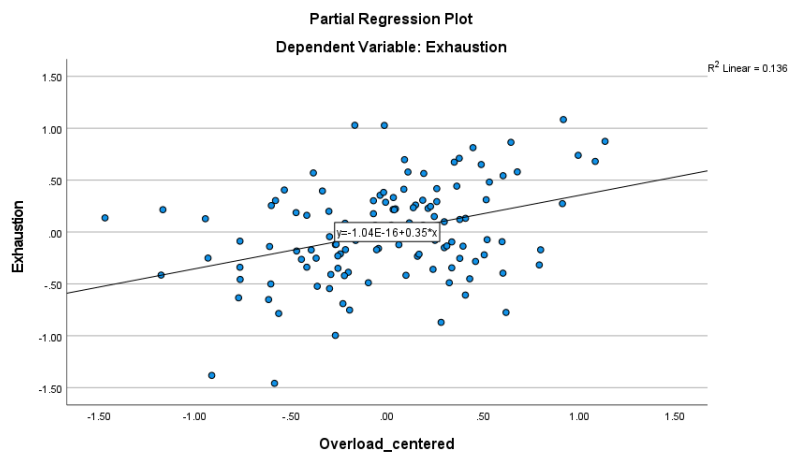


Figure 20: *Partial Regression Plot for Overload and Exhaustion*

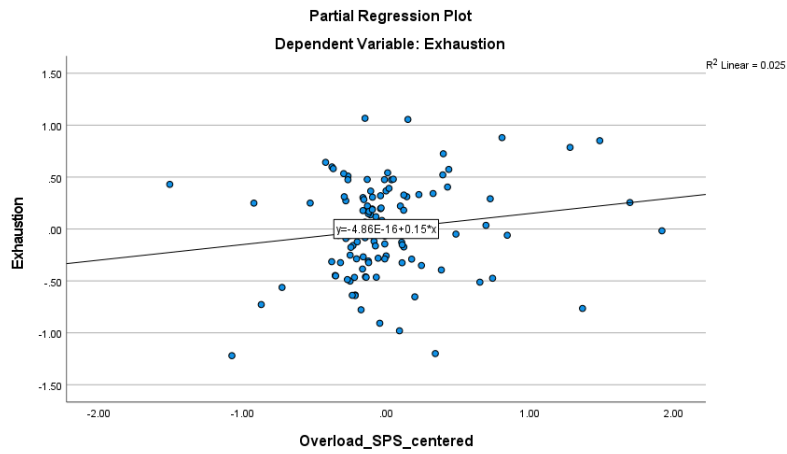


Figure 21: *Partial Regression Plot for Overload*SPS and Exhaustion*

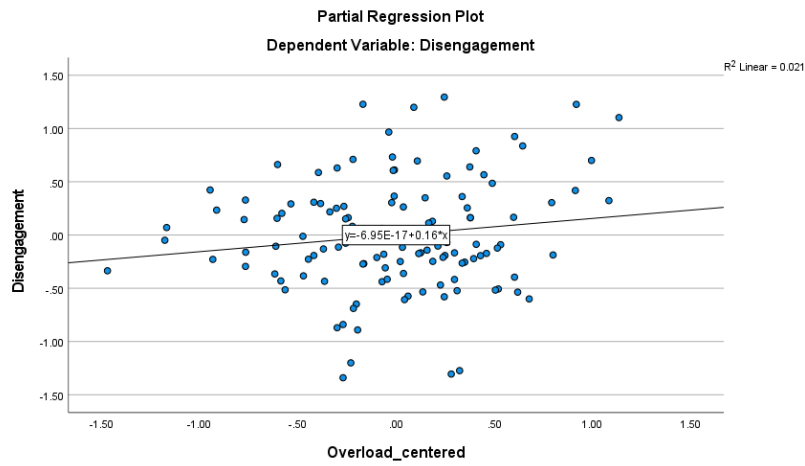


Figure 22: *Partial Regression Plot for Overload and Disengagement*

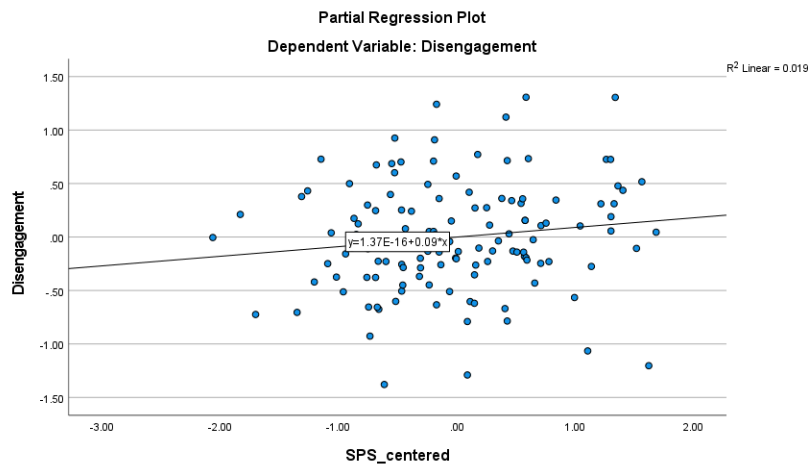


Figure 23: *Partial Regression Plot for SPS and Disengagement*

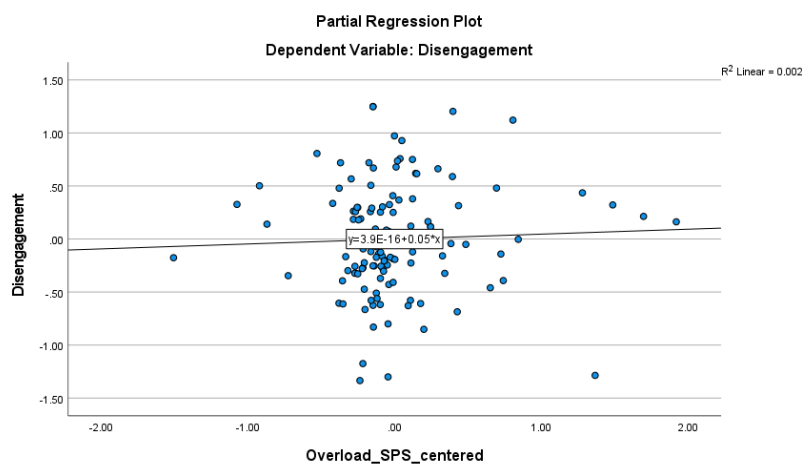


Figure 24: *Partial Regression Plot for Overload*SPS and Disengagement*

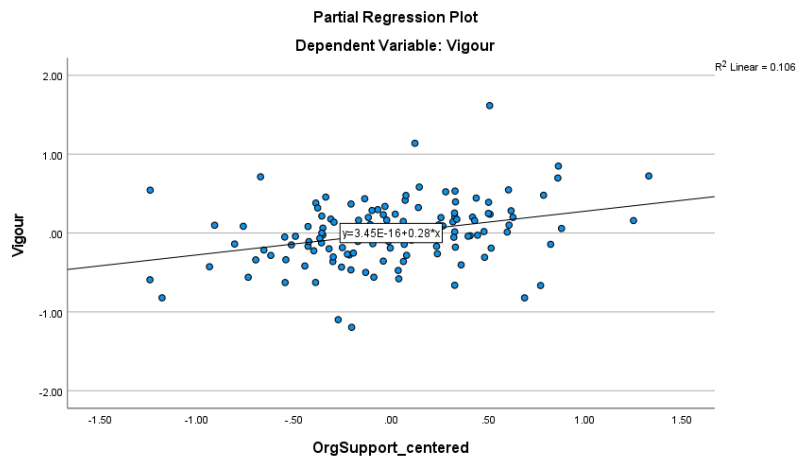


Figure 25: *Partial Regression Plot for Organisational Support and Vigour*

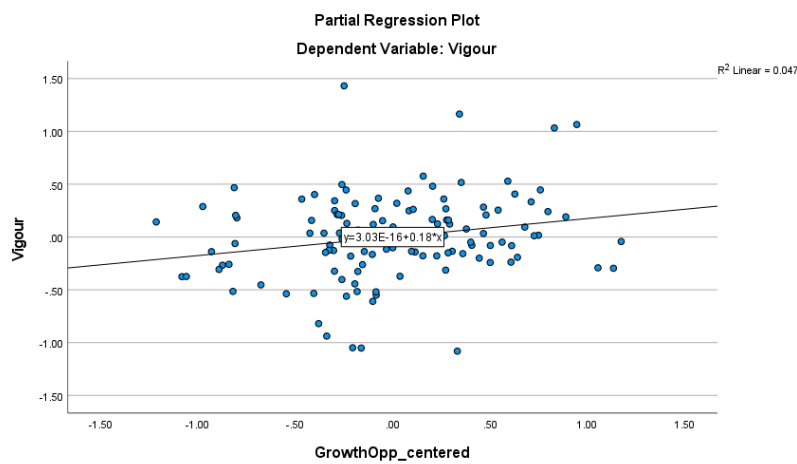


Figure 26: *Partial Regression Plot for Growth Opportunities and Vigour*

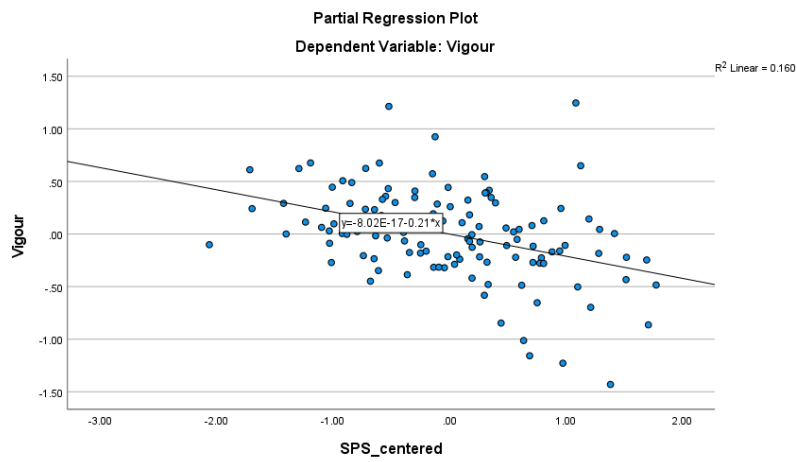


Figure 27: *Partial Regression Plot for SPS and Vigour*

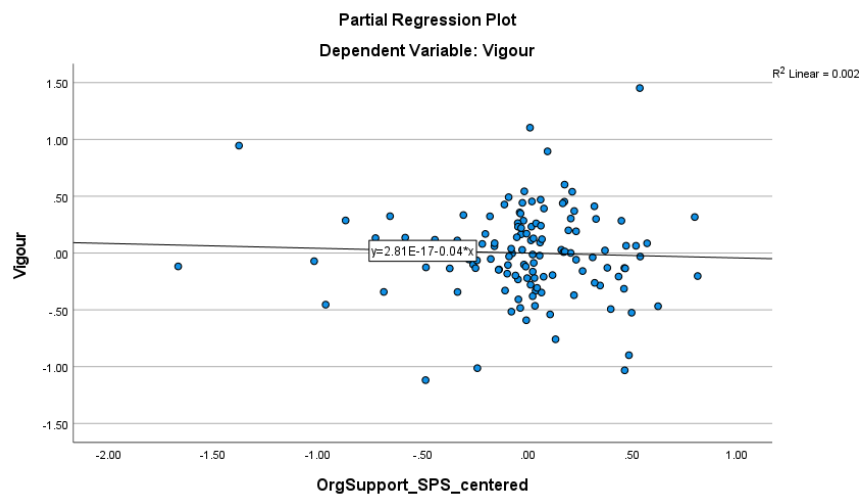


Figure 28: *Partial Regression Plot for Organisational Support*SPS and Vigour*

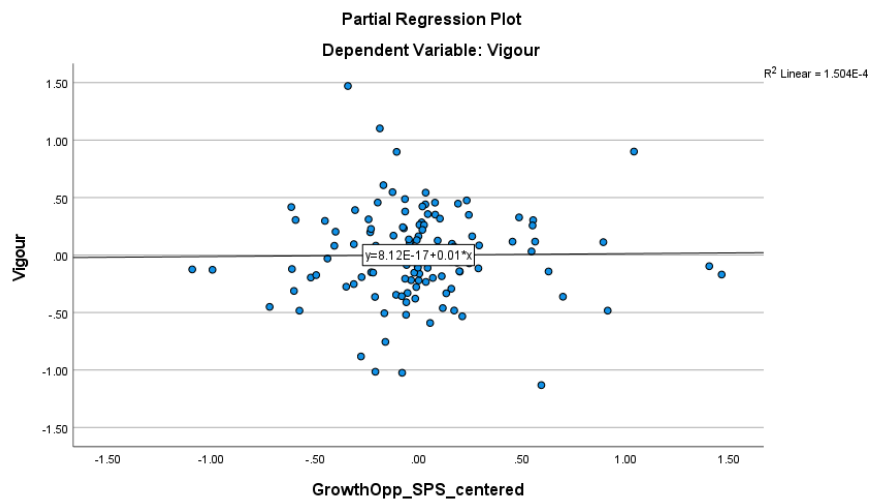


Figure 29: *Partial Regression Plot for Growth Opportunities*SPS and Vigour*

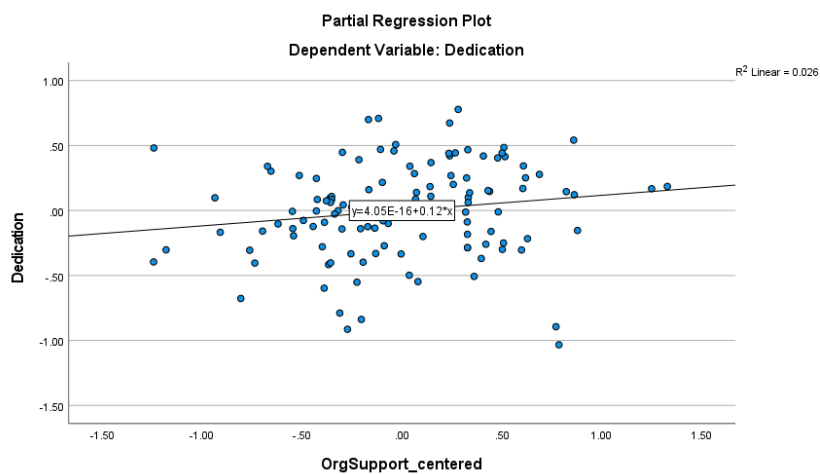


Figure 30: *Partial Regression Plot for Organisational Support and Dedication*

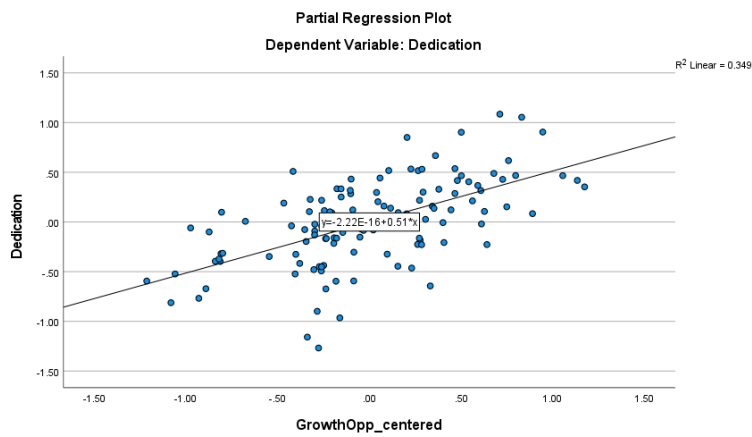


Figure 31: *Partial Regression Plot for Growth Opportunities and Dedication*

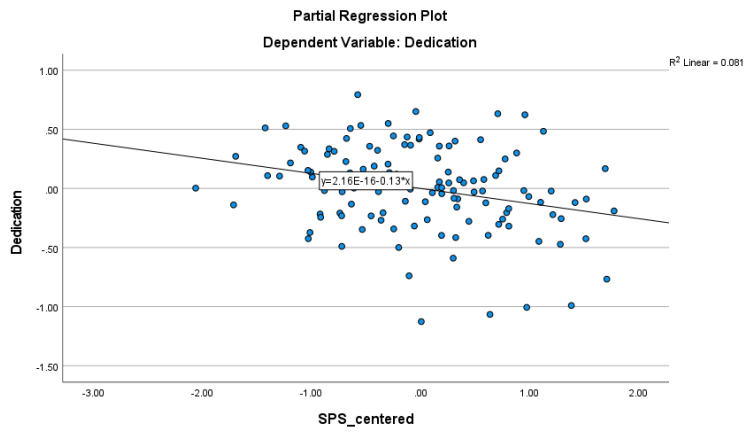


Figure 32: *Partial Regression Plot for SPS and Dedication*

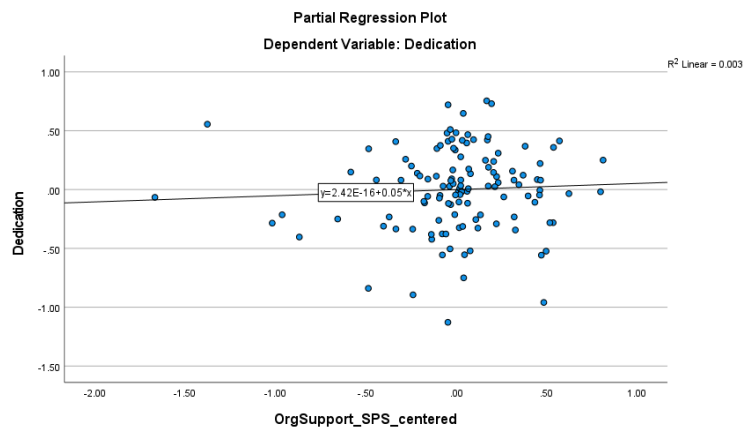


Figure 33: *Partial Regression Plot for Organisational Support*SPS and Dedication*

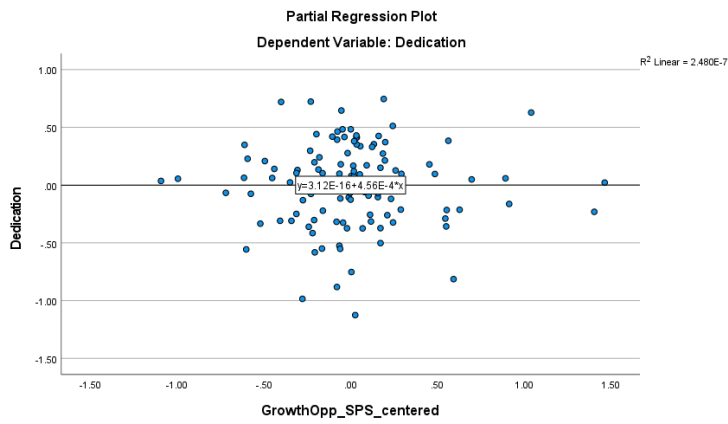


Figure 34: *Partial Regression Plot for Growth Opportunities*SPS and Dedication*

Appendix K: Homoscedasticity

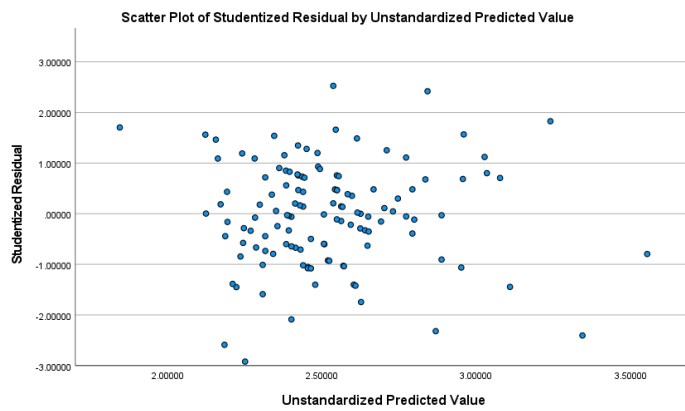


Figure 35: *Scatterplot for Overload, SPS and Exhaustion*

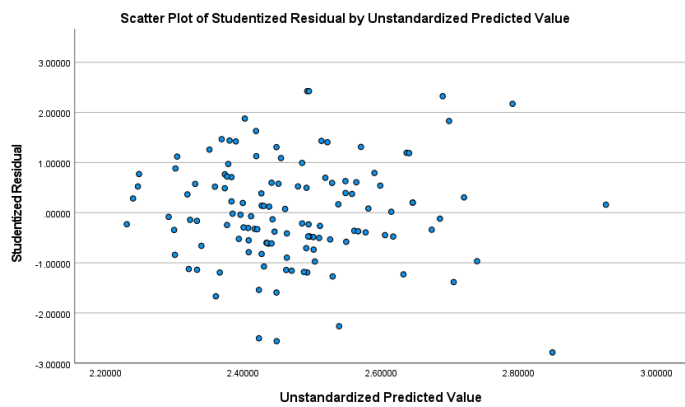


Figure 36: *Scatterplot for Overload, SPS and Disengagement*

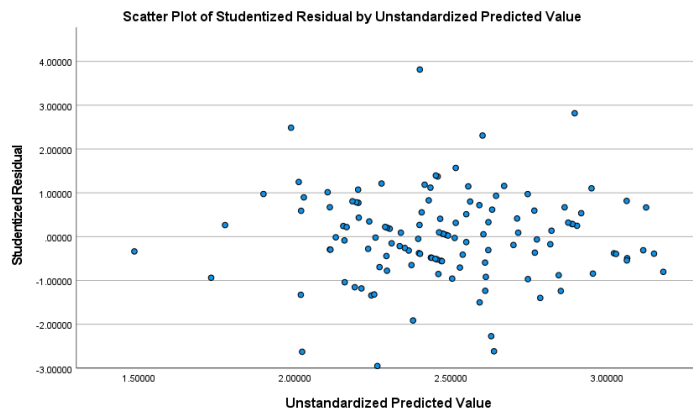


Figure 37: *Scatterplot for Organisational Support, Growth Opportunities and Vigour*

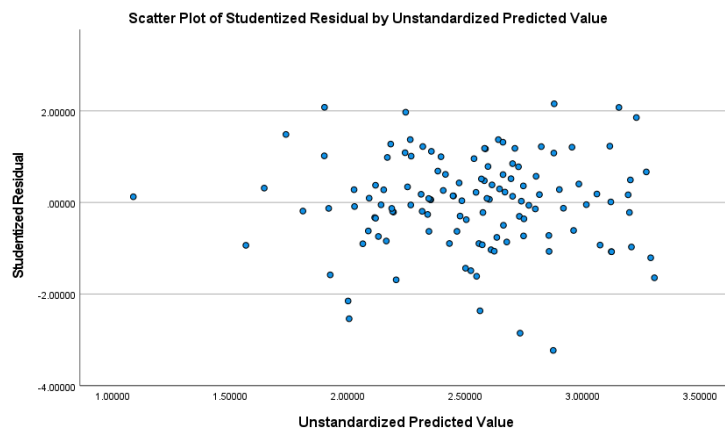


Figure 38: *Scatterplot for Organisational Support, Growth Opportunities and Dedication*

Appendix L: Tolerance and VIF collinearity statistics

Table 17

*Tolerance and VIF Collinearity Statistics for overload, SPS, Overload*SPS*

Model		Collinearity Statistics	
		Tolerance	VIF
1	Overload	.945	1.058
	SPS	.945	1.058
2	Overload	.920	1.087
	SPS	.944	1.059
	Overload*SPS	.971	1.030

Table 18

*Tolerance and VIF Collinearity Statistics for organisational support, growth opportunities, SPS, Organisational (Org) Support*SPS, and Growth Opportunities (Opp)*SPS*

Model		Collinearity Statistics	
		Tolerance	VIF
1	Organisational Support	.578	1.729
	Growth Opportunities	.578	1.729
	SPS	.996	1.004
	Organisational Support	.575	1.738
	Growth Opportunities	.574	1.742
2	SPS	.986	1.014
	Org Support*SPS	.451	2.216
	Growth Opp*SPS	.453	2.205
	Organisational Support	.575	1.738
	Growth Opportunities	.574	1.742

Appendix M: Outliers

Table 19

Residuals Statistics for overload, SPS, and exhaustion

	Minimum	Maximum
Std. Residual	-2.882	2.509
Cook's Distance	.000	.229

Dependent Variable: *Exhaustion*

Table 20

Residuals Statistics for overload, SPS, and disengagement

	Minimum	Maximum
Std. Residual	-2.589	2.412
Cook's Distance	.000	.308

Dependent Variable: *Disengagement*

Table 21

Residuals Statistics for organisational support, growth opportunities, and vigour

	Minimum	Maximum
Std. Residual	-2.867	3.714
Cook's Distance	.000	.246

Dependent Variable: *Vigour*

Table 22

Residuals Statistics for organisational support, growth opportunities, and dedication

	Minimum	Maximum
Std. Residual	-3.176	2.104
Cook's Distance	.000	.155

Dependent Variable: *Dedication*

Appendix N: Histograms and P-Plots to determine normality for the Main Variables

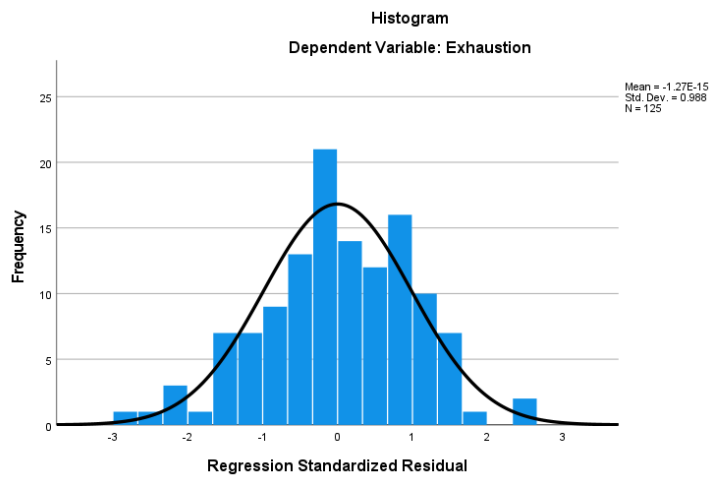


Figure 39: *Histogram for SPS, overload, and exhaustion*

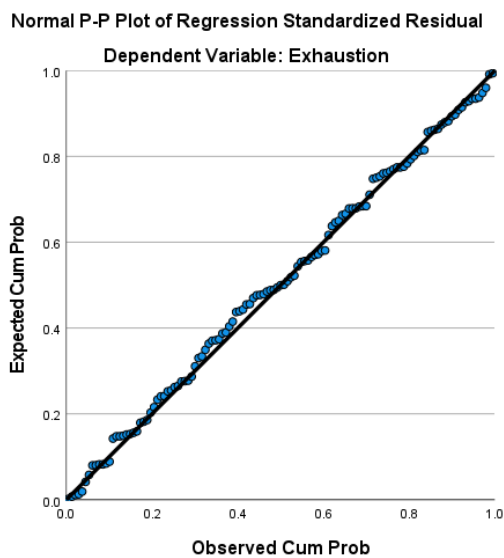


Figure 40: *P-P Plot for SPS, overload, and exhaustion*

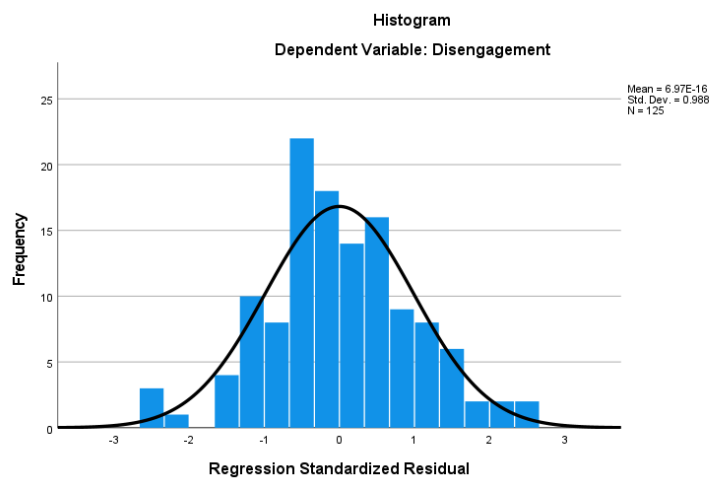


Figure 41: *Histogram for SPS, overload, and Disengagement*

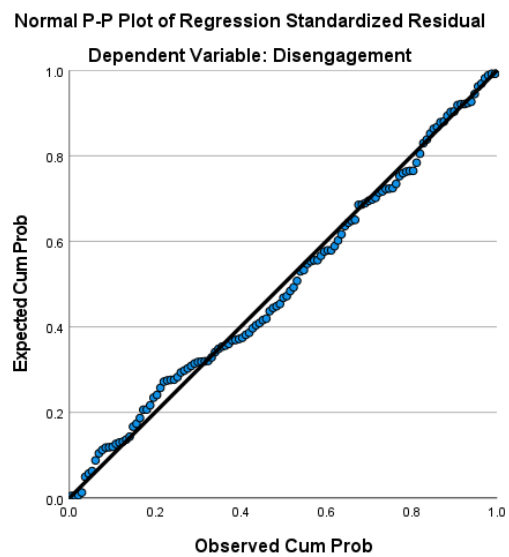


Figure 42: *P-P Plot for SPS, overload, and Disengagement*

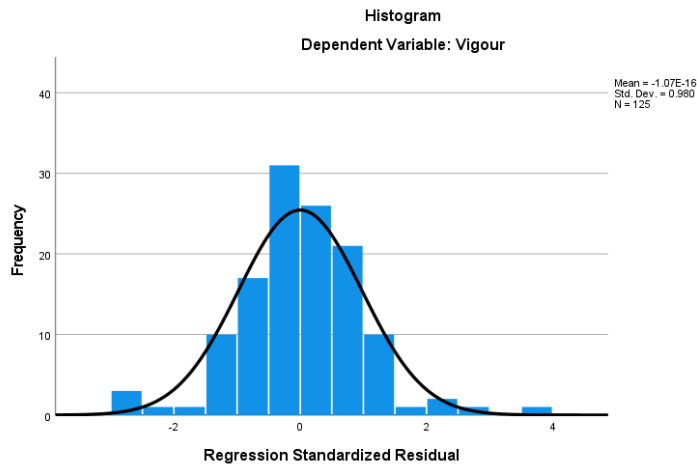


Figure 43: *Histogram for Organisational Support, Growth Opportunities, SPS and Vigour*

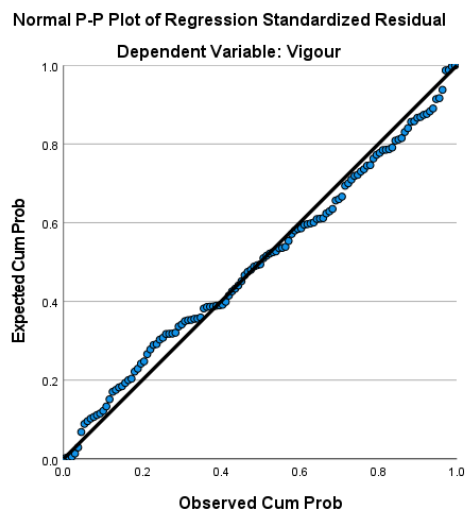


Figure 44: *P-P Plot for Organisational Support, Growth Opportunities, SPS and Vigour*

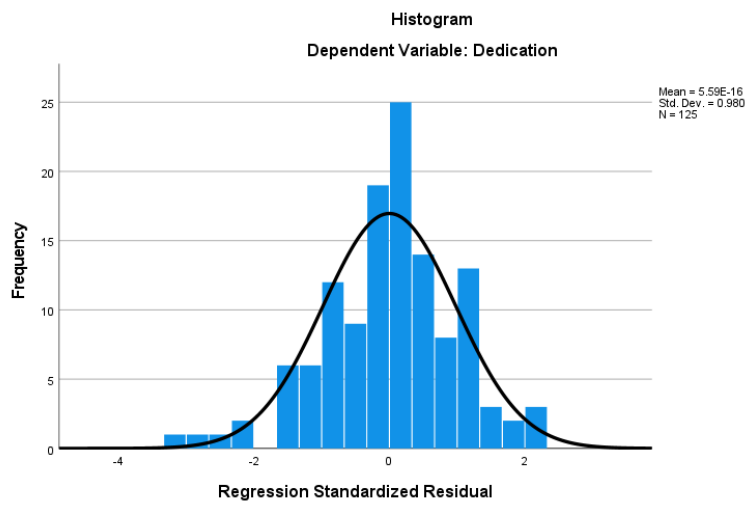


Figure 45: *Histogram for Organisational Support, Growth Opportunities, SPS and Dedication*

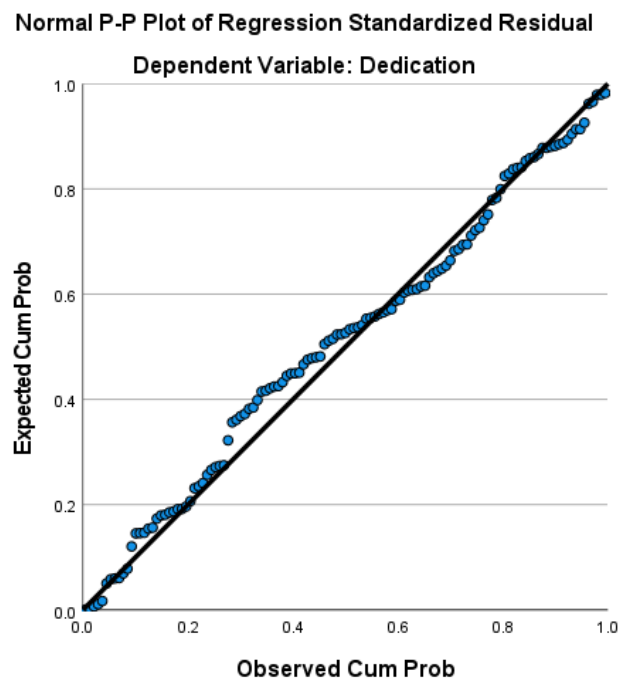


Figure 46: *P-P Plot for Organisational Support, Growth Opportunities, SPS and Dedication*